Edited by

Joseph Emonds
and Markéta Janebová

Language Use and Linguistic Structure

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INVESTMENTS IN EDUCATION DEVELOPMENT

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Acknowledgements

Introduction

The articles in this volume are based on papers and posters presented at the Olomouc Linguistics Colloquium (OLINCO) at Palacký University in the Czech Republic in June 2013. This conference welcomed papers that combined analyses of language structure with generalizations about language use. The essays here represent, we think, the best of the conference contributions (together with those selected among them for a separate themed monograph entitled *Nominal Structures: All in Complex DPs*). All these papers have been doubly reviewed, with one reviewer always external to Palacký University, and revised on the basis of these reviews.

The sections of this volume roughly represent the different sections for papers presented at OLINCO, but the groupings in the Table of Contents have been determined, in the final analysis, by their subject matter rather than by a priori "areas." Because the papers on noun phrase structure have been grouped in a separate volume, the grammatical essays appearing here focus on the verb phrase and clausal structure, and have then been divided according to which of these latter two domains figures more prominently in any given paper.

1.1 Grammar of the Left Periphery and Scope Relations

The first of the two sections on grammatical structure manifests the strong interest of the conference participants in the properties (such as scope or intervention effects) of overt or covert categories at the left periphery of clauses: topicalized and WH constituents and sentence-initial adverbials. Main clause or "root" phenomena are a central concern in these essays. Current research has been subjecting such structures to intense scrutiny, so we hope that the various hypotheses defended here, some of them rather daring, will capture the interest of a wide range of syntactic researchers.

1.2 Structural Meanings of Verbs and Their Complements

Similar observations apply to the papers in the second, syntactic, section, where the focus is on the semantics (possibly null) of verbs and their grammatical modifiers. Two authors address issues such as the presence or absence of reflexive markers and the choice of grammatical prefixes of verbs, and two authors focus on the syntax and semantics of the most highly grammaticalized verbs. All the papers deal with questions that are at the center of issues of how verbs behave at what is widely referred to as the syntax/semantics interface.

1.3 Implicatures, Connotation, and Discourse

The volume's third section contains papers dealing with the pragmatics of language use. Several deal with the social connotations of vocabulary choice or syntactic expression. Three of the papers apply experimental methods in testing pragmatic hypotheses. The issues addressed in these papers concern the generation of implicatures, and the papers demonstrate that an experimental approach provides relevant statistical evidence that supports one alternative theory against another.

1.4 Phonetics and Phonology

A fourth group of papers that emerged from the OLINCO Workshop is papers on phonetics and phonology. Two involve rather centrally aspects of Czech or Slovak phonetics. One article examines Slovak syllabic liquids from the viewpoint of articulatory phonology; the other is an

exploratory study of pre-vocalic glottalization in Bohemian and Moravian Czech. The focus of the remaining two papers is on cross-linguistic influences: the phonology of Czech loanwords from English and the production of vowels by Czech-Spanish bilinguals.

We hope that all readers will find several papers here to be of interest to them and their fellow researchers. It was both challenging and gratifying to organize and participate in the conference in person, and now we want to extend the challenges and the results of this linguistics forum to a wider audience of those who can participate via the written word, which was, after all, invented by our species, so that the pleasures and benefits of speech and hearing could be extended to the widest possible audience.

Joseph Emonds
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Grammar of the Left Periphery and Scope Relations

Yes-No Questions, Subjects, Adverbs, and the Left Periphery: New Evidence from Portuguese[1]

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Abstract: This paper proposes a syntactic account of Portuguese *yes-no* questions. I argue they do not have the structure of declaratives, rather they parallel *wh*-questions, and intonation is not its exclusive licensing-device in Portuguese, against the traditional view. Moreover, intonation exists in all types of clauses. New empirical evidence (discourse-licensers, subjects) leads to the ban on QPs and indefinites in topic-like positions and to the hypothesis that, as in *wh*-questions, C is filled in Portuguese as in other languages. The subject occupies a higher topic position. A strong counter-argument (based on indefinites) which appears to cancel the viability of the hypothesis turns out to support it. Because this work is pioneering (forcing consideration of other facts and phenomena), and the space restricted, not all data that support our position can be presented.

1. Introduction

The main goal of this paper is to explore the possibility of a syntactic account of *yes-no* questions, departing from the established view that the interrogative intonation is the only licensing device involved in languages of the Portuguese type, in tandem with one of its corollaries: the widespread assumption that structurally *yes-no* questions parallel declarative sentences. New empirical evidence brought to light here supports the hypothesis that they use syntactic strategies comparable to the ones deriving *wh*-questions.

Linguists working on linguistic typology have identified a considerable number of devices marking *yes-no* questions across languages: particles, intonation, and word order are some of them (Greenberg 1963; Sadock and Zwicky 1985; Huang 1982; Cheng 1991; Dryer 2005). In spite of the richness of those works, a range of empirical facts involved in *yes-no* questions have so far received little attention in the syntactic literature, plausibly because they were considered pragmatic aspects of those interrogatives. Unfortunately, limitations of space preclude the presentation of a considerable part of that work here (but see the last section for some notes).

Though the advantages of overt over covert operations in natural languages are an unsettled issue (Kayne 1994, 1998; Chomsky 2000), I have been assuming they are overt and will keep this view throughout this paper. My analysis will therefore be developed in a cartographic view of syntactic representations.

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2. *Wh*-Questions and *Yes-No* Questions

Human languages exhibit two main types of questions: *wh*- and *yes-no* questions. In *wh*-questions the *wh*-phrase can appear fronted or *in situ*, as English (1a), Chinese (1b), and Japanese (1c):[2]

(1) (a) What did John buy?
     (b) Hufei mai-le   shenme (ne)? (Cheng and Rooryck 2000, 3)
          Hufei buy-PERF   what PRT
          "What did Hufei buy?"
     (c) Kimi-wa dare-o   mita   ka?   (Kato 2013, 175)
          you TOP who-ACC   saw   QP
          "Who did you see?"

Chinese and Japanese can use interrogative particles (*ne*, *ka*), which are sentence-final in both *wh*-questions and *yes-no* questions (1)–(2). Particles can also appear in other positions, as in Slavic languages (Dimitrova 2013). English lacks those particles, but given verbs (Emonds 1976; Pollock 1989) move to C^0 (except with questioned subjects), as in (1a)–(2a), playing the same role as the particles, which also occupy the C position (Cheng 1991; Tsai 1994; Cheng and Rooryck 2000; Miyagawa 2001, 2010; Kato 2013; Kuong 2008):

(2) (a) Has John left?
     (b) Lei yam   gaafe   maa?   (Cantonese; Kuong 2008, 3)
          you drink   coffee   Q-PRT
          "Do you drink coffee?"
     (c) Kimi-wa   John-o   mita   *ka*?
          you-NOM   John-ACC   saw   Q
          "Have you seen John?"

European Portuguese fronted *wh*-questions roughly behave as English: *wh*-movement and V-movement occur,[3] but differently from English V-movement is not restricted to non-theta-marking verbs:

(3) Onde   foi   ele?
     where   went   he
     "Where did he go?"

Accordingly, English and Portuguese fronted *wh*-questions have similar derivations.[4]

As for *wh*-in-situ, it is generally assumed that, as true questions, they are restricted to multiple questions in English.[5]

---

2   An effect of the *wh*-parameter of Huang (1982).
3   Henceforth V-movement covers Aux-to-C, T-to-C or V-to-C (tense movement to C, pied piping the verb). C stands for any left periphery projection above PolP.
4   Different triggers were proposed for those movements (Rizzi's *wh*-criterion, need of licensing tense- and *wh*-features, focus, among others.)
5   For true vs. echo questions see Pesetsky (1987), Obenauer (1994), Ambar (2003), and Kato (2013).

(4) (a) *John bought what?
     (b) Who bought what?

The contrast in (4) is straightforwardly accounted for by assuming that *who* licenses the Q-feature in C, dispensing with movement of *what*. Thus, *who* in (4b) plays the same role as the Japanese particle in (1c): both check the Q-feature of C (Cheng and Rooryck 2000). Unlike English, Portuguese (5a), and French (5b) allow *wh*-in-situ as true questions, without needing any other *wh*-phrase in the structure:

(5) (a) A Maria   viu   quem?
          Mary   saw   who
     (b) Marie a vu qui?

For French, Bošković (1998) suggests that C^0 with a strong interrogative feature is inserted at LF. With no C^0 in overt syntax no feature exists to be checked; therefore no *wh*-movement is triggered. Moreover, Bošković's analysis predicts *wh*-in-situ cannot occur in embedded questions (C^0 insertion is a root operation), nor in islands – after C^0 insertion, since the Q-feature of the *wh*-phrase has to move to C^0. Bošković's analysis cannot extend to Portuguese whose *wh*-in-situ occur in embedded contexts and in islands (with restrictions) (Ambar 1988).

Portuguese *yes-no* questions also diverge from English: English fills C with a verbal head, whereas Portuguese does not. The correlation with Chinese and Japanese particles is plausible in English, though not in Portuguese:

(6) O João   comprou   o   livro?
     John   bought   the   book
     "Did John buy the book?"

Cheng and Rooryck (2000) assume *wh*-in-situ and *yes-no* questions share two properties: rising intonation and presupposition. Observing that in the equivalent structures, Chinese uses a particle to check the Q-feature in C, Cheng and Rooryck claim that an intonation Q-morpheme merges in C and checks the Q-feature in both *wh*-in-situ and *yes-no* questions. Q is underspecified [Q:], being assigned the value [yes-no] by default at LF ([Q: yes-no]). Thus [Q:] plays the same role as the particle in Chinese.

In (1)–(6) only true questions were considered. However, both *wh*-in-situ and fronted *wh*-questions allow echo readings. I will claim that *yes-no* questions do also.

The paradigm described so far shows languages consistently use syntactic strategies to form questions. So there is no reason to think *yes-no* questions proceed differently. Moreover, in other clause types syntactic licensing coexists with specific intonations (either rising or falling or some other).

3. Towards an Analysis

3.1 The Operator-Variable Relation

Semantically, *wh*- and *yes-no* questions are open or incomplete expressions in the sense they involve an operator-variable relation, the value for the variable being provided by the answer. In

wh-questions the variable corresponds to the *wh*-phrase; in *yes-no* or polar questions the variable is associated with the affirmative or negative status of the predication.[6]

In most syntactic works on *wh*-questions, that operator-variable relation is encoded into the syntactic structure as in (7a)–(7b):

(7)　(a)　What did John buy?

　　　(b)　[What$_i$ [did [John buy [t$_i$]]]

Although the syntacticization of the operator-variable relation is well known for *wh*-questions, much less attention has been paid to how this property is encoded into the syntactic representation of *yes-no* questions. An exception is the work developed in more recent years for *yes-no* answers (Holmberg 2012, among others).

The fact that the set of answers in *yes-no* questions is *yes* or *no* leads one to think that polarity in the sense of Laka (1990) or Zanuttini (1994) is involved in these structures. On the other hand, insofar as the answer provides a value for the variable, it introduces new information in the discourse, an aspect of linguistic interaction called focus. Moreover, thinking of the discussion of answers to *yes-no* questions as being sets of possible answers or sets of possible true answers (see n6), another element seems to be involved: the relation speaker-hearer.

Holmberg (2012) concentrates on *yes-no* answers, but I take his representation (19), repeated here as (8), as a hypothesis for the structure of *yes-no* questions:

(8)　Is he coming?

　　[Q　[$_{FocP}$ is + [uPol]　[$_{Foc'}$ Foc　[PolP he [Pol' <is + [uPol]>　[TP <is> <he> coming]]]]]]

PolP has three values: affirmative, negative, and open. Q is "an illocutionary force feature meaning 'tell me the value of the focused variable (uPol)'" (Holmberg 2012, 57). The author did not assign a label to the highest projection. The same reasoning applies to answers.

It seems unquestionable that any syntactic account of *yes-no* questions must consider the operator-variable relation characterizing questions. My proposal will therefore adopt some version of Holmberg's proposal.

3.2　Evidence from Special Adverbs and the Left Periphery

Some adverbs behave like particles in that they license discourse projections in the left periphery and in doing so they lose their original meaning. I called them "special adverbs" (Ambar 2008). An example is *sempre* ("always"). As described in Ambar, Gonzaga, and Negrão (2004), European Portuguese (EP), though not Brazilian Portuguese (BP), allows confirmative structures licensed by *sempre*-V(erb) under given requirements, namely pre-verbal position and adjacency: in (9) the confirmative reading obtains, in (10) it does not (only the temporal reading shows up):[7]

6　Hamblin (1976) considers that an interrogative denotes the set of possible answers, whereas Karttunen (1977) assumes it is the set of true possible answers.

7　For a different proposal, see Brito (2001).

(9) O João *sempre* vai a Paris   (confirmative: okEP, *BP)
     "John after all/really goes to Paris."
(10) O João vai *sempre* a Paris   (confirmative: *EP, *BP: temporal: okEP, okBP)
     "John always goes to Paris."

In (9) the speaker confirms John's going to Paris. The authors propose that *sempre*-V moves to a high discourse projection in the left periphery given in (11), where this confirmative reading is licensed: AssertiveP. AssertiveP is a projection encoding into syntax "what the speaker knows" (inspired by Searle's 1969 definition of Assertive), therefore serving as a landing site for those aspects of discourse involving the speaker's knowledge, such as presupposition or confirmatory readings, among others. EvaluativeP[8] is a projection codifying the speaker's evaluation.

(11) *XP Evaluative Assertive *XP Wh(Int) Foc *XP . . . [TP] (Ambar 2003)

AssertiveP and EvaluativeP are speaker projections, as observed by Speas and Tenny (2003). Interpretation and clause typing are compositional in (11).[9] A pure question ends up as WH(Int)P, whereas a non-pure one (e.g., echo) activates higher projections. Here we are only dealing with *yes-no* questions of the first type, though we consider that echo-like *yes-no* questions, involving a strong presupposition (therefore activating AssertiveP or EvaluativeP), are quite productive in languages of the Portuguese type (see last section).

Turning now to special adverbs, assume in (9) *sempre*-V ends up in AssertiveP. The QP-subject moves to the highest *XP topic position, inducing the ungrammaticality in (12):

(12) *Todos os alunos *sempre vão* a Paris.
     "All the students *after all/really* go to Paris."

The floating quantifier strategy[10] improves the sentence, as illustrated in (13):

(13) Os alunos *sempre vão* todos a Paris.

BP lacks V-to-C movement (Kato 2013; Ambar 2003). Therefore *sempre*-V confirmative sentences do not exist in BP. Inversely temporal readings, where no V-to-C is required, are possible in BP as in EP.[11]

---

8 This is a label inspired in evaluative vs. pure quantifiers (Barwise and Cooper 1981), based on focus vs. evaluative structures (Ambar 1999). Besides, (11) is grounded on *wh*-questions vs. non-pure *wh*-questions vs. *wh*-exclamatives and crucially on a generalization of *wh*-structures across languages involving the interaction of V-movement, *wh*-movement, complementizers, and presupposition (Ambar 2002, 2003).

9 It would be interesting to understand to what extent the different left periphery conceptions can be unified (from Laka's 1990 minimal ΣP to Cinque's 1999 maximal structure, through Rizzi's 1997 left periphery, among others). Recently linguists have focused on phenomena involving the speaker-hearer, adopting or modifying Speas and Tenny's 2003 proposal (Haegeman and Hill 2010; Miyagawa 2012, among others) in the vein of Searle's speech acts. Emonds's 2012 "discourse shell" appears as a plausible candidate for that unification. I cannot pursue this discussion further here.

10 Fronting of *os alunos* leaves behind *todos* in its initial position inside TP (Ambar 1987; Sportiche 1988). Both proposals are inspired by Kayne (1975, chap. 1).

11 For details on temporal *sempre* in EP vs. BP, associated with universal vs. correlation of events readings, see Ambar, Gonzaga, and Negrão (2004).

Another special adverb that can license discourse projections, losing its original meaning, is *lá* ("'there"). In its ordinary use *lá* is a locative deictic:

(14) O   João   vai   lá.
      the   João   goes   there
      "John goes there."

But *lá*, like *sempre* ("always"), takes on new meaning and gives (15) an exclamative flavor:

(15) O   João   vai   lá   a   Paris!
      the   João   goes   there   to   Paris
      "John doesn't go to Paris."

Here *lá* negates João's going to Paris and expresses a speaker's unwilling attitude in regard to the proposition.[12] Two hypotheses are conceivable for the derivation of (15): AssertiveP probes *lá*, EvaluativeP probes the verb, and valuation of EvaluativeP focusing on the "assertability of an utterance" (in Horn's [1989, 363] terms) produces the desired interpretation; another possibility is to consider that *lá* merges first in a negation projection (Laka 1990; Zanuttini 1994), everything else being equal.

Arguments for this hypothesis include incompatibility with the negation operator *não*, see (16), and licensing of negative polarity items (17):

(16) *O   João   não   vai   lá   a   Paris
      the   John   not   goes   there   to   Paris
      "John doesn't go there to Paris."

In post-verbal position, *nada* has to be under the scope of *não* (17a) (Matos 2003, among others); *lá* licenses *nada* playing the same role as *não* (17b):

(17) (a) O   João   *(não)   sabe   nada.
          the   John   (not)   knows   nothing
          "John doesn't know anything."
      (b) O   João   sabe   lá   nada!
          the   John   knows   there   nothing
          "John doesn't know anything."

Roughly, (18) represents negative *lá* structures, whose exclamative flavor relies on EvaluativeP:

(18) $[_{TopP}$ ~~o João~~$_j$ $[_{EvaluativeP}$ vai$_i$ $[_{AssertiveP}$ lá$_k$ $[_{Assert'}$ ~~vai~~$_i$ $[_{FocP}$ ~~vai~~$_i$ $[_{*XP}$ ~~o João~~$_j$ $[_{PolP}$ lá$_k$ $[_{Pol'}$ ~~vai~~$_i$ $[_{TP}$ ~~o João~~$_j$ ~~vai~~$_i$ a Paris]]]]]]]]]

---

12   For *lá* and other special adverbs see Martins (2010) and Ambar (2008). This type of negation in EP was identified as metalinguistic negation by Martins (2010), following an idea in Horn (1989, 363): "Metalinguistic negation focuses not on the truth or falsity of a proposition, but on the assertability of an utterance." Horn's observations suggest that AssertiveP and EvaluativeP are involved in these structures, as also hypothesized by Martins (2010, 577).

Again, quantified subjects such as *todos os alunos* ("all the students") cannot occur in the highest TopP, and the floating quantifier strategy circumvents ungrammaticality (19b):

(19) (a) *Todos os alunos foram lá a Paris!
    all the students went there to Paris
    "All the students didn't go to Paris."

  (b) Os alunos foram lá todos a Paris!
    the students went there all to Paris
    "The students did not all go to Paris."

As before *lá* and the verb move to the left periphery, correctly predicting that negative evaluative *lá* structures do not exist in BP.

 Let's turn now to why we brought these adverbs into the discussion: while confirmative *sempre* can occur in *yes-no* questions, negative evaluative *lá* cannot, as illustrated in (20)–(21):

(20) O João sempre vai a Paris?
   the John always goes to Paris
   "Does John after all go to Paris?"

(21) *O João vai lá a Paris?
   the John goes there to Paris
   "Doesn't John go there to Paris?"

At this point, we can conclude that: (i) absence of both confirmative *sempre* and evaluative negative *lá* in BP constitutes a diagnosis for V-movement to the left periphery; (ii) subjects are topics located above EvaluativeP, given the oddness of QPs in preverbal position and the contrast with floating quantifiers.

 Given the well-formedness of both (20) and (15) above (the non-interrogative equivalent of [21]), I conclude that the ungrammaticality of (21) is due to a conflict between the syntactic structure of evaluative negative *lá* (18) and the syntactic structure of *yes-no* questions (35). Before presenting the solution for the mismatch in (20)–(21) let us turn to the behavior of subjects in *yes-no* questions and to the structure of these constructions.

3.3 Evidence from Subjects

The SVO order generally exhibited by Portuguese *yes-no* questions appears to strongly favor the "intonation only" thesis for *yes-no* questions. In most cases subjects surface in *yes-no* questions as in declaratives, contrasting with English as shown earlier in (2)–(6):

(22) O João comprou o livro?
   the John bought the book
   "Did John buy the book?"

However for most speakers (including myself) there is a fine-grained contrast between the declarative in (23) and the true *yes-no* question in (24a), suggesting that the subject does not occupy the same position in both structures, or that it is dislocated in *yes-no* questions. Luigi Rizzi (pers. comm.) finds

the equivalent contrast in Italian.[13] The oddity of (24a) disappears in its *echo* version (prosody being of relevant importance), see last section. The floating quantifier strategy (24b) improves the sentence:

(23) Todos os alunos compraram o livro.
       "All the students bought the book."

(24) (a) (?)? Todos os alunos compraram o livro?
      (b) Os alunos compraram todos o livro?

Subjects in true *yes-no* questions recall subjects in the structures with the special adverbs described above. This suggests a ban on dislocation of QPs (and indefinites) to the left periphery and leads us to the hypothesis that in *yes-no* questions the subject is topicalized.[14]

   Although there is a venerable tradition of discussing the subject positions in Portuguese, the issue remains unsettled, and I will not go through this debate here.[15] For our purpose it is enough to observe that there seems to be a threshold of acceptability in structures with fronted QPs: QPs such as those considered so far are fully grammatical in declaratives whose focus is the entire clause (23), moderately possible in questions (24a) and focus constructions (25b), but clearly excluded from assertive (12) and evaluative contexts (19a), (26):[16]

(25) (a) Q: Quem lhe ofereceu todos os livros?
           "Who did offer him all the books?"
      (b) A: (?Todos os livros) ofereceu-lhe o Pedro

(26) *Todos os livros lhe ofereceu o Pedro!

My intuition is that the higher the QP-position is, the worse the results are. The behaviors described so far lead us to another point: do *yes-no* questions and *wh*-questions share the same type of derivation? In fact in *wh*-questions QPs and indefinites also cannot move to a position above IntP, in contrast to ordinary DPs (27b):

(27) (a) ??Todos   os   alunos   que   livro   compraram?
           all   the   students what   book   bought
      (b) Os alunos que livro compraram?

Interestingly, languages marking topics with overt particles, such as Japanese (*wa*), visibly show that subjects in either *yes-no* or *wh*-questions are topics (28)–(29) respectively (Kato's [2013] examples):

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13   I thank him for this and other insightful and encouraging comments.
14   Topicalization of the subject is not optional. The question turns out to be why. I think the answer is to be found in properties of (null) subjects, Infl, and their relation to discourse. I will not pursue this here.
15   For Barbosa (1995, 2001) Agr in EP is invariably "(pro)nominal"; it has a D-feature that checks the EPP of T; therefore the subject remains in-situ, inside VP; SVO order is derived by subject left dislocation to spec, TP. For Martins (1994), subjects are in spec, ΣP, and for Duarte (1987) and Costa (2000) they are in spec, TP.
16   Cf. (11): Evaluative and Assertive are higher projections than Wh(Int) or Foc. For evaluative vs. focus see Ambar (1999); for presentational focus vs. contrastive focus, see Rizzi (1997) and É Kiss (1998).

(28) Kimi-wa   John-o   mita   ka*?*
     you-NOM   John-ACC   saw   Q
     "Have you seen John?"

(29) Kimi-wa   dare-o   mita   ka?
     you TOP   who-ACC   saw   QP
     "Who did you see?"

The situation seems to be more complex, however. A strong argument against the present proposal might be provided by the behavior of the indefinite *alguém* ("someone").

3.4 The Problem: Indefinites

The ban on QPs in topic-like positions observed so far seems to extend to indefinites: that the indefinite *alguém* ("someone") cannot be topicalized is confirmed by the ungrammaticality of the *wh*-question in (30), which seems even worse than (27a):

(30) ??Alguém   que   livro   comprou?
     someone   what   book   bought

Thus, the ban applies to indefinites. However, this conclusion appears weakened when we turn to *yes-no* questions, where, contrasting with the QP headed by *todos* ("all") in (24a), *alguém* can occur without any restriction, as illustrated in (31):

(31) Alguém vai contigo ao cinema?
     "Someone goes with you to the movies?"

If the ban on indefinites in topic-like positions does not exist in *yes-no* questions, as (31) suggests, two hypotheses may be considered: (i) the subject in *yes-no* questions is not topicalized and the structure is of the declarative type (as traditionally assumed), differently from *wh*-questions (30); or (ii) indefinites are allowed in (31) for another reason. I will explore here the viability of (ii).

    A closer look at *yes-no* questions in (31) reveals that *yes-no* questions where *alguém* occurs also have a peculiar behavior with respect to answers. Observe the following pairs: (32) illustrates the normal answers to *yes-no* questions: the verb confirms the truth of the proposition, with deletion of the remnant sentence (identical to the question), which includes the subject, (33) illustrates the answer to a *wh*-question, and (34) the answer to a *yes-no* question whose subject is the indefinite *alguém*:

(32) Q: O Pedro vai contigo ao cinema?
         "Is Peter going with you to the movies?"
     A: (a) Vai.
              goes
              yes
        (b) *Vai o Pedro.
              goes Peter

(33) Q: Quem vai contigo ao cinema?
          "Who goes with you to the movies?"
      A: Vai o Pedro.
          goes Peter
          Peter does

(34) Q: Alguém vai contigo ao cinema?
          "Someone is going with you to the movies?"
      A: Vai o Pedro.
          goes Peter
          Peter does

Answer (34) parallels answers to *wh*-questions (33), contrasting with *yes-no* answers (32). I conclude that *alguém* ("someone") in *yes-no* questions behaves like a *wh*-phrase operator.[17]

   Before solving this problem, let me present what I think is the derivation of *yes-no* questions.

3.5 The Structure of Questions

Recall our discussion on open polarity in *yes-no* questions and on the left periphery in (11). Putting together the observations made so far, I will assume that true *yes-no* questions (but see the last section) end up in IntP, only topics move above it, exactly as true *wh*-questions (Ambar 2003). With Holmberg (2012), I also assume that PolP belongs to the TP domain. Example (35) below roughly represents the structure of a *yes-no* question:

(35)   O João comprou o livro?
          John bought the book

          TopP
         ╱   ╲
O João$_i$ IntP
         ╱   ╲
INT <T$_{aff}$, F$_{aff}$>   Int'
    Q comprou$_{jv}$ aff   ╱   ╲
              ~~INT <T$_{aff}$, F$_{aff}$>~~   FocP
              ~~comprou$_{jv}$ aff~~   ╱   ╲
                        Foc'
                       ╱   ╲
                   ~~O João$_i$~~   TopP
                             ╱   ╲
                        ~~comprou$_v$ <aff, neg>~~   PolP
                                  ╱   ╲
                                Pol'
                               ╱   ╲
                   ~~comprou$_v$ <aff, neg>~~   TP
                                      ╱   ╲
                                 ~~O João$_i$~~   T
                                          ╱   ╲
                                   ~~comprou$_v$~~   o livro

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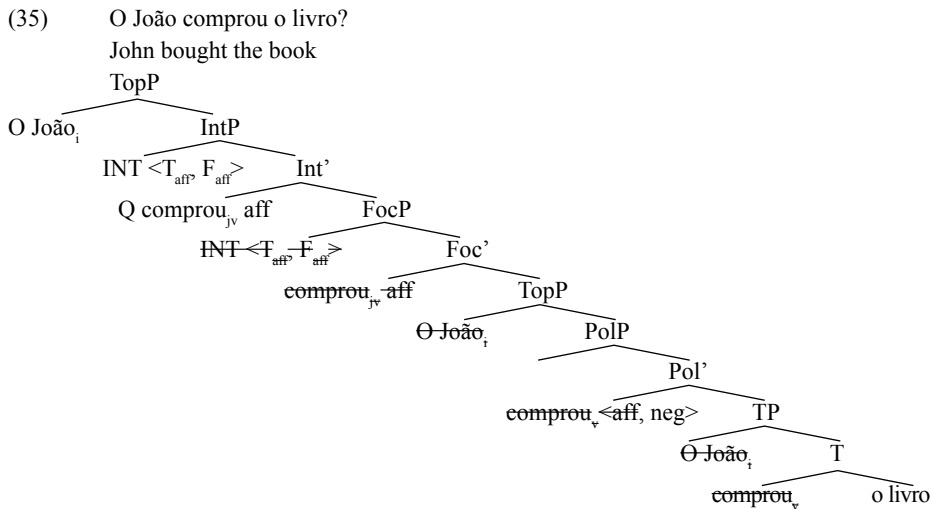
17   For ease of exposition and limitation of space I omit other aspects not relevant for what I want to prove: e.g., subject–object asymmetries, possibility of typical *yes-no* answer *vai* ("goes/yes") – most speakers inquired preferred answers (34). None of these aspects contradict the proposal made here.

PolP has a restricted bundle of features <aff, neg>, as usually presumed. For the time being, I assume that in Portuguese V-movement to PolP chooses <aff> and values it (V-to-Pol carries event and tense properties); in negative clauses a neg-word moving to PolP would value the neg-feature. FocP is the projection where the interrogative *yes-no* operator originates; it has the form: INT<Taff, neg, Faff, neg>, where T = True and F = False.

This looks like a bundle of features (Chomsky 2001). The features <aff, neg> are probes for the features in PolP, but T and F are not.[18]

The verb raises to C for the same reason it does in *wh*-questions. T and F will be valued in the answer by the speaker through AssertiveP and EvaluativeP, the speaker projections. AssertiveP is always involved in answers, EvaluativeP can be or not. I cannot pursue the treatment of *yes-no* answers. Just notice that as shown in the table, answers can value T, confirming both aff and neg questions, or F, refuting both aff and neg questions (the form of each answer is irrelevant here). Moreover note that roughly this is achieved by means of the verb and the negation operator, which in all columns keep their function of asserting or negating the predication. T is valued by the speaker through identity: verb-verb (Aff-question-Verb) or neg-neg in the question and in the answer (Neg-question-neg operator – first column). The value F is valued through opposites: verb in the question, neg in the answer, and vice versa (Aff-question-Neg-operator; Neg-question-Verb – second column). But this is only part of the picture of *yes-no* answers. Other elements (particles, adverbs, intonation) can be used; usually they emphasize confirmation or refutation of the truth of the question and are related with presupposition and evaluation in the interplay speaker-hearer and question-answer (involving AssertiveP and EvaluativeP). I cannot pursue this further here.

	T	F
Aff-question	Verb	Neg operator
Neg-question	Neg operator	Verb

Table 1

T and F values are associated with the speaker through Evaluative and AssertiveP, our speaker projections in (11), activated in answers. Note that leaving valuation of T and F to be accomplished in EvaluativeP and AssertiveP predicts why adverbs such as English *yes*, *no* or French *oui*, *si*, *non*, or others (as in EP) are unavailable to license [aff] or [neg] in PolP, producing inexistent sentences such as:

(36) (a) *John went yes to Paris
      (b) *Pierre ne vient si pas.

3.6 Solving the Problems

3.5.1 Indefinites

Let's turn to our problem: the fact that *alguém* is an indefinite that cannot be topicalized in *wh*-questions (30), but can occur in *yes-no* questions (31), is an argument against what we have been

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18   Capital letters mean that these features are not of the same type as <aff, neg>.

arguing for. The subject in *yes-no* questions occupies a topic-like position, therefore *alguém* should respect the ban on QPs and indefinites in this position, as it does in *wh*-questions. How can we solve this?

Observe that *alguém* ("someone") is an aff polarity item:

(37) (a) Ele não encontrou *alguém/ninguém
          "He hasn't met someone/nobody."
     (b) Ele não encontrou todos os alunos
          "He hasn't met all the students."

I will assume that being an aff polarity item, *alguém* has to move to PolP where it values the aff feature. Further movement to FocP qualifies *alguém* as a question operator due to an agreement relation (incorporation) with the Int-features in FocP; *alguém* will then carry those features to spec, IntP just as *wh*-phrases do. Therefore, *alguém* parallels the *wh*-phrase in *wh*-questions.

A question arises at this point. If *alguém* moves to IntP carrying the int-features, does the verb move too? Maybe the verb does not move in this case. The distribution of adverbs is quite free in EP, therefore testing verb positions by means of adverbs is problematic, given different theoretical views (e.g., Cinque's [1999] approach vs. others).[19] However, to my ear there is a fine-grained difference between the following positions:

(38) (a) O   João   rapidamente resolveu   o   problema
         the John   quickly   solved   the problem   (John was quickly intelligent . . .)[20]
     (b) O João resolveu rapidamente o problema (the process of solving was quick . . .)

(39) (a) ??O João rapidamente resolveu o problema?
     (b) O João resolveu rapidamente o problema?

(40) (a) ?Alguém rapidamente resolveu o problema?
     (b) Alguém resolveu rapidamente o problema?

Not only is (39a) odd, but also the interpretation associated with this position in (38a) is lost, contrasting with *yes-no* questions with *alguém* in (40) where those oppositions seem weakened. Moreover, any lexical material may occur between *alguém* and the verb (41):

(41) Alguém finalmente vai a Paris?
     "Someone finally goes to Paris?"

Note further that the oddity and loss of the relevant interpretation in (39a) also favors V-movement to IntP in *yes-no* questions, where *alguém* does not occur.

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19   In Ambar (1989) adverbs are specifiers as in Cinque (1999).
20   There is a special accent on the first syllable of the adverb in (38a), which seems impossible in (39a).

Japanese provides an interesting corroboration of this analysis.[21] Like EP, Japanese does not like *minna* ("all") in initial topic position, and according to Kato (pers. comm.), the equivalents of *alguém* ("someone") and *ninguém* ("nobody") cannot be topics in *wh*-questions, as in Portuguese; *minna* ("all") is possible following a *wa*-marked topic:

(42) Seito -wa   minna   dare-o   mita-ka?
     student-TOP   all   who-ACC   saw-ka
     "Who did all the students see?"

Also as in Portuguese, *dare* ("someone, who") is possible in *yes-no* questions:

(43) Dare-ka   hon-o   katta-ka?
     someone-ka   livro-ACC   bought-ka
     "Has someone bought the book?"

However, differently from EP, *dare* needs the question-particle *ka,* an intriguing fact at first glance. But a simple explanation follows from the proposal under (39): *dare-ka* in Japanese, behaves as *alguém* in Portuguese. Both move to PolP, where they check the aff feature. Further movement to FocP leads to agreement (incorporation) of the int-feature, visible in Japanese, but invisible in Portuguese. In both languages this is an option for a polarity item like *alguém*, though not for ordinary DPs – those do not move to PolP, they go to TopP.

Miyagawa (2010), discussing Watanabe's (1992) analysis of *wh*-questions in Old Japanese, shows that *ka* was a focus particle, which appeared associated with *wh*-phrases. When *ka* was associated with the *wh*-phrase, Japanese had *wh*-movement, which apparently began to be lost when *ka* was separated from the *wh*-phrase. This fact is relevant for Miyagawa's assumption that *wh*-questions are associated to focus constructions – C bears Q, an interpretable feature, and a focus probe, which probes all the relations in *wh*-questions, including the operator variable relation of Q.

If *ka* in Modern Japanese is not associated with *wh*-phrases anymore, why does it appear with *dare* in *yes-no* questions? One possible answer is that with the separation from *wh*-phrases, *ka* changed its features from focus to interrogative; the *wh*-phrase bears that feature by itself, but a polarity item like *alguém* does not, unless it agrees with it, as is the case in the analysis I propose. Thus, if the particle still were a full focus particle, maybe it would not be able to turn *dare* into an interrogative operator.[22]

3.7 Special Adverbs

At the end of section 3.2 we left open why confirmative *sempre*-V can occur in *yes-no* questions, whereas evaluative negative *lá* cannot. It was also hypothesized that the mismatch (20)–(21) results from a conflict between the structure of evaluative negative *lá* (18) and the one of *yes-no* questions (35). The conflict straightforwardly follows from the proposal under (35): *sempre* is

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21   I thank Maria Kato for the Japanese data below, for her patience, writing answers to all my questions.
22   The Bulgarian particle *li* appears to be active in what concerns focus (Dimitrova 2013), seeming to parallel Old Japanese and supporting Miyagawa's (2010) proposal.

not a polarity item in contrast to *lá*; therefore the interrogative operator in FocP and IntP quali-fies as an intervener for the latter though not for the former in its way to the speaker projec-tions, assuming a given version of Rizzi's (1990) relativized minimality. The contrast reduces to a minimal intervention effect, proving that *yes-no* questions have a syntactic structure of their own (not to be confused with declaratives).

3.8 A Note on Presupposition and Intonation

The analysis presented so far has implications for different phenomena. I introduce here only one of them. Cheng and Rooryck's (2000) proposal is built on French and English questions like:

(44) (a)   Jean a acheté un livre?
      (b)   John is cooking?

Concerning intonation, the experiment of Déprez, Syrett, and Kawahara (2012) on Cheng and Rooryck's (2000) proposal showed prosodic differences between in-situ and two types of *yes-no* questions, which the authors associated with focus. It would be interesting to explore to what extent echo vs. non-echo readings are involved and how focus intervenes in both.

I agree that sentences in (44) exhibit a strong presupposition. But both French and English also have neutral *yes-no* questions*,* as Cheng and Rooryck (2000) observe. In this case, syntactic licensing devices show up. Portuguese *yes-no* questions also surface as in (44). It would however be strange that all *yes-no* questions have such a presupposition in Portuguese.

Kato (2013) shows that BP true *wh*-in-situ questions have no rising intonation and proposes an analysis in line with Belletti's VP left periphery. Kato keeps Cheng and Rooryck's proposal for echo *wh*-in-situ questions and for *yes-no* questions generally. Again Japanese provides evidence: echo *wh*-in-situ exhibit the particle *itte*.

What I want to propose is that all questions can be either echo or true, *yes-no* included. Thus Kato's proposal for *yes-no* questions should work for echo *yes-no* questions, not for true ones – true *yes-no* questions and true *wh*-in-situ questions use *ka*.

Concluding, structures in (44) are echo-structures; echo structures are associated with the presupposition described in Cheng and Rooryck. I further propose that echo structures activate AssertiveP, to derive presupposition. Given the specific and similar prosody of echo-structures it is conceivable that Cheng and Rooryck's intonation morpheme is involved (but a prosodic study is needed).

4. Conclusions

My aim was to discover in Portuguese *yes-no* questions a syntactic behavior consistent with *yes-no* questions in other languages and also with other questions (*wh*-) in Portuguese. Otherwise they would be an exception to syntactic licensing across languages. Why these structures have escaped the attention of syntactic analyses for so long is surely due to the fact that no cue is vis-ible, apart from intonation. Intonation could not however be the cause of such an exception since all types of sentences have specific intonation.

As maybe is always the case in pioneering work, the results presented here do not correspond to all data and phenomena analyzed. In this text many questions are left open and others do not appear. In the first group I include theoretical questions on feature valuation in Chomsky's (2001)

probe-goal system, the [±interpretable] nature of features. In the second group are phenomena that the proposal sketched predicts, or aspects for which we do not have a principled explanation. Among the phenomena covered by the proposed system are (i) why future and conditional *yes-no* questions exhibit inversion – here the trigger of V-movement is an epistemic modal operator (Giannakidou 2013; Ambar 1988), and answers to these pseudo questions do not behave as they do in normal questions; (ii) French subject-clitic and complex inversion (Rizzi and Roberts 1996) can license *yes-no* questions, as European Portuguese SVO *yes-no* questions can – in both a verbal head moves to IntP, the difference reducing to absence of subject-clitics in EP; and (iii) Absence of a French *est-ce que* strategy in EP *yes-no* questions follows from absence of subject-clitics combined with specific properties of clefts in Portuguese (Costa and Duarte 2001; Belletti 2005; Ambar 2005; following Emonds 1976), where tense plays a role.

I conclude that (i) there is a syntactic strategy in the licensing of *yes-no* questions in Portuguese; (ii) the intonation cue accompanies syntactic licensing, as in other types of clauses (interrogatives likewise declaratives, imperatives, and exclamatives have a specific intonation); (iii) the structure of *yes-no* questions parallels the one of *wh*-questions; and (iv) the SVO order surfacing in *yes-no* questions is due to the subject occupying a topic position.

If the proposal proves to be correct, then this work will contribute to a typology of languages guided by an explanatory system.

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No Such Thing as "Parameterized Structural Deficiency" in the Left Periphery[1]

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Abstract: Some embedded finite domains in English resist main clause phenomena (MCP). The incompatibility of MCP with these domains applies to argument fronting, among others. In contrast, clitic left dislocation (CLLD) in Romance has a wider distribution. A number of authors have argued that the restricted distribution of English MCP follows from a structural deficiency of the English left periphery (LP). To account for the wider availability of CLLD in the Romance LP, it is proposed that the structural deficiency of the LP varies parametrically. This article challenges the appeal to parametric variation to account for the distribution of MCP. We show that PP preposing and infinitival TP preposing in French share the syntactic properties and distribution of English movements falling under MCP.

Keywords: Main Clause Phenomena (MCP); structural deficiency; French; PP preposing; clitic left dislocation (CLLD)

1. The Distribution of Main Clause Phenomena

It is well known that in English some embedded finite domains resist so-called main clause phenomena, henceforth abbreviated as MCP (see Emonds 1970, 1976, and Hooper and Thompson [henceforth H&T] 1973). This term typically refers to fronting operations that have discourse effects and target the left periphery. The domains incompatible with MCP include adverbial clauses, sentential complements to factive predicates and nouns, sentential subjects, and subjunctive clauses. The incompatibility of MCP with these domains is illustrated for argument fronting in (1). Another pattern sharing this restricted distribution is VP preposing, as shown in (2).

(1)　(a)　* [When this song, I heard], I remembered my first love.
　　　(b)　*Mary realizes [that this book, John read]. (Hegarty 1992, 52n19, his [iii])
　　　(c)　*[That this book, Mary read thoroughly] is true. (Authier 1992, 332, his [17b])
　　　(d)　*John raised the possibility [that Mary, your antics would upset]. (Alrenga 2005, 179, his [15c])
　　　(e)　*It's important [that the book, he study carefully]. (H&T 1973, 485, [166])

(2) (a) I told him to fix the last faucet and <u>fix the last faucet,</u> he did.
     (b) You have to fix this last faucet
          *and when <u>fixed this last faucet,</u> you finally have, I will send you a check.
          (cf. Authier 2011, 209, [57c])

A number of authors have argued that the restricted distribution of MCP follows from a structural deficiency of the left periphery (henceforth LP).[2] To account for the wider availability of clitic left dislocation (CLLD) in the Romance LP, it has additionally been proposed that the structural deficiency of the LP may vary parametrically.

In this article, we argue that there is no need to assume such parametric variation to account for the cross-linguistic distribution of MCP and that Romance fronting operations sharing the crucial syntactic properties of English dislocations that fall under MCP display the same restricted distribution as the latter. For reasons of space, we will restrict our discussion to a comparison of English and French MCP. For English, we will take argument preposing as the exemplar of MCP and for French, we will examine PP preposing and infinitival TP preposing.

The paper is structured as follows. Section 2 argues that the absence of MCP in English adverbial clauses is not to be attributed simply to the absence of a left periphery or of the encoding of information structure in such clauses. Section 3 introduces French MCP. Section 4 shows that a movement account for adverbial clauses accounts for the restricted distribution of MCP without there being any need for hypothesizing a deficient left periphery in the relevant clauses. Section 5 is a brief summary.

2. The Left Periphery of Adverbial Clauses

MCP involve the LP, which we take, following Rizzi (1997) to be articulated as in (3).

(3) ForceP   TopP*   FocP   TopP*   FinP

For full motivation of this structure, we refer the reader to Rizzi (1997) and to Haegeman (2012b) among others. From these and other cartographic works, we adopt the hypothesis that root *wh*-fronting targets the specifier of FocP, English negative inversion targets FocP (Haegeman 2000a, b; Radford 2009a, b; and Collins and Postal [forthcoming]), English argument fronting may either target the specifier of TopP or that of FocP, yielding different interpretive effects, and Romance CLLD targets TopP. We illustrate these assumptions in (4).

(4) (a) [$_{ForceP}$ [$_{FocP}$ [Since when] had [$_{FinP}$ he been conscious of the problem]]]?
     (b) [$_{ForceP}$ [$_{FocP}$ The DOG] [$_{FinP}$ Mary saw]]].
     (c) [$_{ForceP}$ [$_{FocP}$ [At no point] had [$_{FinP}$ he been conscious of the problem]]].
     (d) It. e [$_{ForceP}$ [$_{TopP}$ la   famiglia, [$_{FocP}$ dove   la lasci]]]?
              and   the family   where it leave-2SG
          "And where do you leave your family?" (Frascarelli 2000, 152, [184a])

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2 It is sometimes said that the LP of these domains is "truncated," cf. Haegeman (2006).

At first sight, the incompatibility of MCP with adverbial clauses illustrated in (1a) might be taken to mean that such clauses lack left peripheral space altogether and thus exclude any type of fronting. Following Güldemann (1996, 178) and van der Wal (2013), this lack of peripheral space could then be attributed to the fact that adverbial clauses cannot encode information structure (IS). This hypothesis, however, is not without problems.

First, there is some empirical evidence that suggests that adverbial clauses can encode IS. For instance, while focus fronting in adverbial clauses is indeed impossible (5a), clefting (5b), which is generally taken to contribute to IS (see Reeve 2011, 2012), is available (see Haegeman, Meinunger, and Vercauteren, forthcoming). As argued as early as H&T (1973, 472) and Emonds (1976,138–40), clefting is a structure preserving operation (i.e., it is not a member of the set of MCP). Additionally, *in situ* focus is compatible with adverbial clauses, as (5c) shows.

(5) (a) *Whenever INFORMATION, we needed, Bill could not be reached.
     (b) Whenever it was INFORMATION we needed, Bill could not be reached.
     (c) Whenever we needed INFORMATION, Bill could not be reached.

More recently, Neeleman and Vermeulen (2011) have proposed to capture the interpretation of focus particles like *only* and *even* in examples such as (6a) in terms of the organization of assertion/presupposition, both IS-related concepts. Without getting into the details of their analysis, note that *only* and *even* can occur in adverbial clauses (6b), which again implies that such clauses are by no means incompatible with the expression of IS-related components.

(6) (a) John invited only/even Pia.
     (b) When John invited only/even Pia, I knew something had gone wrong.

Data of this sort, which are in fact quite common, indicate that although adverbial clauses do resist some IS-related patterns, they cannot be taken to completely lack IS (see also Lahousse 2010).

The hypothesis that adverbial clauses lack left peripheral structure also appears to be problematic. As shown in (7a) CLLD is available in French adverbial clauses. Assuming with Rizzi (1997) that CLLD targets TopP, this projection must remain available.

(7) Fr. (a) Dès que   ton texte,   je l'aurai   lu,   je t'appellerai.
         as-soon-as your text   I it-have-FUT-1SG read-PART, I you-call-FUT-1SG
         "As soon as I'm done reading your text, I'll call you."
     (b) Quand   cette chanson,   il a   dit   qu'il   l'aimait,
         when   that song   he have-3SG   say-PART   that he   it like-PAST-3sg,
         j'en   ai   été   très surprise.
         I-of-it have-1SG   be-PART   very surprised-FSG.
         "When he said that he liked that song, I was astonished."
     (c) Si   ce livre,   tu   le trouves   à la Fnac,   achète le.
         if   this book   you   it find-2SG   at the FNAC,   buy   it
         "If you find this book at the FNAC, buy it."

Further evidence that adverbial clauses do involve left peripheral structure is provided by (8), where an adjunct precedes the subject and can therefore be assumed to occupy a left peripheral position. It is often assumed that fronted adverbial adjuncts are topics. In Rizzi (1997) (but see Haegeman 2003b and Rizzi 2004 for a different view), they are analyzed as TopP adjuncts, entailing that at least this peripheral projection can project in adverbial clauses.

(8)   (a)   When <u>last month</u> she began to write her regular column again, I thought she would be OK. (see Breul 2004, 212, 333)

    (b) Fr.

Quand	<u>lundi</u>	<u>soir,</u>	il	m'	a	appelée,
when	Monday	evening	he	me	have-3SG	call-PART-FSG

j'ai	été	très	surprise.
I-have	be-PART	very	surprised-1FSG.

"When he called me Monday night, I was very surprised."

To capture the difference between English argument fronting and French CLLD, one might appeal to some form of "parametric variation" which could be expressed in terms of the amount of structure projected in the LP of the adverbial clause, with Romance LP being "larger" than the English LP (see Haegeman 2003a, 2006, among others). In interpretive terms, this would mean that the (more articulated) Romance adverbial clauses would be able to accommodate LP IS, while their English counterparts would not. However, unless further modified, such a view would lead one to expect that all LP phenomena are available in Romance adverbial clauses. In particular, one would expect that those fronting operations that pattern with English argument fronting remain available in the Romance languages. This prediction is, however, incorrect. Based on Bocci (2007) and Cardinaletti (2009), Haegeman (2012b) discusses some evidence from Italian that shows that in that language, fronting operations with the same properties as English argument fronting remain unavailable in adverbial clauses. In this paper, we will provide more extensive evidence drawn from French (based on Authier and Haegeman, forthcoming) that show that the restrictions identified in relation to the LP of English adverbial clauses straightforwardly extend to French.

3. French Main Clause Phenomena

As previously mentioned, Romance CLLD is available in the LP of adverbial clauses. There is a considerable literature on the derivation of CLLD (see Cinque 1990 for a first thorough characterization of the phenomenon), which, due to space considerations, we cannot go over in detail. Here, we will adopt the view that CLLD is derived by external merge of the left-hand DP or PP in the LP. We are therefore assuming that CLLD differs from fronting operations derived by internal merge (i.e., "movement"). For arguments supporting this view, we refer the reader to Authier and Haegeman (forthcoming).

French has other left peripheral dislocation operations, however, that do not involve clitic resumption. These pattern with English argument fronting and are incompatible with adverbial clauses, which immediately suggests that they are derived by internal merge/movement.

3.1 PP Preposing in French

(9a) illustrates CLLD with a left peripheral PP *de la situation* économique ("about the economic situation") resumed by the clitic *en*; in (9b), the same PP has been fronted, but, instead of a resumptive clitic, there is a gap in the clause-internal first-merge position of this argument PP.

(9) (a) [De la situation économique],   ils <u>en</u> parlent tout le   temps.
          of the situation economic   they of-it talk   all   the time
          "About the economic situation, they talk all the time."

      (b) [De la situation économique],   ils   parlent [e] tout le   temps.
          of the situation economic   they   talk   all   the   time
          "About the economic situation, they talk all the time."

Unlike CLLD in (9a), the pattern in (9b) consistently obeys island constraints. Minimal pairs such as those in (10) can be taken as evidence that while clitic-resumed PPs are derived by external merge, non-clitic-resumed PPs are derived by internal merge in the LP (i.e., by movement).[3]

(10) (a) [De la situation économique], il y en   a pas beaucoup [qui en   parlent].
          of the situation economic   there of-them has not a-lot   who of-it talk

     (b) *[De la situation économique], il y   en   a   pas beaucoup [qui parlent [e]].
          of   the situation economic   there of-them has not a-lot   who talk
          "There aren't many (of them) who talk about the state of the economy."

The two patterns correspond to interpretive differences. For instance, as pointed out by Kerleroux and Marandin (2001) and Delais-Roussarie et al. (2004), unlike CLLDed PPs, internally merged PPs in French often encode a semantic shift from a simple topic to a layered one (see the references cited for details).

(11) Marie a   réuni   les élèves.   Aux filles, elle (*leur)   a   donné des
      Marie has gathered   the students to-the girls she (to-them)   has   given some
      exercices d'algèbre. Aux garçons,   elle (*leur) a   dicté   un problème
      exercises of-algebra to-the boys   she (to-them) has dictated   a problem
      de géométrie.
      of geometry
      "Marie gathered the students. To the girls, she gave algebra exercises. To the boys, she dictated a geometry problem."

As illustrated in (12), while peripheral PPs with a resumptive clitic are compatible with adverbial clauses, PP fronting effected by internal merge is far less acceptable in this context.[4]

(12) (a) Quand à Fred, tu *(lui)   casses les pieds, il te   tourne le dos.
          when to Fred you (to-him) break the feet   he to-you   turn   the back
          "When you get on Fred's nerves, he just walks away."

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3   It is interesting to note that PP but not DP fronting is possible in French. Emonds (2004, 98) relates the unacceptability of French DP fronting to properties of stress placement in that language.
4   For similar observations concerning Italian see Cardinaletti (1995) and Garzonio (2008).

(b) Et si à Paul, on   *(lui)   envoyait une   carte,
    and if to Paul we   (to-him) sent   a   card
    tu   crois qu'il   serait   content?
    you think that-he would-be happy
    "And if we sent Paul a card, do you think he'd be happy?"

We conclude that (i) unlike peripheral PPs with a resumptive clitic, fronted PPs are the head of a chain created by internal merge/movement, and (ii) PP fronting belongs to the class of MCP. Thus, proposals relating the availability of CLLD in French adverbial clauses to the "size" of their LP have to contend with the fact that despite the availability of a "larger" LP, PP fronting remains impossible.

3.2 TP Fronting in French

As discussed in Authier (2011,198) and illustrated in (13), French also displays the fronting of sentential infinitival complements selected by predicates encoding root modality such as *pouvoir* "be able," *devoir* "must/should," *vouloir* "want," *falloir* "be necessary," and *avoir le droit* "be allowed."[5] Authier (2011) argues that the fronted constituent is TP. We refer to his paper for motivation. Based on the fact that the chain consisting of the fronted TP in the LP and its copy in argument position is not mediated by a resumptive clitic, Authier (2011) shows that examples like those in (13), in which the infinitival TP [PRO *fumer sur la terrasse*] "smoke on the terrace" is in the LP, are derived like VP fronting and argument fronting in English.

(13) (a) [PRO fumer   sur la   terrasse], je veux bien [e].
           to-smoke on the terrace   I want well
     "I'm willing to smoke on the terrace."
  (b) [PRO fumer   sur la   terrasse], il faut   pas [e].
           to-smoke on the terrace   it is-necessary (to) not
     "You cannot smoke on the terrace."

Like English argument fronting and VP fronting, French infinitival TP fronting (i) creates unbounded dependencies (14a), (ii) is sensitive to strong islands (14b), and (iii) can appear in tensed embedded clauses, following the complementizer (14c).

(14) (a) [PRO fumer   sur la   terrasse], Cécile dit que Léon
           to-smoke on the terrace   Cécile says that Léon
     pense qu'on   a   le droit [e].
     thinks that-one has the right
     "Smoke on the terrace, Cécile says that Léon thinks you can."

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5   Note that in (13a), the fronted infinitival lacks the overt "subordinator" *de* "of" that introduces its non-fronted counterpart in (i).
(i) On a   le droit [**de** PRO fumer   sur la   terrasse].
    one has the right of   to-smoke on the terrace
    "You're allowed to smoke on the terrace."
Space limitations preclude a full discussion of the facts here. We refer the reader to Authier and Haegeman (forthcoming) for details.

(b) *[PRO fumer   sur la terrasse], Cécile a   parlé
           to-smoke on the terrace   Cécile has spoken
    à quelqu'un qui voulait [e].
    to someone   who wanted
    "Smoke on the terrace, Cecile has just been talking to someone who wanted to."

(c) Cécile dit   que [PRO fumer   sur la   terrasse], elle veut   bien [e].
    Cécile says that   to-smoke   on the terrace   she wants well
    "Cécile says that smoke on the terrace, she wants to."

Not surprisingly, French TP fronting is barred from adverbial clauses, just like PP fronting.

(15) *Quand [PRO fumer   sur la   terrasse], elle a   voulu [e], on   lui
     when   to-smoke on the   terrace   she has wanted   they her
     a   dit que c'était interdit.
     have told that it-was forbidden[6]
     "When to smoke on the terrace she had wanted, they told her it was not allowed."

Thus, just like French PP fronting, French infinitival TP fronting is an MCP. Again, if the availability of CLLD in adverbial clauses were to be interpreted as evidence that the LP of French adverbial clauses is "larger" than its English counterpart, additional restrictions would have to be formulated that would yield the effect created by the assumed structural deficiency of the LP in similar contexts in English. The hypothesis that "selective" structural deficiency determines the distribution of MCP has been entertained with different implemantations, by a number of authors, including Kuroda (1992, 350), Zubizaretta (1998, 148, on French), Benincà and Poletto (2004), Grewendorf (2002, 53), De Cat (2004; 2007), Emonds (2004), McCloskey (2006), Meinunger (2004), Haegeman (2003a, 2006) and Bianchi and Frascarelli (2010). Haegeman's specific implementation for adverbial clauses was explored by Carrilho (2005, 244–245; 2008), Munaro (2005), Hernanz (2007a, b), Bentzen et al. (2007), Abels and Muriungi (2008, 693–4), Cardinaletti (2009), Wiklund et al. (2009), van der Wal (2013), and Rizzi (2011).[7]

In the next section, we turn to an alternative view, one according to which the so-called "selective" structural deficiency is not considered to be a primitive in the theory but is derived from other, more general principles of grammar.

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6   The fronted TP can also be resumed by a pronominal clitic. This pattern displays all of the characteristic properties of CLLD.

(i) Quand [PRO fumer   dans les toilettes] on   pourra   **le** faire en toute impunité,
     when   to-smoke in the toilets   one will-be-able it to-do in all   impunity
     on pourra   dire   que vous avez gagné.
     one will-be-able to-say that you   have won
     * "When smoking on the terrace, we'll be allowed to do it without punishment, we'll be able to say that you have won."

7   Basse (2008) offers a Minimalist implementation of this view, according to which sentential complements to factive verbs lack an edge feature, thus disallowing fronting. Extending this to adverbial clauses one might propose that CLLD and LP adjuncts can be externally merged in the absence of an edge feature. This would capture the observed difference.

4. Intervention

Our account takes as a point of departure the assumption made by Rizzi (1997) that TopP and FocP are only projected when required to encode the particular discourse functions they are associated with. Here we will extend Rizzi's assumptions concerning this apparent "optionality of projection" by arguing that if projecting TopP and/or FocP would lead to a violation of one or more grammatical principles (i.e., cause the derivation to crash), such projections must be absent so as to allow the derivation to proceed.

4.1 The Double Asymmetry and Intervention

For reasons of space, we will not discuss any of the problems of implementation inherent to an account in terms of structural deficiency (see Haegeman 2012a, b). Instead, we turn to a more conceptual issue. In a number of publications Haegeman (see especially Haegeman 2012b) points out that accounts in terms of structural deficiency overlook the fact that the restrictions on fronting observed in the LP of English adverbial clauses are not specific to this type of context but are also present in other domains for which a structural deficiency is not standardly invoked. In particular, the fronting operations investigated display a double asymmetry: (i) while argument fronting to the LP is unavailable in English, adjuncts can appear in the LP (8), (ii) while argument fronting is unavailable in English, CLLD involving argument phrases is available in French (7). Haegeman points out that the same double asymmetry has been reported for embedded *wh*-questions (16), relative clauses, (17), and embedded clauses in the context of long extraction (18).

(16) (a)   *Robin knows where, <u>the birdseed</u>, you are going to put. (Culicover
             1991, 5, [6c])
      (b)   Lee forgot which dishes, <u>under normal circumstances</u>, you would put on the table
             (Culicover 1991, 9, [17d])
      (c) Fr. Je me   demande bien ce   qu'<u>à   Jean</u>, on pourrait lui   acheter.
             I   myself ask   well that which- to Jean we   could   him   buy
             "I wonder what we could buy Jean."

(17) (a)   *These are the students to whom, <u>your book</u>, we will recommend next spring.
      (b)   These are the students to whom, <u>next Spring</u>, we will recommend your book.
      (c) Fr. Achète-moi la   moto qu'<u>à   Marie</u>, tu   allais   lui   acheter. (= [3a])
             buy-me   the bike which-to Marie you   were-going her   buy
             "Buy me the bike you were going to buy Marie."

(18) (a)   *Who did you say [that to Sue, Bill introduced]?
             (Boeckx and Jeong 2004, [3])
      (b)   Which book did Leslie say [that for all intents and purposes, John co-authored
             with Mary]? (Bošković 2011,34n34 [i], from Culicover 1991)
      (c) Fr. J'aimerais   bien savoir   ce qu'il pense qu'<u>à   ton   frère</u>,
             I would-like well to-know what-he thinks that-to your   brother
             on   devrait lui   acheter].
             we   should   him   buy
             "I'd like to know what he thinks that we should buy your brother."

The patterns (16)–(18) are standardly captured in terms of locality conditions on movement. In the English (a) examples, the fronted arguments are interveners blocking *wh*-movement, while the LP adjuncts in the (b) examples and the CLLD constituents in the (c) examples are not.[8]

If the double asymmetry in (16)–(18) can be captured via locality conditions on movement, we must at least explore the plausibility of extending this approach to account for the double asymmetry in adverbial clauses. Haegeman (2007, 2012a, b) and Haegeman and Ürögdi (2010a, 2010b) explore Geis's (1970, 1975) seminal proposal, also taken up by others in later work, that adverbial clauses are derived by *wh*-movement of an operator. Haegeman, for example, argues that in adverbial clauses, temporal and conditional operators are first merged outside VP and undergo subsequent internal Merge in the LP as illustrated in (19).[9]

(19) (a) When she had read Alice's diary, …
     (b) [when [she had [(~~when~~)[$_{VP}$ read Alice's diary]]]] . . .

If, like interrogative *when* clauses, temporal *when* clauses are derived by *wh*-movement of an operator to their left periphery then their incompatibility with left peripheral material that is known to give rise to intervention, such as argument fronting in English, follows. Their compatibility with left peripheral material that does not give rise to intervention, such as left-peripheral adjuncts or CLLD in Romance, is also expected. No specific statements will be required as to the "permitted" size of the adverbial clause: TopP can be projected, for instance, and host a topical constituent which does not give rise to intervention such as the Romance CLLD argument. On the other hand, TopP cannot be projected to host a potential intervener such as a fronted argument in English as that would block the movement of the *when* operator to the left periphery.

4.2 PP Preposing and Intervention

As illustrated in (20), unlike CLLD with PPs, preposed PPs, are incompatible with embedded interrogative domains (20a, b) and with relative clauses (20c). As before, this can be attributed to an intervention effect: the *wh*-constituent is unable to move to the LP across the fronted argument.

(20) (a) Dis-moi ce qu'[à   Marie], tu   allais   *(lui) acheter.
          tell-me that which-[to Marie] you were-going her   to-buy
          "Buy me what you were going to buy Marie."
     (b) Je me   demande quand [à Patrick], elle *(lui) dira   la vérité.
          I myself ask   when [to Patrick] she him   will-tell the truth
          "I wonder when she'll tell Patrick the truth."

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8   See Haegeman and Ürögdi (2010a, b), and Haegeman (2012a, b) for an account of the patterns couched in terms of Starke's (2001) feature-based Relativized Minimality. For reasons of space we cannot summarize this account here.
9   The hypothesis that adverbial *when* clauses are derived as relatives goes back to Geis (1970, 1975). For a survey of the relevant literature see Haegeman 2012b. Cross-linguistic support for the movement analysis of adverbial clauses comes from the fact that they display, in many languages, a striking similarity to relative clauses. For instance, Zentz (2011) shows that in the Bantu language Akɔɔse, the finite verb in temporal clauses displays *wh*-agreement, just like it does in relative clauses. In a similar vein, Torrence (2013) shows that Wolof temporal and conditional clauses pattern with relative clauses. We refer to Haegeman and Ürögdi (2010a, b) for a similar approach to complements to factive verbs.

(c) Achète-moi la moto qu'[à   Marie], tu allais   *(lui) acheter.
buy-me   the bike   which-[to Marie] you were-going   her   to-buy
"Buy me the bike you were going to buy Marie."

French PP preposing without a clitic is also unavailable in adverbial clauses (cf. [21]) and differs in this respect from PP CLLD. If, like their English analogues, French adverbial clauses are derived by operator movement, then the ungrammaticality of PP preposing without clitic resumption straightforwardly follows from intervention.

(21) Quand [à Patrick], elle *(lui) a   dit la vérité, il est devenu livide.
when   to Patrick   she *(him) has told the truth   he is   become livid
"When she told the truth to Patrick, he became mad with rage."

4.3 TP Preposing and Intervention

Like English argument fronting, French infinitival TP fronting is excluded from embedded interrogatives (22a) and from relative clauses (22b). Like their English counterparts, such examples would standardly be considered to be ruled out because of intervention effects on movement: the fronted VP blocks *wh-* movement of the interrogative (22a) or relative (22b) operator.

(22) (a) *Je me   demande   quand, [PRO se marier   avec   elle], il voudra [e].
         I   myself ask   when   to-get-married with   her he will-want
         "I wonder when he'll want to marry her."
     (b) *Je sais   qu'un étudiant m'a   demandé s'il   pouvait présenter
         I   know   that-a student me-has asked   if-he   could   to-present
         cet article en cours mais je n'arrive   pas à me   souvenir de
         this article in class   but I NEG-manage not to myself remember of
         celui   [qui [PRO le présenter], voulait [e]].
         the-one who   it to-present wanted
         "I know that a student asked me if they could present this article in class
         but I can't remember the one who wanted to."

Recall from Section 2 that French infinitival TP fronting is unacceptable inside adverbial clauses (23). If we assume that the temporal *quand* clause is derived by operator movement, the same conditions on locality will now account for the unavailability of TP fronting.

(23) (a) *Quand [PRO bâtir   sur ce terrain] elle a pu,   elle l'a   fait.
         when   to-build on this land   she has been-able she it-has done
         "When she was able to build on this land, she did (it)."
     (b) *Quand [PRO se marier   avec elle] il a   voulu, il était trop tard.
          when   to-get-married with her he has wanted it was too late
         "When he decided to marry her, it was too late."

5. Conclusion

In this paper, we have shown that the unavailability of certain fronting operations in English embedded domains need not be accounted for directly in terms of the restricted structural space available in these domains. Nor does the asymmetry between Romance CLLD and English argument fronting justify proposing that somehow the Romance LP is at times "larger" than that its English counterpart. Rather, assuming a movement analysis of adverbial clauses, the unavailability of LP fronting operations in both English and French can be captured by simply appealing to the well-known locality restrictions on movement, without introducing an unnecessary redundancy in the theory of grammar. Because of such restrictions, the LP functional space, though in principle available in the languages in question, cannot be deployed in specific contexts for independent reasons.

Our conclusions raise a further issue: if what seems like structural deficiency is derivable from more fundamental principles of grammar, can this strategy be extended to other contexts that have standardly been taken to involve a "deficient" LP as well such as, for instance, ECM contexts? We will leave this as an open question for future work.

Works Cited

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Focus Fronting and Root Phenomena in Spanish and English

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Abstract: Our purpose in this work is to explore the syntax of focus fronting and negative preposing in embedded contexts in English and Spanish. It is standardly assumed that contrastive focus preposing targets the CP area in English. Emonds (1970, 2004) and Haegeman (2012) show that negative preposing and topic/focus fronting are all root transformations in English. Within the intervention-based analysis of Haegeman (2012) this constraint is explained by assuming the existence of an event operator in factive clauses (Aboh 2005), which stops the discourse-oriented constituent from moving to the left periphery. If so, focus preposing is predicted to be incompatible with referential clauses which are complements of factive predicates. This prediction is not borne out in languages such as Spanish. We propose that crosslinguistic differences can be accounted for by analyzing Spanish focus fronting as movement to spec-TP rather than to spec-CP, thus no blocking effect will be caused by the referential operator in spec-CP.

Keywords: focus fronting; negative preposing; root/non-root; referentiality/factivity; spec-TP

1. Introduction

In this paper we claim that the different behavior we find in the distribution of Focus Fronting (FF) – both Contrastive Focus Fronting (CFF) and Negative Preposing (NegP) – in English and Spanish is due to the fact that these languages belong to different discourse language types.

In a seminal work, Emonds (1970) observed that, in English, non-structure preserving transformations or root transformations (RT) only apply in particular syntactic contexts. More recently, Emonds (2004, 2012) defined these contexts as "root-like indirect discourse embedding" or RIDEs, meaning that they can only occur in finite complement clauses of a governing verb or an adjective (1a). In embedded non-RIDE contexts these operations are not possible (1b) (Emonds 2004, 77):

(1)   (a)   I made a promise right away that [$_{RIDE}$ *only until five* would we work].
        (b)   *We will propose [$_{Non-RIDE}$ *only until five* working] to the manager.

In (1a) the operation occurs in a finite subordinate clause, while in (1b) the movement happens in a non-finite one.

In this paper we analyze a subset of these RTs, in particular, the different distribution observed in CFP and NegP in non-asserted embedded clauses in English and Spanish.[1] Both constructions

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[1]   We will deal only with contrastive focus. For a classification of focus types see Frascarelli and Jiménez-Fernández (2012, 2013), Frascarelli and Ramaglia (2013), and Bianchi (2013).

have different semantic and pragmatic features but have quite similar distributional properties. In contrast to CFF, a negative adjunct or argument constituent, usually a PP quantifier, is fronted to the left periphery of the clause in NegP structures, typically triggering subject auxiliary inversion and a polarity sentence reading (cf. Haegeman 2000a, 2000b, 2012; Sobin 2003). But because they show the same syntactic distribution, we will assume that they target the same position in the syntactic tree in each language. Thus, from now on we will refer to both of them as FF.

We are interested in the fact that both English constructions have a more restricted distribution than the Spanish ones with respect to the kind of predicate allowed. Emonds' proposal on RIDEs does not take into account that RTs in English are forbidden with non-asserted predicates (cf. Hopper and Thompson 1973). As we can see in (2a) and (2b), we cannot move these constituents to the left periphery of the clause with these predicates, whereas in Spanish this movement is certainly grammatical (3a) and (3b):

(2) (a) *I resent that [$_{\text{RIDE}}$ *never in my life* did I do anything like that]. (Meinunger 2004)
     (b) *Andrew was surprised that [$_{\text{RIDE}}$ *this tablet* she bought and not the cheaper one].

In (2a) and (2b) the operation is not allowed though both structures are finite complement clauses. We believe, as Hopper and Thompson (1973) propose, that the reason is that the main verb does not take non-asserted complement clauses, a feature related to referentiality and factivity. In contrast, Spanish does not bar FF in these referential contexts:

(3) (a) Me arrepiento   de   que   [$_{\text{RIDE}}$ *nunca*   *antes*   hayas   conducido
          regret-PRES.1SG of   that   never   before   have-SUBJ.2SG   driven
          este   coche].
          this   car
          "I regret that you have never driven this car before."
     (b) A Juan   le   molesta   que [$_{\text{RIDE}}$ *este libro*   haya   elegido
          to Juan CL   bother-PRES.3SG that   this book   have-SUBJ.3SG   chosen
          Mariano (y no aquél)].
          Mariano (and not that one)
          "It bothers Juan that Mariano has picked up this book (and not that one)."

Haegeman and Ürögdi (2010) propose that these constructions are not allowed in English because there is an event operator at CP related to the referential nature of the clause that blocks the movement of the fronted constituent. We basically agree with their proposal and argue that the reason why there is not such an effect in Spanish is due to the fact that the moved constituent targets TP and not CP, as proposed for English. Therefore, there is no blocking effect.

Thus, for us, this contrast is a consequence of language variation with respect to how a given language encodes information structure in syntax. Elaborating on Miyagawa (2010) and Jiménez-Fernández (2010, 2011), we claim that in "agreement-prominent" languages like English, focus features are valued in CP, whereas in discourse-prominent languages like Spanish they are valued in TP. We provide independent evidence suggesting that in Spanish focused fronted elements target a position below the left-periphery proper: 1. floating quantifiers, 2. binding effects, 3. fronted bare quantifiers, and 4. Montalbetti's effects. Finally, we

support the hypothesis that a great part of language variation is related to the distribution of topic and focus in syntax.

The paper is organized as follows: 1. we introduce Haegeman and Ürögdi's (2010) intervention effect hypothesis and show that it is not compatible with Spanish data; 2. we present our proposal and argue that Haegeman and Ürögdi's (2010) intervention-based analysis can be perfectly compatible with Spanish focalization if feature inheritance by T from C is assumed; 3. we provide empirical evidence to confirm that CFF and NegP target TP in Spanish with A-movement; and, 4. we summarize our main findings and present pending issues which we will discuss in future research.

2. The Intervention Effect Hypothesis

Haegeman and Ürögdi (2010) and Haegeman (2010, 2012) explore a different strategy to address the fact that RTs only occur in specific contexts in English. Instead of focusing on those structures where these movements are allowed, as Emonds does, they analyze those where they are not. Thus, discourse motivated movements will always be allowed in syntax except in certain configurational contexts where some structural constraint would disallow them. Therefore, grammar would not need to analyze RIDEs as special clause types. These phenomena would be explained by making use of the syntactic machinery we already have.

These authors suggest that constituent fronting is generally allowed in English except with referential CPs, basically corresponding to factive predicates or non-asserted predicates (Hooper and Thompson 1973). The point that factive clauses are not compatible with extraction has traditionally been related to special properties of the clausal periphery that blocks movement (Bianchi 2000; and Zubizarreta 2001, among others). Recently, Haegeman and Ürögdi (2010, 128) have explored this possibility, proposing that there is an event operator at CP that blocks it, causing intervention effects, as in (4):

(4) $[_{CP} \text{Op}_i \ldots [_{FP} \text{t}_i [_{TP} \text{V} \ldots]]]$

This operator would have a quantificational feature Q and would be licensed by the functional element of definiteness and bound to an event position inside the clause. Whenever a quantifying constituent or a *wh*-word tries to move into CP, the operation is blocked due to the similar features shared by the moved constituent and the event operator:

(5) $*[_{CP} \text{XP}_Q \text{Op}_Q \ldots [_{FP} \text{t} [_{TP} \text{V} \ldots]]]$

Haegeman and Ürögdi (2010) do not explicitly analyze Spanish data, but they clearly assert that Romance clitic left dislocations are not affected by the distinction between constructions with or without the event operator because topics in Romance can be dealt with in terms of base generation, i.e., via merge in the left periphery (Cinque 1990; Barbosa 2001; Frascarelli 2007 *et seq.*).

(6) El   gobierno   no   se   resiente   de que *los recortes*$_i$ los$_i$
    the government not CL   resent-Pres.3sg of   that the cuts   CL
    haya   impuesto   Europa.
    have-Subj.3pl   imposed   Europe
    "The government does not resent that the cuts have been imposed by Europe."

In (6) we can see that FF is also grammatical with topicalization in Spanish. In this example, *los recortes* is fronted and coreferential with the clitic *los*. However, although there is not a general consensus about the base-generation or movement approach to topicalization in Romance, it is generally assumed that FF in Romance is constructed by a movement operation that targets spec-FocP (Rizzi 1997). Thus, if the intervention analysis is correct, it predicts that in Romance referential contexts CFF will be blocked by the presence of the discourse operator. However, as we have already stated, this is not the case:

(7) (a) Es   probable que *solo alguna vez*   haya   conducido
          be-PRES.3SG probable that only some   time   have-PRES.3SG driven
          Juan   ese   coche.
          Juan   that   car
          "It's probable that Juan had driven that car only once."
      (b) Negaron   que *a Jimena* vieran   en   la   fiesta.
          deny-PAST.3PL that to Jimena see-PAST.SUBJ.3PL at   the   party
          "They denied that they saw Jimena at the party."

Both operations are perfectly allowed in Spanish, showing that referentiality and CFF and NegP are compatible in Spanish. So their proposal has to be revised to explain these counter-examples.

Haegeman and Ürögdi (2010) consider the possibility of focused movement in Hungarian in referential contexts and propose that this type of focus movement targets spec-TP:

(8) (a) *John resents that *this book* Mary chose.
      (b) János   sajnálja, hogy   Mari   *ezt a könyvet*   választotta.
          John   regrets   Comp   Mary   this book-ACC   chose
          "John regrets that it is this book that Mary chose."

The unrestricted compatibility of the event operator and FF argues in favor of an analysis of the factive operator as occupying a position outside TP, hence explaining why there is no intervention in those languages where focus targets the TP-area.

3. Our Proposal: Feature Inheritance and Spec-TP

In this article, we offer an alternative solution. For us, the different behavior observed in English and Spanish is due to the fact that they belong to different language types as far as discourse structure is concerned. As a result, in each language, CFF and NF constituents target different positions in the syntactic derivation and, therefore, no real competition arises with the event operator.

Miyagawa (2010) makes a typological classification of languages depending on the kind of grammatical features inherited by the TP from C. Languages can be grouped into two types: agreement-based languages and discourse-configurational languages (cf. É. Kiss 1995; see also Jiménez-Fernández and İşsever 2012 for the parallelism between Spanish and Turkish and Jiménez-Fernández and Spyropoulos 2013 for the inclusion of Greek in this third group).

(9) Feature Inheritance Parameter: φ = agreement features; δ = discourse features

Language type		*Feature inheritance languages*
Discourse-prominent	$C_{\varphi,\delta} \rightarrow T_{\delta} \ldots$	Japanese, Korean
Agreement-prominent	$C_{\varphi,\delta} \rightarrow T_{\varphi} \ldots$	English and most Indo-European languages

Agreement-based languages such as English are characterized because agreement features are inherited by T, whereas discourse features stay in C. Japanese-like languages, on the contrary, show the opposite behavior: T inherits discourse features, not agreement ones.

Jiménez-Fernández (2010) claims that some languages like Spanish can display both behaviors. Thus, a third type can be added to the typology. In languages like Spanish, as well as in Turkish and Greek, both agreement and discourse features are inherited by T.

(10) Feature Inheritance Parameter (adopted from Jiménez-Fernández 2010, 2011)

Language type		*Feature inheritance languages*
Discourse-prominent and agreement-oriented	$C_{\varphi,\delta} \rightarrow T_{\varphi,\delta} \ldots$	Spanish, Turkish, Greek

In Spanish spec-TP is an A-position which is targeted by constituents for either phi-agreement or discourse agreement, or both. This is why focus fronting in this language exhibits A-properties. However, universally discourse features start at C, and depending on the language they may be inherited by T. This explains why in some languages like English focus fronting targets spec-CP, whereas in other languages the same operation targets spec-TP. As a result of this typology, we can describe two situations. On the one hand, there are languages in which discourse features are valued in C and therefore intervention may arise. This means that focalization in English targets spec-CP. If the event operator moves to Spec-CP in referential CPs, the operator competes for any further movements to the same syntactic position.

(11) $[_{CP}\ OP_i\ C_{event+\delta} \cdots [_{FP}\ t_i\ [_{TP}\ T\ [_{vP}\ DP\ v+V\ DP]]]]$

Movement of any material to spec-CP from *v*P is blocked by OP. In the absence of operator movement, there is no competition and hence focus can be fronted to spec-CP:

(12) $[_{CP}\ FOC_i\ C_{\delta}\ [_{TP}\ T\ [_{vP}\ DP\ v+V\ DP_i]]]$

On the other hand, if discourse features are valued in T, no competition results.[2] This has an important consequence for the competition effect shown by operator movement in referential complement clauses. If focused constituents are moved to spec-TP, operator movement does not interfere with any subsequent movement in the same construction. This predicts that independently of the referential or non-referential character of embedded clauses, foci moving to spec-TP are completely compatible with operator movement. The prediction is borne out by NegP and CFF in Spanish.

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2   The EPP under T triggers movement of the probed category to spec-TP (Jiménez-Fernández 2010). This is the case for Japanese scrambled topics and Spanish CLLD alongside contrastive topics in the two languages (Jiménez-Fernández and Miyagawa 2013).

(13) $[_{CP}$ OP$_i$ C$_{event + \delta}$ $[_{FP}$ t$_i$ $[_{TP}$ FOC$_j$ T$_\delta$ $[_{vP}$ DP v + V DP$_j$]]]

But which arguments show that focused elements move to the spec-TP in Spanish? We need to bear in mind that a basic difference between movement to spec-CP and movement to spec-TP is that they are A'-movements and A-movements, respectively. If we are on the right track CFF and NegP should show all the typical behaviors of A-movements in Spanish but not in English.[3]

4. Arguments in Support of Focus Fronting to TP Area in Spanish

In the relevant literature there is a hot debate as to which position is the target of discourse-related fronted constituents (see for general discussion Jiménez-Fernández 2010, 2011, and Jiménez-Fernández and Miyagawa 2013). In this section we claim that in languages such as Spanish, at least FF, and possibly also CFF and NegP, are moved to spec-TP (contrary to Demonte and Fernández-Soriano [2009], among others). This idea is not new. Contreras (1991), Uribe-Etxebarria (1992), Zubizarreta (1998), and Vallduví (1993), among others, have held that focus moves to spec-TP. However, in contrast to our proposal, they consider spec-TP an A'-position.

4.1 Floating Quantifiers

Floating Quantifiers (FQ) constitute one piece of evidence which supports our analysis of focus movement to spec-TP in Spanish, hence to an A-position. On the basis of Catalan data, López (2009) concludes that FQs are allowed only in A-movement, not in A'-movement (Lasnik 2003). In Spanish, the same constraint is found, thus cases of A-movement such as raising and passive constructions are compatible with FQs:

(14) (a) *Los niños*   parecen   haber   terminado *todos* la   tarea.
           the children   seem-PRES.3PL have-INF   finished   all   the   homework
           "Children seem to have all finished their homework."

      (b) *Las aceitunas* han   sido   recolectadas *todas*.
           the   olives   have-PERF.3PL   been   harvested   all
           "The olives have *all* been harvested."

In (14a) *los niños* raises as subject of *parecer* whereas the quantifier *todos* is stranded in the original VP. In (14b) *las aceitunas* moves to an A-position while the quantifier *todas* stays in its original site. In contrast, quantifiers cannot be stranded with relativization (15a) or *wh*-movement (15b) in Spanish. In these structures the quantifier phrase moves to an A'-position:

(15) (a) *Las aceitunas que   fueron   recolectadas *todas* han
           the olives   which   be-PAST.3PL   harvested   all   have-PRES.3PL
           sido   vendidas ya.
           been   sold   already
           "*All* the olives which were harvested have already been sold."

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3   See Quer (2002) for a different view in which Spanish spec-TP is an A'-position.

(b) *¿Qué   aceitunas han   sido   vendidas *todas*?
    which   olives   have-PRES.3PL been   sold   *all*
    "Which olives have all been sold?"

If FQs occur with raising and passive constructions in Spanish but not with relatives and questions, this strongly suggests that A-movement is involved. Our proposal thus predicts that, in focus structures, FQ will be allowed in Spanish but not in English since they land in an A- and A'-position, respectively. This is what we find in (16) and (17):

(16) *Las peras* se   ha   comido *todas* María, no   las manzanas.
     the pears   CL   have-PERF.3SG eaten   all   Maria   not the apples
     "Maria has eaten all the pears, but not the apples."

(17) (a) *These problems* this computer could *all* solve in a second, but not this one.
     (b) *I'm surprised that *these problems* this computer could *all* solve in a second, but not this one.
     (c) *The pears* Mary has all eaten, but not the apples.
     (d) *I'm surprised that *the pears* Mary has all eaten, but not the apples.

The interplay of focus preposing and FQs can also be attested in referential CPs in Spanish. This again suggests that there is no possible competition between the event operator and focus movement:

(18) Me sorprende   que *las* *peras* se   haya   comido   *todas*
     CL surprise-PRES.3SG that the   pears   CL   have-PERF.3SG   eaten   all
     María, y   no   las manzanas.
     Maria   and not the apples
     "I'm surprised that Maria has eaten all the pears, and not the apples."

4.2 Binding Effect

In relation to binding effects, it must be noted that, as the result of focus movement, the c-command relation between binder and bindee may be modified. In (19a) CFF forces a bound reading between *a Juan* ("to Juan") and *su madre* ("his mother") while in (19b) without such a move, the bound reading is ungrammatical:

(19) Bound reading
     (a) *A Juan*$_i$ vio   su   madre$_i$ en   la   fiesta, no   a   Pedro.
         to Juan   see-PAST.3SG his mother   at   the party   not to Pedro
         "Juan's mother saw him at the party, but not Pedro."
     Unbound reading; *bound reading
     (b) Su madre$_{*i/j}$ vio   a   Juan$_i$ en   la   fiesta, no   a   Pedro.
         his mother   see-PAST.3SG to   Juan   at   the party   not to Pedro
          "Pedro's mother saw Juan at the party, but not Pedro."

The creation of a new binding configuration is clearly a symptom of A-movement (Lasnik 2003; Miyagawa 2010). The anti-reconstruction of the focused operator entails that it has moved to an A-position.

Note that if our claim is right, namely, that there is no competition between the eventive operator moving to spec-CP and focus fronting to spec-TP, we expect both operations to be compatible in referential and non-referential contexts. This is borne out by examples such as (20a) and (20b):

(20) Bound reading

    (a) Me preocupa que *a Juan*$_i$ viera su$_i$ madre en la fiesta,
          CL worry-Pres.1sg that to Juan see-Subj.3sg his mother at the party
          y no a Pedro.
          and not to Pedro

    Unbound reading; *bound reading

    (b) Me preocupa que su madre$_{*i/j}$ viera a Juan$_i$ en la fiesta,
          CL worry-Pres.1sg that his mother see-Subj.3sg to Juan at the party
          no a Pedro.
          not to Pedro

          "I worry that Juan might have been seen by his mother, and not Pedro."

These results exhibit binding amelioration effects, pointing to the fact that the focused DP in (20a) sits in spec-TP. Similarly Costa (2000) and Pires (2007) argue that subjects in European and Brazilian Portuguese are in spec-TP and hence they are A-binders.

(21) (a) Todos os coelhos$_i$ comem a sua$_i$ cenoura [European Portuguese]
        all the rabbits eat-Pres.3pl their carrot
        "All rabbits$_i$ eat their$_i$ carrot."

    (b) Todos os coelhos$_i$ cuidam da propria$_i$ cria [Brazilian Portuguese]
        all the rabbits take.care-Pres.3pl of the own offspring
        "All rabbits$_i$ take care of their$_i$ offspring."

In Spanish pre-verbal subjects can be focused and yet they can A-bind an anaphor:

(22) (a) Todos los conejos$_i$ cuidan de sus$_i$ crías,
        all the rabbits take.care-Pres.3pl of their offspring
        no todos los canguros.
        not all the kangaroos
        "All rabbits take care of their offspring, but not kangaroos."

    (b) A las crías$_i$ cuidan sus$_i$ madres, no a las parejas.
        of the offspring take.care-Pres.3pl their mothers, not of the partners
        "Mothers take care of their offspring, but not of their partners."

    (c) Todos los conejos$_i$ cuidan de sus$_i$ crías,
        all the rabbits take.care-Pres.3pl of their offspring
        no solo algunos.
        not only some
        "All rabbits take care of their offspring, not just some of them."

(d) A todas las crías$_i$ cuidan sus$_i$ madres, no sólo a algunas.
of all the offspring take.care-Pres.3pl their mothers not only to some
"Mothers take care of all of their offspring, not just of some of them."

The focused subjects in (22), alongside focused objects, can bind the relevant possessive pronominal. If we follow Costa (2000) and Pires (2007) in claiming that these antecedents are A-binders, we can confirm that they sit in spec-TP.

Likewise, binding effects are obtained in embedded contexts:

(23) (a) Ángela dice que todos los conejos$_i$ cuidan
Ángela says that all the rabbits take.care-Pres.3pl
de sus$_i$ crías, no todos los canguros.
of their offspring not all the kangaroos
"Ángela says that all rabbits take care of their offspring, but not all kangaroos."

(b) Es extraño que a las crías$_i$ cuidan sus$_i$ madres,
it is odd that of the offspring take.care-Pres.3pl their mothers
no a las parejas.
not of the partners
"It is odd that mothers take care of their offspring, but not of their partners."

(c) Es interesante que todos los conejos$_i$ cuidan de
it is interesting that all the rabbits take.care-Pres.3pl of
sus$_i$ crías, no solo algunos.
their offspring not only some
"It is interesting that all rabbits take care of their offspring, not just some of them."

As example (23a) shows, in non-referential contexts FF is possible and the focused QP binds the anaphoric possessive *sus*. This is predicted in our system, since no event operator is present in non-referential clauses and the focused QP sits in spec-TP, thereby being able to A-bind the possessive D *sus*.

Similarly, (23b)–(23c) illustrate CFF in referential environments. Our proposal explains the compatibility of the event operator in referential clauses and the presence of a focused QP – subject in (23b) and object in (23c) – since the former occupies spec-CP whereas the latter is in spec-TP. Being in spec-TP, the focused QP can A-bind the anaphoric D.

4.3 Montalbetti Effects

Montalbetti (1984) effects only show up when a pronoun is preverbal (Pires 2007; Alexiadou and Anagnostopoulos 1998), as seen in the Catalan examples in (24) and in Spanish in (25).

(24) (a) *Tots els studiants$_i$ es pensen que ells$_i$ aprovaran. [Catalan]
all the students CL think-pres.3pl that they pass-fut.3sg

(b) Tots els studiants$_i$ es pensen que aprovaran ells$_i$.
all the students CL think-pres.3pl that pass-fut.3sg they
"All students think they will pass."

(25) (a) *Todos los estudiantes$_i$ piensan que ellos$_i$ aprobarán. [Spanish]
　　　 all the students think-PRES.3PL that they pass-FUT.3SG

　　 (b) Todos los estudiantes$_i$ piensan que aprobarán ellos$_i$.
　　　 all the students think-PRES.3PL that pass-FUT.3SG they
　　　 "All students think they will pass."

Assuming with Barbosa (1996) and Pires (2007) that only pronouns in A-positions can be construed as bound variables, the difference between (24a) and (25a), on the one hand, and (24b) and (25b), on the other, can be accounted for in terms of the position occupied by the pronoun. In (24a) and (25a) the explicit preverbal subject pronoun is in an A'-position, and hence it cannot be interpreted as bound by the QP. By contrast, postverbal pronominal subjects are in an A-position and thus allow for the bound reading (provided that postverbal subjects remain in their original position, spec-vP).

　　If a strong pronoun is focused, Montalbetti's effects vanish:

(26) (a) Todos los estudiantes creen que ELLOS aprobarán.
　　　 all the students think-PRES.3PL that they pass-FUTURE.3PL
　　　 "All students think that they will pass."

　　 (b) Algunos estudiantes creen que ELLOS aprobarán,
　　　 some students think-PRES.3PL that they pass-FUTURE.3PL
　　　 pero los demás no.
　　　 but the rest no
　　　 "Some students think that they will pass, but not the others."

　　 (c) Algunos estudiantes creen que solo a ellos
　　　 some students think-PRES.3SG that only to them
　　　 aprobará este profesor.
　　　 pass-FUTURE.3PL this professor
　　　 "Some students think that this professor will pass only them."

This indicates that, when focused, pronouns can be construed as variables bound by a preceding quantified DP; but this presupposes that the pronoun must occupy an A-position. The only A-position in the preverbal field is spec-TP. Hence the focused constituent in the above examples must sit in spec-TP.

　　So, is there a possible distinction between referential and non-referential contexts in relation to Montalbetti's effects? The examples in (26) include the non-referential verb *creer* ("think," "believe"). The relevant bound interpretation for the focused pronoun can be explained by claiming that it undergoes movement to an A-position, spec-TP. If our proposal that FF does not intervene with operator movement in referential clauses is correct, the prediction is that focused pronominals should not display Montalbetti's effects, and this is exactly what the examples in (27) show:

(27) (a) Todos los estudiantes se sorprendieron de que ellos hubieran suspendido.
　　　 all the students CL surprise-PAST.3PL of that they had-SUBJ.3PL failed
　　　 "All students were surprised that they had failed."

(b) | Algunos | estudiantes | se | sorprendieron | | de | que | ellos | hubieran | aprobado, |
| some | students | CL | surprise-Past.3PL | of | that | they | had-SUBJ | pass-Part.3PL |

pero los demás no.
but the others no

"Some students were surprised that they had passed, but not the others."

(c) | Algunos | estudiantes | se | sorprendieron | | de | que | solo | a | ellos /incluso | a |
| some | students | CL | surprise-Past.3PL | of | that | only | to | them /even | to |

ellos hubiera aprobado este profesor.
them had-SUBJ.3SG pass-Part.3PL this professor

"Some students were surprised that this professor had passed only them/even them."

In the above examples the preverbal focused pronominals exhibit a double interpretation: a) they refer to an independent antecedent in the context, and b) they are coreferential with the quantified DPs *todos los estudiantes / algunos estudiantes*. It is this second reading we are interested in. In order to establish the coreference interpretation, it is necessary that they sit in an A-position, namely spec-TP. Otherwise, the bound reading would be ruled out.

5. Conclusion

In this paper, we have claimed that the cross-linguistic variation shown in English and Spanish RTs with referential predicates is due to the fact that they belong to different discourse type languages (Miyagawa 2010; Jiménez Fernández 2010, 2011). We follow Haegeman and Ürögdi's (2010) hypothesis which states that the restrictions we observe in these structures in English occur because they have an event operator that blocks movement of focused constituents to CP. We argue that in Spanish the same event operator characterizes referential constructions; however, in this language focus constituents move to TP and therefore no blocking effect occurs.

Following Miyagawa's Feature Inheritance Parameter, we have argued that, in English, discourse features are valued in CP, while in Spanish they are valued in TP. As we have already said, in Spanish spec-TP is an A-position which is targeted by constituents for either phi-agreement or discourse agreement, or both. This is why focus fronting in the language exhibits A-properties. However, universally discourse features start at C, and depending on the language they are inherited by T. This explains why in some languages, like English, focus fronting targets spec-CP, whereas in other languages the same operation targets spec-TP. This means not only that they target different landing sites, but also that they lead to A'- and A-movement, respectively

In order to support our hypothesis we have shown that, in binding and quantificational relations, moved constituents in Spanish exhibit an A-movement type suggesting that they land in TP.

Our hypothesis predicts that RTs will be allowed in all languages characterized as discourse-prominent. We have already shown that this is the case in Spanish. We will explore this hypothesis in the future in more detail, extending our proposal to other languages.

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Italian Polarity Fragments as Elliptical Structures

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Abstract: A class of Italian fragments is discussed in which a phrase is followed by the equivalent of either *yes* or *no*. The discourse pragmatics of the fragments makes clear that contrastive topicalization is involved, and a range of syntactic evidence makes it possible to argue that the fragments are derived via clitic left dislocation of the topic plus deletion of a TP. These fragments can also be shown to be island sensitive, and the pattern of island sensitivity complies with a non-repair theory of islands and with the pragmatics of contrastive topics. Contrastive topics might also play a role in the licensing of the TP ellipsis.

Keywords: fragments; responding particles; contrastive topics; island repair.

1. Polarity Fragments

A class of fragments can be observed in Italian that consist in a phrase followed by a particle equivalent to either English *yes* or *no*:

(1) (i) (a) I ragazzi hanno cenato?
             "Have the kids had dinner?"
         (b) Gianni sì.
             "Gianni yes."
     (ii) (a) Hai letto il programma d'esame?
             "Have you read the required readings?"
         (b) Il libro sì.
             "The textbook yes."
     (iii) (a) Vuoi andare a cena fuori?
             "Would you like to eat out?"
         (b) In pizzeria no.
             "At the pizza restaurant no."
     (iv) (a) Vuoi fare qualcosa insieme domenica prossima?
             "Would you like to do something together next Sunday?"
         (b) Andare al mare no.
             "Go to the beach no."

The particles are stressed, and no pause or intonational break is heard between the two elements. As can be seen in (1), the initial XP can be a DP, a PP, or a clausal constituent.[1]

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1 A terminological point: in the literature these expressions have been most often studied in coordinated structures

I will call these fragments "polarity fragments" to distinguish them from simple fragments (Merchant 2004):

(2)   (a) What did she buy?
       (b) A book.

In sections 2 and 3 I will argue that in a polarity fragment of the form *XP PARTICLE* the XP is a contrastive topic, and the fragment is obtained by clitic left dislocation of the XP and deletion of a TP constituent. In section 4 I will show that polarity fragments are island sensitive, and their properties are as expected under the assumptions in Barros (forthcoming). Section 5 discusses a difficulty in the licensing of ellipsis.

2. Contrastive Topics

Take an analysis of Contrastive Topics (CTops) along the lines of Büring (2003), built on the Alternative Semantics (AS) for focus. AS assumes that constituents have both an ordinary semantic value and a focus value, which includes the semantic values obtained by replacing the focused constituent with alternatives of the same semantic type. At the sentential level, a focus value is thus a set of propositions:

(3)   (a) $[[\text{Gianni read } Ulysses_F]]^f = \{[[\text{Gianni read } Ulysses]], [[\text{Gianni read } The\ Trial]],$ Gianni read *The Magic Mountain*]] . . .}
       (b) [[What novel did Gianni read?]]

There is a requirement of congruence (von Stechow 1991; Roberts 1996): informally, the focused portion of a declarative with narrow focus must correspond to the *wh*-word in an interrogative, and the question expressed by the interrogative must be under discussion. The declarative in (3a) is thus congruent to the question in (3b).[2]

Büring introduces a further notion, the Contrastive Topic)-value (CT-value). CT-values are obtained from focus values by replacing the topic marked constituent with alternatives of the same semantic types. The result is a set of sets of propositions (4a), which can also be thought of as a set of questions (4b):

(4)   (a) $[[\text{Gianni}_{CT} \text{ read } Ulysses_F]]^{ct} = \{\{[[\text{Gianni read } Ulysses]], [[\text{Gianni read } The\ Trial]],$ [[Gianni read *The Magic Mountain*]] . . .}, {[[Maria read *Ulysses*]], [[Maria read *The Trial*]], [[Maria read *The Magic Mountain*⟧ …}, {[[Luca read *Ulysses*]], [[Luca read *The Trial*]], [[Luca read *The Magic Mountain*]] …} …}
       (b) {[[Which novel did Gianni read?]], [[Which novel did Maria read?]], [[Which novel did Luca read?]], … =}

under the label "pseudostripping" (Depiante 2000). Here, on the other hand, I will focus on answers. Since the whole range of structural and interpretive properties is not guaranteed to be shared among the two constructions, the new label is justified on prudential grounds. Only recently have I become aware of Saab (2008), which makes many of my same points with regard to Spanish. I refer the reader to Saab's work for details.

2   For concreteness, I will assume Roberts's (1996) notion of congruence as identity, but cf. Rooth (1992) for a different formulation.

A CT-congruence is also introduced: a sentence with a contrastive topic must answer a question that belongs to a set of similar questions that are part of a strategy to answer a superquestion currently under discussion. The subquestions can be explicit or implicit. *Gianni$_{CT}$ read Ulysses$_F$* in (4a) can be used in the context of a strategy to answer a superquestion that can be paraphrased as the multiple *wh*-question *Who read which novel?* In Italian, multiple *wh*-questions are not fully acceptable, but the equivalent of (4a) can still be used to address, for instance, a question like *Which novels did the students read?*, since it answers the subquestion *Which novel did Gianni read?*, Gianni belonging to the set of students.

   To see the relevance of contrastive topics to the analysis of polarity fragments, consider the following contrast:[3]

(5)   (a)   I dottorandi sono venuti alla cena sociale?
          "Did the grad students come to the social dinner?"
      (b)   #Gianni.
          "Gianni."
      (c)   Gianni sì.
          "Gianni came."

(5a) consists of a focused *Gianni*. For it to be felicitous, a *wh*-question must be under discussion. But it is actually the polar question in (5a) that is under discussion, whence the infelicity of (5b). In (5c), instead, the polarity fragment is felicitous. Because of its contrastive topic *Gianni*, it presupposes a set of questions of the form *Did X come at the social dinner?*, where X varies over the set of grad students. So the polarity fragment *Gianni sì* can be thought of as answering the question *Did Gianni come to the dinner?* which is part of a strategy to answer the superquestion *Did the grad students come to the dinner?*, the grad students being Gianni, Maria, Luca, and others.

   The CT-value of a polarity fragments is thus as follows:

(6)   (a)   Gianni è venuto alla cena sociale?   [implicit subquestion to (5a)]
          "Did Gianni come to the social dinner?"
      (b)   Gianni sì (= Gianni$_{CT}$ è venuto alla cena sociale).
          Gianni yes = ("Gianni came to the social dinner")
      (c) $[[$Gianni sì (= Gianni$_{CT}$ è venuto alla cena sociale)$]]$ ^{ct} = {{[[Gianni è venuto alla cena sociale]], [[Gianni non è venuto alla cena sociale]]}, {[[Maria è venuta alla cena sociale]], [[Maria non è venuta alla cena sociale]]}, {[[Luca è venuto alla cena sociale]], [[Luca non è venuto alla cena sociale]]} …}

The conversational implicature which is characteristic of CTops is also observed in Italian polarity fragments (Büring 2003):

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3   Büring's examples have a *CTop-Foc* structure. To the extent that polarity fragments can be assimilated, one can say that particles express polarity focus. Cf. Wilder (2013) for the interaction of contrastive topics and polar subquestions in English.

(7) (a) I dottorandi sono venuti alla cena sociale?
        "Did the grad students come to the social dinner?"

    (b) Gianni sì.   [convers. impl. = Some other grad student did not come.]
        Gianni yes

    (c) Gianni sì. Anche Maria. In effetti, credo siano venuti tutti.
        "Gianni did. Maria did too. Actually, I think everybody came."

(7b) implicates that other graduates students did not come. As expected of a conversational impli-
cature, this content is defeasible, as shown in (7c).

3. Left Dislocation

3.1 Fragments Are Left Peripheral

Most previous analyses of pseudostripping adopt a deletion approach:[4] see Bosque (1984), Depi-
ante (2000) and Vicente (2006) on Spanish, Poletto (2010) on Italian, and Morris (2008) on
French. In a fragment of the form *XP no*, both the XP and the particle occupy left peripheral
positions and the TP is deleted. These analyses also share the assumption of a high PolP (also
known as ΣP) which hosts the polarity particle. On the other hand, in Holmberg's (2013) discus-
sion of polarity particles, the particles are located in a left peripheral focus position. The structure
sketched in (8b) is underspecified accordingly:

(8) (a) I dottorandi sono venuti alla cena sociale?
        "Did the grad students come to the social dinner?"

    (b) [$_{CTop}$ Gianni$_i$ [Top [$_{FocP/PolP}$ no [Foc?/Pol? ~~[… [$_{TP}$ non è venuto t$_i$]]~~]]]]
        "Gianni didn't."

The focus position of the particle could be the very same position occupied by simple fragments
(Merchant 2004). *Gianni*, on the other hand, is moved from its clause internal position to a con-
trastive topic position situated above the focus projection that hosts the particle. Notice that the
topicalized XP obligatorily precedes the particle:

(9) (a) I dottorandi sono venuti alla cena sociale?
        "Did the grad students come to the social dinner?"

    (b) *No Gianni.
        no Gianni

The position of the particles in polarity fragments cannot be too low. Namely, it cannot be as low
as Zanuttini's (1997) PolP (NegP), which hosts clausal negation in Italian. Preverbal subjects are
higher than PolP, given the surface order SUBJ-NEG. Things being so, one would expect frag-
ments like the following, in which *lui* is not a CTop but a non-contrastive subject. This prediction
does not seem to be borne out:

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4   Cf. López (1999) for a null proform approach. On the other hand, his arguments against a gapping
analysis also apply to Italian.

(10) (a) Gianni ha preso il treno?
      "Did Gianni take the train?"

   (b) Lui sì.
      "He did."

The fragment here cannot be interpreted as merely expressing a positive answer to the question (as a bare *sì* would) but introduces the implicature that somebody else in the relevant contrast set have not taken the train (see above). On the other hand, (10b) would be felicitous in a context in which the question is part of a strategy to answer a superordinate question, e.g., *Did your friends take the train?* This is expected if *Gianni* is a CTop.[5, 6]

Modulo some finer grained issues on the nature of the focus projection involved in Italian, see Rizzi (1997), Brunetti (2004), and Cruschina (2011), the focus hypothesis is in line with the cartographic analysis of the Italian left periphery. More precisely, the fact that a contrastive topic must precede a left peripheral focus is incorporated in the topic cartography proposed by Frascarelli and Hinterhölzl (2007) and Bianchi and Frascarelli (2010):

(11) $[_{ShiftP}$ Aboutness-Topic $[_{ContrP}$ Contrastive-Topic $[_{FocP}$ Focus $[_{FamP*}$ Givenness-Topic $[_{FinP} [_{IP} \dots]]]]]]$

The restrictions on the co-occurrence between the particle and topics can be taken as evidence for a structural approach to these elliptic structures. Approaches that do not assume deletion of a full sentential structure need to stipulate an ordering constraint.

3.2 Dislocated Elements

I propose that polarity fragments are the result of Clitic Left Dislocation (CLLD) plus ellipsis.[7] If so, one expects elements that can be left dislocated to be available in fragments and, all other things being equal, elements that cannot be left dislocated are expected not to be available in fragments.

This prediction seems to be borne out. Referential DPs, PPs, finite and nonfinite clauses can all be left dislocated and can also appear in polarity fragments:

(12) (i) (a) Il   mio   cane,   non   l'ho   mai   picchiato.
              the   my   dog   not   it-have1sg ever   hit
              "I have never hit my dog."

      (b) Il   mio   cane   no.
              the   my   dog   no

   (ii) (a) A   mia   sorella,   non   (le)   ho   mai   fatto   scherzi.
              to   my   sister   not   her   have1sg ever   done   tricks
              "I have never played tricks on my sister."

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5   Cf. Kazenin (2006) and Laleko (2010) for similar remarks on a Russian analogue of polarity fragments. As for Italian, some qualifications would be in order. For arguments that the implicature is indeed the result of contrastive topicalization and not of the mere choice of a non-null subject, I refer the reader to Servidio (forthcoming).

6   A consequence of the high position of the particle is that the deleted structure is large enough to include Zanuttini's PolP. This might or might not have implications for the licensing of ellipsis. See also note 11 below.

7   Cf. Bernini (1995) and Poletto (2010) for the same insight. For a survey of the Italian facts on CLLD, see Benincà (1988).

    (b) A   mia sorella no.
         to   my   sister   no

(iii) (a) Che saresti venuto,   me   l'avevi   promesso.
         that would come2sg to-me it-have2sg   promised
         "You promised to come."

    (b) Che saresti   venuto   no.
         that would   come2sg no

(iv) (a) Di   venire,   me   l'avevi   promesso.
         of   come   to-me it-have2sg   promised
         "You promised to come."

    (b) Di   venire   no.
         of   come   no

Not all quantificational phrases can be left dislocated in Italian. The generalization seems to be that QPs that can be interpreted specifically can be left dislocated, and if dislocated they are interpreted as specific:

(13) (a) Alcuni (ragazzi), non li   ho   visti   alla   festa.
       some   guys   not   them have1sg seen   at-the party
       "I have not seen some guys at the party (namely, Luca, Gianni, and Mario)."

    (b) Qualcuno,   non l'ho   visto   alla   festa.
       Somebody   not   them- have1sg seen   at-the party
       "I have not seen somebody at the party (namely, Luca)."

    (c) Tre   (ragazzi), non li   ho   visti   alla   festa.
       three   guys   not   them have1sg seen   at-the party
       "I have not seen three guys at the party (namely, Luca, Gianni, and Mario)"

    (d) Molti   (ragazzi), non li   ho   visti   alla   festa.
       many   guys   not   them have1sg seen   at-the party
       "I have not seen many guys at the party (namely, Luca, Gianni, and Mario . . .)."

Such QPs can also appear in polarity fragments, as observed by Poletto (2010):

(14) (a) Alcuni (ragazzi) no.
       some   guys   no
    (b) Qualcuno   no.
       somebody   no
    (c) Tre   (ragazzi) no.
       three   guys   no
    (d) Molti   (ragazzi) no.
       many   guys   no

QPs that cannot easily be interpreted as specific cannot be dislocated or appear in fragments:[8]

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8   For some speakers, the examples in (16) are acceptable under a special, wide-scope negation reading, which is also available for such QPs in some marked non-elliptical constructions that might be the underlying sources.

(15) (a) *Nessuno, (non) l'ho visto alla festa.
       nobody not him-have seen at-the party

   (b) *Nessun ragazzo (non) l'ho visto alla festa.
       no guy not him-have seen at-the party

   (c) *Ognuno, non l'ho visto alla festa.
       everyone not him-have seen at-the party

   (d) *Tutti, non li ho visti alla festa.
       all not them have seen at-the party

(16) (a) *Nessuno no.
       nobody no

   (b) *Nessun ragazzo no.
       no guy no

   (c) *Ognuno no.
       everyone no

   (d) *Tutti no.
       all no

Other elements that can be dislocated and can appear in fragments are bound pronouns:

(17) (a) Suo$_i$ figlio, ognuno$_i$ vorrebbe farlofelice.
       "Everyone would like to make their own son happy."

   (b–i) C'è qualcuno che ognuno vorrebbe fare felice?
       "Is there anybody that everyone would like to make happy?"

   (b–ii) Suo$_i$ figlio sì.
       his own son yes

On the other hand, the following example triggers a Condition B violation both in a fragment and in a left dislocated sentence:

(18) (a) *Lui$_i$, Mario$_i$ non lo$_i$ apprezza artisticamente.
       him$_i$ Mario$_i$ not him$_i$ appreciate artistically

   (b–i) Marco$_i$ apprezza qualcuno artisticamente?
       "Does Marco appreciate anybody artistically?"

   (b–ii) #Lui$_i$ no.

Counterexamples are direct object reflexives that cannot be dislocated but are marginally acceptable in fragments:

(19) (a) *Se stesso, Marco si apprezza artisticamente.
       himself Marco himself appreciates artistically

   (b) Marco$_i$ apprezza qualcuno artisticamente? ("Does Marco appreciate anybody artistically?")
       (?)Se stesso sì.
       himself yes

4. Island Sensitivity

Further evidence in support of a full sentential structure comes from the fact that polarity fragments display island sensitivity. Here are some examples of extraction of topics from strong islands:

(20) *Relative Clauses*

    (i)   (a) Hai conosciuto gli amici che hanno fatto un regalo a ognuno dei ragazzi?
                "Did you meet the friends that gave a present to each of the kids?"

         (b) #A Marta   no.
              to   Marta   no

    (ii) (a) Alfredo ha scelto il candidato che hanno segnalato i suoi colleghi?
                "Did Alfredo choose the applicant that his colleagues recommended?"

         (b) #Manfredi   no.
              Manfredi   no

(21) *Adjuncts*

    (i)   (a) Avverti tua madre prima di andare da qualche parte?
                "Do you tell your mother before you go anywhere?"

         (b) #In palestra   no.
               to   gym   no

    (ii) (a) Chicco piange sempre quando qualcuno lo rimprovera?
                "Does Chicco always cry when somebody scolds him?"

         (b) #La zia   no.
               her   aunt   no

(22) *Complex DPs*

      (a) Sta circolando la voce che i ragazzi vogliano lasciare la scuola?
           "Is there a rumor around that the kids want to leave school?"

      (b) #Gianni no.
           Gianni no

(23) *Sentential Subjects*

      (a) Che i   ragazzi vogliano   lasciare la   scuola ti   sorprenderebbe?
           that the kids   wantPresSubj3pl leave   the   school you surprise
           "Would the fact that the kids want to leave school surprise you?"

      (b) #Gianni no.
           Gianni no

The island effects are expected if contrastive topics can be thought of as derived via Clitic Left Dislocation, which is known to be island sensitive (Cinque 1990).[9] Disregarding the particle, the fragment in (20i-b) would be assimilated to the degraded (24a), as opposed to (24b):

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9   On whether the derivation of CLLD involves movement, see Cecchetto (1999) vs. Frascarelli (2004).

(24) (a) ?*A Gianni, non conosco gli amici che (gli) hanno fatto un regalo.
        to Gianni not know the friend that (to-him) has made a present
    (b) A Gianni, non so chi (gli) abbia fatto un regalo.
        to Gianni not know who (to-him) have given a present

In the literature on simple fragments and sluicing, two approaches to island (in)sensitivity have been developed.

Merchant (2008) and Griffiths and Lipták (forthcoming) defend the PF repair theory of islands. Griffith and Lipták (forthcoming) argue that island-violating movement in the narrow syntax is repaired by deletion, but in some contrastive contexts the covert movement of a focused constituent in the antecedent across an island cannot be repaired, since it occurs after Spell-Out.

Barros (forthcoming) proposes a non-repair approach: island violations cannot be repaired by deletion, and are expected to cause unacceptability. Whenever a putative island violating fragment or sluicing is acceptable, a short source is exploited that has no island crossing in the first place:

(25) Jack heard that Sally is dating someone, I wonder who.
    = I wonder who Jack heard she is dating.   (Non-Short Source)
    = I wonder who she is dating.   (Short Source)

In the light of the facts in (20)–(23), one might ask why Barros-style short sources are not available for polarity fragments. The reason are the constraints introduced by the interpretation of CTop. The subquestion answered by the fragment must be part of a strategy to answer the question under discussion. Typically, short sources do not qualify:

(26) (a) Hai conosciuto gli amici che hanno fatto un regalo a ognuno dei ragazzi?
        "Did you meet the friends that gave a present to each of the kids?"
    (b) #[A Marta]$_{CT}$ no.
        to Marta no

(26a) introduces a QUD. If (26b) is interpreted according to the matrix TP in (26a), it presupposes the subquestion *Did you meet the friend(s) that gave a present to Marta?*, which, taken together with other subquestions of the same form, can answer the QUD introduced by (26a). The result is still inacceptable though, because of the island violation. If (26b) is interpreted according to the island-internal TP, (26b) is not part of a strategy to answer (26a): whether any friend gave a present to Marta does not bear on the issue whether for each kid I have met the people who gave them a present.

On the other hand, if one makes salient a QUD corresponding to a short source, the fragment becomes fine with the interpretation corresponding to the short source:

(27) (a) Conosci l'amico che ha fatto un regalo a tutti i ragazzi?
        "Do you know the friend that gave a present to all the kids?"
        [Presupposes that there is a guy who made a present to everybody.]
    (b) A Marta no. = "The guy did not make a present to Marta."

Examples (22) and (23) also are more acceptable if modified as follows and interpreted according to the island internal TP (namely, as the claim that Gianni does not want to leave school):

(28) (a) Sta circolando la voce che i ragazzi vogliono lasciare la scuola?
       "Is there a rumor around that the kids want to leave school?"
      (b) %Gianni no. = "Gianni doesn't want to leave school."

(29) (a) Che i ragazzi vogliano lasciare la scuola ti sorprende?
       "Does it surprise you that the kids want to leave school?"
      (b) %Gianni no. = "Gianni doesn't want to leave school."

5. Parallelism and Accommodation

Here I am proposing that polarity fragments should be analyzed as full sentential structures in which a portion of structure is deleted under an appropriate condition on ellipsis. In this perspective, at least one difficulty arises. Recent formulations of the conditions on ellipsis share the assumption that a degree of parallelism between the antecedent and the elliptical structure is obligatory:

(30) (a) Marco ha letto i testi d'esame?   (with broad focus)
       "Did Marco read the required readings?"
      (b) Il libro$_i$ sì [$_{TP}$ ~~Marco ha letto t$_i$~~].
       "He did read the textbook."

The definite plural *i testi d'esame* is in situ, and is neither focused nor topicalized, so the trace of the extracted CTop in (30b) is not paralleled in (30a).[10] Conditions on ellipsis that require syntactic identity, e.g., Rooth (1992), are not satisfied, and Merchant's (2001, 2004) condition based on mutual entailment is not satisfied either, because it assumes the existential closure of traces: things being so, the closure of (30b) entails the antecedent in (30a), but not vice versa.[11]

The explanation for the acceptability of the fragment in (25) might be accommodation. Authors such as Fox (1999) and van Craenenbroeck (2013) have claimed that an antecedent for ellipsis can be accommodated, provided that a trigger is present. Fox (1999, 77) defines a trigger as "pronounced non-F[ocus]-marked material which is absent in A[ntecedent]." Van Craenenbroeck (2012) discusses contrastive topicalization out of ellipsis sites:

(31) Chocolate$_i$ I like t$_i$, but peanuts$_j$ I don't [$_{VP}$ ~~like t$_j$~~].

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10   The problem would be solved if one adopted a notion of Quantifier Raising (QR) as a free, optional operation that can also apply to non-quantificational phrases, as in Heim and Kratzer (1998). Such proposal and the very notion of QR are controversial and its application is now thought to be subjected to much stricter requirements: e.g., Fox (1995) and Reinhart (2006). I will not further pursue this line of analysis.

11   For simplicity, I abstract away from the important issue of how the polarity particles in the fragments fare with respect to the conditions on ellipsis. Recent syntactic theories of responding particles, e.g., Holmberg (2013) and Thoms (2012) impose a parallelism constraint which by hypothesis would not satisfied in the general case of polarity fragments. The proposal on accommodation formulated below should avoid any potential problem. See Servidio (forthcoming) for discussion.

Notice that here, unlike in (30b), the CTop in the elliptical sentence is paralleled by a CTop in the antecedent. On the basis of (31), van Craenenbroeck proposes that CTops should be assimilated to foci as far as accommodation is concerned, i.e., they should not trigger the accommodation of an antecedent.

Suppose on the contrary that a polarity fragment can trigger the accommodation of an appropriate antecedent. This antecedent would be a polar question that is presupposed via CT-congruence. It must be a question such that can enter in a strategy to answer the current QUD. In the case of (30), the QUD is *Did Marco read the required readings?* A strategy to answer it might involve questions like *Did Marco read the textbook?*, *Did Marco read Chomsky's paper*?, *Did Marco read the lecture notes?*, and so on. The fragment in (30) is interpreted as answering the question *Did Marco read the textbook?* The fragment can now be interpreted as a direct answer to the latter question. In order to get rid of the parallelism problem, I propose that *il libro* is topicalized in the accommodated antecedent itself:[12]

(32) (a) Marco ha letto i testi d'esame? QUD_1
          "Did Marco read the required readings?"

                                                      Accommodate:
     (b) Il libro, Gianni l'ha letto? QUD_2 (subquestion)
          "The textbook, did Gianni read it?"
     (c) Il libro sì. = (Il libro, l'ha letto.)
          "He did read the textbook."

Is there any evidence for the actual antecedent of a polarity fragment to be a subquestion presupposed by its CT-marking? In fact, the hypothesis derives a peculiar pattern of polarity fragments as opposed to mere responding particles. In many languages, responding particles are known to do "double duty" (Farkas and Roelofsen 2013): a responding particle *yes* or *no* typically expresses the polarity value of its implicit content, but it can (at least in some cases and to some extent) express a relative polarity value, i.e., agreement or disagreement with the polarity of the antecedent. Italian is such a language (Bernini 1995):

(33) (a) Qualcuno   non   sta   bene?
          someone   not   is   well
          "Is someone not feeling well?"
     (b) Sì (= qualcuno non sta bene).
          "Yeah (= someone is not feeling well)."
     (c) Sì, Gianni.
          "Yeah, Gianni (is not feeling well)"
     (d) Gianni sì. = "Gianni is feeling well."

A bare *sì* can express agreement with the negative value in (33a), but the polarity fragment *Gianni sì* in (33d) can only be interpreted as positive. The source of the negative interpretation

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12 Contrastive topics in questions have been integrated in the AS theory of topics (Kamali and Büring 2011).

is the presence of sentential negation in (33a).[13] If the actual antecedent of *Gianni sì* is a positive interrogative, no negation is available for the relative reading of *sì*.

6. Conclusions

I have argued that polarity fragments are elliptical constructions composed of a contrastively topicalized constituent followed by a polarity particle, with deletion of a TP constituent. In a broader theoretical perspective, the relevant implications can be summed up as follows:

- The deletion account of polarity fragments can be taken as indirect evidence for a deletion account of responding particles, contra Farkas and Roelofsen (2013) and Krifka (2013), at least to the extent that isolated responding particles can be analyzed as polarity fragments modulo topicalization.
- The analysis supports a non-repair approach to islands: when island-violating fragments are indeed acceptable, their interpretation reveals an underlying short source.
- If the speculation in section 5 is on the right track, polarity fragments represent an exception to van Craenenbroeck's (2013) generalization that material extracted from an ellipsis site does not accommodate antecedents for ellipsis.

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13   See Kramer and Rawlins (2011), Farkas and Roelofsen (2013), Holmberg (2013), and Krifka (2013) for different implementations.

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Word Order and Scope in Hungarian Finite Embedded Non-argument Clauses

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Abstract: In my paper I contrast the scope properties of different types of finite adjunct clauses in Hungarian and (mainly) English. Finite clauses have been shown to interact with their selecting clauses in spite of the expected locality restrictions in a number of constructions. The present paper discusses high and low readings in temporal clauses, quantifier scope interaction, and binding data. The paper claims that high and low readings and dependent time interpretations are not the result of the same mechanism. While, similarly to high and low interpretations, the presence of the temporal operator is a prerequisite for the availability of dependent time interpretations, in itself it is not sufficient when other operators also appear in the sentence, as indicated by data coming from Hungarian.

1. Introduction: Finite Embedding

While infinitival clauses are standardly expected to interact with their selecting clauses in different ways as a result of their deficient nature, irrespective of the assumptions concerning the exact sources of deficiency, finite clauses are usually assumed to form non-transparent domains. However, Rutherford (1970) and Emonds (1970) discuss constructions where finite clauses also behave differently, depending on whether they are main or embedded clauses, with certain phenomena that have come to be called Main Clause Phenomena (MCP) being restricted to, as the term itself suggests, main clauses only. Subject-Auxiliary Inversion, argument fronting, and V2 phenomena are some representative examples. Recently there has been growing interest in the kind of data where finite clauses interact with their selecting clauses, often even in spite of apparent locality restrictions (Artstein 2005; Emonds 2004; Haegeman 2003, 2010; Johnston 1993; Kusumoto 2008; Lipták 2005).

Embedded finite clauses are generally not regarded as being deficient in any way, but there is a property that they share with infinitival clauses: the mere existence of more than one clause domain makes potential interaction with the main or selecting clause possible. One difference between finite and infinitival clauses, then, is that while infinitival clauses are always embedded in nature, finite clauses can be embedded or main clauses as well as simple sentences.

The differences between finite embedded and finite main clauses have been accounted for in a number of different ways. Cartographic approaches to clause structure assume different types of differences at the CP layer of the sentence: Haegeman (2003) and Sawada and Larson (2004) assume different left peripheries, Haegeman (2010) proposes a uniform CP layer with differences in the types of operator movement. In an Optimality-Theoretical framework Grimshaw (2006)

offers an account in terms of constraint families evaluating the same structural configuration at different locations.

2. Data: The Properties of Hungarian

The first part of this section presents the general properties of Hungarian, followed by the data the present study aims at accounting for. In the second subsection I summarize earlier proposals discussing similar constructions and point out some problems the Hungarian data raise. The main focus is going to be on Artstein's (2005) semantically-based account and Kusumoto's (2008) syntax-based proposal.

2.1 The Data

Hungarian is a language with a scope-rigid pre-verbal field, while post-verbally the order of expressions is free, leading to potential ambiguity. In a simple sentence inverse scope readings are possible in the post-verbal field, as opposed to the pre-verbal field (1).

(1) (a) Többször is   meghívtam   mindenki-t.
          several times invited-1SG everyone-ACC
          "I invited everyone several times."
          ✓ several times > everyone
          ✓ everyone > several times
     (b) Többször is   mindenki-t   meghívtam.
          several times everyone-ACC   invited-1SG
          "I invited everyone several times."
          ✓ several times > everyone
          * everyone > several times
     (c) Mindenki-t   többször is   meghívtam.
          everyone-ACC   several times invited-1SG
          "I invited everyone several times."
          ✓ everyone > several times
          * several times > everyone

2.1.1 High and Low Readings in Temporal Clauses

As observed in Lipták (2005, 143), some English sentences containing temporal subordinate clauses can be ambiguous (2).

(2) I will leave after you said that Peter left.
     high: "I leave after the time t when you tell me that Peter has left."
     low: "I leave after time t. You tell me that Peter left at time t."

In the Hungarian equivalent only the high interpretation is available (3).

(3) Azután   indulok   el [miután   szólsz, [hogy Péter elindult]].
     that-AFTER   leave-1SG PV what-AFTER   tell-1SG   that   Peter left-3SG
     high: "I leave after the time t when you tell me that Peter has left."

In a different Hungarian construction, however, low readings are available as well (4).

(4) Addig   maradok, [a-meddig   mondod [hogy   maradjak]]
     that-while stay-1SG   rel-what-while say-2SG that   stay-SUBJ-1SG
     high: "I stay until the time you keep saying that I should stay."
     low: "I stay until time *t*. You say I should stay until time *t*."

One important difference between the English sentence and one of the Hungarian sentences as opposed to the other is in the nature of relativization. The Hungarian sentences are both relative clauses with a constituent in the main clause introducing the embedded finite temporal clause: *azután* ("that-after/after that") in (3) and *addig* ("that-while/until then") in (4), a general property of Hungarian. What differs is the embedded relative pronoun: in (4) the embedded clause contains *a-meddig* ("until the time that"), with the expected, though at times optional relative marker *a-*, in (3) we have *mi-után* ("what-after") with no relative marker present, and nor can it be added to the constituent in question. The different interpretations, and, at a closer look, the different relativization strategies suggest a different underlying syntax, discussed in Lipták (2005).

While (4) is argued to be an ordinary free relative with a proper relative pronoun in the structure with the *a-* relative marker present on what would otherwise be a question word in Hungarian, Lipták (2005) argues for an IP relativization strategy in (3): the relativization of a whole IP, available for the expression of *before* and *after* relations besides the two other available options: nominalization on the one hand, and the relativization of only the *when*-phrase on the other. On the basis of the observation that the *wh*-expressions of *before*-clauses are not temporal question words and that relativization is essentially *wh*-movement, an alternative analysis is proposed: what explains the presence of the (non-temporal) *wh*-word is that the resulting structure is still a relative clause, but of a different type: "Unlike ordinary relativization where a temporal *wh*-phrase undergoes movement, in *before*-type temporal clauses it is a larger constituent that moves. A constituent that is not a temporal modifier but which does have temporal specification: a finite IP" (Lipták 2005, 152). This relativized IP can then become the complement of a temporal PP after the merger of an external D^0 head that is needed to become compatible with the postposition *előtt* ("before"; for more details see Lipták [2005]). The resulting structure is a temporal clause that is a PP from the outside, containing the relative CP within itself. Low readings are predicted to be ruled out as the movement of the RelP in the embedded clause violates the Empty Category Principle (ECP): since the embedded C^0 introduces a minimality barrier the resulting trace is not properly governed, making it impossible for the relative phrase to move in such a construction. This is in sharp contrast to the ordinary free relatives in both the English and the Hungarian sentences that allow the ambiguous interpretation.

2.1.2 Quantifier Scope

As discussed in Artstein (2005, ex. 1) in a number of languages quantificational arguments can take scope outside temporal adjunct clauses (5). In Hungarian, a language that has been claimed to wear its LF on its sleeve, temporal and non-temporal adjunct clauses pattern similarly with respect to scope taking: temporal adjunct clauses cannot override the clause boundedness of quantification

(6). The different relativization strategies discussed in 2.1.1 do not affect the interpretations, this time suggesting that it cannot be the IP relativization strategy that explains the differences.

(5)   A secretary cried before/after/when the board fired each executive.
        each executive: wide or narrow scope, both single time and dependent time reading possible

(6)   Sírt   egy   titkárnő, amikor/ miután minden vezető-t   kirúgtak.
        cried-3SG a   secretary when   after   every   executive-ACC fired-3PL
        no ambiguity, only single time interpretation

2.2 Kusumoto (2008)

Kusumoto (2008), an account of German and Japanese, claims that the class of adjunct clauses that allow dependent time readings and long-distance dependencies (high/low readings) is the same. While the German and Japanese data support this claim, with neither of the languages having either long-distance dependencies or dependent time readings, the Hungarian data discussed in the present paper contradict this claim: in Hungarian free relative temporal adjunct clauses long-distance dependencies are allowed, but dependent time readings are not: examples (4) and (6) from Lipták (2005, 143) are repeated here for the sake of contrast.

(7)   Addig   maradok, [a-meddig   mondod [hogy maradjak]]
        that-while stay-1SG rel-what-while say-2SG that   stay-SUBJ-1SG
        high: "I stay until the time you keep saying that I should stay."
        low: "I stay until time t. You say I should stay until time t."

(8)   Sírt   egy titkárnő, amikor/ miután minden vezető-t   kirúgtak.
        cried-3SG a   secretary when   after   every   executive-ACC fired-3PL
        no ambiguity, only single time interpretation

The explanation Kusumoto (2008) offers for the German and Japanese data is based on the assumption that in these languages long-distance movement is either blocked or not employed at all. The properties of Japanese temporal adjunct clauses indicate that they have no null temporal operator of their own as "the embedded tenses are always relative tenses evaluated with respect to the dominating tenses" (Kusumoto 2008, 521).

As we have seen, the Hungarian data that turn out to be the most problematic with respect to this proposal are free relative temporal adjunct clauses, where long-distance dependencies are allowed (when they are not, it can easily be explained by referring to the ECP or violations of the Head Movement Constraint [HMC]), but dependent time readings are not, suggesting that we are dealing with different types of locality violations. The data clearly indicate that Hungarian temporal adjunct clauses, as opposed to Japanese ones, can have null temporal operator movement. What needs to be identified is what blocks it from taking place in those structures where it is not possible. For the sake of completeness it should be added that, predictably, in Lipták's (2005) IP relatives there are no long-distance dependencies either. Dependent time readings are therefore not available in either type of temporal adjunct clause.

3. Explaining the Data

3.1 Binding in Hungarian and English

A pattern similar to the construction in (6) can be observed in binding constructions: while the sentence containing the quantified expression in the temporal clause is ungrammatical in the interpretation indicated (9a)–(9d), when quantification appears in the main clause the resulting structure is grammatical, irrespective of the order of the clauses (9b)–(9c).

(9) (a) *Amikor/Mi-után/ Mi-előtt   minden gyerek$_i$ lefekszik, [(pro$_i$) kap egy puszit].
           when/   what-after/ what-before every   child goes.to.bed   gets a   kiss

     (b) Amikor/ Mi-után/ Mi-előtt   (pro$_i$) lefekszik, [minden gyerek$_i$ kap egy puszit].
          when/   what-after/ what-before   goes.to.bed every   child   gets a   kiss

     (c) [Minden gyerek$_i$ kap egy puszit], amikor/ mi-után/   mi-előtt   (pro$_i$) lefekszik.
          every   child   gets a   kiss   when/   what-after/ what-before   goes.to.bed

     (d) *[(pro$_i$) kap egy puszit], amikor/ mi-után/   mi-előtt   minden gyerek$_i$ lefekszik.
                gets a   kiss   when/   what-after/ what-before every   child goes.to.bed

When the quantified expression is replaced by a constituent with no quantification the ungrammatical pattern in (9a), forming a minimal pair with (10a), becomes grammatical. This construction, however, seems to be sensitive to the ordering of the clauses: when the matrix clause containing the unpronounced *pro* subject precedes the temporal adverbial clause, the sentence is ungrammatical under the intended coindexed interpretation (10d). This is exactly the pattern we find in (9d) as well. This can be explained on the basis of Principle C of binding theory and the fact that the R-expressions are bound by the pronoun in these cases. The question is what accounts for the ungrammaticality of (9a).

(10) (a) Amikor/ Mi-után/ Mi-előtt   Péter$_i$ lefekszik, [(pro$_i$) kap   egy   puszit].
           when/   what-after/ what-before Peter   goes.to.bed   gets   a   kiss

      (b) Amikor/ Mi-után/ Mi-előtt (pro$_i$) lefekszik,   [Péter$_i$ kap egy puszit].
           when/   what-after/ what-before   goes.to.bed Peter   gets a   kiss

      (c) [Péter$_i$ kap egy puszit], amikor/ mi-után/   mi-előtt (pro$_i$) lefekszik.
           Peter   gets a   kiss   when/   what-after/ what-before   goes.to.bed

      (d) *[(pro$_i$) kap   egy puszit], amikor/ mi-után/   mi-előtt   Péter$_i$ lefekszik.
                gets a   kiss   when/   what-after/ what-before Peter   goes.to.bed

The only difference between (9a) and (10a) is in quantification, so the data indicate that the problem is related to the presence of the QP. Let us now compare the Hungarian data with similar English constructions.

As Artstein (2005) observes, quantificational arguments in temporal adjunct clauses can bind a pronoun outside the clause in English (11a). The same pattern can be observed in other languages as well, among others in Hebrew. If, for the sake of comparison, we have a look at the complete English pattern in (11) we can observe the following: both (11a) and (11b) are grammatical, with a quantified expression in the sentence as opposed to the Hungarian data in (9), where the sentence containing the quantified expression in the temporal clause is ungrammatical (9a).

(11) (a)   Before each boy$_i$ goes to sleep I give him$_i$ a kiss.
      (b)   Before he$_i$ goes to sleep, I give each boy$_i$ a kiss.
      (c)   I give each boy$_i$ a kiss before he$_i$ goes to sleep.
      (d)   *I give him$_i$ a kiss before each boy$_i$ goes to sleep.

One difference between English and Hungarian is in the nature of operator movement: while it is covert in English, Hungarian quantified expressions have extensively been argued to target their own QPs in the preverbal field. That is, in the English sentence *each boy* is not in a QP, but the Hungarian *minden gyerek* ("each child") is. What these data indicate is that it is overt operator movement, that is, the scope-transparent property of Hungarian that blocks the availability of dependent readings in Hungarian.

3.2 Previous Accounts

Artstein (2005) assumes the presence of an implicit existential determiner to account for single time and dependent time readings. In (12a) we have a single time interpretation with the embedded subject being in the scope of the Implicit Existential Temporal determiner (IET) but scoping over the main clause, while in (12b) the dependent reading arises as a result of the embedded subject taking scope over both the implicit existential determiner and the main clause.

(12) (a)   A secretary cried after [IET [each executive resigned]]
      (b)   A secretary cried after [each executive [IET [resigned]]]

Kusumoto (2008) argues against Artstein's (2005) semantically motivated account in terms of there being an implicit temporal determiner in temporal as opposed to non-temporal clauses that can be placed differently on the basis of ambiguous sentences like the one in (13). In this case the meaning according to which different executives resigned cannot be derived, as the matrix clause, the semantic argument of the temporal adverbial clause, is always in the scope of the temporal adverbial clause, no matter where the implicit temporal determiner is placed within the adjunct clause itself. There is simply no way to derive the reading where *an executive* has narrow scope.

(13) (a)   Every secretary cried after [IET [an executive resigned]]
      (b)   Every secretary cried after [an executive [IET resigned]]

Instead, Kusumoto (2008, p. 516, ex. 17) argues for the movement of the entire subordinating clause with an implicit temporal operator moving to clause initial position followed by the

movement of the subject of the temporal adjunct clause (14) to derive the dependent time reading.[1] The single time reading can be read off the surface order.

(14) (a)   a secretary cried [after each executive resigned]

   (b)   [[each executive resigned]$_i$ [a secretary cried [after t$_i$]]]

   (c)   [each executive$_k$ [[x$_k$ resigned]$_j$ [a secretary cried [after t$_j$]]]]

3.3 Refinements Based on the Hungarian Data

3.3.1 High and Low Readings

We have seen that both English and Hungarian have constructions that allow ambiguous interpretations. Hungarian has at least two different ways of temporal adverbial modification, one allowing low readings, the other excluding them. This, as we have seen, can be explained under the assumption made in Lipták (2005), namely that the IP relativization strategy leads to an ECP violation under the intended low reading.

3.3.2 Binding

Two sets of English and Hungarian data have been observed, one containing a quantified DP and the other with no quantification. While in the English sentence the quantified DP can appear in the temporal adverbial clause and still bind the pronoun, in the case of Hungarian it leads to ungrammaticality. However, a DP with no quantification can appear in the temporal clause in a Hungarian sentence as well and lead to grammatical patterns of coindexation, indicating that quantification has an effect on the binding properties of this sentence type. Given that quantified expressions are claimed to pattern together with R-expressions, both of them described as obeying Principle C requiring R-expressions to be free everywhere, this state of affairs seems rather unexpected. Note, however, that in this case we are dealing with two operators: the presence of the temporal operator is a prerequisite for binding. As discussed in more detail in Artstein (2005), in non-temporal clauses the pattern of binding under discussion is not possible (15).

(15)   *If each boy$_i$ goes to sleep, I give him$_i$ a kiss.

While the presence of the temporal operator is a necessary condition for establishing the binding relation, it is by no means sufficient to guarantee it as indicated by the Hungarian data. In Hungarian the temporal adjunct clause is a non-transparent domain in this respect, which is not to say that it cannot interact with the main clause in general. As we have seen, when there is only the temporal operator involved, interaction is possible; Hungarian does have sentences with ambiguous high and low readings.

3.3.3 Single Time and Dependent Time Readings

As we saw in Section 3.2, Kusumoto (2008, p. 516, ex. 17) assumes the following derivation for the dependent time reading of sentence (16a):

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1   A simple QR analysis is discarded on the grounds that it does not explain the observation that dependent time readings are only available in temporal clauses.

(16) (a)   a secretary cried [after each executive resigned]

(b)   [[each executive resigned]$_i$ [a secretary cried [after t$_i$]]]

(c)   [each executive$_k$ [[x$_k$ resigned]$_j$ [a secretary cried [after t$_j$]]]]

What seems to be blocked in the case of Hungarian is the movement in (16c). This can be explained on the basis of the two factors observed in 3.3.2: on the one hand, the difference between the binding options, depending on whether the DP participating in the binding relationship is quantified or not, and, on the other hand, the difference between covert operator movement in English, as opposed to the overt movement of the quantified DP in the case of Hungarian. Since the Hungarian quantified DP appears in a QP on the left periphery of the temporal adjunct clause it is not available for further operations. The English DP, however, occupying a non-operator position, can undergo the movement made possible by the presence of the temporal operator.

4. Conclusion

The data discussed in the present paper have shown that assuming a one-to-one correspondence between dependent time readings and long-distance dependencies is empirically wrong. While Kusumoto (2008) seems to be right about the assumption concerning the presence of a temporal operator in temporal adjunct clauses, other factors, such as general restrictions on movement or the presence of other operators, can block the movement of the temporal operator.

The factors that have been identified as playing a role in how embedded finite clauses interact with their main clauses are argued to be the following: the type of (relative) construction; the possibility of operator movement, depending on the presence/type of operators, the locality restrictions at work, and overt or covert operator movement, the latter suggesting that it is actually the scope transparent property of Hungarian that makes it impossible for quantificational arguments to scope out of temporal clauses.

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Structural Meanings of Verbs
and Their Complements

An Alternative Analysis of Marginal Modals

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Abstract: The paper analyzes marginal modal elements in English from the perspective of their morphological, syntactic, and semantic properties. More precisely, it presents the hypothesis that the status of central modal verbs is related to three properties – a modal polyfunctionality, the absence of agreement, and operator properties. The paper divides structures traditionally labelled as marginal modals into operator and non-operator elements. In terms of operator elements such as *need*, *dare*, *ought*, and *shall*, it shows how the polyfunctionality, agreement, and syntactic properties are interrelated and result in the idiosyncratic behavior of each individual member. With non-operator elements such as *be going*, *have got to*, and *want*, the paper illustrates that polyfunctionality may trigger the development towards operator behavior by the formation of non-agreeing structures such as *gonna*, *wanna*, and *gotta*.

Keywords: marginal modals; agreement; operator properties; polyfunctionality; functional category

1. The Shaky Status of Marginal Modals

Any scholar dealing with the grammar of English, especially if focusing on verbs, is aware of the existence of three distinct groups within the category of verbs in a wider sense – namely, lexical verbs, modals and auxiliaries.[1] However, besides well-behaved lexical verbs and modals such as *study* and *work* on the one hand, and *can*, *will*, and *must*, on the other, there are several words such as *dare*, *need*, *ought to*, *have to*, and *be able to* which stand in between the two groups and are frequently called quasi-modals or marginal modal verbs. In grammar manuals, various authors propose different lists of these, which are usually further divided into subcategories, according to the taste of the author. Quirk et al. (1985, 137) view the borderline between lexical verbs and modals as a scale, distinguishing the following subcategories:

- marginal modals (*dare*, *need*, *ought to*, *used to*)
- modal idioms (*had better*, *would rather*, *be to*, *have got to*)
- semi-auxiliaries (*have to*, *be about to*, *be able to*, *be bound to*, *be going to*, *be obliged to*, *be supposed to*, *be willing to*)
- catenatives (*appear to*, *happen to*, *seems to*, *get + –ed* participle, *keep + –ing* participle)

Collins (2009), on the other hand, works with a different division:

- quasi-modals (*be allowed to*, *have to*, *be to*, *be supposed to*)
- semi-modals (*had better*, *would rather*, *be to*, *have got to*)
- lexico-modals (*have to*, *need to*, *want to*)

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1   In the literature, there is no uniform view on the division of categories into verbs, modals, and auxiliaries. This paper will, however, treat them as three separate categories. Auxiliaries will not be studied in detail here.

The above division examples are variously based on morphological, syntactic or semantic properties. However, the mere fact that the division or even the membership list differs from author to author signals that the category of marginal modals is not settled or well-grounded. This paper will thus offer an alternative explanation of the status of marginal modals by proposing a theory that says a little more than claiming that the language is a continuum of elements and it is natural to have members somewhere in between. The analysis here will explain, among other things, why some verbs have idiosyncratic behavior and offers an account of reduction tendencies that can be found with some marginal modals such as *gotta*, *gonna* or *wanna*.

2. The Key Properties of Central Modals

In order to be able to discuss the peculiarities of marginal modals, it is necessary to outline the properties of central modals. Central modals (*can*, *must*, *should*, etc.) have several morphological, syntactic, and semantic properties which distinguish them from lexical verbs. For example, as Huddleston and Pullum (2002, 106) claim, modals have only finite forms, subcategorize solely for the bare infinitive, appear in counter-factual contexts (e.g., main clauses of conditional sentences), etc. This paper will focus predominantly on three properties which are considered to be crucial for the analysis offered here – modal polyfunctionality, the absence of agreement and operator behavior.

2.1 Polyfunctionality

Central modals are polyfunctional; more precisely, they can express different types of modal meanings, namely, deontic, and epistemic meanings[2] – for examples, see (1).

(1) (a) *May I smoke here?*   deontic
     (b) *He may well be at home now.*   epistemic

As is obvious from the examples, the modal *may* can express a meaning of permission or obligation (deontic modality), as well as a degree of probability (epistemic meaning). The same holds true for other central modals such as *will*, *should*, *must*, etc. Polyfunctionality with modals can also be observed in other languages, for example, German or Czech; see the sentences in (2) and (3).

(2) (a) *Er muss jetzt nach Hause gehen.*   deontic
          "He must go home now."
     (b) *Er muss krank sein.*   epistemic
          "He must be ill."

(3) (a) *Musí jít domů.*   deontic
          "S/he must go home."
     (b) *Musí být nemocný.*   epistemic
          "S/he must be ill."

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2   Scholars frequently propose a finer classification of subtypes of modality. For the sake of simplicity, this paper will work only with the basic division into deontic and epistemic.

In fact, modal polyfunctionality is regarded as the key property of modal elements cross-linguistically, i.e., the property which distinguishes modal items from other (non-modal) verbs.

2.2 Absence of Agreement

Concerning morphology, central modals are notorious for lacking agreement in the 3rd person singular present. The diachronic source of the lack of present inflectional morphology is the preterite-present origin of modals. The present forms of the modals descend from original past forms, which lacked agreement in certain persons. However, it frequently goes unnoticed that this peculiarity has a different reason and function in contemporary English, and the absence of *–s* in the 3rd person does not automatically imply a preterite-present origin. In present-day English, there are verbs that do have agreement inflection despite being descendants of preterite-present verbs and vice versa. The marginal modal *dare* was a preterite-present verb before the 16th century, as Warner (1993; 202) shows; however, nowadays it does exist in the inflected form *dares*. On the other hand, the modals *will* or *need* were regular verbs in the earlier stages of their development (Warner 1993;101, 203), and despite their lexical origin, they are used without the agreement suffix today. Moreover, verbs such as *need* or *dare* can appear with or without the agreement morphology, depending on their syntactic status. This shows that the absence of agreement is not conditioned by the origin of a verb any more, but is rather formal in contemporary English, and, as this paper will show, has a different function in the language.

2.3 Operator (NICE) Properties

Central modals are notorious for having distinct syntactic properties, which are sometimes referred to as operator properties (Quirk et al. 1985), or NICE properties, as coined by Huddleston and Pullum (2002). More precisely, they invert in questions, are followed by clausal negation *not/n't*, and appear in question tags, as exemplified in (4a)–(4c) respectively.

(4) (a) ***Can*** *you close the window?*
     (b) *You **mustn't** do that again.*
     (c) *We should do it immediately, **shouldn't** we?*

Operator properties, as exemplified above, are also exhibited by the auxiliary verbs *do, be*, and *have*, but are excluded for full verbs.[3]

2.4 Hypothesis

This paper demonstrates a mutual relationship among the key properties associated with central modal verbs, namely, polyfunctionality, the absence of agreement and operator properties. More precisely, it is presumed that the polyfunctionality of modals triggers the absence of agreement, which then triggers the operator properties of the modals.[4]

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3   It seems that the operator slot in English can only be occupied either by a modal item or by a semantically empty verb (= auxiliary), such as *do, be*, or *have*.
4   The reason for the correlation of exactly these three properties is unclear. It is assumed that polyfunctionality may have an impact on the morphosyntax of modals in some other languages as well; the properties that are affected may, however, differ from language to language.

3. Categorial Means for Expressing Modal Meanings

As is obvious from the introductory section, the group of so-called marginal modals, as presented by various authors, is extremely heterogeneous and includes members with different structures and syntax. The members of this group range from single-word expressions that demonstrate operator syntactic properties, such as *need* or *dare*, to more complex structures, such as *had better* or *have to*. In this respect, it is extremely difficult to approach this group, analyze it and make relevant conclusions. However, a closer look at these superficially heterogeneous members will reveal that they can be divided into two basic groups. One group contains meaningful members which do or can appear in operator position (group A). Another group consists of members where the modal meaning is conveyed by other parts of speech, such as prepositions, adjectives, verbs or particles (group B) – see below.

> **A. Operator elements:** central modals (*must*, *can*, *may*, etc.), *shall*,[5] *ought*, *need*, *dare*, *used*[6]
> **B. Non-operator elements:**
> - preposition: *be **about***
> - adjective: *had **better***, *be **able***, *be **obliged***, *be **willing***
> - verb: *be **going***, *be **bound***, ***want***
> - particle *to*: *have **to***, *have got **to***, *be **to***

Concerning group B, notice that the modal meaning can be expressed by different parts of speech. In the majority of cases, these elements are preceded by an auxiliary *be* or *have*, which enables them to be integrated into the predicate. The auxiliaries themselves, however, do not contribute to the modal meaning in any way, i.e., they are semantically empty. This is visible, for example, when the pair *have to* and *have got to* is compared. The meaning of the two phrases is identical; *have* and *have got* are only two different syntactic ways to integrate the particle *to* into a sentence, i.e., in the first case the auxiliary *have* has the syntax of a full verb, while in the second case it is used as an operator. Moreover, no matter which auxiliary is used, the meanings of *have to*, *have got to*, and *be to* are close to identical, perhaps apart from some stylistic flavor – compare the examples in (5).

(5) (a) *I **have to** leave tomorrow.*
     (b) *I **have got to** leave tomorrow.*
     (c) *I **am to** leave tomorrow.*

In all the cases in (5), the predicates express deontic obligation by external authority; the meaning of obligation remains unchanged, regardless of the combination of the auxiliary verb used.

4. Operator Elements (Group A)

This section focuses on operator elements, i.e., items which either exclusively appear or may appear in the operator slot. This group includes central modals (*must*, *can*, *may*, *should*, etc.), as well as marginal elements such as *shall*, *ought*, *need*, *dare*, and *used*. These elements will be analyzed in terms of three key properties: polyfunctionality, lack of agreement and operator properties. For an overview, see Table 1. The elements will be analyzed in detail below.

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5   Despite the fact that *shall* is usually not regarded as a marginal modal, it shows several deficiencies in the system and therefore it will be included in this study.
6   The words *need*, *dare*, and *used* can appear in the operator slot, but they can function syntactically as (lexical/full) verbs as well.

	Polyfunctionality	No agreement	Operator
central modals	**yes**	**yes**	**yes**
need	yes	yes/no*	yes/no*
dare	no	yes/no	yes/no
ought	rare	yes	yes
shall	no	yes	weak
used	no	not available	rare

*depending on polyfunctionality

Table 1. *Operator elements.*

As is obvious from the chart, only central modals possess all three properties. Other elements, which are considered marginal, are deficient in one or more features. Moreover, each item demonstrates a different combination of properties.

4.1 Marginal Modal *Need*

The verb *need* is regarded as a marginal modal, since it demonstrates both full verb and operator behavior; these two varieties are strictly separated in terms of their morphosyntax. More precisely, *need* can function as a full verb taking agreement, an auxiliary *do*, and combining with the *to* infinitive. At the same time, *need* does have an operator version, which lacks agreement and combines with the bare infinitive, though this type is reserved only for non-affirmative contexts; i.e., it is a negative polarity element – compare the examples in (6).

(6)　(a)　*She doesn't need to apologize for that, does she?*
　　　(b)　*She needn't apologize for that, need she?*

More interestingly, as the hypothesis predicts, there seems to be a connection between the morphosyntactic behavior of *need* and polyfunctionality. The operator version of *need* can express both deontic and epistemic modality, whereas the non-operator *need to* expresses only deontic modality – see the examples in (7).

(7)　(a)　*He needn't be in his office now.*　　　deontic and epistemic readings
　　　(b)　*He doesn't need to be in his office now.*　　deontic reading only

Concerning the history of *need (to)*, it was originally a regular verb in Old English and Middle English, and it adopted its *operator* properties in the 16th century, as Warner (1993, 203) points out. Krug (2000, 199) adds that in that period *need* was even more frequent than *need to*.[7] In present-day English, however, the lexical *need to* seems to be prevalent again. The morphosyntactic behavior of this item seems to fluctuate with no clear developmental tendency, and nowadays the two versions are used simultaneously, differing in their modal semantics.

7　The modal *need* was not a polarity-sensitive item from the beginning. In fact, Krug (2000, 199) states that *need* was able to appear in affirmative contexts until the 1990s.

4.2 Marginal Modal *Dare*

Another element standing in between the two groups is *dare*, which, similarly to *need*, is notorious for its idiosyncratic syntactic behavior; specifically, it demonstrates both full verb and operator features. In terms of its subcategorization, *dare* is often claimed to be a blend of full verb and modal behavior; however, Veselovská (2011) shows that the behavior of *dare* is fully predictable in this respect. More precisely, *dare* has two forms, viz., an operator form and a full-verb form; the latter can further combine either with a *to* infinitive or a bare infinitive. For examples, see (8).

(8) (a) *John daren't enter the house alone.*   operator
     (b) *John doesn't dare to enter the house alone.*   full verb with *to* infinitive
     (c) *John doesn't dare enter the house alone.*   full verb with bare infinitive

Concerning its semantics, *dare* is not polyfunctional (in contrast to *need*). It is claimed to express deontic (sometimes also called dynamic) modality, with external authority involved. Regarding the hypothesis presented in Section 2.4, the question arises as to why it demonstrates dual syntactic behavior, i.e., why it demonstrates, in addition to a lexical version, operator behavior, despite not being polyfunctional. I propose that the explanation is the absence of agreement associated with this verb, which prevents it from dropping the operator behavior. The lack of agreement is to be attributed to its preterite-present origin; more precisely, Warner (1993, 202) claims that up to the 16th century, *dare* (originally *durren)* exhibited a purely preterite-present behavior. In Early Modern English, it started to appear in the inflected form *dareth* (i.e., *dares*) and combine with both the *to*-infinitive and the bare infinitive. Since the 17th century, *dare to* has combined with a dummy *do* in non-affirmative contexts. Still, the status of the modal *dare* is strong, as pointed out, e.g., by Taeymans (2004, 109).

4.3 Marginal Modal *Ought*

Similarly to *dare*, *ought* originated as a preterite-present verb; it developed from the verb *agan* (meaning *to own*, *to possess*), or, more precisely, from its past form *ahte*. As a result of this, it does not exhibit the agreeing form **oughts*. As far as the semantics of *ought* is concerned, it is rarely polyfunctional. Collins (2009, 55), referring to Huddleston and Pullum (2002, 187), claims that *ought* is prevailingly deontic; an epistemic meaning is extremely rare, although it does exist, as illustrated in (9) by Collins (2009, 55).

(9) *As they glide past the sixty-year-old mark they're as lively as we imagine twenty-year-olds ought to be.*

Concerning the syntax of *ought*, it demonstrates a strong operator behavior, with the exception of the subcategorization; specifically, *ought* subcategorizes for the *to* infinitive; see (8a). However, as Huddleston and Pullum (2002, 109), as well as Quirk et al. (1985, 139), claim, there is a growing tendency to use *ought* with a bare infinitive complement as well, especially in the negative; see the example in (10b).

(10) (a) *We ought to sort that out.*
      (b) *We oughtn't take any notice.*

In this respect, *ought* seems to show a tendency to develop in the pure operator direction. On the other hand, Quirk et al. (1985, 140) assert that, in dialectal usage, *ought* can also demonstrate full verb behavior; specifically, it can make constructions with the auxiliary *do*, as exemplified in (11).

(11) *They didn't ought to do that sort of thing*

Similarly to the previous marginal elements, *ought* seems to combine the properties of full verbs with operator items. The reason for such a two-way development may again be the clash between the other two properties, namely, polyfunctionality and agreement. More precisely, despite the fact that *ought* is not polyfunctional, the lack of agreement secures its position in the operator slot, exactly as predicted by the hypothesis.

4.4 Marginal Modal *Shall*

In grammar manuals, *shall* is counted among the central modals. However, a closer inspection of its syntactic behavior reveals gaps in the system. Concerning the meanings, its polyfunctional character is weakening. More precisely, it is being deprived of its epistemic meanings, i.e., it is not used for the epistemic future any more other than in the 1st person, as demonstrated in (12).

(12) *I shall never understand that.*

As Huddleston and Pullum (2002, 195) claim, the clearly epistemic meaning conveyed, for example, by *will* (i.e., the degree of probability) as in (13) does not exist with *shall*.

(13) *That will/*shall be the plumber.*

It is obvious that *shall* has recently lost its polyfunctionality feature, which should have an impact on its grammatical behavior. And indeed, it is being deprived of some operator features, such as the negated form *shan't*, which is archaic and rather rare in present-day English.

4.5 The Mystery of *Used*

The syntax of *used* is predominantly lexical. Still, this verb does marginally exhibit operator properties, such as inversion in questions or clausal negation, as shown below in (14).

(14) (a) *He usedn't to like it.*
      (b) *Used he to live alone?*

As Huddleston and Pullum maintain (2002, 115), this usage is rather peripheral and actually unacceptable for many speakers. Concerning its semantics, *used* is not polyfunctional. In fact, it is not even modal, as it carries rather aspectual meaning, and therefore, the reason for the operator behavior is unclear.

4.6 Interim Summary

This section was aimed at investigating the properties of meaningful operator elements in terms of the three properties related to central modals. It showed that each of the elements

treated above demonstrates a different set of idiosyncratic properties, i.e., each member is idiosyncratic in a different way. This is to be expected, since functional elements always demonstrate different item-specific properties, as maintained by Emonds (2000, 106). More importantly, it has been shown that the three properties – namely, polyfunctionality, agreement, and operator properties – have a direct impact on each other. The lack of agreement holds *dare* and *ought* in the operator slot, despite the fact that they are not polyfunctional, and in the case of *need* and *shall*, the semantic interpretation influences the syntactic behavior of the element, or, more precisely, the absence of polyfunctionality results in the gaps in the operator properties.

5. Non-operator Elements

Whereas Chapter 4 focused on the operator elements, this section will focus on the elements that express modality using some other part of speech, such as a preposition, adjective, syntactic verb or a particle, as in *be **about***, *had **better***, *be **going***, *have **to***, etc. These elements will be divided further according to their semantics; see the chart below.[8]

Polyfunctional elements	Monofunctional elements
be **supposed** [9]	be **able** (deontic)
be **bound**	had **better** (deontic)
be **to**	
be **going** → gonna	
want → wanna	
have **to**, have got **to** → gotta	

Table 2. *Non-operator elements.*

5.1 Polyfunctional *Be Going* and *Gonna*

The structure *be going* is polyfunctional, as it expresses epistemic future and volitional modality, as well as clearly deontic meanings, as exemplified in (15), taken from Collins (2009, 148).

(15)   *You're going to try and be bit earlier.*

In this case, the modal meaning is expressed by the verb *going*, which is combined with the integrating element *be*, enabling it to be accommodated in the predicate. However, this structure is known to have developed a shortened version, *gonna*. Despite the fact that *gonna* is still

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8   For capacity reasons, this paper will focus only on selected elements, despite the fact that the list of marginal structures presented in various grammars usually contains more elements than are analyzed here; see the division of Quirk et al. (1985, 137) in the introductory section of this paper. This is a result of the fact that the grammar manuals usually do not provide any clear definition of "modal," and therefore, the lists of members are inconsistent, probably being based on vague semantic grounds, as understood by the author in question.

9   Despite the fact that the structures *be supposed*, *be bound,* and *be to* are all polyfunctional, they do not demonstrate any reduction tendencies, as in the case of *gonna*, *gotta* or *wanna*, most probably because they are relatively less frequent than other polyfunctional elements. Therefore, these structures will not be discussed in detail here.

closely related to its auxiliary *be* – see the example in (16a) – the corpora show that with some persons (such as the 1st or 2nd person plural), the auxiliary may be dropped; see the example below in (16b).

(16) (a) *She is gonna fall.*
    (b) *You gonna be a basketball fan?* [COCA:2001:MAG: Sports Illustrated]

Similarly to *going to*, *gonna* remains polyfunctional; for epistemic modality, see the examples above in (16), while deontic modality is exemplified in (17).

(17) *You're gonna wash the dishes before you go to bed.*

Referring to the hypothesis presented in this paper, such shortening behavior is predictable. The structure *going to* is polyfunctional, resulting in the formation of *gonna*, which is to be used as a non-agreeing form; see *gonnas.

5.2 Polyfunctional *Have to*, *Have got to*, and *Gotta*

The structures *have got to* and *have to* are used both epistemically and deontically and they both seem to have developed shortened versions – *gotta* and *hafta/hasta*, as mentioned by Krug (2000). However, since *hafta/hasta* is not grammaticalized, nor does it show any morphosyntactic peculiarities, much more attention will be paid to *gotta*, which originated from *have got to*. In terms of the closeness between the auxiliary *have* and *gotta*, it seems to be less tight than in the case of *gonna*; more precisely, *gotta* appears more frequently with the auxiliary in a contracted rather than in the full form; see the example in (18).

(18) *You've gotta watch them.*   [COCA:2009:FIC: FantasySciFi]
    ?*You have gotta watch them.*

Whereas examples with the abbreviated auxiliary were plentiful in the corpus, there were far fewer examples of sentences with full forms. Moreover, in some cases, the auxiliary is missing altogether, as shown below.

(19) *You gotta be famous for something.*   [COCA:2011:MAG: Esquire]

The structure *gotta* can, similarly to *have to* and *have got to*, express both deontic and epistemic meanings, as shown in (20).

(20) (a) *I gotta go now.*   deontic
    (b) *You gotta be kidding me.*   epistemic

The process is similar to *gonna*; more precisely, the structure *have got to* develops a shortened version, *gotta*. The integrating auxiliary *have* is used first in the full form, later in the contracted version, and finally, it completely disappears, leaving *gotta* as a non-agreeing element in the predicate. However, the structure *gotta* does not yet show full operator properties on the syntactic

level, as it does not take clausal negation *gottan't*, and nor does it invert in questions. However, it is predicted that exactly such properties will develop, on the basis of the hypothesis.

5.3 Polyfunctional *Want* and *Wanna*

The verb *want* is most frequently connected with volitional meanings (dynamic modality). According to Krug (2000, 147), *want* expresses both deontic and epistemic modality. For deontic modality, he gives an example in (21); however, he does not provide an example of epistemic modality with *want*.

(21) *You want to take the three o'clock bus in order to catch the plane at 5 p.m.*

The lexical verb *want* frequently occurs in the reduced form *wanna*. Giving an example, Krug (2000, 147, 150) shows that *wanna* can also express both deontic and epistemic meaning – (22a) and (22b) respectively – despite the fact that they are rather reserved for spoken usage.

(22) (a) *You've got tooth ache? You wanna see a dentist!*
      (b) Customer: *Do you have coolers?*
           Assistant: *Coolers? They wanna be on one of the top shelves somewhere.*

Similarly to the previously mentioned shortened forms, *wanna* lacks the agreement suffix; see *wannas*. The impact of the polyfunctionality is thus visible on the morphological level. Syntactically, however, *wanna* still behaves as a lexical verb, taking, for example, the auxiliary *do* for questions and negatives.

5.4 Monofunctional *Be Able* and *Had Better*

The monofunctional structure *be able to* will not be treated here in much detail, as it is not polyfunctional and nor does it show any peculiarities in its syntactic behavior. The structure *had better* might, however, pose something of a challenge for the theory presented here. In the linguistic literature, there has been a dispute as to whether *had better* is polyfunctional or not. Collins (2009, 77) and others reject the idea put forward by Mitchell (2003, 145), who claims that besides the default deontic meaning, *had better* has also developed epistemic meanings, as illustrated in (23), given by Mitchell (2003, 145).

(23) *It had better be important.*

Therefore, I conclude that polyfunctionality is marginally possible. Moreover, it has been observed that at least in some varieties of English, *had better* is syntactically becoming an operator, too. Frequently, the structure appears without its integrating auxiliary *have*, as shown in example (24).

(24) *You better be ready.*

Notice that in (24), the main verb *be* appears in the non-finite form. Therefore, it can be assumed that either *had* is covertly present in the sentence or, more probably, *better* acts as an operator

itself. The second reason seems to be more probable, since *better* also demonstrates other properties associated with operators. For example, it can appear in a question tag; see (25), taken from Collins (2009, 18).

(25) *We better go, bettern't we?*

Despite the fact that the example in (25) is considered rather colloquial, and even unacceptable for some speakers, we might be witnessing a gradual transition of *better* into an operator.

5.5 Summary: Non-operator Elements

Section 5 concerned non-operator modal elements, which were divided according to their polyfunctionality. The paper has shown that some of the polyfunctional elements are, in line with the hypothesis that has been presented, heading morphologically towards operator properties, each of them being at a different degree of grammaticalization. More precisely, *gonna* and *gotta* are dropping the integrating auxiliaries, and more importantly, these structures are fixed, i.e., not compatible with any agreement morphology. If the hypothesis is correct, the next predicted step would be a development on the syntactic level, i.e., towards operator properties such as inversions in questions or combination with clausal negation. The only issue to be explained is the structure *had better*, which is thought not to be polyfunctional by the majority of scholars. Still, it shows a relatively high degree of grammaticalization and obviously, it heads to operator behavior.

6. Conclusion

This study concerned marginal modal elements in English. For the analysis, the paper divided modal elements into operator and non-operator elements. It presented the hypothesis that there is a mutual relationship among three properties associated with central modals, namely, polyfunctionality, the absence of agreement and operator properties. The hypothesis enabled an explanation of the idiosyncrasy of many marginal elements. In the first group, the absence of polyfunctionality leads to gaps in operator morphosyntax. The monofunctional *need* is lexical, whereas its polyfunctional counterpart is an operator. *Dare* and *ought* are not polyfunctional; however, their operator syntax is secured by a lack of agreement, which is the result of their origin. *Shall* is losing its polyfunctionality, and as predicted by the hypothesis, it is starting to be deprived of its operator behavior. The second part of the paper dealt with non-operator elements, which demonstrated the opposite direction in their development, i.e., that the polyfunctionality triggers the operator properties. It showed that some of the structures are adopting shortened versions – *gotta*, *gonna*, and *wanna* – which demonstrate the deficiencies in the agreement paradigm, and it might be expected that they will develop operator syntax in the future as well.

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Auxiliaries as Dummies: A Late Vocabulary Insertion Approach

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Abstract: This paper argues for the position that the English non-modal auxiliaries are dummies used to realize functional content. Taking our lead from Grimshaw (1997), we claim that dummies are the use of meaningful words with their root content being ignored. Through the idea of late vocabulary insertion, we are able to adequately model "ignoring content" as overspecification. The analysis concentrates on the following questions: Why are *be*, *have*, and *do* the chosen auxiliary verbs? What do they spell out in their auxiliary uses? And what determines which auxiliary will be used in a given syntactic environment? The analysis is carried out in the Syntax First Alignment system, a heavily restricted Optimality theoretic grammar. A radical feature of this system which differentiates it from most other OT grammars and late vocabulary insertion approaches is that it operates with linear ordering rather than constituent structure.

Keywords: Optimality Theory; Syntax First Alignment System; Alignment Constraints; English Auxiliaries

1. Introduction

The standard view of a dummy, as a meaningless lexical item used to serve grammatical purposes, was challenged by Grimshaw's (1997) observation that dummies always have a meaningful counterpart. She proposed that dummies would be better seen as the use of fully meaningful lexical items with their lexical content ignored. In this way Grimshaw attempted to account for why particular lexical items are used as dummies: these elements tend to be associated with simple lexical content and thus economy principles select them over more complicated possibilities.

While a number of problems with Grimshaw's proposals have been pointed out (Bresnan 2000), the general idea remains promising, provided two things can be established:

- a proper account of what it means to "ignore semantic content";
- a measure of "semantic content," so that we have a way to determine what "the simplest" is.

We propose that these can be straightforwardly given within a late vocabulary insertion framework. From this point of view, phonological exponents are selected to spell out bundles of syntactic-semantic features on a "best fit" basis. Dummy usage is the selection of a vocabulary item to spell out purely grammatical features. Its associated semantic features are therefore overspecifications. Given that meaning is read off the features of the expression, and not those associated with the exponent in the vocabulary, overspecified features play no role in interpretation and as such are "ignored."

2. Auxiliaries as Dummies

While it is standard to assume that the English auxiliary *do* is a dummy, the auxiliaries *have* and *be* are typically not considered to be such.[1] However, there is reason to believe that these auxiliaries are used to "support" inflections in the same way that *do* is, and therefore should be given a similar dummy treatment. For example there are contexts in which constructions typically involving these auxiliaries, as indicated by the presence of the relevant morpheme, appear without the auxiliary:

(1) (a) I consider *him rich*   he **is** rich
     (b) I saw *him running*   he **was** running
     (c) we watched *the bridge opened by the mayor*   the bridge **was** opened by the mayor
     (d) *him finished his homework*! Unbelievable!   he **had** finished his homework

The fact that the aspectual content of such constructions is present in the absence of the auxiliary indicates that it is carried by the relevant morphemes. The fact that the auxiliaries are missing in contexts where tense is absent indicates that they are there for supporting purposes. Both these points lead to the conclusion that these auxiliaries are dummies.

This is consistent with Grimshaw's (1997) view of dummies, as intuitively *have* and *be* are at least as "simple" as *do* is.[2] However, it also complicates matters, as it necessitates an account not only of why these verbs are selected over others, but also why they are selected for the specific contexts of their use. Our claim will be that a late vocabulary insertion approach allows us to fine-tune the selection of dummies in terms of which aspects of their contents are used and which are ignored.

3. What Makes *Be, Have,* and *Do* Different?

We start the analysis with a consideration of why *be*, *have,* and *do*, as opposed to other verbs, have auxiliary uses. We believe that this has to do with the fact that they have a kind of "anaphoric" semantic content. For example, when *have* and *do* are used as main verbs, the meanings they express differ from case to case:

(2) (a) he had a cigarette   he had his dinner
     (b) he did the crossword puzzle   he did the housework

As such examples clearly demonstrate, the sense of "having" and "doing" differs, depending on the discourse context: "having" a cigarette involves setting fire to it and inhaling the smoke, while "having" dinner does not. Similarly, "doing" crosswords and "doing" housework are not the same activities at all.

Although it is more difficult to see with *be*, mainly because the majority of its uses are as a dummy, we believe that, when used as a main verb, it demonstrates similar discourse-determined meanings. Two probable main verb uses of *be* are found in locative and existential constructions. This is supported by the fact that it is not easily omitted, even in tenseless contexts:

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1   See Ouhalla (1991) for the suggestion that *be* may be taken as a dummy.
2   Indeed, one disturbing aspect of Grimshaw's proposal was why *do* is selected over *have* and *be*.

(3) (a) ? I believed him in the garden   he **is** in the garden
     (b) *I consider there life on Mars   there **is** life on Mars

Furthermore, it is in exactly these conditions that the present third person *be* is obligatory in Hungarian, whereas it is obligatorily absent in other cases:

(4) (a) (Ő)   magas/ orvos   (*van)   (én) magas/ orvos   *(vagyok)
          He/she   tall/   doctor be-pres-3-sing I   tall/   doctor be-pres-1-sing
          "he/she is tall/a doctor"   "I am tall/a doctor"
     (b) *(van)   valaki   a   kert-ben
          be-pres-3-sing   someone   the garden-in
          "there is someone in the garden"
     (c) *(van)   élet   a   Mars-on
          be-pres-3-sing   life   the Mars-on
          "there is life on Mars"

If it is true that in these cases *be* spells out locative and existential meanings, then it clearly behaves like *have* and *do* in that which of these meanings is expressed is dependent on the discourse context.

We propose that discourse context-dependent root meaning is provided by a specific anaphoric element, which we call "null content" and represent as $\sqrt{\emptyset}$. This element represents the minimal possible root content as it is nothing more than a place holder for material which is to be retrieved from the discourse. It is our contention that *be*, *have*, and *do* are all specified for spelling out, amongst other things, null root content:[3]

(5) *be*   ↔ $\sqrt{\emptyset}$ . . .
     have   ↔ $\sqrt{\emptyset}$ . . .
     do   ↔ $\sqrt{\emptyset}$ . . .

As it is the root content of a vocabulary entry that is overspecified when spelling out only grammatical features, and given that null root content is minimal, this accounts for why these particular verbs are selected as dummies.

4. Outline of the Framework

Our analysis is set within the Syntax First Alignment system (Newson 2008; Newson 2010; Newson and Szécsényi 2012). Like Nanosyntax (Starke 2009), this assumes no lexicon and that the syntax manipulates sub-morphemic elements. We call these conceptual units (CUs).

CUs come in two types:[4] a large syntactically homogenous set of root CUs and a smaller syntactically heterogeneous set of functional CUs. In the present work we will assume at least the following functional CUs:

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3 As with other "late insertion" approaches, we assume that category is established within a syntactic context and so roots themselves are categoryless. The exponents *be*, *have*, and *do* are used in verbal contexts not because of their root content, but because of the functional CUs they are associated with. The realization of null root content in a nominal context would be a pronoun.
4 A similar distinction is made in Distributed Morphology – see Harley and Noyer (1998).

(6)   [tense]
      [perfect]
      [progressive]

Functional CUs may be hierarchically related. For example, [past] is a specific type of [tense]. The syntactic conditions which apply to general CUs percolate down to specific ones. A constraint which affects [tense] will therefore also affect [past].

The syntactic system operates along the general lines of Optimality Theory, with input, candidate generator (GEN) and evaluation components. The input consists of sets of CUs with dependency relationships established over them.

More restrictively than in standard OT, only precedence and adjacency relationships are evaluated in candidate expressions. Therefore, the candidates produced by GEN consist of the set of possible linear orderings of input CUs.

The following kinds of constraints are allowed in the evaluation:

(7)   t P h   target precedes host   Violated if host precedes target
      t F h   target follows host   Violated if host follows target
      t A h   target is adjacent to host   Violated by every element between target and host

Targets are single input CUs, but hosts may be CUs or sets of CUs, called domains. A domain is a set of CUs which is defined in terms of a shared property established in the input. For example, the Inflection Domain is defined as the set of tense and aspectual CUs (as in [6]) dependent on a single predicate.[5] We will operate with the following definitions of domain-based alignment constraints:

(8)   t P D_X target precedes Domain X   Violated by every member of D_X which precedes target
      t F D_X target follows Domain X   Violated by every member of D_X which follows target
      t A D_X target is adjacent to Domain X   Violated when target is not adjacent to members of D_X
                                                 on both sides (i.e., d_1 *target* d_2, where d_1 and $d_2 \in D_X$)

The violation condition of the Domain adjacency constraint means that such a constraint will be satisfied when the target is immediately surrounded by the elements of the domain.

To provide a simple example of how this works, consider the ordering of the Inflection Domain. Each of the members of this domain is optional, but when present they appear strictly in the order given in (9):

(9)   ([tense]) ([perfect]) ([progressive])

This ordering can be achieved with the following constraints:

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5   As the Inflection Domain does not contain the predicate nor any of its modifying or complementing dependents, it is not equivalent to the IP, nor indeed any phrase in a constituent structure analysis. See Newson (2013) for arguments that domains and phrases must be distinct constructs.

(10) [tense] **P** D$_I$ Violated by every member of D$_I$ which precedes [tense]
      [perfect] **P** D$_I$ Violated by every member of D$_I$ which precedes [perfect]
      [progressive] **P** D$_I$ Violated by every member of D$_I$ which precedes [progressive]

With the constraints ranked in the order indicated in (10), the desired ordering of the relevant CUs will be achieved regardless of which are present or absent, as the table below demonstrates:[6]

(11)

	[tense] **P** D$_I$	[perf] **P** D$_I$	[prog] **P** D$_I$
☞ [tense] [perf]		*	
[perf] [tense]	*!		
☞ [tense] [perf] [prog]		*	**
[tense] [prog] [perf]		**!	*
[perf] [tense] [prog]	*!		**
[perf] [prog] [tense]	**!		*
[prog] [tense] [perf]	*!	**	
[prog] [perf] [tense]	**!	*	

This table is to be read as follows. The constraints are indicated in rank order along the top and the candidate expressions consisting of all possible linear orderings of input CUs are listed on the left. The thick line separates two different competitions with different inputs: in the first case there are only two input elements and in the second there are three. The cells of the table indicate the evaluation of the candidates with respect to the relevant constraints. An asterisk indicates a constraint violation and an asterisk followed by an exclamation mark indicates a fatal violation. Fatal violations occur when a candidate violates a constraint worse than any other candidate which has not incurred a fatal violation of any higher-ranked constraint. Effectively, a fatal violation takes a candidate out of the competition. The optimal, and therefore grammatical, candidate is the last one standing, and is indicated by the pointing finger.

   In the first competition in Table (11), there are only two domain members present, so there are only two possible orderings. The candidate in which tense precedes the perfect CU wins as it is more important for [tense] to precede the domain than for [perfect] to do so. In the second competition, there are three domain members in the input and therefore six possible candidates. The optimal candidate is determined in the same way.

   In other late insertion models, such as Distributed Morphology and Nanosyntax, the presyntactic elements are built into structural words before vocabulary insertion takes place. This introduces a redundancy, however, as these bundles of elements are also given in the vocabulary. In the Syntax First system, this redundancy is avoided as no such units are formed before vocabulary insertion; the syntax produces only linear arrangements of elements. Thus, word formation is a function of vocabulary insertion.

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6   The root is always followed by one and only one Inflection Domain member in English. For details on how this is achieved, see Newson (2013).

We assume the following principles governing vocabulary insertion:
- only contiguous CUs can be spelled out by a single vocabulary item;
- the process is root-centric: the first CUs to be spelled out are the roots; other contiguous CUs may be spelled out with the root. Any remaining CUs will be spelled out independently from the root;
- the principle of Minimal Vocabulary Access: when a vocabulary item to spell out a string of CUs is being selected, that which spells out the largest number will be preferred;
- the Superset Principle: when a vocabulary item to spell out a string of CUs is being selected, the one associated with the smallest superset of those to be spelled out will be preferred.[7] General functional CUs are in a superset relation to the specific ones they include.

5. *Be*

Considering the distribution of the different auxiliaries, *be* has the widest dummy usage. It is used to spell out tense in progressive, passive, and verbless constructions (12), and in more complex verbal expressions it also supports progressive and perfect morphemes (13):

(12)　(a)　He *is* running
　　　(b)　He *was* seen
　　　(c)　He *was* tall/a crook

(13)　(a)　He *is being* interrogated
　　　(b)　He has *been* interrogated
　　　(c)　He has *been being* interrogated

These data indicate that *be* is the default dummy, used when the others are not. We conclude that *be* has the minimal vocabulary entry, containing nothing more than the null root and relevant tense and agreement features:

(14)　*be*　　↔　　√∅
　　　is　　↔　　√∅ [–past][3][–pl]
　　　am　　↔　　√∅ [–past][1][–pl]
　　　are　　↔　　√∅ [–past][1][2][±pl]
　　　was　　↔　　√∅ [+past][1][3][–pl]
　　　were　　↔　　√∅ [+past][1][2][3][±pl]
　　　been　　↔　　√∅ [+perf]
　　　being　　↔　　√∅ [+prog]

According to the Superset principle, *be* will be used when nothing more than tense, progressive or perfect CUs needs spelling out: even if other vocabulary items are associated with

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7　Exactly the opposite is assumed in Distributed Morphology. However, dummies are *prima facie* evidence against the "Subset Principle," which forbids overspecification.

these CUs, they are also associated with a greater amount of content and so they will lose out to *be*.[8]

6. *Have*

Have is more limited in its auxiliary use than *be*, and is only used in perfect contexts. This indicates that *have* is a more contentful vocabulary item, jibing well with previous claims that *have* is *be* plus some extra element ("result" for McFadden and Alexiadou [2010]; a kind of a prepositional meaning for e.g. den Dikken [2006]; Hoekstra [1995]; "event" for Newson and Szécsényi [2012]). We will suppose that in contexts in which auxiliary *have* appears there is some extra feature – let us call it H for the time being – that needs to be spelled out with tense and, since *be* is not associated with H, it cannot be selected. *Have*, on the other hand, is a more fitting selection:

(15) (a) [tense] ...√ [prog]

 be   verb ing

    (b)

  [tense] H ... √ [perf]

   have   verb en

The questions arising are these: what is the nature of H, what is its distribution and why is *have* its best spell out?

With regard to the first of these, note that H only appears in perfect contexts and, moreover, it can appear in any kind of root context: verbal or adjectival:

(16) (a) he had fallen
     (b) he had been reading
     (c) he had been rich

This indicates that its presence has more to do with the perfect than anything else. As many authors have pointed out, the perfect is a complex semantic construction with both tense and aspectual implications. Smith (1997) attributes at least the following to the meaning of the perfect:
- the situation precedes reference time
- the construction has a resultant stative value
- a special property is ascribed to the subject as a result of participation in the situation

The first property is, of course, the standard analysis of Reichenbach (1947) of the perfect. Iatridou et al. (2001) argue that anteriority is not part of the meaning of the perfect but is something that follows

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8   The tense and aspectual morphemes (-ed, -ing, etc.) are specified for less content than *be*, having no root content at all. However, these are restricted to the syntactic context of an immediately preceding root by a contextual specification in their vocabulary entries, e.g.: -ing ↔ [+prog] / √ __ . Therefore, these vocabulary items cannot be used to spell out the functional CUs when they are separated from the root, i.e., those contexts in which dummy auxiliaries are used.

from the construction of what they refer to as the perfect interval, within which the described event is situated in various ways, depending on whether a universal or experiential/existential reading is given. Anteriority effects follow from the fact that the right-hand edge of the perfect interval is fixed by the tense and therefore the event takes place prior to the time referred to by the tense.

Adopting this, we claim that one aspect of the meaning of the perfect concerns a specific locative relationship between the event interval and the tense and that this is realized as a preposition-like element, taking tense and perfect CUs as its arguments. Moreover, we equate this locative element of the perfect with the feature H, which we now refer to as the CU [perfP].

The distribution of [perfP] is relatively straightforward, fitting the general pattern of the elements of the Inflection Domain. When it appears it follows the tense and precedes the perfect:[9]

(17) [tense] [perfP] [perf] . . .

This is simply achieved by adding a further precedence constraint and ranking it between the precedence constraints relevant for the tense and the perfect:

(18) (a) [perfP] P D_I violated by every member of D_I which precedes [PerfP]
      (b) [tense] P D_I > [perfP] P D_I > [perf] P D_I > [prog] P D_I > [degree] P D_I

As [perfP] relates both to tense and perfect, its appearance is dependent on the presence of both: if one or the other is missing, [perfP] will be absent too. This accounts for a difference between the auxiliaries *have* and *be*. We noted previously that in certain contexts the auxiliaries may be absent in constructions they are normally associated with. Typically, this happens in tenseless contexts. However, the possibilities of omitting *be* and *have* differ slightly, depending on the kind of small clause involved:

(19) (a) I saw him running   he **was** running
      (b) Him running! Well I never!
      (c) We watched the window broken   the window **was** broken
      (d) The window broken! What a shame!
      (e) *We saw him mown the lawn   he **has** mown the lawn
      (f) Him mown the lawn! I don't believe it![10]

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9   We will assume that [perf] is the CU realizing the stative part of the perfect and is usually realized by the bound morpheme *-en*. This may be the basis of the relationship between the perfect and passive, both of which are realized by this morpheme. We will not pursue this issue here.
10   An anonymous reviewer doubts the grammaticality of this sentence. However, we have checked it with other native speakers who seem to have no problem with it. The reviewer made no comment on example (1d) at the beginning of this paper, which also concerns an independent Small Clause containing the perfect morpheme and so perhaps the problem lies with this particular verb or maybe the situation it describes. If, on the other hand, this difference in grammaticality judgements indicates dialectal variation, it would have to be encoded in the grammar somehow. Without knowing the details, however, it is difficult to speculate on what the locus of the variation would be.

While *be* is omitted in both embedded and independent[11] small clauses, *have* is only able to be omitted in the latter. Only in independent small clauses is the tense truly absent since, in embedded contexts, event time is fixed with respect to the matrix tense. However, it is apparently not possible to relate the perfect interval of the small clause to the matrix tense and so the perfect is ruled out in such a construction. In independent small clauses, there is no tense. This removes the requirement for the perfect interval to be fixed and so the perfect is not ruled out. Importantly, though, [perfP] must be absent in this case, there being no tense to locate the event interval with, and hence *have* is not used.

Turning to the issue of why *have* is the selected realization of [perfP], there have been many accounts which have associated some of the incarnations of main verb *have* with a prepositional component (for example, Guéron 1986; Freeze 1992; Kayne 1993; Harley 1998). Cowper (1989) specifically claims that in all its uses *have* relates two arguments in some way. Obviously, a different kind of relationship is involved, for example, between the arguments of possessive *have* and causative *have*. However, as we pointed out earlier, the fact that *have* has null root content will mean that its specific meaning in any instance will be determined by the discourse context. What separates *have* from *be* and *do*, which also have null root content, is precisely its expression of a relationship. Thus we will claim that *have* is associated with a CU [rel] in its vocabulary entry:

(20) *have*   ↔ $\sqrt{\emptyset}$ [–past][1][2][±pl][rel]
      has   ↔ $\sqrt{\emptyset}$ [–past][3][–pl][rel]
      had   ↔ $\sqrt{\emptyset}$ [+past][1][2][3][±pl][rel][perf]
      having ↔ $\sqrt{\emptyset}$ [rel][prog]

The reason why *have* is used to spell out [perfP] is simply that [perfP] is a specific kind of [rel] and hence, according to the Superset Principle, the vocabulary specifications of *have* are compatible. As there is no other minimal content verb related to this CU, *have* is the one that fits best.

7. *Do*

Do is clearly more contentful than *be*: its dummy usage is far more restricted. Moreover, it is clearly agentive and hence associated with argument structure, which *be* is not. For this reason, *do* would never be used as a dummy if all it spelled out was the functional CUs. *Be* would always be preferred. Therefore, it must be the case that some other CU, which *be* is unsuitable for spelling out, is present in contexts where *do* is used.

Where does this extra CU come from? Unlike *have*, dummy *do* is not restricted to a particular construction, though it is dependent on a particular configuration of elements: specifically, [tense] is the only member of D_I present, and it is realized independently, to the left of the root. Moreover, *do* is used only with verbal predicates:

(21) (a) he does/*is not sleep
      (b) he is/*does not asleep
      (c) he is/* does not a sleeper

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11   What Akmajian (1984) refers to as "Mad Mag sentences."

This suggests that the CU in question is connected to whatever it is that creates the verbal context for the root and is, under normal circumstances, spelled out along with the root. In special circumstances, this functional CU is located away from the root and is subsequently spelled out with tense. The situation is represented in (22), where D represents the relevant CU:

(22) (a) [tense] ... D √

          be   verb

      (b) D [tense] ... √

          do   verb

What remains is to identify D, account for its distribution and explain why *do* is its best realization.

Whatever D is, it clearly has nothing to do with the agentive nature of *do*, as this dummy accompanies all verbs, including non-agentive ones. Instead, it must be something quite general, something that is compatible with all verbs.[12] In late vocabulary insertion approaches it is a common assumption that it is the proximity to a little "v" which identifies "verbal" roots (Harley 1995; Marantz 1997).

We propose to identify D as [v], and take this to be interpreted as providing some general aspect of event and argument semantics which differentiates verbal and non-verbal predicates. *Do*, as with other thematic verbs, is associated with this CU in the vocabulary, though *be* is not. *Have* is presumably associated with [v], though as it is also associated with [rel] and *do* is not, *do* will be preferred over *have* when only [v] needs to be independently spelled out.

The vocabulary entry for *do* is therefore:

(23) *do*   ↔   [v] √Ø [–past][1][2][±sing]
      does ↔   [v] √Ø [+past][1][2][3][±sing]
      did   ↔   [v] √Ø [–past][3][±sing]
      done ↔   [v] √Ø [perf]
      doing ↔   [v] √Ø [prog]

As for the distribution of [v], it typically precedes and is adjacent to the root, so is spelled out with it. This is achieved with the following constraint:

(24) [v] P/A √   Violated if √ precedes [v] and by every element interceding between [v] and √

This is a shorthand for separate precedence and adjacency constraints. However, as the ranking of other constraints with respect to these plays no role in the analysis, viewing this as a single constraint is a harmless simplification.

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12 It does not accompany main verb uses of *be*:
        i) * there does not be life on Mars
We take this to indicate that even in its main verb uses, *be* is less verbal that other verbs. This is supported by the observation that *be*, unlike other "small" content verbs, is never used as a light verb.

With respect to the inflection domain, the distribution of [v] is as follows:

(25) (a) [v] [tense]
     (b) [tense] [v] [perf]
     (c) [tense] [v] [prog]
     (d) [tense] [perf] [v] [prog]

There is little surprise here, as, because of (24), [v] has virtually the same distribution as the root. However, the situation in (25a) holds in two separate cases: one where tense follows the root, in which case the root is situated between [v] and [tense], as in (26a), and one where [tense] precedes the root (e.g., negative and interrogative contexts). This last situation is obviously brought about by the interference of constraints which disrupt the normal position of the root in D_I, placing [tense] in front of it. However, as [v] precedes [tense] it will not be contiguous with the root and hence cannot be realized with it. This is the case where [v] and [tense] are realized by *do*, as in (26b):

(26) (a) [v] √ [tense]

          /verb/ /*morph*/

     (b) [v] [tense] ... √

              do   /verb/

The important observation is that when [tense] is the sole member of D_I, [v] precedes it no matter where [tense] is situated with respect to the root. Yet, as (25) makes clear, [v] is situated after [tense] when [tense] is accompanied by other members of the domain. In this situation, [v] is located within D_I, preceded and followed by at least one of its members.

We can account for this distribution with two constraints. The first demands that [v] precede [tense], which is a straightforward precedence constraint.

(27) [v] ℙ [tense]   Violated if [tense] precedes [v]

This constraint is outranked by the second, which is applicable when more than one element of D_I is present, suggesting that it is a domain-based constraint. As we see in (25b) to (d), the effect of this constraint is to pull [v] from in front of tense and into D_I. This is exactly what a domain adjacency constraint will do: to be adjacent to a domain, the target must be surrounded by its members. We therefore propose the following:

(28) [v] 𝔸 D_I Violated when [v] is not adjacent to members of D_I on both sides

Obviously, this constraint is unavoidably violated when the domain consists of just one member and so will be inoperable in such a situation. The domain adjacency constraint is the higher-ranked of those proposed in this section, with the root precedence/adjacency the lowest:

(29)   [v] **A** D$_I$ > [v] **P** [tense] > [v] **P/A** √

The working of these constraints is demonstrated in the following tables, which concentrate on the distribution of [v] with respect to the members of the D$_I$ and the root. The ordering of these elements amongst themselves is established by independent constraints which we have not discussed here and will take as given in the tables:

(30)

	[v] **A** D$_I$	[v] **P** [tense]	[v] **P/A** √
☞ [v] √ [past]	*		
√ [v] [past]	*		*!
√ [past] [v]	*	*!	*

(31)

	[v] **A** D$_I$	[v] **P** [tense]	[v] **P/A** √
[v] [past] √ [prog]	*!		*
☞ [past] [v] √ [prog]		*	
[past] √ [v] [prog]		*	*!
[past] √ [prog] [v]	*!	*	*

(32)

	[v] **A** D$_I$	[v] **P** [tense]	[v] **P/A** √
[v] [past] [perf] √ [prog]	*!		**
[past] [v] [perf] √ [prog]		*	*!
☞ [past] [perf] [v] √ [prog]		*	
[past] [perf] √ [v] [prog]		*	*!
[past] [perf] √ [prog] [v]	*!	*	**

Tables (30) to (32) represent the usual situation where [v] emerges adjacent to the root. In these cases it will be spelled out with the root and hence there will be no "*do*-support." In (30) the domain adjacency constraint is inoperable and hence [v] is forced to precede both [tense] and the root. Given that the root precedes tense, it follows that [v] will immediately precede the root. In (31) and (32), there being more than one member of D$_I$ present, the domain adjacency constraint is operable and hence the tense precedence constraint is not. In this case the root adjacency condition is decisive and [v] emerges as adjacent to the root.

(33)

	[v] **A** D$_I$	[v] **P** [tense]	[v] **P/A** √
☞ [v] [past] ... √	*		*
[past] [v] ... √	*	*!	*
[past] ... [v] √	*	*!	
[past] ... √ [v]	*	*!	*

(34)

	[v] A D$_I$	[v] P [tense]	[v] P/A √
[v] [past] ... √ [prog]	*!		*
[past] [v] ... √ [prog]		*	*!
☞ [past] ... [v] √ [prog]		*	
[past] ... √ [v] [prog]		*	*!
[past] ... √ [prog] [v]	*!	*	*!

In Tables (33) and (34), the case of negative and "inversion" contexts is represented. In (33), tense is the only member of D$_I$ and hence the domain adjacency constraint is inoperable. In this case, as tense precedes the root, [v] is positioned in front of tense and away from the root. Thus here [v] must be spelled out with tense and not with the root: *do* is the selected realization of tense in this case. In (34) however, the domain adjacency constraint is once more operable and hence the tense precedence constraint is not. Again, the root adjacency condition is decisive and [v] emerges adjacent to the root and is spelled out with it. Tense will be spelled out by *be*.

8. Conclusion

Grimshaw's view of dummies as the use of meaningful words in meaningless contexts can be maintained, providing we have a notion of what it means to ignore content and there is some measure of what the smallest amount of content to be ignored is. In this paper, we have provided a system which does both these things. Ignoring semantic content is simply allowing for overspecification in vocabulary insertion. The notion of null root content also provides us with a clear idea of what minimal content is and the fact that all English auxiliary verbs show signs of having null content, with the actual details of the events they denote being provided by discourse context, supports this view.

In the rest of the paper we have detailed an analysis which accounts for which dummy is used where. This turns out to be relatively easy and in the most part accords with natural assumptions concerning the content of these words. It can be observed, as a concluding point, that the same facts would be rather more difficult to account for when operating with a more standard view of a dummy. If dummies are meaningless lexical items, and if all auxiliary verbs are dummies, it is not at all clear how we could possibly differentiate them and thus account for why they are used in different contexts. It is the assumption that they are associated with content which allows the present analysis to work.

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On the Inner Aspect of Predicates with Differentially Object Marked Internal Arguments: The Case of Romanian

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Abstract: Differentially object marked and clitic doubled internal objects act as sub-event identifiers of the predicate, endowing the sentence with particular aspectual propeties. They induce a telic interpretation of the predicate. The telic aspectual reading induced by differentially object marked and clitic doubled DPs on their predicate is seen as an effect of the semantics of the case marker *pe* and of the clitic pronoun. *Pe* marked direct object DPs may have an object-level reading (<e>) or a generalized quantifier reading (<<et>t>) as *pe* acts a filter on the denotation of the DP it marks, excluding the property reading. The differentially object marked internal argument is thus perceived as a stable and delimited entity which modifies the internal temporal structure of the event by providing an internal boundary, hence by inducing telicity.

Keywords: Differential Object Marking (DOM); Clitic Doubling (CD); inner aspect; telicity

1. Introduction

In this paper I would like to show that the differential object marker *pe* in Romanian, together with the clitic pronoun doubling the direct object DP, affect the aspectual interpretation of the predicate, i.e., the object-to-event mapping property, inducing a *telic* interpretation of the predicate. In line with MacDonald (2008) and Travis (2010) I will argue for the existence of an AspP projection situated between vP and VP and hosting the differentially object marked DP.

The paper is organized as follows: in Section 2 I consider the data pointing to the fact that differentially object marked and clitic doubled internal arguments induce a telic interpretation on their predicate. Thus, the adverbial modification test shows that these DPs are suitable in contexts within phrases as opposed to bare plural internal arguments which are shown to only accept durative phrases and by so doing to only favor an activity interpretation. Another test that I will employ and which point to the internal boundness of the event in the case of differential object marked and clitic doubled DPs is the "it takes x time" test. As we will see, this test is unsuitable for bare plural internal arguments which point to atelic eventualities.

In Section 3 I try to establish a connection between the semantic import of the case marker *pe* and the telic interpretation of predicates which take internal arguments marked by *pe.* The case marker is shown to filter away the property denotation on the DPs it marks: *pe* marked

DPs may have an object-level reading (<e>) or a generalized quantifier reading (<<et>t>) and point to stable and delimited entities which modify the internal temporal structure of the event by providing an internal boundary, hence by inducing telicity. There are several tests pointing to the fact that these DPs do not denote properties: they may not occur in the context of a reflexive passive which coerces the DP into having a property reading and which are suitable contexts for bare plurals; *pe* marking is also disallowed with kind denoting definite descriptions such as *fel* ("kind") and *tip* ("type"), etc.

Thus, differentially object marked internal arguments denote stable and delimited entities that modify the internal temporal structure of the event by providing an internal boundary.

Section 4 is devoted to another element which might contribute to the telicity of the predicate when the verb takes a differentially object marked and clitic doubled internal argument: the clitic pronoun anticipating the direct object DP. Roughly, I argue that, in line with von Fintel (1994), the clitic pronoun acts as a restrictor on the domain variable of internal arguments: the denotation of the clitic doubled DP is calculated relative to a (presupposed) set made apparent through the contribution of the clitic pronoun and it makes up a sub-set of this set (hence the *covert partitive* reading). The fact that the denotation of clitic doubled DPs is restricted to a previously mentioned set further contributes to the telicity of those predicates which take differentially object marked and clitic doubled DPs as internal arguments.

In Section 5 I relate the contribution of the case marker *pe* and that of the clitic pronoun to the notion of *inner aspect* and try to syntactically encode it by resorting to the accounts put forth in Travis (1991, 2010) and MacDonald (2008). Inner aspect concerns the inherent boundaries of the event and is therefore captured within syntax by means of an aspectual projection placed within the vP (MacDonald 2008) or the VP (Travis 2010).

Thus, there is an aspectual phrase inside the vP domain where DPs affecting the structure of the event move. The differentially object marked and clitic doubled DPs are argued to move to the specifier of AspP and by so doing to modify the *telicity* of their predicate.

2. The Puzzle

The nature of the internal argument of the verb plays an important part as far as Romanian inner aspect is concerned. Consider the object-to-event mapping in (1) below:

(1) (a) Ministrul   a   ajutat   protestatari   *în două ore/   timp de două ore.
        minister.the   has   helped   protesters   *in two hours/   for two hours
        "The minister helped protesters *in two hours / for two hours."
    (b) Ministrul   i-   a   ajutat   pe   protestatari   în două ore/   timp de două ore
        minister.the   them.cl.-   has   helped   *pe*   protesters   in two hours/   for two hours
        "The minister helped the protesters in two hours / for two hours."

The predicate in example (1a) where the internal argument is rendered as a bare plural, is an activity as evidenced by its compatibility with the durative phrase *timp de două ore* ("for two hours"). Just like any activity, the predicate is atelic as shown by the impossibility of combining it with a telic time adverbial *în două ore* ("in two hours"). In example (1b) on the other hand, the predicate containing a differentially object marked internal argument acquires a telic interpretation as can be seen from its compatibility with the time span

adverbial *în două ore* ("in two hours"), measuring the amount of time that has passed before the end of the event. Thus, unlike the bare plural in (1a), the *pe* marked and clitic doubled DP in (1b) establishes an endpoint. Notice also that the predicate in (1b) is also compatible with the durative phrase *timp de două ore* ("for two hours"): this is expected if we consider that accomplishments have a durative component which one may focus on. In this latter case, the endpoint is no longer visible.

Another test pointing that the differentially object marked internal argument induces a telic reading on the predicate has to do with its compatibility with *a luat X timp* ("it took *x* time"). Consider:

(2) (a) Ministrului   i-   a   luat   două   săptămâni să-   i   ajute   pe protestatari.
          minister.DAT him.cl.- has taken two   weeks   să.SUBJ -them.cl. help *pe* protesters
          "It took the minister two weeks to help the protesters."

     (b) ?Ministrului i-   a   luat   două   săptămâni să   ajute   protestatari.
          minister.DAT him.cl.- has taken two   weeks   să.SUBJ   help   protesters
          "It took the minister two weeks to help the protesters."

(3) (a) Profesorului   i-   a   luat un minut să-   i   recunoască pe elevi.
          professor.DAT him.cl.- has taken a minute să.SUBJ - them.cl. recognize *pe* pupils
          "It took the professor one minute to recognize the pupils."

     (b) *Profesorului i-   a   luat   un minut să   recunoască elevi.
          professor.DAT him.cl.- has taken a minute să.SUBJ   recognize   pupils
          "It took the professor one minute to recognize the pupils."

The *it took x time* construction is a test for telicity and it is therefore compatible with accomplishments and achievements (Dowty 1979, 56–57). With accomplishments, this construction engenders two readings: one in which *it took x time* refers to the amount of time elapsed before the event begins, and another according to which *it took x time* expresses the amount of time elapsed before the event ends. This is ideed what obtains in example (2a) above which may be interpreted as either "it took the minister two weeks until he started helping the protesters" or "it took the minister two weeks until he managed to help the protesters." Thus, in the first case one focuses on the beginning of the event while in the latter case the stress falls on the end of the event denoted by the predicate. In example (2b) one could at best obtain a reading according to which "it took the minister two weeks until he started the activity of helping the protesters."

In example (3a) the verb *a recunoaște* ("to recognize") is an achievement. As such it takes a differentially object marked internal argument, giving rise to a telic predicate which undergoes the test of "it took x time." On the other hand, (3b) is ungrammatical because the verb *to recognize* takes a bare plural resulting in an atelic construction which is not compatible with "it took x time," which is telic. The predicate in (3b) is to be interpreted as an activity consisting of a repetitive recognition of students.

As pointed out by the two tests above, differentially object marked internal arguments affect the internal temporal structure of the event, favoring an accomplishment/achievement reading, i.e., a *telic* interpretation. As opposed to these DPs, bare plurals trigger an activity interpretation.

3. The Contribution of the Accusative Case Marker *Pe*

As we have seen in Section 2 above, the differentially object marked and clitic doubled internal argument affects the aspectual interpretation of the predicate, inducing a telic reading, unlike bare plurals which favor an activity, atelic interpretation. This is to be expected if we keep in mind that differential object marking (DOM) acts as a filter on the denotation of the DP. Thus, as shown by Dobrovie-Sorin (1994) and Cornilescu (2000), these DPs never get a property reading <et>, but select argumental denotations (object/entity reading <e> or generalized quantifier <<et>t>).

As opposed to differentially object marked and clitic doubled DPs, bare plurals can only be assigned a property reading, as shown by Dobrovie-Sorin and Beyssade (2010). Thus, bare plurals do not introduce stable and delimited entities, i.e., expressions of type <e>, and as such they may not provide the necessary boundaries required for a telic reading. This is why they can only engender an activity interpretation irrespective of the aspectual class the verb belongs to.

A test pointing to this difference in Romanian is the passive reflexive, which coerces DPs into having a property reading, excluding the object level reading (Cornilescu 2000). As expected, reflexive passives are compatible with bare plurals but not with differentially object marked DPs:

(4) (a) Se   caută   studenţi.
         refl.passive   search   students
         "They are looking for students."
    (b) *Se   caută   pe   studenţi.
         refl.passive   search   *pe*   students
         "They are looking for students."

Thus, (4a) is grammatical due to the fact that the reflexive passive combines with a bare plural *studenţi* ("students"), unlike (4b) where the internal argument *studenţi* ("students") is differentially object marked, having an entity reading.

Consider a second context where the predicate only allows for a property denotation for the constituent occupying the object position and where differential object marked DPs are not allowed. Bare plurals, on the other hand are accepted:

(5) (a) Ion   are   *copii*   deştepţi.
         Ion   has   children   smart
         "Ion has smart children."
    (b) Ion   îl   are   pe   un   copil   deştept.
         Ion   him.cl. has   *pe*   a   child   smart
         "Ion has a smart child."

(6) (a) Ion   pretinde/   cere/   vrea doreşte   *copii*   deştepţi.
         Ion   claims/   requests/   wishes   children   intelligent
         "Ion claims/requests /wishes for smart children."
    (b) *Ion   pretinde/   cere/   vrea doreste   *pe*   *un*   *copil*   *deştept.*
         Ion (her)- claims/   requests/   wishes   *pe*   a   child   intelligent
         "Ion claims/requests/wishes for an intelligent son."

(7) Căutăm   *profesor*/   *secretară*/   *informatician*/   *zidar*.
    look.we   teacher/   secretary/   informatician/   mason
    "Teacher/secretary/informatician/mason wanted."[1]

Thus, DPs entailing a **property** reading cannot be accompanied by *pe*, nor can those DPs entailing a **kind** reading, which is related to the property reading. DPs which receive *pe* have individual object readings (i.e., the <e> and <et> interpretations).

Thirdly, DPs headed by ***pe*** may not be used with verbs allowing the "kind" reading, verbs like *a iubi* ("to love"), *a urî* ("to hate"), *a respecta* ("to respect"), and *a admira* ("to admire") (Cornilescu 2000). As can be seen in example (8) below, definite DPs in the plural that are not accompanied by *pe* may occur in the object position of these verbs and can receive a "kind" reading:

(8) Ion   iubeşte   fetele   (generic)
    Ion   loves   girls.the
    "Ion loves girls."

Pe-DPs are not generally allowed with these verbs.

(9) ?Ion   le   iubeşte   pe   fete.
    Ion   them.cl.   loves   *pe*   girls
    "Ion loves girls."

Finally, kind denoting definite descriptions such as *fel* ("kind") and *tip* ("type") disallow ***pe***:

(10) (a) Mihai   nu   agreează   *tipul*   ăsta   de   fete.
        Mihai   not   like   type.the   this   of   girls
        "Mihai does not like this type of girls."
     (b) *Mihai   nu   agreează   *pe*   *tipul*   ăsta   de   fete.
        Mihai   not   like   *pe*   type.the   this   of   girls
        "Mihai does not like this type of girls."

Thus, as a consequence of the tests discussed above, we may draw the conclusion that Differential Object Marking imposes restrictions on the denotation of the DP it marks, excluding the property reading. One of the consequences arising from this restriction is that clitic doubled and differentially object marked internal arguments are stable and delimited entities which provide the necessary boundaries required for a telic reading. This is why verbs taking such DPs may be aspectually interpreted as accomplishments or achievements. As opposed to clitic doubled and differentially marked DPs, bare plural internal arguments denote properties and force an activity reading on their predicate.

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1   Adapted from Cornilescu 2000

4. The Semantic Import of the Clitic Pronoun

The clitic pronoun may also play an important part in what the telic interpretation of predicates where differential object marked and clitic doubled internal arguments are concerned. Tigău (2010) shows that the clitic pronoun acts as a quantifier restrictor in that it restricts the resource domain variable of the quantifier it restricts, constraining the value of this domain variable.

By restricting the domain of its DP associate, the clitic affects the interpretation of CD + *pe* marked constructions by inducing a d-linked reading on the (indefinite) object (along the lines of Pesetsky [1987], Enç [1991], Kennelly [2004 a, b], and Farkas's [1994] epistemic specificity). More precisely, the DP doubled by the clitic will be constrained in its domain and will have to pick its referent from a range which has been previously introduced into the discourse domain. The range in question is stable and delimited, providing the necessary boundaries for a telic interpretation.

Let us consider the following situation: the pupils of a school stage a play in which twenty pupils participate as actors. Having this background in mind, one can felicitously utter (11a) below but not (11b) because in variant (b) *un copil* comes as new information, therefore it has no relation with a previously mentioned antecedent set.

(11) (a) La   sfârşit   *fiecare   spectator   l-*   a   felicitat   *pe   un   copil.*
            at   end   every   spectator   him.cl. has congratulated *pe* a   child
            "At the end every spectator congratulated a child."

      (b) La   sfârşit   *fiecare   spectator*   a   felicitat   *un   copil.*
            at   end   every   spectator   has congratulated a   child
            "At the end every spectator congratulated a child."

A sentence such as (11a) above, can accommodate two interpretations. Firstly, it may well be the case that each spectator congratulated a different child from among the set of twenty children that acted in the play. Secondly, one may obtain a reading according to which each spectator congratulated a certain child from among the set of twenty. The first reading has been labeled as a case of d-linking along the lines of Pesetsky (1987), Cinque (1990), Enç (1991), and Kennelly (1999, 2004a, b) among many others, whereas the second reading has been identified with the referential reading of the indefinite (Fodor and Sag 1982), with a wide scope reading of the indefinite which outscopes another operator (Fodor and Sag 1982), or as specific (Ruys 1992). Farkas (1994), followed by Kennelly (1999) characterize this latter case as one where the indefinite is a constant which escapes the scope of the operator *fiecare spectator*, and where there is no Quantifier dependency between the universal quantifier and the indefinite DP.

Either way, what the two readings have in common is the fact that the domain of the indefinite is restricted to the set of twenty children who acted in the play, i.e., there is a range of children out of which the spectators select (they may each select a different child, or the same one). It is this range that the use of the clitic ensures in the CD + *pe* marking structures.

Indefinite objects in examples such as (11) above are not however the best candidates when it comes to pointing out the exact role of the clitic in CD + *pe* marking constructions, as they may give rise to scopally specific readings due to their interaction with a quantifier.

There is however a class of weak DPs which resist specificity and which have been labeled "Counting QPs (CQPs)" by Beghelli and Stowell (1996). As shown by these linguists, CQPs

resist (scopal) specificity, in other words they never acquire a wide scope reading. If CD + *pe* marking were to ensure a wide scope interpretation for the DPs they mark, we would expect CQPs never to be marked in this way. The facts, however, contradict our expectations as CQPs can, in fact, be marked by means of *pe* marking + CD, as we can see in the examples below:

(12) (a) Cu siguranță fiecare profesor îi   va pica pe cel puțin
          for sure   every teacher them.cl. will flunk *pe* at least
          "During this session of exams, the teacher will flunk at least
          cinci studenți în această sesiune
          five students in this   session
          five students, for sure."
     (b) Cu   siguranță profesorul   va   pica   cel   puțin   cinci   studenți.
          for sure   teacher.the will flunk at   least   five   students
          "The professor will surely flunk at least five students."

Thus, CQPs may, indeed be marked by means of *pe* marking + CD. We would then expect to obtain the same effect in terms of scopal specificity as we obtain whenever we mark the other weak DPs (i.e., *un/o*, cardinals, *mulţi*, *câţiva*). However, no such wide scope reading can obtain with CQPs, i.e., example (12a) above cannot be interpreted as "there is a set of at least five students such that every teacher will examine." The CQP *cel puţin cinci studenţi* has only a narrow scope reading irrespective of whether it is marked by CD + *pe* marking or not. Thus, CQPs can never be scopally specific (as pointed out by Beghelli and Stowell [1996]) but they can receive CD + *pe* marking. It follows then, that scopal specificity is not the exact reading the clitic contributes. The specificity CD + *pe* marking actualizes on these DPs is to be understood in terms of Enç's (1991) notion of "covert partitivity" and Farkas's (1994) notion of "epistemic specificity."

The clitic itself is a main contributor when it comes to actualizing the specific reading on clitic doubled and *pe* marked indefinite objects, in that it acts as an operator restrictor, modifying the resource domain variable of the QP they mark.

In order to better understand the function of the clitic as a restrictor on the domain of the QP indefinite, let us get acquainted with von Fintel's (1994) account.

4.1 Von Fintel (1994) – Quantifier Restriction
The point of departure for von Fintel's reasoning is the structure of Quantificational Noun Phrases:

(13) Quantificational Noun Phrase

Determiner – Quantifier	Common Noun Phrase
every	cat(s)
both	student(s) who came too late
most	green shirt(s)
many	
few	
neither	
some	
no	

The Common Noun Set denotes a set which restricts the quantifier or supplies the domain of the quantifier. Thus, in all the examples below, taken from von Fintel (1994, 13), the first argument of the quantifier has this function of "setting the scene," by restricting quantification to a domain:

(14) (a) Every man smokes ↔ every man is a man who smokes.
      (b) Some man smokes ↔ some man is a man who smokes.
      (c) Most men smoke ↔ most men are men who smoke.

In this respect, language does not operate in the same way as logic does with respect to quantifiers, i.e., logical operators are unrestricted in order predicate logic, but can only function under certain restrictions in language. Natural language quantification is quantification restricted to a domain.

Apart from this overt restriction (coming from sentence-internal restrictive arguments) that quantifiers undergo within language, von Fintel also points to another "hidden" variable which further restricts quantifiers: the discourse context itself is an important source of quantifier restrictions. Thus, all quantifiers have a hidden domain argument whose value is contextually supplied. In order to see this mechanism at work, let us consider the following example provided by von Fintel (1994, 13):

(15) Everyone had a great time last night.

The example above does not claim that everybody in the world had a great time, instead it generalizes over a group of individuals that went out last night. Thus, the domain of evaluation of the whole sentence is restricted. This restriction to "members of our group" is calculated contextually. Furthermore, context dependency is located within each determiner itself. Von Fintel assumes that the locality of the contextual restriction is captured by interpreting the determiner relative to a contextually supplied set which is then intersected with the common noun argument. He calls this set "resource domain."

Remember that a quantifier is firstly restricted to a domain by means of its first argument or the Common Noun Phrase above – this translates formally by indexing the quantificational element with an index (which is actually a variable). In the same way, von Fintel (1994) assigns another index to the quantifier in question (which is a variable of the same type as the first argument of the quantifier) and by so doing, he changes the semantics of the quantifier in question in such a way as to intersect the first argument with the value of the resource domain variable.

Thus, a quantified NP contains two indices: the index on the determiner (interpreted as the resource domain) and the index on the Common Noun Phrase, which plays its usual role.

My hypothesis is that the clitic acts as this second type of restrictor by constraining the value of the hidden domain variable of the restricted quantifier. This is how the sense of covert partitivity arises with clitic doubled and *pe* marked DPs, which always seem to refer to members of a presupposed set. This seems to be the case indeed if we consider the examples in (17). Thus within the context situation in (16) below only (17) a may be uttered felicitously:

(16) Every autumn there is a resit session at the faculty. This year twenty students need to pass the exam in General Linguistics.

Let us consider now how the two possible continuations below fit into the context:

(17) (a) Cu   siguranţă *profesorul îi*   va   pica *pe cel puţin cinci studenţi*.
         for sure   teacher.the them.cl. will flunk *pe* at   least five   students
         "The teacher will flunk at least five students, for sure."

    (b) Cu   siguranţă *profesorul* va   pica *cel puţin cinci studenţi*.
         for sure   teacher.the will flunk at   least five   students
         "The professor will surely flunk at least five students."

Example (17a), where the CQP *cel puţin cinci studenţi* is clitic doubled and overtly case marked by means of *pe*, fits very well with the context. Thus, the CQPs picks its referent from the pre-established range of twenty students and it is the clitic proper which restricts the domain of the CQP to this pre-existent range from within the discourse domain.

Thus, the contribution of the clitic pronoun consists in restricting the domain variable of the DP double: the domain of evaluation of the whole sentence is restricted contextually to the members of a group previously mentioned. The fact that the denotation of clitic doubled DPs is restricted to a previously mentioned set further contributes to the telicity of those predicates which take as internal arguments differentially object marked and clitic doubled DPs.

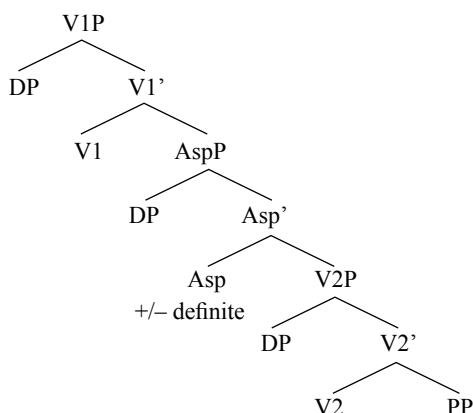## 5. Encoding the Aspectual Contribution of DOM

In this section I would like to see how the contribution of differential object marked and clitic doubled internal arguments is encoded into syntax. Given that these DPs were shown to affect the telicity of their predicate, the notion of aspect which I intend to focus on is that of inner aspect (Travis 1991, 2010; MacDonald 2008) as opposed to outer aspect or lexical (as opposed to grammatical) aspect or situation (as opposed to viewpoint) aspect (Smith 1991).

The notion of aspect has been generally analyzed as being twofold in that it refers to two types of aspect. There is, on the one hand, grammatical or viewpoint aspect and lexical or situation type aspect on the other. The former has to do with the actual boundness vs. unboundness of the event (related to progressive or perfective meanings), while the latter concerns the inherent boundaries of the event which ultimately translates into the telic vs. atelic dychotomy.

Another dychotomy first introduced by Travis (1991) revolves around the notions of inner vs. outer aspect where the former corresponds to Smith's (1991) situation type aspect while the latter relates to her notion of viewpoint aspect. The main difference between inner and outer aspect is that the former is affected by the nature of the internal argument while the latter is not.

In the analysis I propose for Romanian, I follow MacDonald (2008) and Travis's (2010) accounts of inner aspect, wherein the aspectual properties under scrutiny are shown to exist inside the verb phrase: telicity is related to the internal temporal structure of the event and the domain of inner aspect is the structure of events. MacDonald (2008) and Travis (2010) posit the existence of an AspP within the VP domain. Note that both studies adopt a doubly layered VP with AspP ranging between the upper VP/vP and the lower VP in line with the idea that internal objects which measure an event do this from a VP-internal position. Consider Travis (2010):
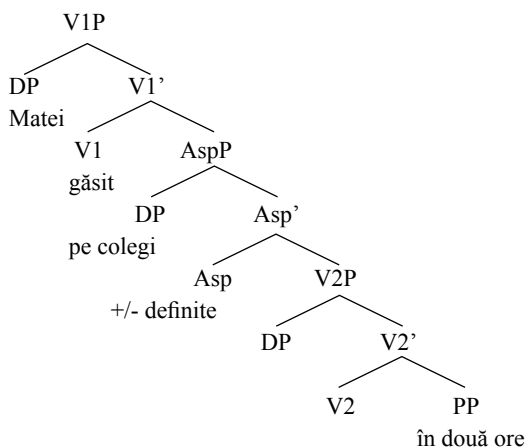
(18)

```
                    V1P
                   /   \
                 DP     V1'
                       /   \
                     V1     AspP
                           /    \
                         DP      Asp'
                                /    \
                             Asp      V2P
                          +/– definite  /  \
                                      DP    V2'
                                           /   \
                                         V2     PP
```

In Travis's terms, the feature *definite* is related to *telicity.* As can be seen from the tree diagram above, only internal arguments affect the structure of the event by moving into the specifier of AspP. External arguments, on the other hand are outside the computation of telicity. If we were to apply this mechanism to Romanian clitic doubled and differentially object marked internal arguments, we would obtain the following structure:

(19) Matei   i-a   găsit   pe   colegi   în   două   ore.
     Matei   them.cl.- has found   *pe* colleagues   in   two   hours
     "Matei found his colleagues after two hours."

(20)

```
                    V1P
                   /   \
                 DP     V1'
                 Matei /   \
                     V1     AspP
                     găsit /    \
                         DP      Asp'
                      pe colegi /    \
                             Asp      V2P
                          +/- definite  /  \
                                      DP    V2'
                                           /   \
                                         V2     PP
                                               în două ore
```

6. Conclusions

I started this paper from the observation that differentially object marked and clitic doubled internal objects seem to act as sub-event identifiers of the predicate, endowing the sentence with particular aspectual propeties. In other words, these DPs seem to induce a telic interpretation of the predicate, as opposed to bare plurals which force an atelic interpretation on the same predicate. This observation was substantiated by two standard tests differentiating between accomplishments/achievements on the one hand and activities on the other: the adverbial modification test and the "it takes x time" test.

The telic aspectual reading induced by differentially object marked and clitic doubled DPs on their predicate was seen as an effect of the semantics of the marker *pe* and of the clitic pronoun. Thus, unlike bare plurals which may only acquire a property reading (<et>) due to the fact that they do not denote stable and delimited entities as shown by Dobrovie-Sorin and Beyssade (2010), *pe* marked direct object DPs may have an object-level reading (<e>) or a generalized quantifier reading (<<et>t>) as *pe* acts a filter on the denotation of the DP it marks, excluding the property reading. The differentially object marked internal argument is thus perceived as a stable and delimited entity which modifies the internal temporal structure of the event by providing an internal boundary, hence by inducing telicity.

The clitic pronoun anticipating the direct object DP is another element which contributes to the telicity of the predicate when the verb takes a differentially object marked and clitic doubled internal argument, is. By resorting to von Fintel's (1994) account I argued that the clitic pronoun acts as a restrictor on the domain variable of the DP double: the domain of evaluation of the whole sentence is restricted contextually to the members of a group previously mentioned, i.e., the resource domain. The denotation of the clitic doubled DP is calculated relative to a (presupposed) set made apparent through the contribution of the clitic pronoun, and it makes up a sub-set of this set (hence the covert partitive reading). The fact that the denotation of clitic doubled DPs is restricted to a previously mentioned set further contributes to the telicity of those predicates which take as internal arguments differentially object marked and clitic doubled DPs.

Given that clitic doubled and differentially object marked DPs have an import on the telicity of their predicate, they are to be related to the notion of inner (lexical or situational) aspect which concerns the inherent boundaries of the event. In line with Travis (1991, 2010) and MacDonald (2008), who mantain that all aspect is syntactically encoded, I argued that there is an aspectual phrase inside the vP domain where DPs affecting the structure of the event move. Thus, differentially object marked and clitic doubled DPs are argued to move to the specifier of AspP and by so doing to modify the telicity of their predicate.

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In and *out* of Places, States, and Activities: Russian Verbal Prefixes and Scales

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Abstract: This paper explains the polysemy of Russian verbal prefixes through their position in the VP. The lexical entry remains constant throughout all the uses of a given prefix, while the structure into which a prefix is inserted varies. I show that the meaning of a prefix is predictable on the basis of the event structure of the verb it attaches to, i.e. on the scale type provided by the verb. Every prefix measures out an event, mapping it onto a scale, which may be spatial, temporal, or a scale of change. I will concentrate on two prefixes: *za-*, which, as I show, denotes transition to the maximum point on a scale, and *ot-*, which refers to leaving the minimum point. The properties of the scale, such as boundedness, gradability, and the availability of a minimum and maximum, determine its compatibility with different prefixes, which makes reference to the different subparts of the scale.

Keywords: Slavic prefixes; event structure; selection of scales

1. Introduction

In Russian, the combination of verbs with prefixes is a phenomenon that is both very productive and restricted by a rather complicated set of rules. The restrictions on verb-prefix combination present a problem for the standard view on c-selection, for example as presented in Adger's (2003) textbook, where the head, i.e., the item that projects, also selects its complement according to the uninterpretable features (e.g., a transitive verb such as "kiss" selects a noun phrase complement).

Let us start with a superficially simple question: what selects what in the prefix–verb pair? The verb is naturally expected to be the head of the VP, and, as the head, it is the verb that selects a complement, according to the definition of headedness. But can we actually find any evidence that it is the verb that selects a prefix? On the contrary, the facts point in the opposite direction.

Most verbs are compatible with a very large number of prefixes. The exception is verbs that form a perfective with only one perfectivizing prefix, where the prefix makes little or no contribution to meaning. Many verbs are also flexible with respect to the position occupied by the prefix, i.e., they are compatible with both lexical and superlexical prefixes. Verbs cannot be meaningfully divided into prefixal vs. non-prefixal classes (similar to transitive vs. intransitive) according to their combinatorics with prefixes, and almost all verbs may appear as an unprefixed imperfective form without any sense of grammatical incompleteness. It may be said that a perfective verb requires a prefix, but perfectivity is in paradigmatic opposition to (prefixless) imperfectivity, so that is not a matter of selection.

Furthermore, there is evidence that the prefix is not the sister of the verb, which makes it even more problematic for a prefix to be selected by the verb. Locality might be a solvable issue, as Svenonius (1994) allows restricted not strictly local selection by head-chains, which would allow a lexical prefix to be selected by an *asp-init-proc-res* chain. However, a superlexical prefix would not be selected by such a chain, as it is above aspect (as discussed in Section 2). Then we would end up in a non-coherent and counter-intuitive scenario where superlexical prefixes select verbs, while verbs select lexical prefixes. Additionally, under a head-chain analysis, it would be very surprising for a verb with a lexical prefix to be able to select different complements than without it.

To sum up, the process of the combination of verbs with prefixes looks nothing like the combination of, for example, a transitive verb with its nominal complement.

Can we then reverse the argument and say that the prefix selects the verb? According to Adger's definition, that would entail the prefix being the head, which would drastically alter the familiar structure of the verb phrase and raise the question of how this prefix phrase is selected and by what. If the prefix phrase is dominated by the higher verbal structure, then this option reverts to the structure of the verb selecting the prefix.

A third possibility, which I will argue is a more appealing option, is that there is something else which both a prefix and a verb interact with, i.e., their co-occurrence arises from a coincidence of their selectional restrictions. I propose that it is not the verb that the prefix interacts with, but rather the scale, lexicalized by the verb or the verbal complement. Since the prefix and the verb are not sisters, they do not need to select each other, but require a scale, and may appear together as long as their requirements do not clash.

The scale selected may be a path with directional motion verbs, or dimensions of the direct object, or a scale of gradual change, or even the development of an activity in time. For example, the directional verb, such as *leztj* "climb," selects a path for a complement, and the prefixes also select a scale:

(1)   (a)   Vor   za-lez   na   čerdak.
             thief   into-climbed   on   attic
             "The thief climbed up to the attic."
       (b)   Maljčik   ot-skočil   ot   kostra.
             boy   from-jumped   from   fire
             "The boy jumped away from the fire."

Different prefixes subcategorize for different scale types, as I show in Section 4, because their denotation makes reference to different subparts of a scale. Thus, the prefix *za-* denotes a transition to the maximal point of the scale, i.e., the place which is the final point of the scale (the attic in [1a]). The prefix *ot-*, on the contrary, refers to a transition out of the minimal point on the scale, or the starting point of the path (e.g., in [1b] "near the fire" is the minimal point on the scale directed away from the fire). *Pro-*, which refers to motion through or thoroughness, takes a gradable scale with both a minimum and maximum, *do-* "up to" takes a gradable scale with a maximum point, while *pere-* "over" needs a scale that provides a reference standard to be crossed.

I will show this process to be a case of c-selection, as it is local, not context-dependent, and the subcategorization features may be formally specified (e.g., +min, +max, +/–gradable scale).

The interaction of the scale with the verb, however, is far more lax and context-dependent (e.g., one needs encyclopedic knowledge to know that the maximum point of drinking may involve drinking the glass empty, getting drunk, or wasting all one's money; each is a possible reference standard on a scale which affects the choice of a prefix). This relationship is non-local. So the laxer requirement of a scale by a verb is s(emantic)-selection, while the stricter and more local selection of the same scale by the prefix is c(ategory)-selection.

While *ot-* implies some non-zero path traveled, *za-* only makes reference to the final point, a transition to the final place or state. For example, in (2a) the girl enters a new state upon being turned into something by the witch, but there is no reference to her previous state (except that it was normal), nor about any lengthy process of enchanting; it could be an instant transition. This contrasts with (2b), where the transition is out of the dirty state, the minimal point on the scale of change, i.e., the initial state of being dirty is neither normal nor desirable, and washing had to take some time, just as in (1b) some non-zero distance had to be traveled.

(2) (a) vedjma   za-koldovala   devushku
          witch   za-enchanted   girl
          "The witch enchanted the girl."
     (b) xozjajka   ot-stirala   skatertj.
          hostess   ot-washed   tablecloth.acc
          "The hostess washed (the dirt off) the tablecloth."
          (implication: the tablecloth was dirty)

Thus, we see that there are several parallels between the shape of the path and the scale, selected by the two prefixes. These same two prefixes can also be used superlexically, scoping over the entire activity, in which case they denote inception (3a) and completion (3b).

(3) (a) Časy   za-xodili.
          clock   za-walked[non-dir]
          "The clock started working."
          There is a minus-to-plus transition event, namely from not working to working.
     (b) Staraja   vedjma   svoe   ot-koldovala.
          old   witch   its.acc   ot-enchanted[non-dir]
          "The old witch is done casting spells (for ever)."
          There is a plus-to-minus transition event, namely the transition from casting spells to never casting a spell again.

The structure is parallel to the combination with a path or scale: a superlexical prefix selects the imperfective aspect phrase as a complement, just as the lexical prefix selects a scale. The imperfective event in that case acts as a scale, as it has initiation, completion, and duration, and its values may be ordered. Then a new event is created to start, end, or measure out a piece of the imperfective event, and that new event is perfective.

I will argue that the process of prefix-scale matching has to be governed by c-selection (subcategorization features) rather than s-selection. The prefix-scale mismatch is similar to c-selection in English, and just as strictly ungrammatical:

(4) (a) to depend on/*from subsidies
     (b) Masha   za-bezhala   domoj
          Masha   za-ran   home
          ungrammatical as superlexical: "*Masha started to run home."
          grammatical as lexical: "Masha ran into the house."

The directional motion verb in (4b) cannot provide an appropriate scale for superlexical temporal modification, so the inception interpretation is strictly ungrammatical, while only a spatial inter-pretation is available.

Impossible prefix-verb combinations (such as a superlexical prefix with a directional motion verb, or a lexical prefix with a non-directional motion verb) are clearly ungrammatical, rather than semantically odd. However, there are combinations where the oddness does not seem gram-matical, but context-dependent, and the judgments become blurred. These are similar to cases of s-selection violation, such as (5b) (Chomsky 1965):

(5) (a) Sincerity frightens the boy.
     (b) #The boy frightens sincerity.
     (c) #Masha   za-sušila   stakan.
          Masha   za-dried   glass
          "Masha dried up a glass."
     (d) Masha   za-sušila   cvetok
          Masha   za-dried   flower
          "Masha dried up a flower."

As discussed in Section 4.2, the shape of the scale provided by the verb "to dry" depends on the object, being absolute as a transitive property of things such as glasses and towels, but rela-tive when it is a more or less stable property, e.g., of flowers, crops, or skin. When a glass is the object, as in (5c), the shape of the scale does not match the prefix requirements, but the mismatch depends on the choice of object.

The fact that these combinations are context-dependent suggests that we are dealing with s-selection. However, I will take an alternative route. Under my analysis, all the prefixes subcategorize for scales, and the flexibility and context sensitivity originate entirely from the compatibility of certain verbs with more than one kind of scale. So, it is the selection of a scale by a verb that may, at least sometimes, be s-selection, i.e., semantically governed, but the prefix selection is purely syntactic.
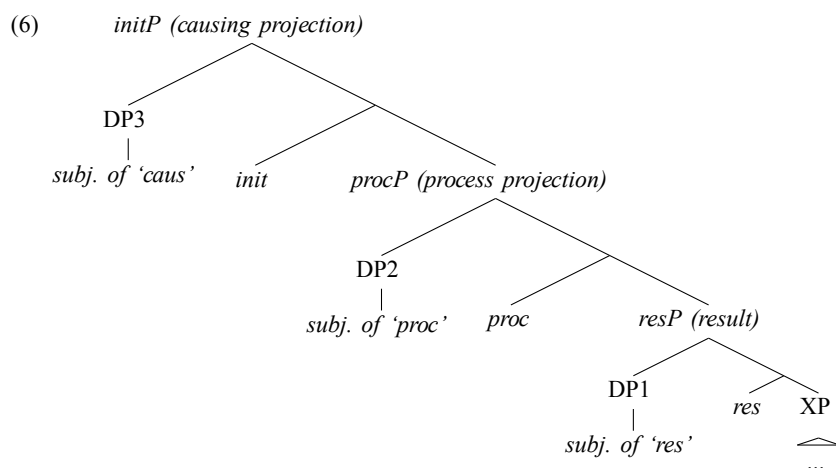
2. Syntactic Framework

The assumption in this paper is that the uses of Russian verbal prefixes fall into two classes, which correspond to the lexical vs. superlexical distinction (Isačenko 1960; Romanova 2004; Svenonius 2004; Babko-Malaya 1999; Schoorlemmer 1995).

Lexical prefixes, as potential argument structure modifiers, are generated in a position inside VP, and may map the event onto a path, the dimensions of the direct object, or a scale of change. Superlexical prefixes modify the event itself and do not change the argument structure or the core meaning of the base verb and are therefore syntactically higher, above the aspect head

(Pereltsvaig 2006). Thus, the whole verbal phrase is the complement of the prefix, and its domain is the temporal dimension. When it appears in the superlexical position *za-* means inception, and *ot-* means completion. Below, I discuss the syntactic distribution of the prefixes in First Phase Syntax.

Ramchand (2008) proposed a tripartite division of eventualities into initiation, process, and result. Such decomposition is governed by the Principle of Event Composition, where initiation leads to process and process potentially leads to a result state.

Res and *init* projections are optional, e.g., unaccusative verbs lack the *init* projection, and unergative verbs lack the *res* projection. Each of these subevents, when present, is represented as its own projection, ordered in the hierarchical embedding relation as shown in (6) (Ramchand 2008, 46).

(6) *initP (causing projection)*

     DP3
     |
  subj. of 'caus'   *init*   *procP (process projection)*

            DP2
            |
        subj. of 'proc'   *proc*   *resP (result)*

                     DP1   *res*   XP
                     |
                subj. of 'res'   ...

In this paper I will be most interested in the result projection, which hosts the lexical prefixes, as argued by Romanova (2004), and in the interaction of the aspect head (above init), hosting superlexical prefixes, with its complement, initP.

The generic structure that a prefix may enter looks like (7):

(7)   event P
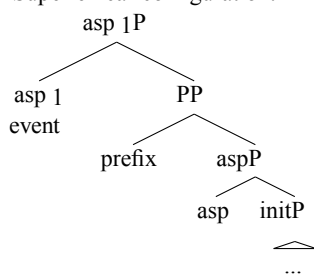
            event   PP

                 prefix   scale
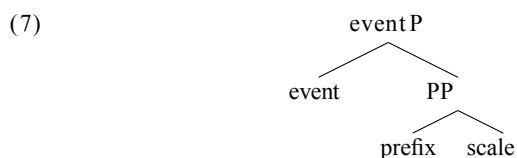
If prepositions and prefixes constitute a single category P (Matushansky 2002; Pantcheva 2007; Svenonius 2004; Gehrke 2008), the transitive properties of a prefix are expected: while a preposition selects a DP for a complement, a prefix may also select any phrase that can be interpreted as a scale. Then an eventive head (res or asp) combines with the PP consisting of a prefix and its scalar complement.

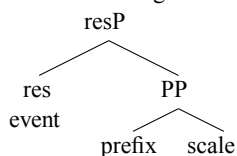The prefix establishes a relationship R between the event and the scale:

(8) $prefix = \lambda scale, \lambda e[R(e)(scale)]$

Thus, when a lexical prefix is inserted into the Result projection, it establishes a relationship between the result and the scale introduced by the verb. For example, *za-* in *za-morozitj* "freeze" may mean that the event corresponds to the transition to the maximum state on the freezing scale, while *za-* in *za-jti v dom* "walk into the house" refers to the transition to the final point on the path leading into the house. If the prefix is superlexical, it establishes a relationship between a punctual transition event and an unbounded process, so the superlexical *za-* in *za-prygatj* "start jumping around" takes on an inceptive meaning, and thus the event corresponds to a transition to a state of jumping around.
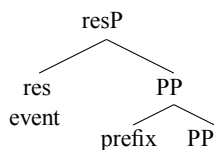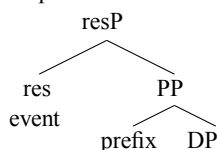
(9) (a) Superlexical configuration:

$$
\begin{array}{c}
\text{asp}_1\text{P} \\
\diagup \quad \diagdown \\
\text{asp}_1 \qquad \text{PP} \\
\text{event} \quad \diagup \quad \diagdown \\
\qquad \text{prefix} \quad \text{aspP} \\
\qquad \qquad \diagup \quad \diagdown \\
\qquad \qquad \text{asp} \quad \text{initP} \\
\qquad \qquad \qquad \diagup\diagdown \\
\qquad \qquad \qquad \ldots
\end{array}
$$

(b) Lexical configurations. Scale of change:

$$
\begin{array}{c}
\text{resP} \\
\diagup \quad \diagdown \\
\text{res} \qquad \text{PP} \\
\text{event} \quad \diagup \quad \diagdown \\
\qquad \text{prefix} \quad \text{scale}
\end{array}
$$

(c) Directional:

$$
\begin{array}{c}
\text{resP} \\
\diagup \quad \diagdown \\
\text{res} \qquad \text{PP} \\
\text{event} \quad \diagup \quad \diagdown \\
\qquad \text{prefix} \quad \text{PP}
\end{array}
$$

(d) Spatial:

$$
\begin{array}{c}
\text{resP} \\
\diagup \quad \diagdown \\
\text{res} \qquad \text{PP} \\
\text{event} \quad \diagup \quad \diagdown \\
\qquad \text{prefix} \quad \text{DP}
\end{array}
$$

3. Prefixes as Measure Phrases

The distribution of prefixes is reminiscent of the distribution of measure phrases in nominal constructions as described by Schwarzschild (2006). In that case, too, each of the two syntactic configurations that is distinguished brings with it a commitment to a particular type of interpretation. In (10), what is measured is determined solely by whether the prepositional phrase or a compound is used, and does not depend on the lexical entries of the lexemes involved. The degree of "monotonic" properties, such as length, is a reflection of amount, while the degree of "non-monotonic" properties, such as temperature, is not. Thus, the contrast below emerges:

(10) (a) a foot of cable
(b) quarter-inch cable
(c) seven pounds of potatoes
(d) seven-pound babies

The measurement in (10a) refers to length, which, as a monotonic property, decreases if we take less cable, while the measurement in (10b) refers to the diameter of the cable, which, as a non-monotonic property, does not change with the amount of cable in question. Thus, it is the structure that allows one to distinguish between the monotonic and non-monotonic properties. If a monotonic property is measured, the partitive structure is used, while for non-monotonic properties an attributive construction is used, which is predictable on the basis of the meaning, as a partitive construction measures out the amount of a substance, while an attributive construction simply describes it. Here is Schwarzschild's (2006, 73) example of monotonicity:

(11)   Sometimes a dimension reflects the part-whole structure of the domain of objects it applies to and sometimes not. If you have a pile of cherries, it has a certain weight. Take some of the cherries away, the weight goes down; add some cherries to the pile and the weight goes up. By contrast, you can add cherries without changing their temperature, their weight per unit, or their color.

The notion of monotonicity is also relevant for events which can be ordered by duration, just as objects can be ordered by weight and by volume. If a given portion has a certain volume, any proper part of that portion has less volume. Similarly, the measure phrase in an expression such as "two hours of walking" characterizes duration. "When we speak of walking, duration is monotonic on the part-whole relation, as required by the partitive. Any proper part of that walking would have had a shorter duration" (Schwarzschild 2006, 74).

Not every event, however, allows such a partitive. The restriction is parallel to the restriction on substances, where only mass or plural substances are compatible with partitives. Similarly to singulars (e.g., *"one pound of pancake"), achievements are not monotonic, so *"two hours of recognizing that face" sounds odd. Achievements have no subparts, and a subpart of an accomplishment (e.g., "draw a circle") is not "less of drawing a circle," as no complete circle is drawn. The scalar structure of events allows the definition of telicity in terms of subintervals (Krifka 1998), where atelic predicates, such as "push a cart," have the subinterval property; that is, whenever they are true at a time interval, then they are true at any part of that interval; this does not hold for telic predicates, such as "eat an apple," as the apple is not fully eaten at any subinterval of eating an apple.

Prefixes act as measure phrases, except they measure out events, not substances. Parallel to the partitive measurement, they are only interpretable if their complement provides a monotonic scale, be it distance, scale of change, or an atelic event developing in time.

The same distinction is used by Součková (2004), who analyzes the prefixes *na-* and *po-* in Czech as measure functions, applied both to homogeneous and quantized predicates. In this view a directed motion verb introduces the path, which acts as the monotonic scale measured by the prefix *po-*, while in the absence of other scales time becomes the domain of the measure function; i.e., one aspect of meaning of *po-* remains constant, and that meaning (e.g., "a little") is the contribution of the conceptual listeme *po-*, which may scope over path, time, or degree, depending on the structure.

Then the interpretation of verbal prefixes as measure functions becomes parallel to the contrast of monotonic vs. non-monotonic properties, illustrated in (10), where the domain of the measure function depends on the structural position where it is introduced.

This looks similar to Kagan's (2013) Scale Hypothesis, according to which a verbal prefix imposes a relation between two degrees on a scale, one of which is associated with the event denoted by the verbal predicate and the other is the standard of comparison. Thus, all the uses of a given prefix involve the same relation between the two degrees, but the uses differ in terms of the scale on which the two degrees are compared (e.g., a path scale, a property scale, a time scale, amount, or the dimensions of the object).

A scale is, by Kagan's definition, monotonic, as she defines it as a set of degrees, i.e., abstract representations of measurement that are ordered along a certain dimension (e.g., height, duration, temperature, etc.)

Thus, to sum up the discussion up to now, a prefix combines with a complement that provides a scale, onto which the event is mapped. The role of the prefix, located between an event head and a scale in this configuration, is to delimit the event by mapping it to a certain subpart of the scale. The scales vary according to the syntactic configuration, as the complement may be a path, a scale lexicalized by the verb, the direct object, or, for superlexical prefixes, the temporal trace of the entire verbal phrase.

4. Scale Typology

In the previous section I described the mechanism for choosing between lexical and superlexical prefixes and showed how the argument structure of the verb determines the position of the prefix. It appears that such an analysis predicts that a single verb should combine either with all lexical prefixes or with all superlexical prefixes. Such a prediction, however, is clearly wrong, as with many verbs some prefixes turn out lexical, and some superlexical, or different prefixes may pick out different scales, resulting in a split interpretation, where, for example, some of the prefixes take on a directional interpretation, while others refer to the lexicalized scale.

Kennedy and McNally (2005) list the following types of scales:

(12) A typology of scale structures
    a) $\langle D_{(0,1)}, R, \Delta \rangle$ (TOTALLY) OPEN SCALE
    b) $\langle D_{[0,1)}, R, \Delta \rangle$ LOWER CLOSED SCALE
    c) $\langle D_{(0,1]}, R, \Delta \rangle$ UPPER CLOSED SCALE
    a) $\langle D_{[0,1]}, R, \Delta \rangle$ (TOTALLY) CLOSED SCALE

The prefixes that may be grouped as denoting an "out-of" transition (*ot-*, *s-*, *vy-*) refer to the minimum value and are thus incompatible with upper closed scale predicates, while the prefixes that denote an "into" transition (*za-*), make reference to the maximum point and are thus incompatible with lower closed scale predicates, which do not provide the relevant value.

While the scale provided by the path is always gradable, and can have both a beginning and an end, the scales lexicalized by verbs of change vary in their shape. In the following subsections I discuss some representative examples of each scale type.

4.1 *Za-* and Upper Closed Scales

As discussed in the previous section, every prefix introduces a relationship between an event and a scale. Different prefixes make reference to different subparts of the scale in their denotation. Thus, the prefix *za-* introduces a transition into the maximum state of the scale:

(13) $[za-]=\lambda e,\lambda scale[culminate(e)(max[scale])]$

In other words, the prefix *za-* combines with a scale, picks out its maximum point, and maps an event to the point of transition into the state corresponding to the maximal value of the scale. It follows that it makes no difference to the compatibility with the prefix whether the scale also has a minimal point and whether the scale is gradable, as its denotation makes no reference to any of the other subparts of the scale. What matters is whether the scale introduced by the verb provides a salient final state.

"To freeze" is an example of an upper closed scale. The verb entails no information about the initial temperature, except that it was above the melting point, but the maximal point is quite salient: it occurs once the object solidifies. But because no initial point is specified, the prefix *ot-*, which makes reference to the minimum point of the scale, is incompatible with the verb. The scale is gradable, so it is also possible to "almost freeze," and "completely freeze." Thus, *za-morozitj* "za-freeze" is grammatical, while *ot-morozitj* "ot-freeze" is not acceptable in the sense of freezing something. It is grammatical when referring to frostbite, with the frostbitten body parts as an unselected object, in which case it seems directional, referring to the metaphorical path a frozen nose travels off the face once one stops feeling it.

However, "half-freeze" which would make reference to both the minimum and maximum values, is incompatible with the upper closed scale, which does not provide the minimum value required for the calculation of the mid-point between the two ends. The VP *napolovonu zamorozitj* "to half-freeze" is most naturally understood as referring to half of the object being frozen, but not to the halfway point on the scale of change.

The table below illustrates the *za-* prefixation of the verbs related to upper closed scale adjectives (mostly listed by Kennedy and McNally 2005) and the properties of the adjectives:

verb	adjective	slegka ("slightly")	napolovinu ("half")	počti ("almost")
za-polnitj ("fill")	polnyj ("full")	*	v	v
za-gruzitj ("load")	gruzhenyj ("loaded")	*	v	v
za-krytj ("close")	zakrytyj ("closed")	*	v	v
za-/vy-suštj ("dry")	suxoj ("dry")	*	v	v
za-temnitj ("darken")	temnyj ("dark")	*	v	v
za-konchitj ("finish")	gotovyj ("ready")	*	v	v
za-morozitj ("freeze")	morozhenyj ("frozen")	*	?	*

Table 1. *Verbs, adjectives, and scale types*

The measure phrase "slightly" makes reference to the minimum point (there is a small difference between the actual location on the scale and the minimum value), and is thus unavailable with upper closed scales. In this context it is surprising that *napolovinu* is so frequently acceptable. In the case of "to fill" and "to load" the volume of the vessel that is filled provides a scale that has both a zero value (empty) and a maximum value (full), so it is possible to calculate the mid-point between the values, though the zero value (empty) is not a part of the fullness scale. In the case of closing, the path that the door needs to travel from an open to a closed state provides a similar scale, which is contextually available, but not a part of the scale entailed by the adjective. Similarly, half of the object may be dry, ready, or dark, so it is possible to combine it with *napolovinu*. So, the availability of a half measure is not an indication of the shape of the scale; incompatibility with it suggests that a scale is not fully closed. Crucially, as pointed out by Kennedy and McNally (2005), whenever a measure phrase referring to incompleteness, such as half or partially, is added, the entailment is negation:

(14) "the glass is half full" → "the glass is not full"

If comparison is involved, the entailment is also negative:

(15) "Your sleeping bag is drier than mine" → "mine is wet"

Thus, the verbs in the table above are derived from absolute adjectives, according to the tests in Kennedy and McNally (2005).

This does not mean that *za-* is totally incompatible with relative adjectives that require a minimal value on the scale (e.g., wet, dirty) to be true. The relative adjectives, according to Kennedy and McNally (2005), entail that the standard corresponds to the lower endpoint, thus *half/partially adj* entails that *x is adj*:

(16) (a) "the table is partially wet" → "the table is wet"
    (b) "the floor is wetter than the countertop" → "the floor is wet"

Grjaznyj "dirty" and *mokryj* "wet" are, unlike the adjectives in the table above, compatible with *slegka* "slightly," and are less readily compatible with "half" and "almost," in which case the measure phrase can measure the object. However, even though the adjective provides only the lower endpoint of the scale, the object can easily provide the missing maximal value. Thus *za-močitj* and *za-pačkatj* can refer to making something completely wet or dirty, as opposed to *na-močitj* "on-wet" and *is-pačkatj* "out-dirty."

4.2 *Ot-* and Lower Closed Scale

As we saw in the previous section, *za-* only needs a maximum point, making no reference to the other subparts of the scale. *Ot-* is similar in that it needs only one end of the scale, but it is the lower end in this case.

(17) $[ot-] = \lambda e, \lambda scale[culminate(e)(\neq min[scale])]$

Ot- also imposes an additional requirement that the scale length is non-zero and gradable (cf. the shape of the path directed away from the ground). It also makes a further lexical restriction, that the transition is happening away from an undesirable state, and is often modified with positive adverbs such as "properly" and "well." This additional restriction makes it incompatible with such verbs as "make dirty," "rot," "go bad," "rust," etc. which provide a formally appropriate scale. *Za-*, on the contrary, contains no information on the speaker's evaluation of the event.

It is possible for verbs that are very close in meaning to take the opposite prefixes, e.g.:

(18) *za-žaritj* "za-fry" vs. *ot-varitj* "ot-boil"
      into fried state vs. **from** raw state

The reason for the difference is that "frying" implies some definite final state, but entails no requirement that the food is raw to start out with. The verb *ot-varitj*, on the other hand, entails that the initial state is raw. (It is also possible to use the prefix *s-* to remove the focus from the initial state and the process, which is more neutral. *S-* is also a source prefix.) *Slegka varenyj* "slightly boiled" implicates that something is boiled, as opposed to absolute adjectives such as full or empty.

The verb *ot-krytj* "to open" takes the prefix *ot-*, and the adjective "open" displays all the properties of an adjective, the standard of comparison of which corresponds to the lower endpoint:

(19) (a) "The door is half open" → "the door is open"
      (b) Dverj slegka otkryta
           door slightly open
           "The door is slightly open" → "the door is open"

4.3 Cleaning Verbs

Thus, one class of verbs that often occur with *ot-* is verbs where the standard corresponds to the minimum, which frequently have a sense of gradually revealing something hidden, such as *ot-voritj* "open," *ot-kopatj* "dig out," *ot-tajatj* "melt," *oto-gretj* "make warm," *ot-mytj* "wash,"

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ot-čistitj "clean," *ot-stiratj* "wash," and *ot-teretj* "scrub clean"). Such verbs as "clean" and "wash" also have a sense of gradually revealing something, i.e., revealing the surface under the dirt, and in that sense the preference for *ot-* is not too surprising. However, the adjective "clean" is an absolute maximum adjective, i.e., "clean" holds true of the object only when the maximum degree of cleanness, i.e., a complete lack of dirt, is attained. Then we might expect verbs with such a scale to take only the *za-* prefix. In fact, most cleaning verbs are compatible with both *za-* and *ot-*, depending on which end of the scale we focus on. If the verb refers to gradually cleaning something very dirty, *ot-* is used, while *za-* is possible in the case of a rapid cleaning without any implication of how dirty the initial state is and how long the cleaning process took.

While the adjective "clean" behaves like a maximum absolute adjective, it is possible that the scale lexicalized by the verb is different from the scale of the adjective, with both ends closed. Actually, when we are talking of cleaning something, the presence of dirt throughout the whole process until the very end is presupposed. Crucially, a non-zero scale duration is also presupposed, i.e., *ot-mytj* "clean off" refers to a cleaning process of some duration leading to the **gradual** removal of dirt. *Za-stiratj* "za-wash" is also a possible verb, but it denotes a very quick washing, rather than a gradual one, and does not imply that the initial state was completely dirty, unlike *ot-stiratj*. The context is usually washing off a small spot in a hurry, as in (20b):

(20) (a) Xozjajka   ot-stirala   skatertj,   #xotja ona byla i   tak čistaja.
         hostess   ot-washed   tablecloth   though it   was   and so   clean
         "The hostess washed the tablecloth clean, # though it was clean anyway."

    (b) Ničego,   za-stira-em,   za   čas   vy-soxn-et.
        all right   za-wash-fut.1pl in   hour   vy-dry-fut.3sg
        "It's all right, we'll (quickly) wash it, and it will be dry in an hour."
        [Pelevin, Zhiznj nasekomyx][1]

Thus, there is a clear implication about the initial state as possessing at least a minimal amount of dirt, and also a clear implication of the end state, namely a complete lack of dirt, and a gradual change in between.

The adjective *čistyj* "clean" can sometimes be used as a relative adjective: [2]

(21) (a) Etot   otelj   očenj   čistyj.
         this   hotel   very   clean
         "This hotel is very clean."

    (b) Slishkom   chistyj   dom   opasen
        too   clean   house   dangerous
        "An overly clean house is dangerous."[2]

While cleanness can have an absolute value, i.e., sterility, completely lacking dirt, in practice washing activity does not ever reach this point; it is always possible to wash more (as opposed to

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1   http://ruscorpora.ru
2   http://psycho.blogrus.ru/post/186/8600.

drying, where once one dries something, one cannot dry it further). So the actual goal of washing and its synonyms is for the object to leave a state of being dirty, rather than to enter a state of absolute cleanness.

Ot- is incompatible with a "make dirty" verb, because this prefix posits two requirements on the initial state: it corresponds to the lower end of the scale, and this state is undesirable. Since the clean state is not normally seen as undesirable, *ot-* is not acceptable in such a context, and clean is not as strict or as well defined as dirty.

Note the contrast between *za-grjaznitj* "za-make.dirty" and *is-pačkatj* "out-make.dirty," where the first refers to reaching some saturation point, while the second refers to leaving a clean state (*iz* denotes a punctual "out of" transition).

4.4   "To Dry" and Scale Variation

The verb *za-sušitj* "to dry" is an interesting verb in its polysemy, where we can clearly see how different objects introduce different scales. As Kennedy and McNally (2005) point out, the adjective *dry* provides a particularly clear illustration of the contrast between absolute and relative adjectives, as it has both uses. When *dry* is used to describe a (more or less) permanent, stable property such as the average degree of moisture in the atmosphere, or on the skin, it has a relative interpretation. Then it can be modified with *very*, the comparative in (a)] allows for the possibility that both of the objects being compared are dry, and the negation in (b) does not generate a positive implication of the antonym *wet*.

(22) (a)   This region of the country is drier than that one (though both are dry).
     (b)   This region of the country is not dry (but it is not wet either).
     (c)   This region of the country is very dry. (Kennedy and McNally 2005, 371)

If, however, *dry* is used to describe a transient property such as the amount of moisture on a surface, it has an absolute interpretation, as shown by the fact that the comparative in (a) implicates that the plates are not dry, and that the negation in (b) implicates that the glasses are wet, as illustrated by the contradictory continuations.

(23) (a)   The glasses are drier than the plates (#though both are dry).
     (b)   The glasses are not dry (#but they are not wet either).
     (c)   ?? The glasses are very dry.

The adjective *suxoj* "dry" behaves in exactly the same way in Russian. This contrast is preserved in the choice of the prefix for the related verb: *za-sušitj* "to dry" is compatible with the prefix *za-* denoting a transition to a new condition mostly if we are talking about plants or food, where the quality is not absolute. Then it is compatible with any degree modifier, but all of them imply that the result has not occurred (so one can discuss ways of resurrecting a flower which is not completely dry; such examples come mostly from flower-tending forums).

(24) (a) Masha   slegka   za-sušila   cvetok.
         Masha   slightly   za-dried   flower
         "Masha slightly dried the flower."
     (b) Masha   počti   za-sušila   cvetok.
         Masha   almost   za-dried   flower
         "Masha almost dried the flower."
     (c) Masha   napolovinu   za-sušila   cvetok.
         Masha   half   za-dried   flower
         "Masha half dried the flower."
     (d) Masha   poka   ne   za-sušila   cvetok.
         Masha   so.far   not   za-dried   flower
         "Masha has not dried the flower so far (but it is getting dry)."

However, if we put the verb in a context where dryness must be absolute, such as drying glasses, the verb becomes incompatible with the prefix *za*. The prefix *vy-* "out of" is used, which refers to a transition directed out of the source location (e.g., leave the room), as opposed to *ot-* "away from" which refers to an unbounded path directed away from the ground.

(25) *za-sušitj   polotence
       za-dry   towel

Slegka vy-sušitj "slightly dry" and its synonym *podsushitj* are found abundantly in connection with hair and leaves, i.e., organic things that favor a relative interpretation of the adjective "dry." *Počti suxoj* (almost dry) is compatible with glasses and towels as well.

Thus "dry" lexicalized a complex scale, which has a minimum point (wet), actualized in absolute use with glasses and towels, a maximum point (a complete lack of moisture), and degrees of dryness in between for relative uses (e.g., with plants, skin, and bread), and the choice of both prefixes and modifiers depends on which subpart of this scale is contextually relevant; i.e., in *počti vy-sušitj volosy* "almost dry the hair" the prefix refers to the absolute minimum of the scale, while the modifier makes the value on the scale less than minimal, i.e., negative, meaning that the hair is not dry, just as it is grammatical to compare the dryness of the glasses in (23c), while it necessarily follows from such a comparison that the glasses are not dry.

Not only is the presence of the minimum value relevant, but also the attitude towards it of the speaker. So, to make wet is compatible with *ot-* only in the context where the object leaves some undesirable state by means of the process (e.g., *ot-močitj rybu* "to soak fish," where the fish leaves its salty inedible state). The other bound is missing in this context; the goal is not making the fish thoroughly wet, but making it less salty.

Thus, it appears that it is not only the structure of the scale that determines the choice of the prefix (which is often too flexible to make a determined choice), but what subpart of the available structure is contextually relevant. Additionally, the direct object can provide a bounded scale, i.e., if we are talking about drying hair, each individual hair is either dry or wet, but we may refer to parts of the volume of the hair, i.e., I almost dried my hair if most of the individual hairs are dry, while I slightly dried my hair if some parts of my hair are dry.

Ot-sushitj "ot-dry" is ruled out because either the scale is bounded (if we are using the absolute meaning) or there is no definite minimal value (the plant was not wet at the beginning of the drying process).

This contrasts with *ot-žatj* (to wring clothes after washing them), where the starting point (wet) is clear, but the clothes do not become perfectly dry as a result.

Thus, the scale shape is a more formal subcategorization requirement, the violation of which leads to sharp ungrammaticality (26a), while the negative attitude of the speaker is a semantic requirement (26b):

(26) (a) *ot-morozitj   rybu
           ot-freeze   fish
      (b) lixo   ty   ego   ot-grjaznil!
           cool   you   it   ot-dirty
           "It's cool how you made it dirty."

(26b) is actually the only instance of the verb on the internet,[3] in a comment on a model that is intended to look naturally dirty, so the prefix *ot-* is felicitous even with such verbs as "dirty," provided that the clean state is undesirable and much effort was spent to make something sufficiently dirty.

5. Conclusion

In this paper I have shown that the driving force in prefix selection is the scale, lexicalized or selected (semantically) by the verb. Each prefix makes reference to certain subparts of the scale, e.g., its minimal or its maximal point. However, not every scale provides them, so a prefix requiring an initial state, such as *ot-*, is incompatible with an upper closed scale, while a prefix requiring the maximal point, such as *za-*, is incompatible with a lower closed scale. The prefixes impose further requirements on the gradability of the scale, so *ot-* makes reference to the subparts of the scale, as it denotes a gradual change, while *za-* makes no such reference, denoting an instantaneous transition. Further semantic content, such as a negative attitude towards the initial state, may also come into play.

The prefix may find an appropriate scale in a lexicalized scale or in the direct object, or the event may itself provide a scale. The notion of monotonicity, i.e., that a subpart of the object is less of the same object, helps to confine the superlexical prefixation to atelic events. Only an event, a subinterval of which is less of the same event, i.e., an atelic event, may provide a scale measurable by a prefix.

Thus, each syntactic configuration brings with it a distinct and predictable interpretation for a prefix inserted into it.

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3   http://toyster.ru/forum/showthread.php? t=71&page=55.

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Corpus

Russian National Corpus. Available online at http://ruscorpora.ru.

On the Cross-Linguistic Predictability of Functionally Equivalent Structures: Decausativization in French and German as a Test Case for Formal and Functional Grammars[1]

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Abstract: The aim of the paper is to evaluate the cross-linguistic predictive power of generative and functionalist theories with respect to one tightly limited area of interest: causative alternation. Several recent studies of decausativization are reviewed in order to determine whether the formal marking of a decausative in a target language, specifically, the appearance of a reflexive, can be predicted from the type of formal marking of a translational equivalent in a source language. It will be demonstrated that the generative analyses under consideration do not allow for predictions of the intended kind, as the necessary information cannot be deduced from the formal apparatus but is already implicitly presupposed at the input level of the suggested models. Functionalist analyses, on the other hand, allow for probabilistic predictions; they fail, however, to formulate precise predictions on the formal marking of individual lexical items.

Keywords: decausativization; reflexives; comparative linguistics; causative alternation

1. An Outline of the Problem

Even in genetically closely-related languages such as English, German, and French, there are remarkable differences in the form of certain linguistic structures denoting more or less the same state of affairs in the world. A case in point is causative alternation (Schäfer [2009] for a recent overview).[2] Examples (1)–(3) show that, while the English examples consistently lack formal

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1   The author does not wish to imply that the special case discussed in this paper allows any judgments on the appropriateness of the generative or functionalist approach in general. All evaluations made in the text should be interpreted exclusively with respect to the very limited area of interest under discussion and to the specific studies chosen for this purpose.

2   Terminological note: in accordance with Schäfer (2009), I use the term "causative alternation" for pairs of formally related verbs expressing one and the same lexical meaning, although one verb implicates a causing sub-event while the other does not. One verb is, therefore, said to be a (semantic) causative; the other is said to be a (semantic) inchoative, i.e., a verb denoting a mere change-of-state event. Haspelmath (1993) uses the term "inchoative/causative alternation." To refer to the semantic operation that derives an inchoative verb from a causative verb by reducing the causative meaning component, I use the term "decausativization." A "decausative" is, thus, an inchoative verb which can be said to be derived from a corresponding causative verb. The term "anticausative," otherwise widely used in generative grammar, will be reserved (unless it is used in citations) to refer to a specific type of formal marking within causative/inchoative verb pairs; see Section 3.

marking on the inchoative verb, the French and German equivalents behave differently in each case: (1) shows obligatory reflexive marking in both French and German, while the contexts in (2) and (3) disallow the use of a reflexive in German. For French, the reflexive is facultative in (2) but obligatory in (3), at least in the *passé compose*.

(1)   The door opens. / La porte *(s') ouvre. [Melis 1990, 27] / Die Tür öffnet *(sich).

(2)   The branch broke. / La branche s'est cassée (a cassé). [Ruwet 1972, 130] / Der Ast ist (*hat sich) gebrochen.

(3)   The boat sank. / Le bateau s'est enfoncé. [Internet] / Das Schiff ist (*hat sich) gesunken.

It is tempting to search for general rules which would predict the structural similarities and differences surfacing in examples such as (1)–(3), especially the presence or absence of the reflexive, by referring to linguistic universals in conjunction with certain specific properties of the languages involved. This is more or less the research program followed within generative grammar, e.g., by Kayne (2000, 2013). Within the European structuralist tradition, on the other hand, it has been claimed (e.g., Heger 1990) that the only way to map the structures of one language onto the structures of another language is via conceptual representations, commonly termed "tertium comparationis."

In the present paper, I will review several more or less recent studies on causative alternation in order to determine whether they facilitate cross-linguistic predictions concerning the appearance of a reflexive in a target language structure. The aim is to verify whether we fare better using contemporary generative approaches or whether a functional grammar-style analysis referring to conceptual structures and markedness conditions is needed.[3]

In Section 2, two generative studies couched in constructionist frameworks are reviewed. Both make use of functional heads such as Voice and little v to model the causative alternation. In Section 3, I review a functional-typological approach to causative alternation which makes use of the scalar concept of the "spontaneity of the occurrence of an event." Section 4 summarizes the findings. With respect to empirical data, the paper will focus on reflexive decausatives from French and German, as they provide a convenient test case for the claims advanced in theoretical work on (de)causativization.

2. Generative Approaches towards Decausativization

In recent years, a great deal of work on reflexives in general and causative alternation in particular has been done within constructionist frameworks (e.g., Alboiu, Barrie, and Frigeni

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3   An anonymous reviewer pointed out that the kinds of fine-grained cross-linguistic predictions I seek in the present text are "not part of the research agenda in generative grammar." To avoid misunderstandings I would like to emphasize that I do not feel any commitment to the research agenda of a certain school of thought in linguistics. I simply review what different accounts have to offer if we ask the question indicated in the introductory section. The question itself I consider to be a reasonable one as it touches on subject matter which is of the utmost importance for anyone acquiring one of the languages mentioned in the text as a foreign language. On the other hand, it would be unreasonable to evaluate the merits of individual studies on the basis of criteria which are not related to the original research agenda. It follows that the assessments made in this text have no bearing on the quality of the studies under consideration within generative grammar.

2004; Alexiadou and Anagnostopoulou 2004; Alexiadou, Anagnostopoulou, and Schäfer 2006; Schäfer 2008; Kosta 2010; Labelle and Doron 2010). Following Borer (2005, 14–16), I consider an approach to be "constructionist" if syntactic arguments are not projected from the lexicon via an "argument structure" or "thematic grid" but introduced by functional heads in the syntax. In this section, I will take a closer look at Labelle and Doron's (2010) study on causative alternation in French. Both authors have published in prominent international journals on this and related topics before (Labelle 1992, 2008; Doron and Rappaport Hovav 2007, 2009) and can therefore be considered to be appropriate representatives of the constructionist approach. At the end of the section, a brief note will be added on Alexiadou, Anagnostopoulou, and Schäfer (2006).

Labelle and Doron (2010) assume three layers of functional structure above the verb phrase: TP > vP > VoiceP > VP. Little v is the locus of agentivity with the agent or causer argument introduced in Spec, v and the v-head denoting a dynamic subevent. VoiceP, which, in contrast to earlier accounts, is considered to be a functional head separate from little v, is located below vP and determines via the feature [±active] whether vP can be present or not. A negative value of [active] blocks the merger of little v and, accordingly, the appearance of an external argument in Spec, v.[4] If the value is switched to [+active], the verb is said to be in the active voice; otherwise it is either in the passive or the middle voice. In the latter case, the Voice head must contain the reflexive clitic *se*.

While little v is seen to be associated with the dynamic part of the event structure, V is said to code the resultant state of the event that is denoted. Adapting a proposal by Embick (2009), Labelle and Doron (2010) assume that the lexical root can adjoin either little v or big V. The structure is accordingly interpreted as denoting an activity or a change-of-state event.

Equipped with the theoretical apparatus described above, Labelle and Doron (2010) set out to account for the two different decausative structures (4b) and (4c), which both correspond to the causative structure in (4a).
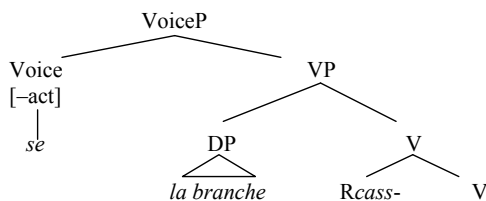
(4) (a) Pierre a cassé la branche. ("Peter broke the branch.")
     (b) La branche a cassé. ("The branch broke.")
     (c) La branche s'est cassée. ("The branch broke.")

According to Labelle and Doron (2010, 308), only (4c) can be considered to be a middle construction. As is apparent from the presence of the reflexive clitic *se*, the Voice head carries the value [–active]. Accordingly, no vP can be added on top of VoiceP. As a result, the construction is lacking an agentive interpretation. In the absence of little v, which would otherwise provide an alternative adjunction site, the lexical root (*casser*) has to be merged with V, which induces a resultant state interpretation. The structural analysis of (4c) as suggested by Labelle and Doron (2010, 308, tree structure 4) is given in (5).[5]
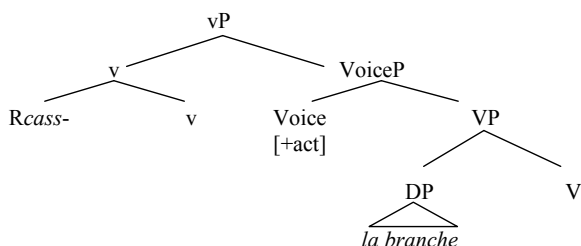
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4   It is not entirely clear from Labelle and Doron (2010) if vP or only Spec, v should be blocked. For the purposes of this paper, I will ignore this problem.
5   Within the tree structures, Labelle and Doron (2010) use the verb *casser* in the simple past. In the examples throughout the text, *casser* appears in the *passé composé*. Behind this inconsistency, there is, it appears, an effort to keep the tree structures as simple as possible.

(5)   The "middle anticausative structure":

```
                    VoiceP
             ┌────────┴────────┐
          Voice                VP
          [–act]          ┌────┴────┐
            │            DP          V
            se        la branche  ┌──┴──┐
                                Rcass-   V
```

In contrast to (4c), the construction in (4b) is analyzed by Labelle and Doron as an active construction, as there is no reflexive clitic to indicate a negative value for Voice. With the value for Voice set to [+active], a little v phrase can be added to the structure, which in turn introduces a dynamic component into the event structure. However, the DP *la branche* is not merged in Spec, v but (as in [4c] and [5]) as the sister of V. It therefore cannot be interpreted as the agent or the cause of the event that is denoted, but receives an interpretation as the patient of the event. The lexical root is then adjoined to little v, imposing the dynamic event interpretation on the whole construction. The structural analysis of (4b) according to Labelle and Doron (2010, 308, tree structure 5) is given in (6).

(6)   The "active anticausative structure":[6]

```
                    vP
          ┌─────────┴──────────┐
          v                  VoiceP
      ┌───┴───┐         ┌──────┴──────┐
   Rcass-     v       Voice           VP
                      [+act]     ┌─────┴─────┐
                                DP            V
                             la branche
```

A detailed criticism of the analysis given by Labelle and Doron is beyond the scope of this paper, as we are concerned here solely with an assessment of the cross-linguistic predictive power of the models under scrutiny. In this respect, it is of crucial importance to understand why there is no specifier position under vP in (6). The absence of Spec, v in (6) is decisive, because it is the necessary precondition for decausativization without a reflexive. A specifier would supply a natural place for merging the one and only argument (*la branche*), thus rendering the construction agentive. Alternatively, it would provide a structural position for a further argument (e.g., *Pierre*), giving rise to a transitive construction. In order to account for the fact that the DP *la branche* in (4b) is interpreted as the patient of a change-of-state event and not as

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6   In the original tree structure given in Labelle and Doron (2010, 308, tree structure 5), the feature on the Voice head is [–act]. From the text, it is, however, clear that the minus value is a typographic error, as the tree structure is meant to represent the "*active* anticausative derivation." In Labelle and Doron's system, the feature [–act] would block the merger of vP, which thus could not appear on top of VoiceP, as is the case in (6).

the agent or cause of a dynamic event, Labelle and Doron thus have to provide an explanation of why little v in (6) does not introduce an external argument, as it is (according to its inventors) otherwise supposed to do. The explanation offered by the two authors (Labelle and Doron 2010, 308) is simply that the lexical root is responsible for the missing Spec:

> We assume that, *with a restricted number of verbs* [emphasis added], v may merge without requiring an external argument in its specifier. . . . Some roots allow a dynamic subevent without an additional participant. In that case, v does not assign the Agent role.

In order to formulate predictions – cross-linguistic as well as language internal ones – concerning the possibility of deriving decausatives without a reflexive as in (4b) it is critical to know *with which verbs exactly* "v may merge without requiring an external argument in its specifier." Without further provisions, the mechanism described by Labelle and Doron would generate not only grammatical structures such as *La branche a cassé* in (4b) but also structures such as **La branche a brisé* ("The branch has broken"), **Le bâtiment a écroulé* ("The building collapsed") or **La perte élève* ("The losses rise"), which are ungrammatical in French. Unfortunately, Labelle and Doron have nothing further to say on this issue. I have to conclude, therefore, that there is no formal mechanism in the model to account for contrasts as in (7) and, therefore, no way to predict the properties of the respective decausative verbs which are under consideration in this paper.

(7)　(a)　La perte s'élève à 350 millions en Europe. ("The losses amount to 350 million euros in Europe") [*Le Monde*, April 26, 2013]
　　(b)　*La perte élève à 350 millions en Europe.

For the model to work, we thus have to know in advance which verb is compatible with tree structure (5) and which verb is compatible with tree structure (6). The technical details of deriving the different structures add nothing to the main question of this paper, i.e., which verb will show reflexive decausativization, or, put differently, which verb will appear in tree structure (5), and which verb will not.

An attempt to specify the properties of the root which restrict its co-occurrence with certain functional heads can be found in Alexiadou, Anagnostopoulou, and Schäfer (2006). These authors distinguish four different root-types according to the way the root conceptualizes events (agentive roots, internally caused roots, externally caused roots, and roots for which the cause is unspecified).[7] The root then determines if there has to be a Voice head on top of the inner verbal projection or not. In English and German, agentive roots and roots denoting externally caused events require the presence of a Voice head; roots that are underspecified with respect to the cause of the event, on the contrary, allow for both the presence and the absence of a Voice head. As causative alternation, according to Alexiadou, Anagnostopoulou, and Schäfer (2006), directly correlates with the presence or absence of Voice, verbs such as *break* or *open*, which are

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7　Within the generative tradition, the distinction [±externally caused event] goes back to Levin and Rappaport Hovav (1995). Similar semantic distinctions are made in Nedjalkov (1969) and Haspelmath (1993) in order to account for the type of formal opposition found within alternating verb pairs (see Section 3 of this paper). Both of these studies are cited in Levin and Rappaport Hovav (1995).

underspecified with respect to the cause of the event that is denoted, alternate, while verbs such as *destroy* or *kill*, which are externally caused, do not.

With respect to the suggestions advanced in Alexiadou, Anagnostopoulou, and Schäfer (2006), three observations seem to me to be warranted. First, making reference to event types and conceptualizations brings the model closer to functional approaches, which primarily rely on conceptualizations as *explicans* for language structure. Second, if the participation of a verb in the causative alternation can be predicted directly from the root-type, no further reference to functional structure is needed, at least not for the purpose of cross-linguistic predictions of the kind envisaged in this paper. Third, even though Alexiadou, Anagnostopoulou, and Schäfer (2006) give some details on the meaning components that enable certain verbs to participate in causative alternation, they are much too unspecific to allow real cross-linguistic predictions on the formal type of the alternation. For instance, the German verbs *brechen* ("break"), *öffnen* ("open"), and *versenken* ("sink") all arguably belong to the unspecified root-type, as they all appear in causative alternation. Nevertheless, we get three different formal oppositions within the alternating verb pairs: a mere syntagmatic or labile opposition (*brechen*/*brechen*), an anticausative opposition with a reflexive as a marker of decausativization (*öffnen*/*sich öffnen*), and a correlative opposition (*versenken*/*versinken*).[8]

To conclude, neither the formalism in Labelle and Doron (2010) nor the formalism in Alexiadou, Anagnostopoulou, and Schäfer (2006) allow real intra- or cross-linguistic predictions about the formal marking which are found with certain verbs under decausativization. The constructionist apparatus set up by the authors serves only to convert presupposed information on the respective verbs into syntactic structure. This information (lexical restrictions on little v, conceptual root types, etc.) has to be drawn from other areas of the language system than syntax. Without access to this kind of information, no statements concerning the presence or absence of a reflexive in constructions such as (1)–(3) can be made.

We now turn to a functional approach which explicitly refers to conceptualizations of events as *tertium comparationis* for formal marking in different languages.

3. Functional-Typological Approaches towards Decausativization[9]

Typological research on formal oppositions within inchoative-causative verb pairs in different languages has a long tradition, originating for the most part in Vladimir Nedjalkov (1969), cf. Nedjalkov and Silnitsky (1973), Haspelmath (1987, 1993), Nichols, Peterson, and Barnes (2004), and Igor Nedjalkov (2011). Nedjalkov (1969) sets the following agenda. First, pairs of verb meanings are chosen in which the meaning of the second verb properly includes the meaning of the first verb while at the same time adding a causative meaning component (e.g., *laugh* and *make laugh*). Second, verb pairs in different languages are identified which render the chosen pairs of meanings (e.g., *smát se* ["laugh"] and *rozesmát* ["make laugh"] in Czech). Third, the verb pairs identified in the second step are classified according to formal differences in the verbs' morphological structure.[10] Verb pairs in which one verb is differentiated from the other by additional morphological material are said to show a "directed opposition." Pairs in which both verbs are either not formally differentiated at all or show differences in their

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8   Terminology according to Nedjalkov and Silnitsky (1973); see the following section for details.
9   For the term "functional-typological approach" and its justification, see Croft (1990, p. 3 and chap. 9).
10   The English terminology used in the following is adopted from Nedjalkov and Silnitsky (1973).

morphological structure that cannot be reduced to a simple addition of morphological material are said to show a "non-directed opposition." Pairs showing a directed opposition are further subdivided according to the direction of the derivation. If the verb expressing the causative meaning is morphologically more complex than the semantically basic verb and thus morphologically derived from the latter, the opposition is said to be of the "causative" type. If, on the contrary, the verb expressing the basic meaning is morphologically more complex than the semantically causative verb, the direction of the derivation is regarded as being reversed. The respective opposition, therefore, is said to be of the "anticausative" type. Further subtypes of the non-directed opposition are distinguished as well, but are, however, not relevant to the present discussion.

Nedjalkov (1969) and Nedjalkov and Silnitsky (1973) aim at discovering probabilistic regularities concerning the choice of formal oppositions natural languages make for certain types of meanings. Nedjalkov (1969), for example, shows that in a randomly chosen language it is more likely that one will find causative marking for the alternation *laugh/make laugh* than for the alternation *break/make break*. To account for these differences, he refers to factors such as the degree of activity exhibited by the participant who undergoes a change-of-state during the event and the visibility of the intervention causing the change-of-state. Haspelmath (1993) generalizes these factors under the heading of "spontaneity of occurrence." Some events (e.g., the melting of ice) are perceived by the naïve observer as occurring more spontaneously than certain other events (e.g., the breaking of a window). These perceptions give rise to conceptualizations of events. These conceptualizations are, in principle, independent of the formal semantic complexity of the respective verb meanings. It is the everyday experience of the members of a speech community, not the presence or absence of a CAUSE operator in the semantic structure, which decides which meaning in a causative pair will be conceptualized as more basic.

According to the principle of iconicity (Givón 1984), conceptual markedness is expected to correlate with formal markedness. A lexeme rendering the meaning "melt" in its inchoative sense is therefore likely to be morphologically basic, as it corresponds to the unmarked concept of a spontaneously occurring melting event. If needed, the semantic causative form denoting the conceptually marked event has to be derived in one way or another. A lexeme rendering the meaning "break" (again in the inchoative sense) is, on the other hand, conceptually marked, as the concept of a breaking event (presumably because of the clear visibility of the intervening force) saliently contains a cause. The respective inchoative verb is, thus, expected to be formally marked as well.

Haspelmath (1993, 107) formulates these assumptions as follows:

> Events that are more likely to occur spontaneously will be associated with a conceptual stereotype (or prototype) of a spontaneous event, and this will be expressed in a structurally unmarked way. On the other hand, events that are more likely to occur through causation by an external agent will be associated with a stereotype of a caused event, so the caused event will be expressed in a structurally unmarked way.

In principle, it should therefore be possible to make probabilistic predictions about the type of formal oppositions found within the causative alternation on the basis of the conceptual type of the event that is denoted. Verb pairs denoting events which are not very likely to occur spontaneously can be expected to show an anticausative opposition; verb pairs denoting relatively spontaneous events are, on the contrary, expected to show a causative opposition. Finally, verb pairs denoting

events that assume a medium position between these two zones are expected to show a non-directed opposition in correspondence to the low profile of the respective conceptualization. Events that either cannot be conceptualized to appear without a cause or an agent or, in principle, cannot be externally instigated, are not expected to give rise to a causative alternation at all. Haspelmath (1987, 21) gives an illustrative scale of spontaneity for German verbs, which I reproduce in (8).[11]

(8)   Scale of increasing likelihood of spontaneous occurrence:
       $\boxed{+}$ *lachen* / >   *versenken/versinken* >   *spalten/**sich** spalten* > / *beißen* $\boxed{-}$
             laugh   sink/sink   split/split   bite

In (8), verb meanings are ordered according to the spontaneity of the event, which is denoted from the left (very spontaneous) to the right (never spontaneous). The array in which alternating verbs are to be found is delimited by slashes. As can be seen, a sinking event is considered to appear more spontaneously than a breaking event. The respective verb pairs in German, therefore, show a non-directed opposition in the case of the more spontaneous event (sinking) and an anticausative opposition in the case of the less spontaneous event, the decausative verb being marked by the reflexive *sich*.

In order to make the outlined model work for cross-linguistic predictions, two further provisions must be made. First, the alignment of the event types on the spontaneity scale in (8) is based solely on intuitive judgment. It would be highly desirable to have a more objective basis for ordering the different event types. Second, as is already apparent from the German examples and the respective English glosses in (8), formal marking in different languages shows different degrees of sensitivity towards the conceptual base. From (8) it appears that English does not reflect the differences in the spontaneity of the events that are denoted at all, as there is no difference in formal marking within the English verb pairs. It is necessary, then, to build a language factor into the model. Below, I address both points, one at a time.

1. One possible way to put the scale in (8) on more solid ground is to use statistical data from marking types that actually occur in the languages of the world. Such a procedure is, of course, vulnerable to the usual criticism of circularity that is often made against functional approaches. Such criticism argues that the conceptual base used to predict the formal properties of a language is derived from those same formal properties which are to be predicted. The circularity can, however, be minimized if data from as many different languages as possible are used. In this case, the design of the conceptual base is no longer solely dependent on the formal properties of a certain individual language under scrutiny. For example, French decausatives could be located on a scale which is defined by the type of marking found in a sample of various languages of the world but *not* including French.[12]

Haspelmath (1993) examined verb pairs from 21 languages and for each lexical meaning calculated the ratio between verb pairs showing an anticausative opposition and verb pairs showing a causative opposition. High values for a certain lexical meaning indicate that anticausative marking predominates within the sample. The respective event is therefore to be located low on the

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11   A similar scale for English can be found in Haspelmath (1993, 105), which, however, makes no claim as to the distinction between directed and non-directed oppositions.
12   In the text, I speak of "minimization" as the sample (used by Haspelmath to calculate the spontaneity scale) *does* include the languages under consideration, i.e., French and German, which, however, make up only for a fraction of the input data.

spontaneity scale. Low values, on the contrary, indicate the predominance of causative marking for the given meaning and therefore a statistically high degree of spontaneity of the respective event. The results for 17 lexical meanings are shown in Table 1. Next to the table, the decreasing spontaneity of the events denoted by the different verbs is indicated by a tapering band. The corresponding ratio for each lexical meaning calculated by Haspelmath is given in the last column of the table.

boil	kochen	bouillir/ faire bouillir	0,04
dry	trocknen	sécher, (se) dessécher	0,3
sink	versinken/ versenken	(s') enfoncer	0,42
melt	schmelzen	fondre/ faire fondre	0,48
turn	(sich) drehen	(se) tourner	1,07
dissolve	(sich) auflösen	(se) dissoudre	1,4
burn	verbrennen	brûler	1,4
finish	enden/ beenden	finir	1,67
spread	(sich) ausbreiten	(s') étendre	1,83
roll	rollen	rouler	1,89
rise	steigen, (sich) erhöhen	se lever	2,67
improve	(sich) verbessern	(s') améliorer	2,67
change	(sich) verändern	changer	7,33
open	(sich) öffnen	(s') ouvrir	8,67
break	(zer) brechen	(se) casser, (se) briser	12,5
close	(sich) schließen	(se) fermer	15,5
split	(sich) spalten	(se) fendre	23

Table 1. *Scale of the spontaneous occurrence of events (adapted from Haspelmath 1993)*

As the present study focuses on reflexive decausativization in French and German, I include in Table 1 the French and German verb pairs from Haspelmath's sample.[13] The cells containing verb pairs showing an anticausative opposition, i.e., reflexive decausativization, are shaded in dark gray. Incoherent types of oppositions, i.e., cases of close synonyms that differ with respect to the formal opposition, are shaded in light gray. All other types of opposition are not emphasized with any special color. To make sense of the emerging pattern, we now have to address the second point raised above.

2. Nichols, Peterson, and Barnes (2004) claim that there are consistent differences between languages as to which valency frames are lexicalized with morphologically basic verbs. A language that shows a preference for basic transitive verbs might, therefore, be biased towards

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13   In some cases, I found it necessary to choose a different German verb pair than Haspelmath did. The cases at hand are: 1. *drehen* instead of *umdrehen* (to render "turn"), as *umdrehen* is necessarily agentive and 2. *steigen* and *sich erhöhen* instead of (*sich*) *heben* (to render "rise"), as the latter seems to me highly specialized to certain contexts. To render "break" in French, I added (*se*) *casser* in addition to *se briser*.

anticausative marking. A similar point is made by Schäfer (2008, 162). Commenting on a spontaneity scale similar to that in Table 1, he claims that, for different languages, there might be different points of onset for anticausative marking. While certain languages might already resort to anticausative marking at a relatively high degree of spontaneity, other languages might allow for anticausative marking only at a lower degree of spontaneity.

Following these suggestions, we can now try to determine from Table 1 the onset of anticausative marking for French and German. With regard to German, it seems that there is consistent anticausative marking only at a degree of spontaneity corresponding to the meaning of "spread." In French, on the contrary, verb pairs consistently show an anticausative opposition that is already at a much higher point on the spontaneity scale, namely with verb meanings such as "dry" or "sink."

As is apparent from Table 1, we have to disregard certain individual lexemes which might not fit the overall pattern. Thus, French exhibits some unexpected gaps in anticausative marking with verb meanings such as "burn," "finish," and "roll" and, most remarkably, with "change." Whether these gaps can be accounted for by taking further factors into consideration is not clear to me. In German, there is a surprising gap in anticausative marking with the meaning "break." In this case, one can refer to Oya (2003), who observes a general tendency in German for achievements to be expressed by labile verbs. If this is true, then achievements such as (*zer*)*brechen* ("break") can never be expected to show anticausative marking, and this situation is independent of the degree of spontaneity of the event that is denoted.[14]

We are now in a position to formulate probabilistic predictions on the correspondence between reflexive decausative marking in French and German.

(9)   A German translational equivalent of a French reflexive decausative is likely to be reflexively marked if the French decausative denotes an event that is located not higher on the spontaneity scale than a spreading event.

(10) If the French reflexive decausative is an achievement, i.e., a verb denoting an instantaneous change of state, no reflexive marking on the German translational equivalent can be expected.

Predictions (9) and (10) are probabilistic, because they do not guarantee the right result for every single verb; e.g., the French verb *se lever* ("to rise") denotes an event that is located lower on the spontaneity scale than a spreading event. Nevertheless, beside the German equivalent *sich erhöhen*, which fits the overall pattern, one finds the German equivalent *steigen*, which, contrary to (9), is not reflexively marked. Conversely, for the French verb *se dissoudre* ("to dissolve"), there is a reflexive equivalent in German (*sich auflösen*) which cannot be predicted on the basis of (9), as the spontaneity of a dissolving event is (according to the scale in Table 1) higher than the spontaneity of a spreading event. Statements (9) and (10) should, therefore, be seen as generalizations capturing certain tendencies, not as rules in the strict sense. The viability of this approach would have to be tested by further elaborating Table 1, specifically by including more verb meanings and more languages. This is, however, beyond the scope of this paper.

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14   The only exception I am aware of is the verb *entzünden* ("lighten, inflame, ignite"). One gets *Der Funke hat das Benzin entzündet* ("The spark ignited the petrol") but *Das Benzin hat* *(*sich*) *entzündet* ("The petrol ignited").

4. Conclusions

In this paper, I reviewed two recent generative studies on causative alternation (Labelle and Doron 2010; Alexiadou, Anagnostopoulou, and Schäfer 2006), as well as some functional-typological studies (*inter alia*, Haspelmath 1993) which make use of scalar concepts for relating lexical meanings from different languages. As was demonstrated in Section 2, the generative studies under consideration do not allow for cross-linguistic predictions of the required kind, as the formal machinery they make use of presupposes the existence of a "deeper" layer of linguistic information, which, however, is never explicitly aligned cross-linguistically. The functional-typological approaches, on the other hand, allow for probabilistic predictions on a statistical basis, even though they fail as well when it comes to formulating precise predictions concerning specific lexical items.

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Implicatures, Connotation, and Discourse

Creativity and Innovation in Word Formation by Japanese Young People

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Abstract: The aim of the present paper is to demonstrate how contemporary young Japanese people use creativity and innovation in word formation so as to fulfil their communicative needs. The selected word formation processes include compounding, blending, clipping, the creation of alphabetisms, derivation, syllable inversion, and the formation of neologisms based on the playful use of Chinese characters. The primary data collection methods included audio recordings of spontaneous conversations of young Japanese people, their textual interactions on selected social networking sites and blogs, and their assessment of wordlists created on the bases of Japanese youth language dictionaries and secondary literature on the subject.

Keywords: youth language; Japanese language; word formation; creativity; innovation

1. Introduction

Since the 1980s, the language used by young people – usually referred to in English as "youth language," "teenage talk," "youth slang," or "adolescent speech" – has attracted much attention (e.g., Androutsopoulos and Scholz 1998; Kotsinas, Stenström, and Karlsson 1997; Radtke 1993; Schlobinski, Kohl, and Ludewigt 1993; Yonekawa 1998). Together, the studies of various youth languages in post-industrial societies suggest that youth languages share many characteristic features (e.g., Albrecht 1993; Radtke 1992; Zimmermann 1993) and that young people "are the linguistic movers and shakers, . . . and, as such, a prime source of information about linguistic change and the role of language in social practice" (Eckert 1997, 52).

In Japan, most of the youth language researchers have focused on collecting and describing the lexemes whose use distinguishes young people from other Japanese speakers (e.g., Kamei 2003; Katō 2005; Kimura and Tanigawa 2006; Kitahara 2009; Yonekawa 1989, 1996, 1997, 1998, 2001). The lexical fields most frequently represented include: a) appearance, behavior, and character traits; b) school, afterschool jobs, clubs, and interest groups; c) shops and restaurants; d) social and sexual life, and e) information and communication technologies. Subsequently, as the main motivations for forming and using the lexemes that are typical of their language, Yonekawa (1996, 16–27; 1998, 19–25), the most influential Japanese youth language scholar, identifies such communicative needs of young Japanese people as: a) making interactions more fun and interesting; b) making the tempo of interactions faster; c) expressing solidarity and closeness; d) making interactions visually and acoustically more expressive; e) obscuring meaning from non-members of the in-group; f) expressing possibly hurtful contents euphemistically, and g) purification from negative emotions. As the key motivating factor, he emphasizes their desire to enjoy the process of conversation itself (1996, 15).

The present paper looks into creativity and innovation in the word formation processes frequently used by contemporary young Japanese people in the lexemes that are characteristic of their language as one of the possible means to make their speech match the above-mentioned communicative needs. The notions of creativity and innovation are understood here as referring to deliberate and purposeful (rather than natural or spontaneous) linguistic activities, which involve the "breaking, re-forming, and transforming of established patterns" (Maynard 2007, 3), as well as, although to a much lesser extent, adopting novel (i.e., foreign) ones. Accordingly, the speakers' knowledge and awareness of the standard word formation processes in Japanese constitute the basis for these activities, and creativity in word formation has to be viewed as a scalar phenomenon, ranging from slight modifications of the standard word formation processes (such as applying them to different word classes) to employing word formation processes which are not found in the standard language at all. Over the decades of the development of Japanese youth language, many innovations in word formation have become an indispensable part of it (e.g., Yonekawa 1998, 184–282). While some of them originated among the young people themselves, others were inspired by the wordplay of such linguistically influential figures as advertisers, *manga* (comics) writers, journalists, and entertainers. While some lexemes and word formation processes have proven age-specific, others have proven generation-specific and the speakers who started to use them in their youth have used them ever since (cf. Cheshire 2005).

Most of the data used for this study were collected in 2011 for the purpose of the analysis of contemporary Japanese youth language at all levels of language description (Barešová and Zawiszová 2012). The primary data collection methods included: a) audio recordings of young Japanese people's spontaneous conversations; b) their textual conversational interactions on selected social networking sites and blogs, and c) the assessment of wordlists based on Japanese youth language dictionaries and secondary literature on the subject. The main targets of the research were Japanese college and university students. In addition, to keep the present paper up-to-date, several continuously updated online Japanese slang dictionaries were consulted (e.g., *Nihongo zokugo jisho*, *Hatena Kīwādo*, *Wakamono yōgo no kojiten*, *Wakamono kotoba jiten: Anata wa wakarimasu ka?*, and *Monjirō*).

2. Findings

In what follows, several types of compounding, blending, clipping, alphabetism creation, derivation, syllable inversion, and Chinese character neologism formation featured in contemporary Japanese youth language are presented and explained, including a few examples of their application.

2.1 Compounding

As, among others, many Sino-Japanese words are nominal compounds, which can be compounded with one another to form other compound nouns and with the verb *suru* ("to do") to form compound verbs, compounding constitutes one of the most common word formation processes in standard Japanese. Young people, however, often use this standard method of word formation in an unconventional way. For instance, while, as mentioned above, in standard Japanese, forming compound verbs with *suru* ("to do") typically involves Sino-Japanese nouns, young people commonly apply the process to other types of words, such as native Japanese nouns and compounds (1a) and verbs or verb phrases borrowed from English (1b). In compound verbs, such as those in (1b), the English verb/verb phrase carries the semantic content (although the meaning

of the original word/phrase is often shifted), and *suru* provides the syntactic properties that enable the compound to function as a Japanese verb.

(1) (a) **N + *SURU* ("to do") → {compounding} → NV**
     obasan ("a middle-aged woman") + ***suru*** → ***obasan suru*** ("to behave like a middle-aged woman")
     burikko ("a girl who consciously cultivates an image of cuteness, sweetness, and tweeness") + ***suru*** → ***burikko suru*** ("to act like a *burikko*")
   (b) **Eng. V/VP + *SURU* ("to do") → {compounding} → NV**
     risupekuto (Eng. "to respect") + ***suru*** → ***risupekuto suru*** ("to respect")
     gechū (Eng. "to get you") + ***suru*** → ***gechū suru*** ("to get someone or something one longs for")

As shown in (1c), some compounds in Japanese youth language are created by substituting an English word for a part of an existing compound. For example, the compound *chikin hada* is a modification of *tori hada* ("goose bumps"), in which the word *tori* ("a bird") is replaced by the English word *chicken*, probably on the basis of the morphological similarity between *tori* and *niwatori* ("a chicken") and their belonging to the same semantic field. In addition, as illustrated in (1d), some compounds are also created by replacing a part of an existing compound with a word from a different register. The word for bicycle, *jitensha*, in the original compound, *jitensha tsūgaku* ("commuting to school by bicycle"), is replaced by a colloquial word, *charinko* (nowadays used throughout Japan), to form the compound *charinko tsūgaku*, which is subsequently clipped.

(1) (c–d) **N1 + N2 → {compounding} → N3**
   (c) *chikin* (Eng. "a chicken;" a substitution for ***tori***, "a bird") + ***hada*** ("skin") → ***chikin hada*** ("goose bumps")
     karakuchi ("harshness") + ***tōku*** (Eng. "a talk;" a substitution for ***hanashi***, "a talk") → ***karakuchi tōku*** ("a harsh talk")
     gogo ("afternoon") + ***tī*** (Eng. "tea;" a substitution for ***ocha***, "tea") → ***gogo tī*** ("afternoon tea")
   (d) *charinko* (inf. "bike"; a substitution for ***jitensha***, "bicycle") + ***tsūgaku*** ("commuting to school") → + {clipping} → ***charitsū*** ("commuting to school by bike")

While not found in standard Japanese, compounding adjectives with evaluative meaning (1e) is quite common among young people. The right-hand constituent is generally a popular word such as *kawaii* ("cute") or *kakkoii* ("cool"), and the left-hand constituent is usually a stem of a short adjective typical of youth language.

(1) (e) **ADJ1 + ADJ2 → {compounding} → ADJ3**
     eroi (vern. "sexy") + ***kakkoii*** ("cool") → ***erokakkoii*** ("sexy and cool")
     kimoi (vern. "sickening") + ***kawaii*** ("cute") → ***kimokawaii*** ("ugly but cute")
     uzai (vern. "annoying") + ***kawaii*** ("cute") → ***uzakawaii*** ("annoying but cute")

In standard Japanese, reduplication is used to create many mimetic words, including not only phonomimes (onomatopoeia), but also phenomimes and psychomimes,[1] and to create the collective form of a limited number of native Japanese nouns, such as *yamayama* ("mountains") and *hitobito* ("people"). In youth language, most words created by reduplication fall into the category of psychomimes (1f); however, as shown in (1g), reduplication is also used as a means of intensification, or, as shown in (1h), as a mere exercise in wordplay, without causing any change in denotation.

(1) (f)–(h) **N1/ADJ/MIMET.WORD1 → {reduplication} → N2/NADJ/MIMET.WORD1/2**

    (f)   ***gero*** ("puke") → ***gerogero*** ("unpleasant and surprising feeling")

              uki ("buoyancy") → ***ukiuki*** ("cheerful feeling," "happy excitement")

              uha → ***uhauha*** ("very joyful feeling," stronger than *ukiuki*)

              run → ***runrun*** ("being in a great mood")

    (g)   ***uma*i** ("yummy") → ***umauma*** ("really yummy")

    (h)   ***keshi*gomu** ("an eraser") → ***keshikeshi*** ("an eraser")

              Sebun irebun ("7-Eleven") → ***bunbun*** ("7-Eleven")

2.2 Blending

Blending is a word formation process which is not typically used in standard Japanese. It is similar to the creation of compounds and subsequent complex clipping; however, it involves merging two lexical items by means of eliminating a part of one or both of them on the basis of phonology (or graphemics) rather than morphology, which consequently causes relatively low morphosemantic transparency (cf. e.g., Renner, Maniez, and Arnaud 2012; Štekauer, Valera, and Kőrtvélyessy 2012, 131–34).

    The examples in (2a)–(2c) show blends created from words which belong to the same word classes. Such blends share their syntactic properties with the source items, and their meaning is generally easy to interpret as well.

(2) (a)–(c) **N1/ADJ1/NADJ1+ N2/ADJ2/NADJ2 → {blending} → N3/ADJ3/NADJ3**

    (a)   *asagohan* ("breakfast") + ***hiru*gohan** ("lunch") → ***ahirugohan*** ("brunch")

              tsui*ttā** ("Twitter") + *ai*doru*** ("idol," i.e., "a popular star/entertainer") → ***tsuidoru***

              ("twidol," "Twitter idol")

    (b)   ***urame*shii** ("reproachful") + *ura***yamashii*** ("enviable") → ***urameyamashii*** ("to feel

              envious of someone and blame them for it")

              natsu*kashii** ("nostalgic") + *kanashii*** ("dejected") → ***natsunashii*** ("to be nostalgic

              and dejected")

    (c)   ***daisuki*** *(da)* ("to like very much") + ***kirai*** *(da)* ("to dislike") → ***daisukirai*** *(da)*

              ("to love and hate at the same time")

The source items of the blends in (2d)–(2g) are of different word classes and so their syntactic properties depend on the right-hand component, and the interpretation of their meaning generally involves less straightforward processes than in the case of the blends mentioned in (2a)–(2c). For

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1   While phenomimes are phonetic representations of phenomena perceptible by means of the non-auditory senses, psychomimes are phonetic representations of human psychological states (Makino and Tsutsui 2001, 50).

example, the meaning of *bakappuru* (2d), compared to the phrase it is based on, *baka na kappuru* ("a stupid couple"), is shifted and considered humorous rather than offensive. The interpretation of the meaning of *iradoru* (2f) involves interpreting the left-hand component as a nominal verb in a causative form, and the interpretation of the meaning of *chagomu* (2g) involves "completing" a sentence as it conveys the meaning of *ocha o nonde nagomu* ("I/you/they, etc. drink tea and relax").

(2) (d) **NADJ + N1 → {blending} → N2**
     *ba**ka** na* ("stupid") + *__kappuru__* ("a couple") → ***bakappuru*** ("a couple necking in public")

     (e) **NV + N1 → {blending} → N2**
     *ge**ro** suru* ("to vomit") + *he**roin*** ("a heroine") → ***geroin*** ("a *manga*/*anime* female character who has a vomiting scene")

     (f) **NV (in causative) + N1 → {blending} → N2**
     *ira*ira/***ira**tto saseru* ("to get on someone's nerves") + *ai**doru*** ("idol," i.e., "a popular star/ entertainer") → ***iradoru*** ("an entertainer whose popularity is built on their annoying or irritable behavior")

     (g) **N + V1 → {blending} → V2**
     *o**cha*** ("tea") + *na**gomu*** ("to relax") → ***chagomu*** ("to relax with a cup of tea")

In addition, some blends are formed by blending words with virtually the same or a very similar meaning, and therefore resemble speech-error (or nonce) blends (cf. e.g., Gries 2004; Lehrer 1996). The blending of synonyms from different registers is illustrated in (2h), and the blending of a word of an English origin with a Japanese word with either the same (as in *pāpeki*) or a similar (as in *ukkī*) meaning is shown in (2i).

(2) (h) **V1 + V2 → {blending} → V3**
     *i**ka**ru* (form. "to get angry") + *muka**tsuku*** (inf. "to be mad") → ***ikatsuku*** ("to be pissed off")

     (i) **NADJ1/ADJ (Eng./Jap.) + NADJ1/2 (Jap./Eng.) → {blending} → NADJ2/3**
     *pā*fekuto (Eng. "perfect") + *kan**peki*** ("perfect") → ***pāpeki*** ("perfect")
     *u*reshii ("happy") + *ra**kkī*** (Eng. "lucky") → ***ukkī*** ("happy")

2.3 Clipping

In addition to clipping Sino-Japanese nominal compounds and nouns of foreign origin, which is common in the Japanese language in general, young Japanese people also clip adjectives, adjectival and adverbial phrases, idiomatic expressions, and even clauses. As shown in (3a) and (3b), young Japanese people use all forms of clipping, and the resultant words are usually three to four *mora* long, regardless of whether the original expression is a single word or a phrase. Since some expressions can be clipped in several ways, there sometimes exist variants, each of them prevalent in a particular friend group, region, etc.[2]

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2   For example, KFC – pronounced in Japanese as *kentakkī furaido chikin* – is shortened to *kenta*, *kenchiki*, *kenfura*, *dochikin*, and *takkī*, and the phrase *arigatō gozaimasu* ("thank you") has, for instance, such variants as *azāsu*, *azassu*, *atōnsu*, and *arigoza*.

(3) (a) *kissaten* ("a café/tearoom") → *saten*
          furansugo ("French language") → *furago*
          kanchigai ("a misunderstanding") → *kanchi*
     (b) *mēru adoresu* ("an email address") → + {vowel shortening} → *meado*
          jidōsha gakkō ("a driving school") → *shakō*
          gakusei kaikan ("a student dormitory") → *gakukan*
          daini gaikokugo ("a second foreign language") → *nigai*

One of the processes that are very typical of Japanese youth language is the clipping of adjectives denoting feelings, emotions, and attitudes. As shown in (3c), in order to preserve their syntactic properties, it is the middle part of the adjectives that is omitted, while their adjectival ending *-i* is retained. Shorter forms are generally thought of as more expressive, and thus, the intensity of the quality denoted by the adjectives is reinforced. To make the meaning of the adjectives even more intense when using them as exclamations, many speakers replace the final *-i* with a glottal stop.

(3) (c) **ADJ → {clipping} → ADJ**
          uzattai ("annoying," "bothersome") → *uzai*
          muzukashii ("difficult") → *muzui*
          kimochiwarui ("unpleasant," "sickening") → *kimoi*
          natsukashii ("dear," "nostalgic") → *natsui*

The clipping of common idiomatic expressions and adjectival and adverbial phrases is illustrated in (3d). The clipping of a clause so as to form a single word is shown in (3e). While a number of words formed in this way are known to most youth language users, many, such as *furape* in (3e), are created and used only within limited groups of speakers, such as friend groups.

(3) (d)–(e) **phrase/clause → {clipping} (+ {vowel shortening}) → word**
     (d) *akemashite omedetō gozaimasu* ("Happy New Year!") → *akeome*
          kanari yabai ("freaking awesome") → *kanayaba*
          toriaezu, mā ("for the time being") → *torima*
     (e) *furansugo (ga) perapera da* ("I/he/they, etc. am/is/are fluent in French") → *furape*

Another popular type of clipping in Japanese youth language, as demonstrated in (3f) and (3g), is the clipping of English, pseudo-English (*waseieigo*), and mixed English and Japanese phrases.

(3) (f) **Eng. phrase → {clipping} (+ {vowel shortening}) → word**
          wan chansu (Eng. "one chance") → *wanchan*
          in za pāku (Eng. "in the park") → *inpa*
          happī bāsudē (Eng. "Happy birthday!") → *hapiba*
          masuto habu aitemu (Eng. "a must-have item") → *masutai*
     (g) **mixed Eng. and Jap. phrase → {clipping} → word**
          nō (Eng. "no") *benkyō* ("study") → *nōben* ("no studying")
          zenbu ("all") *kuria* (Eng. "clear") → *zenkuri* ("clearing of a level in a game")

When clipping, the speakers are often motivated to choose one method rather than the other by the phonetic qualities of the newly created words. For instance, the above-mentioned *furape* (3e) is homophonous with the word meaning "frappe," *tonkatsu* (3h) is homophonous with the word denoting "a fried breaded pork cutlet," *anaru* (3h) is homophonous with the Japanese pronunciation of the English word *anal*, and *fakkin* (3h) is provocatively similar to an English swearword.

(3)   (h)   **phrase → {clipping} → word**
tondemonai jōkyō kara **katsu** ("to win from a monumentally bad situation") →
tonkatsu
a, naruhodo ("Oh, I see!," "Oh, really!") → ***anaru***
fā**suto **ki**chin* ("First Kitchen" [a fast food chain]) → + {vowel shortening} + {gemination} → ***fakkin

2.4 Alphabetisms

Alphabetisms found in standard Japanese are generally borrowings from foreign languages (usually English), standing for the names of organizations, companies, products, terms, etc. In Japanese youth language, however, alphabetisms are usually created from Japanese phrases and can stand for nominal phrases (4a) and nominal adjectival phrases (4b), as well as verb phrases and clauses (4c). When used in a sentence, the alphabetisms are either used in place of their source items, or – irrespective of the syntactic properties of their source items – are followed by the copula *da*. They are usually two or three letters long and use the Hepburn (i.e., the most widely used English) system of romanization.

(4)   (a)   *joshi kōsei → JK* ("a female high school student")
(b)   *chō bimyō* or *chotto bimyō → CB* (lit. "extremely hard to tell whether I think it's this or that" or "a bit hard to tell whether I think it's this or that")
yaruki manman → YM ("full of eagerness")
(c)   *fandēshon ga koi → FK* ("she/they, etc. is/are wearing heavy make-up")
maji (de) imi (ga) wakaranai → MIW ("I don't get what you/they, etc. are saying at all")

The immense popularity of alphabetisms among contemporary young Japanese people is a relatively new phenomenon, as its rise can be linked to the popularization of the alphabetism *KY* (4d) by the media in 2007 as descriptive of Prime Minister Abe and its subsequent nomination for 2007 Shingo Ryūkōgo Taishō (New and popular word award).[3] The influence of *KY* was so significant that alphabetisms used by young people are nowadays commonly referred to as *KY-go* ("*KY* words") or *KY-shiki Nihongo* ("*KY*-style Japanese"). Although there exist dictionaries of alphabetisms used by young people (e.g., Kitahara 2008; Blockbuster and Kenkyūkai 2008), it must be noted that various friend groups and other social groups often attribute different meanings to the same forms, and they also create and use numerous alphabetisms that are unknown to non-members of that particular in-group.

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3   Shingo Ryūkōgo Taishō, http://singo.jiyu.co.jp/ [cited 2013 August 20].

(4)   (d) ***kūki yomenai*** → ***KY*** (lit. "not to be able to read the air," i.e., "not understanding the
        situation and behaving inappropriately")

On the other hand, popular alphabetisms are sometimes further modified, for instance, by inten-
sifiers, such as *chō* ("extremely"), *maji* ("seriously"), *kanari* ("pretty"), and *sūpā* ("super"), as
shown in (4e). Moreover, well-known alphabetisms also inspire the creation of others, such as in
the case of (4f), where the word "air" from the literal English translation of *KY* becomes part of
a *waseieigo* compound, *air crusher*, which denotes a person who "crushes" the atmosphere by
behaving inappropriately, and thus, bears a similar meaning to *KY* itself.

(4)   (e) **INTENSIFIER + *KY* → {alphabetization} → _*KY***
        *chō/**m**aji/**k**anari/**s**ūpā **k**ūki yomenai* → ***CKY*/*MKY*/*KKY*/*SKY*** ("not being able to
        understand the situation and behave appropriately at all")
       (f) ***air crusher* → *AC*** ("a person who does not take into account the situation and de-
        stroys the atmosphere by saying or doing something inappropriate")

Furthermore, some of the popular alphabetisms use the initials of English translations of the
words they stand for. For example, the second "C" in *CC* (4g) can be interpreted as the initial
letter of the English word for *kawaii* ("cute"), and "I" in *IT* (4h), which stands for *aisu (o) taberu
/ aisu (ga) tabetai* ("I/you/they, etc. [will] eat ice cream/want to eat ice cream"), uses the initial
letter of the English word *ice cream*.

(4)   (g) ***chō kawaii* [*cute*] → *CC*** ("extremely cute")
       (h) ***aisu* [*ice cream*] *taberu*/*tabetai* → *IT*** ("to eat/I want to eat ice cream")

2.5 Derivation

One of the typical methods of derivation frequently used by young people, but found only in
a limited number of words of English origin in standard Japanese, is using the English suffixes
-ing, *-er*, *-ee*, *-ist*, *-tic*, *-ful*, and *-less*, pronounced and transcribed in Japanese as *-ingu*, *-(r)ā*,[4] *-ī*,
-isuto, *-chikku*, *-furu*, and *-resu*, respectively.[5]

 As shown in (5a), in Japanese youth language, the suffix *-ing* is typically used to derive nouns
from verbs, nominal parts of nominal predicates, and verb phrases (or clauses). As illustrated in
(5b), regardless of their original meaning (when used in English), the suffixes *-er*, *-ee*, and *-ist*
are variously used to refer to a person who is somehow related to the thing, quality, or action
expressed by the nominal stem they are attached to.

(5)   (a) **V/NV/VP/C + *-ing* → {derivation} → N**
        sabor**u* (inf. "to cut a class") + ***-ing* → *saboringu ("cutting a class")
        gaman* *suru* ("to endure") + *-ing* → *gamaningu ("enduring," "restraining oneself")
        maji (de)* *komar**u* ("to be in a total fix") + *-ing* → *majikomaringu ("being in a total fix")
        onaka (ga)* *peko**peko (da)* ("I'm starving") + *-ing* → *onakapekoringu ("starving")

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4   The [r] sound is used only when the suffix is attached to one- or two-*mora* long stems.
5   In case of the suffixes beginning in a vowel, the final vowels in the stems they are attached to are omitted.

(b) **N1/NP + -*ā*/-*ī*/-*isuto* → {derivation} → N1/2**
*(Seishun) 18 [jūhachi] kipp*u (a special discount train ticket) + *-ā* → *18[jūhachi]*
kippā ("a person who travels using a *Seishun 18 kippu*")
jimot*o** ("local neighborhood") + *-ī* → ***jimotī ("a local")
kusham*i** ("a sneeze") + *-isuto* → ***kushamisuto ("a person who sneezes a lot")

As demonstrated in (5c), in Japanese youth language, the suffix *-tic* can be attached to the stems of nouns, nominal adjectives, and adjectives to derive nominal adjectives, whose intensity of meaning is, compared to that of the words they are derived from, slightly reduced, and which can thus be interpreted as "rather N-ish/NADJ/ADJ." The suffixes *-ful* and *-less* are also used to derive nominal adjectives; however, they retain their original meanings (i.e., those attributed to them in English), and, as shown in (5d), are attached to the stems of nouns and nominal adjectives.

(5) (c) **N/NADJ1/ADJ + -*chikku* → {derivation} → NADJ1/2**
ikemen (inf. "a hot guy") + *-chikku* → ***ikemenchikku*** ("rather hot")
hansamu *na* ("handsome") + *-chikku* → ***hansamuchikku*** ("rather handsome")
yaba*i** (inf. "bad") + *-chikku* → ***yabachikku ("rather bad")

(d) **N/NADJ1 + -*furu*/-*resu* → {derivation} → NADJ1/2**
shūchi ("shyness") + *-furu* → ***shūchifuru*** ("shy")
genki *na* ("vigorous," "healthy") + *-resu* → ***genkiresu*** ("without vigor")

Young Japanese people also use standard Japanese methods of derivation in unconventional ways. For instance, one of the popular methods used to form nouns referring to people's appearance, behavior, and character in Japanese youth language is deriving them from nouns, adjectives, and verbs by means of the suffixes *-kun* and *-chan* (which, in standard Japanese, can both be attached to personal names, and *-chan* to kinship terms as well, as terms of address) and the traditional suffix-like name-final characters *-o* and *-ko*. In standard Japanese, *-kun* and *-o* are typically attached to or used in male personal names, and *-chan* and *-ko* are usually attached to and used in female ones. Although this distinction is generally recognized in Japanese youth language as well, it is also sometimes taken advantage of for humorous purposes (such as when using the suffix *-chan* in words denoting a man's unmasculine behavior). While the words derived with these suffixes from adjectives (5f) and verbs (5g) are generally easy to interpret, the words derived from nouns (5e) tend to be based on metaphor or metonymy, which makes the process of their interpretation more complex.

(5) (e)–(g) **N1/ADJ/V + -*kun*/-*chan*/-*o*/-*ko* → {derivation} → N1/2**
(e) ***okimono*** ("an alcove decoration") + *-kun* → ***okimonokun*** ("a good-looking but quiet and boring man")
Mirano ("Milano") + *-chan* → ***Miranochan*** ("a girl who wears only such brands as Prada")
yagi ("a goat") + *-o* → ***yagio*** ("a mild and kind man who helps his wife with household chores and childcare")
(f) ***dasa*i** ("tacky," "boring," "dull") + *-o* → ***dasao*** ("a man who is not cool")

(g)   *mote*ru ("to be popular with the opposite sex") + *-ko* → *moteko* ("a girl who is popular with boys")

Another example of young people's application of a standard method in a nonstandard way is their use of the suffix *-kei*. In standard Japanese, the suffix is attached to nouns to derive nominal adjectives bearing the meaning "related to a class of N/being of an N type" (such as in *butsurigakukei*, "related to physical science"). In Japanese youth language, however, as illustrated in (5h), the suffix is commonly attached not only to nouns, but also to nominal adjectives, adjectives, and verbs, as well as noun, adjective, and verb phrases to derive words whose meanings can be interpreted as "of the N/NP/ADJ/NADJ/AP kind/of the kind V/VP." Consequently, using this suffix enables young people to express themselves less directly and less definitively, and in many cases, the nominal adjectives derived with the use of *-kei* are, therefore, synonymous with those derived with the use of the above-mentioned suffix *-chikku* (cf. [5c]).

(5)   (h)   **N/ADJ/NADJ1/V/NP/AP/VP + *-kei* → {derivation} → NADJ1/2**
         itai ("awkward") + *-kei* → *itaikei* ("of the awkward type;" "rather awkward")
         iranai ("I/they, etc. don't need") + *-kei* → *iranaikei* ("of the kind I/they, etc. don't need"; "rather useless")
         tanoshimi ni shite(i)ru (inf. "I'm looking forward to") + *-kei* → *tanoshiminishiterukei* ("of the kind I'm looking forward to;" "rather looked forward to")

The most common verbalization pattern in Japanese is compounding nouns with the verb *suru* ("to do;" cf. [1a] and [1b]). Another possible means of verbalization is attaching the suffix *-ru* to nouns. While in standard Japanese, this method typically involves deriving verbs from nouns of foreign origin and there are only a few verbs formed in this way, in Japanese youth language, the suffix *-ru* can be attached to any kind of a noun, and this means of verbalization constitutes one of the most typical word formation processes young people use. The verbs in (5i) illustrate the basic pattern of this process. As there appears to be a clear tendency for the verbs thus derived to be three *mora* long, the longer nouns from which the verbs are derived tend to be clipped.

(5)   (i)   **N + *-ru* → {derivation} (+ {clipping}) → V**
         jiko ("an accident") + *-ru* → *jikoru* ("to have an accident")
         yōtsube (a creative syllabic spelling of "YouTube") + *-ru* → *tsuberu* ("to watch a video on YouTube")

Many verbs in youth language are derived by attaching the suffix *-ru* to restaurant and shop names (5j), and several popular verbs are derived from nouns on the basis of metonymy (5k). In addition, deriving verbs by attaching the suffix *-ru* to the personal names of (usually) well-known public figures (5l) is quite common as well. For example, the verb *edaru* is derived from the name of Yukio Edano, the Chief Cabinet Secretary during the 2011 Tōhoku earthquake, who, at the time of the disaster, worked extremely hard. The verb *zabiru* is derived from the name of the thin-haired Catholic missionary Francisco Xavier (*Zabieru* in Japanese). Finally, the surname of Commodore Matthew C. Perry (*Perī* in Japanese), whose fleet came to Japan in the mid-19th century to demand under the threat of force that Japan open itself to the West, gave rise to the verb *periru*.

(5) (j) ***Sebu****n irebun* ("7-Eleven") + *-ru* → ***seburu*** ("to go to a 7-Eleven")
    ko*nbini* ("convenience store") + *-ru* → ***kobiru*** ("to go to a convenience store")

    (k) ***kuma*** ("dark eye circles") + *-ru* → ***kumaru*** ("to stay up late")
    seki*gaisen* ("infrared light") + *-ru* → ***sekiru*** ("to exchange information by infrared")

    (l) ***Eda****no* + *-ru* → ***edaru*** ("to work very hard without any rest and sleep")
    Zabi*eru* [Xavier] + *-ru* → ***zabiru*** ("to have thin hair")
    Perī [Perry] + *-ru* → + {vowel shortening} → ***periru*** ("to be impudent," "to use force to make things happen," "to cling to one's beliefs")

2.6 Syllable Inversion

Syllable inversion has long been used in various word games (such as Pig Latin) and argots (such as French Verlan). While it is not used in standard Japanese, it can be found in Japanese youth language, where it typically involves transferring the final or the last two *moras* to the initial position, which is often accompanied by phonological changes, such as a change in vowel length, as well. Young people apply the process especially to nouns, nominal adjectives, and adjectives.

The application of syllable inversion to nouns and nominal adjectives is illustrated in (6a), its application to words borrowed from English is shown in (6b), and its application to proper nouns is exemplified in (6c). Since, as shown in (6d), predicative adjectives (referred to as adjectives, ADJ, throughout this paper) lose their adjectival ending *-i* in the process, they acquire the syntactic properties of nominal adjectives instead.

(6) (a)–(d) **N1/NADJ1/ADJ → {syllable inversion} (+ {vowel lengthening}) → N2/NADJ1/2**

    (a) ***sen|pai*** ("an older schoolmate") → ***paisen***
    ha|ge ("baldness") → ***gēhā***
    sasu|ga** na* ("as expected") → ***gāsasu

    (b) ***mo|deru*** (Eng. "a model") → ***derumo***
    sure|n|dā (Eng. "slender") → ***dansurē***

    (c) ***Gin|za*** (a Tokyo district) → ***Zagin***
    Shibu|ya (a Tokyo district) → ***Yāshibu***

    (d) ***u|mai*** ("yummy") → ***maiū***
    hi|doi ("awful," "terrible") → ***doihī***
    ki|moi (vern. "sickening") → ***moikī***

2.7 Neologisms Based on the Playful Use of Chinese Characters

Neologisms in Japanese youth language are also sometimes created by using Chinese characters (kanji). One of the possible methods includes the decomposition of kanji into katakana graphemes that resemble them, and subsequently writing and reading the newly formed words as such. For example, the verb *tahiru* (7a) was formed by decomposing the character 死 (*shi*, "death") into the katakana graphemes タ (*ta*) and ヒ (*hi*) and attaching the above-mentioned suffix *-ru* (cf. [5i]–[5l]) to them. Similarly, the expression used by some young people to refer to public toilets, *hamuto*, was created from the standard expression for public toilets, *kōshū toire* (公衆トイレ), by decomposing the first character of the word *kōshū*, 公, into two katakana graphemes, ハ (*ha*) and ム (*mu*), and adding the first grapheme from the word *toire*, ト (*to*).

(7)　(a)　**kanji → {kanji decomposition} (+ {other process}) → katakana word**
死 (*shi*, "death") → タ (*ta*) + ヒ (*hi*) → + -*ru* → {derivation} → タヒる (*tahiru*, "to die," "to feel depressed/hopeless/exhausted")
公衆トイレ (*kōshū toire*, "public toilets") → ハ (*ha*) + ム (*mu*) → + ト (*to*) → ハムト (*hamuto*, "public toilets")

The examples in (7b) illustrate another method, as the meaning of a standard expression is parodied by replacing the original kanji with homophonous ones, and thus creating words with quite different meanings. In the first example, the character for "labor" (労) is replaced by the character for "elderly" (老). Therefore, while the original word denotes "manual work," the new one refers to "a pensioner who has to work to make ends meet." Based on the same principle, the expression 忘飲忘食 （*bōinbōshoku*）, which literally translates as "not remembering what one has eaten and drunk," thus expressing the weakening of one's memory, originates from the idiomatic compound 暴飲暴食, which means "eating and drinking to excess," and refers to one's intemperance in eating and drinking.

(7)　(b)　**kanji compound 1 → {kanji substitution} → kanji compound 2**
労働 (*rōdō*, "labor" + "to work") → 老働 (*rōdō*, "an elderly" + "to work" → "a pensioner who has to work to make ends meet")
暴飲暴食 (*bōinbōshoku*, "violence/outrage" + "to eat" + "violence/outrage" + "to drink") → 忘飲忘食 (*bōinbōshoku*, "to forget" + "to eat" + "to forget" + "to drink" → lit. "not remembering what one has eaten and drunk")

While such expressions as those in (7a) are used in face-to-face communication as well, such expressions as those in (7b) are used exclusively in written communication.

3. Conclusion

The communicative needs of young Japanese people, such as those identified by Yonekawa (1996, 16–27; 1998, 19–25) and presented here in the introduction, are being met by the word formation processes described in this paper.

The various examples of new words formed by such processes as substituting a compound component from a different register, clipping which alludes to an acoustically similar word, using English suffixes, syllable inversion, and kanji decomposition all demonstrate a certain degree of playfulness, supporting the idea that making interaction fun and interesting is a key motivating factor behind young people's creativity and innovation in language use.

Using such processes as the formation of alphabetisms, clipping, and blending enables young people to make the tempo of their interactions faster and their communication more efficient. At the same time, by means of these processes words of limited comprehensibility to non-members of the particular in-group can be formed, which, consequently, promotes the sense of belonging and intimacy among the group members.

Some word formation processes, such as clipping and applying syllable inversion to adjectives denoting feelings, emotions, and attitudes, can reinforce the intensity of the meaning of the source items and enable the speakers to be more expressive. Since young Japanese people tend to avoid being assertive so as to preserve harmonious friendly relationships (e.g., Satake 1997),

several processes that are characteristic of their language, such as deriving nominal adjectives with the use of the suffixes -*kei* and -*chikku*, are used to create euphemistic expressions.

In order for youth language to retain the functions required of it, continual innovation is necessary, and, as a result, the newly formed expressions are often quite short-lived. The word formation processes which are behind those expressions are of much longer duration, and new processes keep emerging as creativity pushes the boundaries of what is accepted.

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Logical and Pragmatic Meaning in the Interpretation of Connectives: Scalar Implicatures and "Shallow" Processing

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Abstract: On one prominent view, endorsed by several authors pursuing neo-Gricean approaches, scalar implicatures like "but not both" in the exclusive interpretation of the conjunction or "A or B but not both," are generated automatically by default in the absence of context. By contrast, the contextualist view holds that scalar implicatures arise only when licensed by the context. We addressed this dispute by performing a sentence-picture verification task experiment, comparing the processing of two connectives in Hungarian: *és* ("and") and *vagy* ("or"). Crucially, the verification task required only a shallow processing of the meaning of target sentences. The results suggest that in such a task, while the entailment of the connective and was computed automatically, the implicature of or was not activated. This finding speaks against defaultism, and favors contextualist approaches to generalized conversational implicatures.

Keywords: connectives; disjunction; implicature; shallow processing; contextualism; Relevance Theory

1. Defaultist and Contextualist Approaches to Scalar Implicatures

On one prevailing view, endorsed by some prominent work pursuing a neo-Gricean approach (e.g., Levinson 2000; Landman 2000; Chierchia 2004), scalar implicatures such as "but not both" in the exclusive interpretation of the conjunction *or* "A or B but not both" are generated automatically by default. One may distinguish between a strong version of defaultism, according to which implicatures are not effortful at all (e.g., Levinson 2000) and a weak version, according to which implicatures arise by default (even when a context is lacking) but they nevertheless (may) incur extra processing cost. On another, equally influential view, scalar implicatures only arise when required by the context (e.g., Sauerland 2004; Van Rooij and Schulz 2004; Geurts 2011). The latter, contextualist view is advocated by Relevance Theory (RT), according to which scalar implicatures are generated only in contexts in which they are relevant in the technical sense that they yield a significant cognitive effect at a reasonable processing cost (Sperber and Wilson 1995; Wilson and Sperber 2012; Carston 1998). Although some recent psycholinguistic experiments, performed to assess the opposing predictions of these two major theories of the way scalar implicatures arise, apparently disfavor the defaultist view (Noveck and Posada 2003; Bott and Noveck 2004; Breheny, Katsos, and Williams 2006; Katsos 2006; Huang and Snedeker 2009; Zondervan 2010), the results have been contested

(Feeney et al. 2004; Degen et al. 2009; Grodner et al. 2010; see also Zondervan's [2010] methodological criticism of some of the experiments that have been interpreted as supporting the contextualist view).

2. A Previous Experiment on the Processing of Disjunction

An experimental study of particular relevance to our own is Chevallier et al. (2008).[1] This investigation assessed in three experiments the effects of contrastive stress on the disjunction *or*. Disjunctions can be enriched from a logical reading (the inclusive meaning) to an exclusive reading (A or B "but not both"). Chevallier and her colleagues demonstrated that both a visual and prosodic contrastive focus on *or* affected the enrichment.

It is a common view, also shared by Relevance Theory, that implicatures in general (including the exclusive implicature at hand) arise in an effortful manner. Assuming that visual or prosodic prominence makes the disjunctive expression (more) relevant in a Relevance Theoretic sense, by making the processing of the disjunction less costly (see also Van Rooij and Schulz [2004] on how focus facilitates scalar implicatures), Chevallier and her colleagues predicted that sentences such as *You can have the meat course or the fish course* will be interpreted with a lower rate of exclusive implicatures than *You can have the meat course* OR *the fish course*, with the disjunction marked as prominent visually or prosodically. Indeed, they found that making *or* prominent significantly increased the proportion of exclusive readings (cf. also Zondervan 2010). This result speaks in favor of contextualist approaches to scalar implicatures, as it shows that their generation is affected by prominence relations in the sentence.[2]

The strategy of Chevallier at al.'s experiment was to try to facilitate implicatures. Empirical studies in the realm of the psychopragmatics of implicatures often seek to do the opposite, i.e., to reduce the likelihood of implicatures through an experimentally increased processing load. In the experiment to be presented in this paper, we employed a strategy different from both of these: our experiment examined the effect of *decreasing* cognitive effort on the computation of a scalar implicature.

3. The Experiment

3.1 The Paradigm

The experimental task involved a form of "shallow" processing (cf. the concepts of "good-enough," or "shallow" cognitive representations in experimental work by Ferreira, Bailey, and Ferraro [2002] and Louwerse and Jeuniaux [2010], respectively). We tested the processing

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1   See also Paris (1973), whose study contains results from the testing of the (offline) interpretation of disjunction in adult controls. The disjunctions tested by Paris differ from those in our experiment in that they linked two complete propositions rather than two phrases. Pijnacker et al. (2009) report that in a neutral context, normal controls derive the exclusive implicature of disjunction at a rate of 54%. The interpretation of the latter result requires caution, as enforcing the lack of a discourse context in an experimental stimulus is notoriously difficult. When no context is given, subjects may still "project" contexts of their own in the course of processing sentence interpretation.
2   Response times for the exclusive readings were not different, regardless of whether contrastive stress was used or not. In other words, while intonation altered how the sentence was interpreted, it did not alter the time-course for the inference.

of the connectives *és* ("and") and *vagy* ("or") in Hungarian in a sentence-picture verification task similar to those used in the mental simulation literature (e.g., Stanfield and Zwaan 2001; Zwaan, Stanfield, and Yaxley 2002). Each picture was preceded by a sentence describing a scenario with two objects appearing as NPs conjoined either by *and* or by *or* (Connective Type), e.g., *John peeled the orange and/or the banana*. The state of the two objects either matched or mismatched (Congruence) the scenario explicitly described in the previous sentence. For example, in the mismatching condition of *and*-sentences only one of the two objects was peeled (incongruently with the entailment of *and*). In the case of *or*-sentences, both objects were peeled in the mismatching condition (incongruently with the implicature of *or*). Figure 1 illustrates the crucial manipulation of the objects in our experiment. The upper set of pictures is consistent with the implicature of *or*, viz. "and not both," while the one below it is consistent with the logical meaning of *or* ("and maybe both").
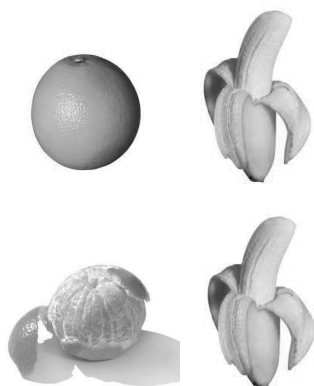
Figure 1. *Example of congruent versus incongruent picture stimuli in our experiments. Test sentence:*
John peeled the orange or the banana.

The participants' task was unrelated to both Connective Type and Congruence: they had to decide if both of the two objects had been mentioned in the previous sentence or not (without considering the states of the objects depicted). The dependent measure was response time to picture stimuli.

As the implicature associated with *or* would not yield any cognitive effect in terms of the task itself, on Relevance Theoretic assumptions it is predicted not to arise. By contrast, on the defaultist view (whether the strong or the weak version is considered) the implicature is expected to be generated automatically.

The experimental paradigm that we adopted deserves a comment before we describe the experiment in more detail. As already pointed out, the task we employed requires only "shallow" processing of the test sentences. Our design is probably the closest to that used by Stanfield and Zwaan (2001), who asked participants to decide whether or not pictures depicted the actions described in previously presented sentences. The actions described either a vertical or horizontal orientation, such as driving a nail into the wall or into the ceiling. The results showed that their subjects responded more quickly to the pictures that described the same orientation as the action described. Stanfield and Zwaan (2001) conclude that the participants activated perceptual imagery of the action described in the sentence and this caused the effect.

Along similar lines, Richardson et al. (2003), for example, showed a direct connection between perceptual and conceptual representations. They demonstrated that the comprehension of verbs that encode horizontal or vertical schemas, such as *push*, evokes spatial representations. The processing of such verbs interacted with shape discrimination along the horizontal or vertical axis. Other investigations also demonstrate that motion words affect the detection and perception of visual motion (e.g., Kaschak et al. 2005). Scorolli and Borghi (2007) asked their subjects to judge whether sentences containing a verb and a noun made sense. Participants had to respond either by pressing a pedal or speaking into a microphone. The verbs described actions that were performed with the mouth, hands, or the feet. Results showed that response times with the microphone were fastest with sentences encoding "mouth-verbs" and response times with the pedal were fastest with sentences encoding "foot-verbs."

The general interpretation of this body of experimental evidence is that words evoke analogous perceptual and motor representations that are associated with the real-world referents of the words that they refer to, and this affects reaction times. What is significant from the perspective of our own experiment is that even in such "shallow" processing tasks, rather subtle differences in meaning actually get processed, as revealed by the response time data.

3.2 Method

3.2.1 Participants
Seventy-seven Hungarian students from Budapest participated in the experiment for course credit (Mean age: 22.5, Age range: 17–32; 33 female and 44 male participants). The data of seven participants were discarded because their overall accuracy was under 75%. All the participants were native speakers of Hungarian.

3.2.2 Stimuli
32 critical sentences and 64 filler sentences were constructed. Critical trials (a sentence containing a connective and a picture stimulus with the objects) required an affirmative response to a *yes/no* question, while filler sentences required a negative response in 48 trials, and in 16 trials an affirmative response. In other words, in half of the trials the picture stimuli required a positive response, and in the other half a negative response. None of the sentences was ambiguous in terms of meaning.

The critical sentences were counterbalanced in four between-subject lists. These four pseudo-randomly organized intra-group lists were created in order to counterbalance items and conditions (incomplete counterbalancing technique). Each list included one of four possible versions, with 20 participants assigned to each list randomly. Each participant saw only one list, and each participant read each sentence once. Each sentence was presented with every Connective Type (*and/or*) across the experiment. Each item was tested equally often in each condition, and each subject received an equal number of items in each condition. Because lists were included only to reduce error variance, effects involving lists are not discussed in further detail. Reading time data were collapsed across lists.

3.2.3 Procedure

Participants were first presented with an instruction screen. They were asked to read the sentences that appeared on the computer screen and press the SPACE key if they had read the sentence. They were told that after every sentence they would see a picture with two objects; their task was to decide if both of the objects had been mentioned in the previous sentence or not. They were also instructed not to pay attention to the state of the objects. Each participant was tested individually in one session lasting approximately 12 minutes. Participants first completed a practice phase, in which they were familiarized with the logic of the experiment. One trial consisted of a sentence and a picture stimulus. The sentence appeared in the center of the center of the computer screen. After the participant read the sentence, a picture appeared. The mean response times to the picture stimuli were collected. The sentences appeared one after the other with a fixation cross appearing between trials for 1000 ms. There was no set limit on response time at the point of the pictures or the sentences; however, subjects were asked to react to picture stimuli as quickly as possible because verification time was measured at the point when the pictures were shown. The trials were randomized across participants. We used E-Prime to run our experiment.

4. Results and Discussion

The practice trials were excluded from the analyses, as were the filler items. Erroneous trials – where a wrong answer was given to the picture stimuli – were also excluded from the analyses. The data of seven participants were discarded (overall accuracy under 75%). Missing values were not replaced cellwise. The means of the median reading times of the critical trials were taken. The picture verification times were the primary focus of the analysis but we were also interested in the reading times of sentence stimuli. The table below illustrates the mean picture verification times (and *SD*s) in the four conditions:

Condition	Mean (ms)	Standard deviation (SD)	Number of Participants
AND_match	1124.41	295.13	66
AND_mismatch	1269.83	445.35	66
OR_match	1193.82	346.94	66
OR_mismatch	1170.45	346.33	66

Table 1. *Mean verification times (ms) of the picture stimuli in the four conditions.*

Mean picture verification times were first analyzed in a participant-based 2*2 ANOVA model with Connective Type (two levels: *and*/*or*) and Picture Congruence (two levels: match/mismatch) as within-participants factors. We found a significant interaction between Connective Type and Picture Congruence, $F(1, 65) = 12.224$, $p < 0.001$, $\eta_p^2 = 0.158$, indicating that the two connectives behave differently in our experiment. The main effect of Congruence is significant, $F(1, 65) = 6.825$, $p = 0.011$, $\eta_p^2 = 0.095$. However, Connective Type does not reveal a significant main effect; $F(1, 65) = 0.358$, $p = 0.552$, $\eta_p^2 = 0.005$. Since we found a significant interaction, the criticism that participants just scanned the nouns in the sentences, skimming over the connectives, can be ruled out. The figure below depicts the mean picture verification times in the Connective Type and Picture Congruence conditions:
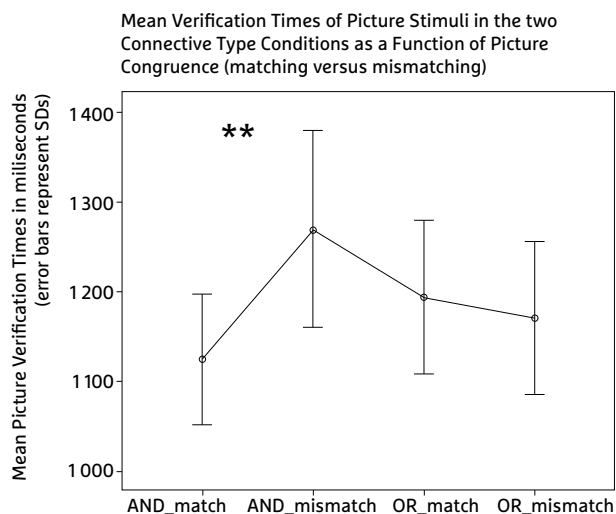
Figure 2. *Mean verification times (ms) of the picture stimuli in the two connective type conditions.*

Simple effects were also examined, applying Bonferroni-correction: the alpha level of every comparison was adjusted according to the Bonferroni formula, which in our case is tantamount to multiplying the alpha level by four because we were interested in only four critical comparisons. Most importantly, pictures after *and*-sentences in the matching picture condition were verified significantly faster than mismatching pictures, $t(65) = -3.628$, $p = 0.004$ (Bonferroni corrected). Crucially, however, the same effect was not revealed in the set of *or*-sentences, $t(67) = 0.897$, $p = 0.999$ (Bonferroni corrected; uncorrected $p = 0.373$).

Mismatches are generally expected to slow down reaction times, compared to the matching condition. This is indeed what happened after *and*-sentences, but this was not the case after *or*-sentences. The lack of a slow-down after *or*-sentences is expected if the exclusive implicature of *or* was not generated. The lack of the exclusive implicature is predicted on the contextualist view, since it was irrelevant to the task. On (both strong and weak) defaultist approaches, the implicature is expected to be generated even in such cases. Then either the mismatch with the picture, or both that and the generation of the implicature itself (see, e.g., Noveck and Posada 2003; Bott and Noveck 2004; Breheny, Katsos, and Williams 2006; De Neys and Schaeken 2007; Huang and Snedeker 2009) would be predicted to cause a slow-down in the *or*-mismatch condition (cf. Shetreet et al.'s forthcoming fMRI study), contrary to fact.

Pictures in the *and*-match condition were verified faster than those in the *or*-match condition, $t(67) = -2.531$, $p = 0.028$ (Bonferroni corrected). Concentrating on just this difference, one could potentially attribute this to the extra processing cost incurred by generating the exclusive implicature of *or*. However, this interpretation is hard to maintain in view of the fact that was just discussed, namely that the mismatch of the allegedly generated implicature with the picture had no effect. (Furthermore, this interpretation is not even available on a strong defaultist approach, according to which implicature generation is not only automatic, but also has no cost; e.g., Levinson 2000.) Instead, the longer verification times for the *or*-match condition can be attributed to an essential difference in complexity between the meanings of the conjunction *and* and the disjunction *or*. In order to capture the interpretation of disjunctions in modal environments,

several recent studies have analyzed disjunction as having a more complex meaning than conjunction. According to Zimmermann (2000), the semantics of disjunction can be described as the conjunction of (possibility) modal propositions. Thus, informally speaking, a disjunctive sentence such as "A or B" is interpreted as "Possibly A and possibly B." Others, including Simons (2005) and Alonso-Ovalle (2006), have argued that disjunctions introduce sets of propositional alternatives into the semantic derivation. On either of these two types of approaches, the more complex meaning of the disjunction may arguably take longer to construct and, especially, to verify than that of an ordinary conjunction. (Although no verification related to the interpretation of the conjunction and the disjunction was part of our "shallow processing" task, it is clear from the results discussed thus far that such verification did involuntarily take place during the processing of the sentence-picture stimulus pairs.)

Pictures in the *and*-mismatch condition were reacted to significantly more slowly than those in the *or*-mismatch condition, $t(65) = 2.638$, $p = 0.02$ (Bonferroni corrected). This difference is explained straightforwardly if there was an actual mismatch between the picture stimulus and the interpretation assigned by the participants to the sentence only in the *and*-mismatch condition, but not in the *or*-mismatch condition. There was no genuine discrepancy between the sentence and the picture stimulus in the latter condition if, as we are assuming, the exclusive implicature of the disjunction did not get generated in this task. On defaultist approaches, according to which the exclusive implicature must have been generated in the *or*-sentences, the longer response time associated with the *and*-mismatch conditions than with the *or*-mismatch conditions is difficult to account for. Perhaps one possibility is to assume that in some sense the *and*-mismatch conditions, in which the mismatch is due to a semantic entailment of the conjunction, lead to a stronger discrepancy than does the implicature of the disjunction. But that assumption rests on dubious grounds in that both the entailments of conjunction and the exclusivity implicature of disjunction are arguably part of the truth conditions of the respective sentence types (see Carston [2004] for a forceful defense of this position). The differences between the two may only lie in how effortful they are to generate or to cancel, but both of these considerations would predict the opposite of what we found, i.e., it is the *or*-mismatch condition that should have incurred longer response times than the *and*-mismatch condition.

We also analyzed the mean reading times of the sentences before the picture stimuli to determine if the two Connective Types are processed differently during reading. As *or*-constructions may in general be associated with an implicature, they could in principle be harder to process in reading than *and*-constructions. If, contrary to our own assumptions, an exclusivity implicature had been calculated during the reading of the *or*-sentences, then we might find longer reading times for the *or*-sentences than for the *and*-sentences (note that in Hungarian the disjunction itself, i.e., *vagy*, is even a longer word than the conjunction és). Nevertheless, we found that the *and*-sentences (*Mean*: 1980.29 ms, *SD*: 608.22 ms) were not read differently from the *or*-sentences (*Mean*: 2046.22 ms, *SD*: 601.77 ms), $t(67) = -1.324$, $p = 0.190$). This finding is predicted by our assumption that the disjunction was not associated with an implicature in the experimental task. Note that this result does not argue specifically in favor of that assumption, but it is straightforwardly compatible with it. If one were to assume that the implicature had actually been generated, then the same result could be explained away by assuming that the extra processing cost this incurred did not manifest itself during the reading of the target sentences themselves, which contained the conjoined and disjoined phrases in a sentence-final

position. Alternatively, a strong defaultist approach, according to which implicatures incur no extra cost, also predicts a lack of difference in reading times.

We close our discussion by mentioning a potential criticism of the experimental task itself. One might suggest that the matching and mismatching picture stimuli differed inherently in terms of verification times, causing some of our results to be confounded. Specifically, it is in principle possible that an unpeeled banana is easier to verify than a peeled one on the basis of the principles of familiarity and prototypicality. This possibility, however, can be excluded. First, a difference in familiarity/prototypicality was present in only some of the pictures. Second, there was no significant difference between matching and mismatching conditions in the *or*-condition. This is unexpected if the non-prototypicality of mismatching pictures had an effect.

5. Conclusions

In this study we reported on the results of an experiment examining the scalar implicature associated with disjunction with the aid of a task requiring "shallow processing." Overall, the results suggest that in such a task, while the entailment of the connective *and* was computed automatically, the implicature of *or* was not activated. This finding speaks against (both strong and weak versions of) defaultism, according to which generalized conventional implicatures are generated by default, in the absence of context, and favors contextualist approaches. The results are predicted straightforwardly by basic principles of Relevance Theory, according to which a scalar implicature is more likely to be generated if its relevance, i.e., the ratio of the positive cognitive effect that it can achieve and the processing cost it requires, is high. As the potential positive cognitive effect in our experimental task was extremely low, the implicature was simply not worth processing.

From a broader perspective, our results indicate that "shallow" processing tasks are a promising experimental tool for psycholinguistic experimental research at the semantics/pragmatics interface more generally.

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Exhaustivity in Focus: Experimental Evidence from Hungarian

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Abstract: This study presents the results of two experiments investigating the nature of exhaustivity of pre-verbal focus in Hungarian, both doing so in an indirect way. Experiment 1 contrasts the responses given in long versus short time windows in a truth-value judgment task. Experiment 2 makes the task itself indirect and compares pre-verbal focus with three other types of focus in the same language. Through these multiple comparisons we provide evidence that exhaustivity in pre-verbal focus is not entailed, unlike exhaustivity in clefts, with which it has been treated as being on a par. Instead, it is due to pragmatic implicature, in particular, conventional implicature.

Keywords: focus; exhaustivity; implicature; experimental pragmatics; Hungarian

1. Introduction

One of the characteristic interpretive properties of focus is its exhaustivity, whose nature has become a controversial issue in the semantic and pragmatic literature in recent years. In Rooth's (1985, 1992) classic account the function of focusing is to indicate the presence of alternatives relevant to the interpretation of a certain linguistic expression.

(1)   (a)   Who did Walter invite?
        (b)   Walter invited [Mickey]$_{Foc}$.

A possible set of alternatives to [Mickey] would be a set consisting of other individuals Walter could have invited, e.g., {Donald, Goofy, Daisy}. Focus is interpreted exhaustively if the predicate conveyed by the background is taken to hold for no other focus alternatives than the one denoted by the focused element. Thus, under an exhaustive reading of (1b) the set of individuals Walter invited consists of Mickey and no one else.

Exhaustivity of focus has been most commonly treated as a conversational implicature that can be derived either from Grice's Maxim of Quantity or in terms of Relevance in Relevance Theoretic accounts. Some theorists, however, have proposed that exhaustivity cannot exclusively be regarded as a purely pragmatic phenomenon. É. Kiss (1998) argues that two types of focus should be distinguished cross-linguistically: information focus and identificational focus. These two types differ substantially with respect to the status of the exhaustivity effect associated with them. While the function of information focus is to mark new, non-presupposed information (and indeed, can be interpreted exhaustively as a result of pragmatic inferences), identificational focus involves identificational predication as part of its semantics. Functioning as an identificational

predicate akin to specificational predicates in specificational copular sentences (Higgins 1979), identificational focus exhaustively identifies the set of individuals of which the predicate corresponding to the background of the focus holds, implying that exhaustivity is part of its meaning.

An oft-cited example of this latter, identificational type of focus is Hungarian Pre-verbal Focus (PVF). According to the standard analysis (Szabolcsi 1981; É. Kiss 1987; Kenesei 1986; Szabolcsi 1994), PVF involves truth-conditional, semantically encoded exhaustivity (unlike its syntactically unmarked counterpart) and has a semantic representation similar to that of English *it*-clefts. During the last decade, this view of PVF has been both challenged (Wedgwood 2005, 2007) and defended (É. Kiss 2006, 2010; Horváth 2005, 2007) in theoretical work. Recent experimental results (Onea and Beaver 2011; Kas and Lukács 2013) suggest that the exhaustivity of PVF is less robust than would be expected if it were a semantic feature of PVF.

The present paper reports on two experiments investigating the interpretation of different focus constructions in Hungarian, including PVF, and aims to provide further evidence in the debate concerning the semantic vs. pragmatic nature of the exhaustivity of focus.

2. Focus Marking in Hungarian and the Semantics vs. Pragmatics Debate

Hungarian, like English, can mark focus purely prosodically, without syntactic reordering: the focused element (which can occur anywhere within the post-verbal field) can be highlighted simply by prosodic prominence (É. Kiss 1998):

(2) (a) Kit   hívott   fel   János?
          who.ACC called   up   John
          "Who did John call?"
     (b) János   felhívta   [MARIT].
          John   up.called   Mary.ACC
          "John called Mary."

In addition to being marked by prosodic means, focus can also be marked syntactically. In the syntactically marked case the focused constituent leaves its base position and moves to a designated position (often referred to as "focus position") immediately preceding the tensed verb:

(3) (a) Kit   hívott   fel   János?
          who.ACC called   up   John
          "Who did John call?"
     (b) János   [MARIT]$_{Foc}$ hívta   fel.
          John   Mary.ACC   called   up
          "John called Mary."

The movement of focus into the pre-verbal region is also indicated by the post-verbal occurrence of the verbal particle (*fel*), which in neutral (non-focused) sentences precedes the verb.

Both types of focus, (2b) and (3b), can be assigned an exhaustive interpretation; however, the way the exhaustive reading arises in the two constructions has been claimed to be different. The typology proposed by É. Kiss (1998) considers pre-verbal focus (PVF) an instance of

identificational focus, whose exhaustivity is a semantic consequence of its identificational function. By contrast, syntactically unmarked focus (SUF) is classified as an instance of information focus, whose exhaustivity is regarded as being due to an implicature that can be derived from pragmatic principles, such as Grice's conversational maxims. In terms of the Maxim of Quantity, hearers normally assume that the speaker has provided all the relevant information, taking the answer in (2b) to be maximally informative, i.e., they conclude that no one else beside Mary was called, as otherwise the speaker would have said so.

The exhaustivity of the PVF construction has been considered to be part of its truth conditions. Among other evidence, examples like (4) have been cited to support this claim (Szabolcsi 1981):

(4) Nem [PÉTER]$_{Foc}$ aludt a padlón, hanem [PÉTER ÉS PÁL]$_{Foc}$.
    not PETER slept the floor-on but PETER AND PAUL
    "It is not Peter who slept on the floor, but Peter and Paul."

The reasoning here is that the exclusion of the alternatives to the focused expressions ([Péter] and [Péter and Paul], respectively) must be taken to be part of the truth conditions of each clause, as otherwise their conjunction would result in a logical contradiction. The conventional semantic approach is that truth-conditional meaning must be derived compositionally by the grammar (implying that pragmatically inferred meaning cannot be truth-conditional). Accordingly, traditional analyses of PVF assume an abstract semantic operator (dubbed an exhaustivity, identificational, or maximality operator) to be associated with the pre-verbal position, and argue that this operator is responsible for triggering the exhaustivity effect. In essence, the PVF construction has been claimed to presuppose the existence of a unique maximal entity with the property represented by the background material. The assertion that is made is that this presupposed entity is identical to the denotation of the focused constituent. Thus, on this view exhaustivity is actually an entailment of the presupposed and asserted content taken together. (5) represents the meaning of focus in (3b):

(5) $\exists x[called(j, y) \ \& \ \forall y[called(j,y) \rightarrow y \subseteq x] \ \& \ x = Mary]$

Focus constructions in other languages have also been claimed to involve semantically identificational focus, including Catalan (Vallduví and Vilkuna 1995), Greek (Tsimpli 1994), and Finnish (Vilkuna 1994), among others.

This type of semantic analysis has been challenged by Wedgwood (2005, 2007) and Onea (2007, 2009). Wedgwood argues that there is no basis for the assumption that inferential processes cannot influence truth-conditional meaning, and nothing prevents exhaustivity from being derived from pragmatic factors (as it is in the case of SUF). Wedgwood himself prefers the relevance theoretic account of the exclusion of alternatives. He proposes that in any situation where the utterance is the result of a choice from mutually manifest alternatives (generated by focusing), the exhaustive interpretation is the optimally relevant one, i.e., generating the quantity implicature is worth the cognitive effort.

Some recent experimental studies have also argued that exhaustivity is not an inherent semantic feature of PVF. Onea and Beaver (2011) report on the results obtained from an innovative implementation of a truth value judgment task designed to investigate the issue. Their participants were

shown pictures in which two persons (e.g., Mark and Bill) were involved in an event, e.g., they both caught a butterfly. Then the participants heard a one-sentence description of the event of the type *Mark caught a butterfly* with the role of *Mark* as a focus varied (PVF or neutral), and had to choose from three possible response options: *Yes, and Bill did too*; *Yes, but Bill did too*; and *No, Bill did too*. The authors used *only*-focus as a baseline comparison (*Only Mark caught a butterfly*) and hypothesized that if PVF is indeed semantically exhaustive, then the response pattern of the two focus constructions would be similar. This was, however, not what they found: while *only*-focus sentences were rejected most of the time, PVF sentences were accepted (i.e., responded to with one of the two *Yes, . . .* replies) relatively willingly (71%) as descriptions of non-exhaustive situations[1] (see also Kas and Lukács [2013] for comparable results).[2]

Though the authors interpret the results as supporting the pragmatic analysis of exhaustivity, basing this conclusion on the difference found between PVF and *only*-focus is rather questionable. While *only*-focus asserts exhaustivity (Horn 1981, 2002), in the case of PVF it is claimed to be part of the presupposition:

(6)   (a)   Csak   Mari   ment   el.
             only   Mary   left   PRT
             Presupposition: Mary left.
             Assertion: Nobody other than Mary left.
       (b)   [MARI]$_{Foc}$ ment   el.
             Mary   left   PRT
             Presupposition: There is a unique/maximal individual who left.
             Assertion: It is Mary.

The difference between the two is indicated, among others, by the fact that exhaustiveness is accessible to negation in *only*-focus sentences, but not in PVF ones. As the contrast in the acceptability of the *but*-clause continuation in (7) shows, exhaustivity can be negated in the *only*-focus sentence (7a), unlike in the PVF sentence (7b).

(7)   (a)   Nem   csak   MARI   ment   el,   hanem   Kati   is.
             not   only   MARY   left   PRT   but   Cathy   too
             "It is not only Mary who left, but also Cathy."
       (b)   *Nem   MARI   ment   el,   hanem   Kati   is.
             not   MARY   left   PRT   but   Cathy   too
             "It is not Mary who left, but also Cathy."

The fact that Onea and Beaver (2011) base their conclusion on results obtained from a forced choice among the *No, . . .* ; the *Yes, but . . .* ; and the *Yes, and . . .* responses also gives cause for

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1   Onea and Beaver's (2011) first experiment had a low number of test sentences and participants. It was repeated with a wh-question preceding the test sentences and with a larger number of participants, but no statistical analysis was provided.
2   Kas and Lukács's (2013) very recent series of experiments confirm Onea and Beaver's (2011) results and extend their work by exploring the exhaustivity of PVF with various syntactic functions in the pre-verbal focus position.

concern, since it is not established independently what that choice is conditioned by. Hearers may (or may not) express disagreement with different aspects of sentence interpretation, including asserted content, non-asserted entailments, presuppositions, conversational implicatures, etc. Before it is established which type of response is given if one of these aspects of sentence meaning or another is not accepted by the hearer, it is difficult to draw any firm conclusions from the relative proportions of these responses.

Although Onea and Beaver's experiment is a major step toward an appropriate empirical assessment of the theoretical accounts reviewed above, the results remain inconclusive. Compelling empirical evidence that would address the nature of the exhaustivity effect of PVF is still lacking.

It is this gap that the present study attempts to fill through two experiments. Experiment 1 is an online two-valued truth-value judgment task where a context (set of alternatives) is specified and the response time window is manipulated. Experiment 2 is an offline task embedded in a natural setting, where participants are asked to match pictures to sentences, thus avoiding reliance on metacognitive truth-value judgments. In Experiment 2 the *only*-focus condition is reexamined and a cleft condition is introduced for comparison.

3. Experiment 1

The experiment involved a truth-value judgment task based on a method in Bott and Noveck's (2004) investigation of scalar implicatures. The method builds on the prediction of Relevance Theory that, keeping the attainable contextual effect constant, the probability of a pragmatic implicature decreases when its processing cost would be too high for the available cognitive resources. That is, when cognitive resources are limited, we expect listeners to process semantic content but not pragmatic implicatures. We therefore predict that if the exhaustivity of PVF is indeed a pragmatic phenomenon, the probability of the implicature being processed should decrease under the above conditions. If, on the other hand, exhaustivity is a semantic feature, it should be processed regardless of the availability of extra cognitive resources.

3.1 Participants

Sixty undergraduates studying at the Budapest University of Technology, all native speakers of Hungarian with unimpaired hearing, participated in the experiment. The students participated on a voluntary basis and received course credit for their participation.

3.2 Materials

Digital recordings were used of a context story followed by a question, uttered by one speaker, and an answer, uttered by a different speaker. The question was a *wh*-question querying the object affected by the event described in the context story, realized as a grammatical object in all critical conditions. The structure of the context story and the question was identical for all test items. The answer gave a full answer to the question. There were two answer conditions (sentence types): PVF and SUF. An example is shown below in English translation:

3.3 Context

This morning the maid found a corpse in one of the apartments of the Hotel Royale. In the pocket of the victim there was a crumpled piece of paper. There were three figures on it: a crown, a fish, and a pyramid. The victim had circled one or more of them.

Question:		What had the victim circled?				
Answer (PVF):	Az	áldozat	a	PIRAMIST	karikázta	be.
	the	victim	the	PYRAMID.ACC	circled	PRT
Answer (SUF):	Az	áldozat	bekarikázta	a	piramist.	
	the	victim	circled	the	pyramid.ACC	

For each item there was a picture depicting what happened in reality. In all critical conditions the picture depicted a non-exhaustive interpretation of the target sentence (e.g., a piece of paper with a crown, a fish, and a pyramid drawn on it and red circles around the pyramid and the crown).

There were six test items and twelve fillers. The filler items had the same structure as the test items but half of the pictures depicted the exhaustive interpretation and the other half depicted a scene where the object of the event did not match the object mentioned in the answer to the question.

3.4 Design and Procedure

The experiment was run on E-prime. The participants sat in front of a computer screen with headphones on. They listened to the recordings of the context story, the question and the target sentence. At the onset of the target sentence, a picture appeared on the screen. The participants had to press a green button on the keyboard if the picture matched the sentence and a red button if the picture did not match the sentence. Thus, for the test items, a *yes* response indicated acceptance of the non-exhaustive interpretation, while a *no* response indicated a preference for exhaustive interpretation. Reaction time was measured from the offset of the noun in the target sentence. There were two lists; thus each participant heard each context only once but the items were counterbalanced, giving a within-subject design for sentence type.

A second variable of the experiment was cognitive resource. The participants were divided into two groups. One group was told to give their response before they heard a beep. The beep was played 1000 ms after the offset of the noun in the target sentence. The experimental session began with six practice trials, in which participants were able to get used to the time constraint. This was sufficient practice as all of the experimental trials were successful. The other group were not given a time limit but were told to reply as quickly as possible. For the sake of uniformity, a beep at 3000 ms after the offset of the noun was built into the experiment for this group.

3.5 Results

As the test items allowed both *yes* and *no* responses, depending on the participants' interpretation of the sentences, the fillers were used to measure accuracy and the effects of the time constraint on accuracy. Half of the fillers unambiguously required a *yes* response and the other half a *no* response. On the basis of filler accuracy, three outliers were excluded from the Long Group and one from the Short Group. For the remaining 56 respondents, filler accuracy and mean reaction times for the time limited (Short) and the unlimited (Long) Groups are shown in Table 1. RT was measured from the offset of the noun in the target sentence.

	Long Condition	*Short Condition*
Filler accuracy	93%	91%
Mean RT fillers	1752 ms	320 ms
Mean RT test items	3597 ms	437 ms

Table 1. *Accuracy and mean RT for filler items in the Long and the Short experimental conditions.*

Although 91% accuracy is not perfect, it is evident from the figures in Table 1 that the time constraint is not responsible for the errors, as the accuracy rates in the Short and the Long Conditions are almost identical. We can therefore contend that the available response time window in the Short Condition did not interfere with the processing of the semantic content of the target sentences.

Table 1 also reveals that the participants in the Short Group understood and respected the instructions, while the participants in the Long Group took their time giving their responses. For both groups, but especially for the Long Group, longer response times were needed for the test items than for the fillers. Although they are not shown in the table, there were considerable differences in reaction times between the PVF and SUF sentence types (4239 vs. 2956 ms in the Long Condition and 597 vs. 278 ms in the Short Condition). This is not surprising, since RT was measured from the offset of the noun, which necessarily appeared pre-verbally in the PVF sentences and post-verbally in the SUF sentences. This circumstance is of no consequence, however, as we are interested in differences in response types rather than in reaction times between the two sentence types.

The percentages of exhaustive interpretations (*no* responses) for the two sentence types in the two time window conditions are shown in Figure 1.
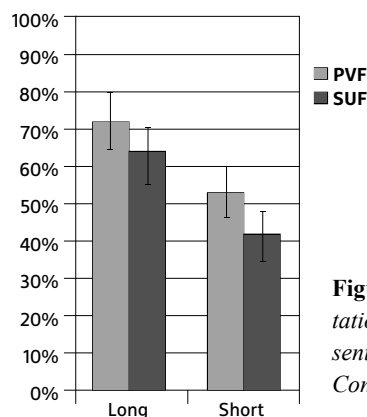
Figure 1. *Percent exhaustive interpretation (*no *responses) for PVF and SUF sentence types in the Long and the Short Conditions.*

A Sentence Type by Response Time Window ANOVA reveals no main effect of Sentence Type but a highly significant main effect of Response Time Window ($F(1,54) = 73.8, p < .001$) with no interaction. That is, although SUF sentences are slightly less likely to be interpreted exhaustively (63% in Long Condition and 41% in Short Condition) than PVF sentences (72% in Long Condition and 53% in Short Condition), the difference between the two is not statistically significant.

4. Discussion of Experiment 1

In Experiment 1 we tested whether in a TVJ task limiting the time to respond (and thereby increasing the computational cost of inferences) had any effect on the interpretation of PVF in comparison to SUF, whose exhaustivity is undoubtedly pragmatic. We predicted that if PVF is semantically exhaustive then such a manipulation would not affect its exhaustivity rating. However, if it is pragmatically exhaustive, then it would pattern with SUF, i.e., it would give rise to significantly less exhaustive interpretations in the Short Condition than in the Long Condition. When the participants had a long time window to respond, we found that SUF sentences were interpreted exhaustively to the same degree as PVF sentences, which can be attributed to the effect of the preceding *wh*-question that served as a trigger for implicature generation. Limiting the response time, however, caused a significant drop in the proportion of exhaustive responses to both PVF and SUF sentences.

The results obtained in Experiment 1 allow for at least two interpretations. (i) The decrease in the proportion of exhaustive responses from the Long to the Short Condition can be explained as a consequence of a speed-accuracy trade-off. The 1000-ms time limit we imposed might have been too short to process the sentences even semantically and it made the participants perform at chance level. The analysis of individual participant data reveals that the rate of inconsistent responses within subjects was much higher in the Short Condition, which also supports this option.

On the other hand, (ii) the increased rate of non-exhaustive responses and individual inconsistency in the Short Condition can also be due to the implicature status of exhaustivity in PVF. It was predicted that the time pressure would make the exhaustivity inference less likely to emerge, since, as an implicature, it is less likely to be processed when cognitive resources are scarce. As predicted, an exhaustive interpretation occurred less frequently in the responses. The lack of a significant difference between PVF and SUF within either the Long or the Short Condition is also expected, assuming that exhaustivity is caused by the same pragmatic mechanisms in both sentences with pre-verbal focus and sentences with the noun phrase in a post-verbal position. This latter interpretation of the results is supported by the fact that the subjects did relatively well on the filler trials, and that most of the time they did not use up their one-second time lag.

If so, then the exhaustivity of PVF is not truth-conditional, but an implicature sensitive to extra-grammatical factors. In order to test this conclusion further, we conducted a second experiment.

5. Experiment 2

Experiment 2 was designed to avoid participants having to make direct truth-value judgments and to test the effects of abandoning the question preceding the target sentence, which naturally invited an implicature of exhaustivity in Experiment 1. A further aim of Experiment 2 was to explore the interpretation of PVF in comparison with cleft constructions, also including SUF and *only*-focus, as expected limiting cases. The latter three types of sentence exemplify semantically entailed exhaustivity in the sense of Percus (1997; cleft), asserted exhaustivity in the sense of Horn (1981, 2002; *only*-focus), and pragmatic exhaustivity (SUF). The first two types are expected to show a strong preference for exhaustive interpretation. SUF is expected to be far less likely to be interpreted exhaustively, since there is no context (*wh*-question) encouraging that interpretation. Assuming that clefts are semantically exhaustive, if PVF is

semantically exhaustive in the same way, then the rate of exhaustive interpretations of PVF sentences should not differ significantly from that of cleft sentences.

5.1 Participants

Forty-two undergraduates participated in the experiment, none of whom participated in Experiment 1. All the participants were native speakers of Hungarian. The students participated on a voluntary basis and received course credits for their time.

5.2 Materials

Each test item had four versions: a PVF, a SUF, an *only*-focus, and a cleft version. All the items consisted of a single sentence describing an event that affected the appearance of an individual. The individual was the subject of the sentence and the object of the event appeared in various focus positions, as in (8a)–(8d) below.

(8) (a) A   KALAPOT   próbálta   fel.
         the   HAT.ACC   tried.he   on
         "He tried on the HAT."
     (b) Felpróbálta   a   kalapot.
         on.tried.he   the   hat.ACC
         "He tried on the hat."
     (c) Csak   a   kalapot   próbálta   fel.
         only   the   hat.ACC   tried.he   on
         "He only tried on the hat."
     (d) A   kalap   volt   az,   amit   felpróbált.
         the   hat   was   it   that   on.tried.he
         "It was the hat that he tried on."

For each test sentence there were four pictures: one depicting the exhaustive interpretation of the sentence (e.g., a man wearing just a hat); one depicting a non-exhaustive interpretation (e.g., a man wearing a hat and a scarf), and two distractors (e.g., a man wearing sunglasses or a bow tie but no hat).

There were five different test items and ten fillers. Each filler had four different versions with variations in either lexical items or word order. The pictures paired with the filler items either unambiguously matched or unambiguously mismatched the filler sentence.

5.3 Design and Procedure

The experiment was run on E-prime. The participants were seated by a computer and introduced to a story in which the police were looking for a thief. The participant was to read eye-witness descriptions of the thief at the top of the computer screen and at the same time see pictures of four individuals in a single row below the description. The pictures were numbered 1 to 4. An input box was visible at the bottom of the screen and the participants were asked to use the keyboard to type the number(s) of the picture(s) that depicted an individual who could possibly be the thief on the basis of the eye-witness description. They were told that they could choose one or more of the pictures.

Every participant read every sentence in the experiment. The sentences appeared in a pseudo-randomized order that did not allow any two versions of the same item to follow each other immediately. The four pictures within each set appeared in random order.

5.4 Results

The responses to the test items were evaluated as follows: if only the picture depicting the exhaustive interpretation of the target sentence was chosen, the response was classed as exhaustive. If both the picture depicting the exhaustive interpretation and the picture depicting a non-exhaustive interpretation were chosen, the response was classed as non-exhaustive. In any other case, the response was classed as incorrect. On the basis of this classification, the overall accuracy rate was 98%. None of the participants and none of the items had to be excluded from the analysis.

The percentages of exhaustive responses for the four sentence types are shown in Figure 2.
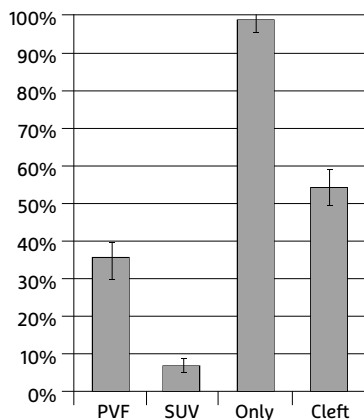
Figure 2. *Percentages of exhaustive responses for Pre-verbal Focus, Syntactically Unmarked Focus,* Only-*Focus, and Cleft Sentence Types.*

A Friedman ANOVA revealed a significant difference between the four Sentence Types (Chi2 = 110.14, df = 3, *p* < .001). Pairwise comparisons show significant differences between any two conditions in the expected direction: *only*-focus was the most likely to be interpreted exhaustively (almost without exception, 98%) while SUF hardly ever received an exhaustive interpretation (7%). PVF (35%) and cleft (54%) sentences fell in between the two extremes.

6. Discussion of Experiment 2

In Experiment 2 we introduced two more focus types, cleft and *only*-focus, in order to cover all three levels of meaning (assertion, semantic inference, and implicature) exhaustivity can possibly arise at. Since *only* asserts the exclusion of alternatives, the frequency of exhaustive responses to the *only*-focus sentences was expected to be very high. On the basis that clefts are standardly analyzed as being identificational predicates (with exhaustivity being a joint entailment of the maximality presupposition and the assertion), we assumed that if PVF is semantically exhaustive, then its exhaustivity profile would be similar to that of clefts (with which they have been claimed to be semantically synonymous) and would differ significantly from that of SUF. This time we had no *wh*-questions preceding the target sentences that would lead to the

constant contextual effect of triggering the exhaustivity implicature. We also wanted to avoid having the participants make judgments about truth, so we used a special sentence-picture matching task that enabled us to tap into speakers' interpretation of focus sentences in a more indirect way.

As expected, we found that the *only*-focus sentences were interpreted exhaustively virtually without any exception. The rate of exhaustivity in the clefts was relatively high but still lower than that of *only*-focus, which is reasonable given the fact that in the case of clefts exhaustivity is entailed and not asserted. As opposed to Experiment 1, the rate of exhaustive responses to the SUF sentences was very low, which can be attributed to the removal of the *wh*-question: the Q-implicature (responsible for exhaustive interpretation) simply did not arise in the absence of an explicit indicator of its relevance. Regarding the PVFs, they were interpreted exhaustively significantly less frequently than the clefts. This is unexpected if exhaustivity is a semantic entailment both in clefts and in PVF (as has been claimed by semantic approaches to PVF exhaustivity), while it is explained if exhaustivity in PVF sentences is due to an implicature.

Although a direct comparison of the values of PVF exhaustivity obtained in the two experiments is strictly speaking not possible, such a comparison, in view of the numerically large differences, is still suggestive. Notably, the frequency of exhaustive interpretations of PVF is less than half (35%) in Experiment 2 of what it is in Experiment 1 in the Long Condition (72%). Recall that the key difference between the two settings lay only in the presence of the *wh*-question preceding the target sentence. This striking difference also supports the view that exhaustivity in PVF sentences is due to a conversational implicature, rather than arising from an entailment, assuming that entailments of a sentence should be relatively stable and independent of the preceding context (or a lack thereof) in the relevant sense.

On the other hand, the PVF sentences gave rise to significantly more exhaustive interpretations than the SUF sentences, which makes the latter conclusion somewhat controversial. One way to resolve this is to assume that there is a pragmatic difference between the two: the exhaustivity implicature is less dissociable from PVF sentences than from SUF sentences, because the marked PVF word order itself flags the pre-verbal element as information focus, i.e., as the answer to the Question under Discussion (QUD; Roberts 1998). Here we follow Onea (2009) and Onea and Beaver (2011), who argue that the immediately pre-verbal position in Hungarian grammatically marks a question-answering constituent. Thus, pre-verbal foci in Hungarian will be interpreted as answering an accommodated information question even in isolation from the context (including the question itself). Given the pragmatic tendency to interpret answers as adequate for the conversational goals at hand (i.e., as complete or maximally informative), the exhaustivity effect of PVF can be accounted for. As the implicature is associated with the particular form (here: the word order in focus fronting with verb inversion), we contend that it is more appropriate to consider the exhaustivity of PVF to be a conventional implicature than a conversational implicature.

7. Conclusion

The study presented the results of two experiments investigating the nature of exhaustivity of PVF in an indirect way: Experiment 1 contrasted responses given in long versus short time windows in a truth-value judgment task, while Experiment 2 involved an indirect task and compared PVF with three other types of focus. Through these multiple comparisons we have provided evidence

that in PVF exhaustivity is not entailed, unlike exhaustivity in clefts, with which it has been treated on a par, but it is due to pragmatic implicature. In particular, we have suggested that it is to be analyzed as a conventional implicature. Our results can potentially provide a stronger argument against assigning exhaustivity a truth-conditional semantic status in PVF than previous empirical investigations of the issue precisely on account of the comparisons made, situating the rate of PVF's exhaustive interpretations in relation to other relevant focus types, most importantly, SUF and the cleft construction, as well as comparing this rate in an (quasi) offline task with the same rate in a speeded judgment task setting.

We believe that the investigations reported on here go beyond the issue of PVF and have broader relevance, on at least two counts. On the methodological side, they highlight the value of, and need for, comparisons with multiple focus types in experiments that seek to reveal the nature of the exhaustivity effect of a particular focus construction in a language. The landscape of exhaustivity is more nuanced than simply truth-conditional semantics versus pragmatic implicature. As Experiment 2 demonstrated, the level of exhaustivity depends on whether exhaustivity is asserted or entailed, and on the other hand, it is affected by the extent to which contextual triggers of exhaustivity may themselves be grammaticalized in a particular focus construction.

A second general repercussion concerns Q-implicatures. If exhaustivity in PVF is due to a pragmatic implicature, the view we have presented strong evidence for, then the striking difference in the exhaustivity rates of PVF in Experiment 1 and Experiment 2, associated with the presence versus absence of an explicit question in the immediate context, supports contextualist approaches to Q-implicatures (e.g., Wilson and Sperber 2004; van Rooij 2002; as opposed to defaultist views), according to which implicatures licensed by a sentence arise as a function of context.

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Linguistic Strategies of Offensive and Defensive Argumentation

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Abstract: The article focuses on the analysis of the linguistic means of defensive and offensive argumentation in the dialogical form of argumentation. The theoretical basis for the analysis is the model developed by Harald Wohlrapp (2008). He defines the fundamental operations of asserting, reasoning and criticizing as a system of specific possibilities of moves and subsequent moves in dialogical argumentations. At the same time, the focus is on identifying various linguistic realizations of offensive strategies and avoidance maneuvers. A relatively prototypical example of a dialogical text type was chosen for the analysis of the argumentation process: an interview between Holger Stanislawski, long-time coach of the traditional German football club St. Pauli, and a reporter. The article pursues two basic goals: 1. to verify the thesis of Wohlrapp that the argumentation processes are realized in simple repetitive argumentation moves; 2. to prove the fact that the argumentation strategies could already be partially identified on the level of linguistic expression.

Keywords: argumentative operations; linguistic signaling of argumentation; particles; reciprocal argumentation

1. The "New" Popularity of Argumentation Theories

Argumentieren Sie niemals!

Wer argumentiert, verliert.

(Dietzinger 2013; "Do not ever argue! The one who argues, loses.")[1]

These words from a promotional flyer invite potential participants to an "incredible communication seminar." "All people who want to shape communication in their professional and private life more constructively, successfully and less stressfully" are welcome to enroll. The aim of the seminar is to teach the participants how to "communicate in a way which is more goal-oriented and output-driven." In other words, people should learn to avoid argumentation in order to be able to argue better.

With the argumentation process in an interview analyzed below, I would like to link indirectly to the catchphrase which introduces this paper: "The one who argues, loses." In the reciprocal text that is analyzed here, a conversation between a reporter and a football coach, many argumentation strategies are employed. Using a more thorough analysis, these can be identified as avoidance maneuvers which partially block further argumentative actions.

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1   This paper was translated from German into English by Karolína Cohen.

The introductory adage on the promotional flyer might very well be an effective exaggeration. Its message is, however, symptomatic of contemporary involvement with the topic of argumentation. Related questions have been vividly discussed in the past few decades, not only in scholarly publications but also in the spheres of economics, politics, the media, etc. Various "practical" seminars and courses offered on this topic only provide evidence of the ever-growing interest, the same as, for example, the flyer quoted above.

Certain questions connected to the process of argumentation are still under consideration today. They are fundamental questions such as: How can we identify and define a process of argumentation?[2] What is the purpose of argumentation?[3] What means constitute a process of argumentation?[4] These questions did not initially occur with the development of modern argumentation theory, but have rather been a part of the fields of rhetoric[5] and logic for a long time. However, modern argumentation theory has evolved beyond the boundaries of these two disciplines and has become a broad interdisciplinary field of study. Van Eemeren et al. (1996) define the process of argumentation in the interdisciplinary sense as "verbal activity," "social activity" and "activity of reason."[6] This definition generally corresponds with the classical Aristotelian understanding of argumentation. Various disciplines applicable in the research of argumentation theory can be determined on the basis of these three functions.[7]

Particularly since the 1970s, the academic research of argumentation structures has become remarkably popular, which is demonstrated on multiple levels. On one hand, there are numerous studies about diverse kinds of modeling, especially in the domain of macrostructures in argumentation. In the 1950s, this tendency was strongly shaped by Stephen Toulmin (1996) and his pragmatic criticism of logic and by Chaïm Perelman and Lucie Olbrechts-Tyteca (1958) with their concept of "new rhetoric." Numerous theoretical models have been created in the field of argumentation theory since that time.[8] They originate from very distinct definitions of the term

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2   Over the last few decades, several models have been created for the categorization of argumentative structures in everyday speech. They work with different methodological instruments. For a detailed overview of ground-breaking approaches in modern argumentation theory, see, e.g., Van Eemeren et al. (1996).
3   Especially with the involvement of the pragmatic approach in argumentation theory, many questions arise concerning the various functions of argumentation processes. The definition of argumentation as "the dialogical verification of the claims to validity raised by research propositions" implies questions about the potential for action of argumentation, distribution of roles, etc. For the definition, see Wohlrapp (2008, 297). All quotations from the works written in German (Atayan, Wohlrapp, Völzing, etc.) were translated by Karolína Cohen.
4   The role of linguistic devices in argumentation has been controversially discussed over the last few decades. Some researchers assign no relevance to linguistic signals: "In short, the argumentative operation of asserting or posing theses is not documented by specific linguistic forms" (Wohlrapp 2008, 200). Other scholars, on the other hand, support the idea that argumentation structures are clearly visible on the linguistic surface: "A minimal argumentation consists of two (if need be complex) communicative acts which are mostly realized on the linguistic level and between which there is an interpretatively presumed support relationship intended by the sender" (Atayan 2006, 41).
5   For the historical development of the research on rhetoric and its contribution to argumentation theory research, see, e.g., Kienpointner (1992, 178–87).
6   Here we deal with the pragma-dialectical definition of argumentation as it was formulated in the so-called Amsterdam approach. For more definitions of the term "argumentation," see Atayan (2006, 20–25).
7   Aside from formal and natural logic and rhetoric studies, they include, e.g., sociology, psychology and philosophy. In the context of modern linguistics, disciplines such as pragmatics, sociolinguistics and descriptive linguistics are applicable.
8   For more information about classification criteria in argumentation theory, see Van Eemerens and Grootendorst (1992, 6ff.).

"argumentation" and approach the matter with the help of different methods. It seems reasonable to distinguish between argumentation theories and empirical-linguistic argumentation studies. Nevertheless, the boundaries are not always clearly defined. According to Jörg Bücker (2004, 2), argumentation theories offer "a wide overview of possible areas in which argumentation can be thematized and made a subject of study; this is possible as a result of their distance from the linguistic details of argumentative interaction and the global character of their research perspective." Studies that are primarily focused on modeling proceed rather deductively, with hypotheses *ex ante*. On the other hand, many studies are based on corpus data. They are rather linguistically and communicatively oriented and thus place lower demands on modeling. Indeed, such analyses of argumentation strategies could rather be described as argumentation studies. Typical of this approach are, for example, works from the field of so-called interactional linguistics, the principles of which were laid down around the year 2000.[9] It is an extremely empirical approach that mainly rests upon inductive research methods.

1.1 The Question of Correlation between Linguistic Signaling and the Degree of Dialogicity

Nevertheless, many recent studies dealing with the topic of argumentation structures attempt to meaningfully combine the linguistic-communicative perspective (semasiological or onomasiological) with the modeling approach. To put it another way, from different angles, the studies try to bring theoretical modeling (mainly based on deductive processes) into accordance with the everyday practice of argumentation.

The work of Vahram Atayan (2006) is an excellent example of this strategy. In his rather linguistically oriented analyses, he draws on the French argumentation theory scholars Oswald Ducrot (e.g., 1980; 1995; 2004) and Jean-Claude Anscombre (e.g., 1983; 1995; 2002), who developed the thesis of so-called "radical argumentativism." This thesis applies the analysis of the argumentative process on the level of specific linguistic realization in the form of the utterance.

Ducrot and Anscombre start from the premise that speaking equals argumentation.[10] This distinguishes their theory not only from logical-cognitive approaches, which draw boundaries between linguistic representations (utterances) and argumentative processes, but also from the majority of moderate linguistic-communicative models. In their theory, every utterance is argumentatively oriented and designed, as it pre-selects the next utterance. In this sense, they analyze various connectors, adverbs, particles and argumentative functions of negation. Atayan continues this extreme linguistic-communicative minimal model of argumentation, though he puts more stress on the appellative function of language. In his operational definition of the argumentative process, he emphasizes the function of linguistic means and the pragmatic component.[11] The definition stresses the role of the speaker in the communication model, and at the same time, it points to the diversity of linguistic realization. Although it can be applied to dialogical argumentation processes, Atayan

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9   The further development of this linguistic field was predominantly shaped by the works of Margret Setling and Elizabeth Couper-Kuhlen (2000; 2001).

10   "La deuxième terme à definir est l'expression *argumentation linguistique* ou, par abréviation, *argumentation*. Dans cet exposé, j'appellerai ainsi les segments des discours constitués par l'enchaînement de deux propositions A et C, reliées implicitement ou explicitement par un connecteur du type *donc, alors, par conséquent*." (Ducrot 2004, 18–19)

11   See the definition in note 4 above.

primarily formulated it as a springboard for the analysis of monological argumentation sequences. Nevertheless, such a definition originates from a (at least implicitly) dialogical structure of argumentation. In most argumentation theories and studies, the implicit dialogical character of the argumentation process is considered to be a fundamental criterion for the identification of argumentations. This is also the case in Atayan's (2006, 93) theory: "Argumentative structures are the result of non-ratification (anticipated by the sender) in a potential negotiation." In other words, the disappointed expectations of the sender, which are often anticipated, are the main origin of every argumentation. It thus follows that even monological texts have certain attributes signaling a dialogical quality. As a consequence, argumentations can often be differentiated according to whether there is a reciprocal or non-reciprocal constellation. Atayan calls attention to the fact that many authors use monological texts for the analysis of argumentation processes, since in these texts, the linguistic signals of argumentation strategies are more distinctively marked. He sees the reason for this in the state of knowledge of the interlocutors in a dialogical argumentation, which partially blocks the linguistic signaling:

> The specific quality of dialogical communication is precisely the higher level of information (in comparison to monological communication) that the partners have, as well as the limited expectations, especially with respect to reactions, e.g., answers. Put informally, usually the enquirer already knows what the replicant intends to achieve with his/her answer, i.e., what the goal of his/her action is going to be, e.g., to sustain a previous action if the foundation of this action is questioned. Thus, a lower need for signaling is anticipated.
>
> (Atayan 2006, 92)

The correlation between the linguistic signaling and the degree of dialogicity is obvious in the context of radical argumentativism.[12] However, dialogical patterns represent prototypical examples of argumentation processes.[13] In contrast to Atayan, I would not claim that in dialogically structured texts the linguistic signaling is weaker. It is merely demonstrated with the help of other means. Moreover, some aspects of argumentation can only be explored with the aid of explicitly dialogical texts. For example, the distinction between various kinds of expectations can be demonstrated more clearly in reciprocal than in non-reciprocal argumentations: the difference between cognitive and normative expectations, determined by Luhmann (1972, pt. 2, chap. 2), would be almost impossible to detect in non-reciprocally structured texts. Assuming that argumentative structures superficially have the function of balancing the dissonance between the participants in an argumentation process (Festinger and Aronson 1960), reciprocal texts are a particularly ideal foundation for research.

The following three levels have to be considered in the examination: 1. the level of expectations on the part of the sender and the recipient. When these aspects are in focus, various characteristics of speech act theory are taken into account. On this level of research, the entire scope of the context has to be analyzed: the knowledge of the sender and the recipient, the intended and actual effect and

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12   The aim of this approach is, in the first place, to prove with the help of operational processes that the argumentative value of an utterance is contained in the linguistic structure. For more information about a highly constructive criticism of this approach, see Iten (1999).

13   The definitions of many researchers of argumentation theory aim in exactly this direction. For example, Wohlrapp (2008, 297) defines argumentation as "dialogical verification of the claims to validity raised by research hypotheses."

the resulting situation; 2. the level of linguistic implementation. The research on linguistic signaling in argumentations, which has been especially practiced in francophone studies, is, in the meantime, an essential part of modeling in the field of argumentation, and 3. the level of structure.

2. Wohlrapp's System of Subsequent Moves in the Argumentation

Particularly when reciprocal texts are being examined, logical-cognitive aspects have to be considered together with pragmatically oriented models. Harald Wohlrapp tries to combine all three levels in his approach, which, in the first place, aims at the analysis of the occurrence of the dialogue.[14] On the basis of the "minimalist principle"[15] in the argumentation theory, he divides the theoretical apparatus into three basic structures of speech acts "that are always present and always relevant [in everyday argumentation] and that are a fundamental means of communication" (Wohlrapp 2008, 188).

They are the essential operations of asserting,[16] reasoning[17] and criticizing.[18] The "frame" is defined as the fourth structure. It determines the contextual section in which the actual argumentation happens. It is, in fact, a spatial metaphor that roughly corresponds with other metaphorical expressions for the denotation of the borders of the field in which the argumentation takes place (e.g., context, argument field, etc.). Wohlrapp proposes helpful clues for the determination of such a broadly understood term by defining four strategies that are effective in the process of argumentation, namely frame analysis, frame hierarchization, frame harmonization and frame synthesization.[19] The fundamental operations of asserting, reasoning and criticizing are seen as possibilities of moves and subsequent moves in specific discussions. With the help of these reflections, Wohlrapp develops a system of six real subsequent moves, which can be systematized in the form of the chart below, which summarizes the move possibilities of the opponents and proponents:[20]

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14   It is a rather broadly defined theory, which, in contrast to the logical-analytical approach, works with criteria that are not truth-conditional on the one hand and, on the other hand, avoid the limitation of the analysis to, e.g., linguistic processes (cf. the principles of radical argumentativism): "An argumentative reasoning requires freedom. It seems that the creation of an argumentation theory is not only a formal or linguistic-structural task, but rather a topic that is connected to big philosophical questions" (Wohlrapp 2008, 212).

15   The principle of "minimalism" is built on the assumption that the suggested argumentative theoretical structures, when applied in specific cases, can be argued for in a manner that is predetermined by the structures themselves. Thus the theoretical apparatus becomes reflexive. The logical consequence of the principle of minimalism is the criticism of a redundant theory.

16   "Asserting is submitting a statement that exceeds orientation limits, i.e., it should offer a new orientation." The statement is connected to a claim to validity, which means that it aspires to be true. A statement which can be classified as an assertion is called a "thesis" (Wohlrapp 2008, 192).

17   "To justify a thesis means to redeem the validity claim that has been raised by it. The thesis, which initially quasi-floats above the ground (of the secured, of the known), is put exactly on this ground" (Wohlrapp 2008, 201).

18   "Criticism is . . . a mobilization of fundamental differences in insight and views. It does not consist of saying no at all costs, it can even be cooperative, which means it can urge the proponent to improve or to accentuate the thesis" (Wohlrapp 2008, 214).

19   For more about frame structures, see Wohlrapp (2008, 237–96).

20   The deciphering of the moves is very easy: T stands for "thesis," ?T for doubts about a thesis, G stands for a justification step, G → T for a reasonable transition possibility, A denotes an argument distinct from the thesis or a deviant thesis, A → ¬ T stands for the transition from A to the negation of T, B represents a thesis different from T and A which activates the other two transition possibilities. Wohlrapp (2008, 300) points out that the proponent could by all means continue with ?G in the second move, which would not be considered a new connection move but a "new start" comparable with the first doubt of the opponent.

P	O	P
T	?T	G (G → T)
	A (A → ¬ T)	?A
		B (B → ¬ A)
		G (A → T)

Table 1. *The system of move possibilities developed by Wohlrapp (2008).*

On the basis of this simple system of move possibilities, the basic operations defined by Wohlrapp can easily be comprehended. When Wohlrapp was creating this system, he assumed that someone who argues has only two possible connecting moves at every stage of the dialogue: he or she can adopt the argument[21] of his/her partner in the dialogue or criticize it. The criticism can take two forms: the argument can either be doubted (?A) or refuted and another argument substituted for it. According to Wohlrapp, there are two possible reactions to doubt about A as connecting moves: the argument can be withdrawn or it is further defended in continuing (co-ordinated or subordinated) explanations. If the argument (or a thesis) is denied, Wohlrapp suggests four possible connecting moves: 1. to withdraw the argument and accept the argument offered by the opposite side; 2. to doubt the new argument; 3. to refute the new argument and substitute another counterargument for it; 4. to integrate the new argument through reinterpretation.

Nevertheless, it is necessary to consider various alternative strategies that can hardly be captured by this scheme.[22] The problem is that such avoidance maneuvers[23] are intensively signaled on the linguistic surface, which plays a rather minor role in Wohlrapp's theory.[24] According to Wohlrapp, the move possibilities are thereby limited as well.[25]

Among other things, it will become apparent to what extent even the fundamental function of the argumentation process is modified in specific cases. According to Völzing (1979, 12), the function of argumentation should consist of the following: "It serves in a conflict to work out opposite opinions or views, to offer possible solutions through compromise or agreement, or to hold the potential to aggravate the conflict." However, Völzing claims that in numerous dialogues, especially in the media, this function is only seemingly fulfilled. This is connected to the expectations that are placed on such dialogues. He points out that some types of texts, such as an interview

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21   The term "argument" describes various concepts in the studies about argumentation theory. In this paper, it consistently denotes the part of an argumentation process that allows the transition to a conclusion.
22   Wohlrapp mainly concentrates on cooperative argumentation, whereas avoidance maneuvers are frequently used in strategic argumentation. For more information about the difference between cooperative and strategic argumentation, see, e.g., Völzing (1979, 13–14).
23   An avoidance maneuver is a frequent strategy in defensive argumentation. There are many ways to avoid a further argument, such as disqualifying the opponent, mystifying the Quaestio, argumentum ab auctoritate, digression into general questions, etc. (Völzing 1979, 182–90).
24   This is explicitly emphasized: "It is not my concern at all to formulate a detailed theory that would possibly even reach the linguistic surface (perhaps which words or formulations indicate argumentation, e.g., *because*, *therefore*, *thus*, etc.), but rather to cut some swaths, so to speak, in which it is possible to see the principles" (Wohlrapp 2008, 186).
25   Indeed, avoidance maneuvers create an effective "strategy" of argumentation, as will be demonstrated below.

or discussion, mainly "help to elicit controversial information from prominent people to make it available to the public" (Völzing 1979, 12). The above-stated purpose of most argumentation processes is thus not fulfilled, as per Völzing. In this case, the quest for possible solutions is not crucial for the development of the reciprocal structure. Here the main intention is to elicit as much information as possible from the interlocutor. In other words, in dialogues in the media, cooperative attempts to find a solution are only superficial. In fact, cooperative argumentation[26] is only pretended in most interviews, no matter whether they are political, cultural or sport debates. This strategy becomes noticeable even on the linguistic level.[27] Whether this is really true for all interviews and debates that take place in the media shall remain unanswered here.[28]

A relatively archetypal example of the "interview" text type was chosen for the following analysis. It has all the characteristic attributes: the conversation proceeds between two partners – the one with the institutional authority (the reporter) asks questions, and the other participant answers. The subject area is exactly defined (football). The frame of the context goes as follows: Holger Stanislawski, long-time coach of the traditional German football club St. Pauli, is switching to a new club – Hoffenheim. It is a successful new team, which, however, does not have any tradition and which can only survive thanks to the financial support of a patron. Thus, the coach's move is not a matter of routine, it is more – metaphorically speaking – a frontline change accompanied by considerable emotion on the part of the fans, the teams and the coach himself. Therefore, it is my opinion that this interview does not at all fit the action structure in media communication assumed by Völzing, and the primary intention is really the exchange of opinions. The analysis that follows tries to combine the pattern suggested by Wohlrapp with a satisfactory analysis of linguistic signaling represented by Atayan. At the same time, the focus is on identifying various possible realizations of avoidance maneuvers.

3. Analysis of the Linguistic Means of Defensive and Offensive Argumentation in an Interview

Frage 1 [des Reporters – **R]**: *Herr Stanislawski, Sie wechselten vor der Saison vom FC St. Pauli zur TSG aus Hoffenheim. Wäre es auch zu diesem Wechsel gekommen, wenn der Klassenerhalt mit den Hamburgern ein Selbstläufer wäre?*[29]

Even in the first question, it is obvious that the reporter is setting up an offensive argumentation structure by formulating a challenging thesis:[30] it is insinuated that the conversational partner's

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26   In cooperative argumentation the opposite sides are both interested in developing a consensus by exchanging arguments and contra-arguments.
27   See the following analysis.
28   It surely depends on more aspects, e.g., the presence of a neutral moderator, the number of participants in the dialogue, underlying conditions, etc. Wohlrapp's (2008, 396–436) analysis of the debate between Hüppe and Merkel about the embryo's right to live represents an example of a conversation in the media in which the exchange of opinions and a search for possibilities dominate.
29   Question number 1 [the reporter – R]: "Mr Stanislawski, before the season, you transferred from the Hamburger FC St. Pauli to TSG Hoffenheim. Would this have happened even if the Hamburgers' staying in the league had been a foregone conclusion?" Since this article concentrates on the linguistic strategies of argumentation in German, I decided to quote the interview in the original language with an English translation in the footnotes.
30   On the linguistic level, however, the argumentative strength of the utterance is weakened by the conditional clause and the conjunctive form in the main clause.

actions are primarily a calculation. Obviously, the interviewer basically uses a provocative style of questioning, since with the answer *no*, the respondent would automatically disqualify himself.

This is also indicated on the linguistic level by lexical means, as the reporter uses the pejorative slang expression *Selbstläufer* ("sure-fire success"), which additionally blocks a negative answer.[31] The particle *auch* ("even," "too," "as well") plays a specific role in this context: this particle emphasizes the reporter's doubts as to whether Stanislawski would have made the move if St. Pauli had been more successful. In this sense, it has an intensifying function. Thus, the first question is a conscious provocation to defensive language behavior, which the respondent simply has to accept.

> **Holger Stanislawski [S]**: *Meine Entscheidung von Pauli nach Hoffenheim zu wechseln war vollkommen unabhängig vom sportlichen Erfolg oder Misserfolg mit Pauli. Es ging mir viel mehr darum, mich nach über zehn Jahren bei einem Club beruflich zu verändern, etwas Neues kennenzulernen.*[32]

S goes – as expected – into defensive mode by reformulating R's utterance and negating the relation between the performance of St. Pauli and his move.[33] The defensive reaction is accentuated by the particle *vollkommen* ("entirely"), which in this context, however, rather highlights the speaker's insecurity. Wilhelm Scheuerle (1971, 280) pointed out that the usage of modal words such as *zweifellos* ("undoubtedly"), *selbstverständlich* ("naturally") and *vollkommen* ("entirely") practically always indicates an attempt to conceal insecurity, ignorance or the like.[34] Especially in the case being analyzed here, the particle seems to perform exactly this function. Another attempt to distance himself from the "calculating" motivation which the reporter implicitly imputes to Stanislawski is reflected in the explicit stating of both conditions – "success and failure." This behavior likewise signals an increased defensive reaction on the linguistic level, which in turn suggests insecurity.

As an alternative reason, S mentions his long-lasting cooperation with St. Pauli.[35] He implies that after such a long time, his work became routinized. The resulting secondary reason is the desire to try something new. The opponent (S) clearly follows the pattern A (A→¬T).[36] There the

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31   A reaction such as: "No, if staying in the league had been a foregone conclusion, it would not have come to this move." This would surely be very surprising, because with this answer, the coach would expose himself as a calculating egoist.

32   Holger Stanislawski [S]: "My decision to move from Pauli to Hoffenheim was entirely independent of any sporting success or failure with Pauli. For me it was more about professional change and learning something new after more than ten years with the same club."

33   A reaction that was anticipated by the partner in the dialogue.

34   Several linguists researching argumentation theory obviously agree with a modified version of this thesis. This is proven, e.g., by Völzing's (1979, 224) reaction: "It is probably exaggerated; Scheuerle did most likely not mean it literally, but in certain situations it is surely not untrue. It can also be a strategy to 'persuade' the other speaker that the arguments are true and correct by behaving confidently and by presenting irrevocably 'true' contents. Especially in the mass media, where the communication partner lacks direct opportunities to exert influence such as direct inquiry or observation of the person's complete appearance, such a manner of presenting contents and attitudes is very important."

35   The formulation "after more than ten years" can be paraphrased as "too long," which leads to a certain pre-selection of a conclusion.

36   It is only partially precise, since it is a more complex, subordinated argumentation in which the second and the third argument depend on the first one.

particle phrase *viel mehr* ("much more") performs the same function as the particle *vollkommen* ("entirely"), i.e., to cover up insecurity. The actual linguistic realization of the two (subordinate) arguments, which appear very abstract – "to change professionally" and "to learn something new" – signals a very strong defensive language behavior that already borders on an avoidance maneuver.

> **R 2**: *Pauli ist ein Verein, dem man eine sehr ausgeprägte Fangemeinschaft und eine enorme Tradition bescheinigt. Der TGS wird oftmals nachgesagt, dass sie eine „gekaufte" Tradition besitzt und ein Eventpublikum zu Gast hat. Wie stehen Sie dazu und wie sieht ein Vergleich beider Fankulturen aus?*[37]

In the second question, a new offensive thesis is introduced, which implicitly represents a thematic continuation of the first one.[38] By emphasizing the contrast between the "real" fanbase of St. Pauli and the "false" fanbase of Hoffenheim, the reporter creates a dichotomy that is implicitly projected onto the judgement of the decision made by the respondent. Actually, a thesis formulated in this manner contains the argumentation move B (B →¬A).[39] The contrast between the communities of fans is accentuated by expressive attributes. On one hand, there is a "distinct" fan community and an "enormous" tradition, and on the other hand, there is a "purchased" tradition and an "event audience." This implies the dichotomy of stability and loyalty on one side and instability and corruption on the other.[40] At the same time, the reporter dissociates himself from the dichotomy by means of the formulation "TSG is rumored." He thereby legitimizes the statement about one part of the dichotomy through the opinion of an abstract majority which is not further specified. After this observation, the question itself is stated, in which the reporter challenges Stanislawski to comment upon it.[41]

> **S 2**: *Man kann die beiden Clubs nur schwer miteinander vergleichen. In Hoffenheim stehen wir am Anfang, die Fankultur befindet sich im Aufbau und muss sich dementsprechend noch entwickeln. Aber wir sind auf einem guten Weg.*[42]

The respondent reacts with an anticipated avoidance maneuver in which he questions the very possibility of comparison. This possibility, however, is not entirely negated: with the connection of the particle *nur* ("only") with the adverbial *schwer* ("hardly"), the respondent expresses

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37   R 2: "Pauli is a club that is known to have a very distinct fan community and an enormous tradition. On the other hand, TGS is rumored to have a 'purchased' tradition and an event audience (hired). What is your opinion and how would you compare the fan cultures?"

38   Therefore, the first part is not formulated as a question but rather as a statement.

39   The reformulation B = Contrast between the good tradition of FC St. Pauli and the lack of a tradition at Hoffenheim (B →¬A) = If this contrast is a fact, then the reason for the move could not only have been the lengthy period spent with FC St. Pauli (and the subordinated reasons resulting from this).

40   The negative connotation of the English expression "event" in the compound phrase "event audience" is interesting. It only functions this way in the dichotomy that is introduced.

41   This second question contains – as in the case of the first question – several signals of an open linguistic attack, the result of which is anticipated by the enquirer, since an affirmative reaction to the negative labeling of the Hoffenheim fanbase surely cannot be expected from the respondent.

42   S: "You can only hardly compare the two clubs. In Hoffenheim, we are standing at the beginning; the fan culture is being created and has yet to develop accordingly. But we are headed in the right direction."

the subjective distance from the comparison being demanded. At the same time, the general subject *man* ("one") suggests the general validity of the statement. A causal coherence between the seniority of the respective club and the fan culture is established to disguise the avoidance maneuver. The respondent ignores the implied structure B (B →¬A) and forms a new thesis T. On the other hand, with the metaphorical concept of a newly pursued path and a recently started building, an indirect parallel with St. Pauli is drawn. The temporal dimension and the plan being considered play a major role in both concepts: both the beginning of a journey and the building under construction at the same time evoke a goal which is supposed to be achieved by following a well-planned procedure. These metaphor complexes merely imply a gradual, temporally contingent difference between the fan communities and negate the essential difference suggested by the reporter. This concept is supported on the linguistic level by the usage of the adverb *noch* ("yet").

A striking linguistically expressed change in the speaker's position is signaled by a switch to the first person plural. This is supposed to emphasize the evident affiliation of the respondent with the club that is under attack. It can already be interpreted as a covert but still clear counter-attacking strategy. Whether the speaker really feels the affinity is not really an issue. Especially in debates and interviews in the media, such a maneuver is rather strategic.[43] In our context, the respondent tries to imply sympathy between himself and the others for whom he speaks (the Hoffenheim team). Thereby, he likewise distances himself, in an inconspicuous way, from his former team (St. Pauli).

> **R 3:** *Dietmar Hopp glich erst im vergangenen Geschäftsjahr einen enormen Schuldsaldo des Vereins aus. Viele fragen sich, ob die TSG überhaupt selbstständig überlebensfähig wäre oder noch stark vom Mäzen abhängig ist. Wie sehen Sie diese Thematik?*[44]

In the next question, which is introduced with a conclusion, the reporter also establishes the contrast between the Hoffenheim club being dependent upon the money of its patron (Dietmar Hopp) and the other Bundesliga team, which is able to survive on its own. The justification of the subsequent question about the ability of the team to survive financially is underpinned, on the one hand, again by the reference to the interest of an abstract crowd ("many people ask") and, on the other hand, by reference to the amount of debt by the lexical choice of the attribute – "enormous." In fact, this conclusion only continues the dichotomy between the two clubs introduced in the second question. Formally expressed, the reason B (the contrast between FC St. Pauli and Hoffenheim) formulated in the second question is re-established, whereby the rephrased move B (B →¬A) is subliminally activated.

In the subsequent question, the reporter offers two possibilities: Hoffenheim can, at the moment, survive financially on its own / Hoffenheim cannot survive. Even here the answer is

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43   "The personal pronoun *wir* ("we") can thus indicate a state of identification, sympathy between P (producer) and R (recipient) or between P, others for whom he speaks, and R, or the group represented by R, when P argues against or in agreement with R. It can also be utilized to suggest a state of sympathy where one does not exist" (Völzing 1979, 230).
44   R 3: "Only in the past financial year did Dietmar Hopp settle the enormous debt balance of the club. Many people ask whether TSG is even capable of survival by itself or whether it is still strongly dependent upon a patron. What is your opinion on this topic?"

anticipated: Obviously, the respondent is not expected to choose one of these two possibilities directly. The contrastive structure of the question is a sign of the strongly marked offensive strategy. At the same time, the attitude of the reporter is signaled by the usage of specific linguistic means: the particle überhaupt ("even") is a clear signal of the doubt that the reporter, "hiding" behind an abstract crowd, has about the possibility of the Hoffenheim club being financially independent. The application of the particle *noch* ("still") in the second alternative opens up the opportunity for the respondent again to adopt the temporal dimension, which was launched in the answer to the second question, i.e., the concept of the newly pursued path and the recently begun construction of a building (Lakoff and Johnson 2003).

> **S 3:** *Wir arbeiten hart daran, den Club finanziell auf eigene Füße zu stellen. Auch hier brauchen wir sicherlich noch etwas Zeit, ich wüsste aber nicht, warum wir das nicht schaffen sollen. Unser Gehaltsniveau haben wir fast soweit gesenkt wie nötig, hinzu kommt die positive Transferbilanz im vergangenen Jahr.*[45]

The defensive behavior shows the same structure as in the answer to the second question. The thesis T is reformulated: the essential difference is negated, and the gradual, temporally conditioned difference is acknowledged. In this case, the respondent uses the inclusive (incorporating) form of the first person plural again. This grammatical form is used consistently further on in the interview.

In the first step of the argumentation, the respondent gladly accepts the offer of the temporal dimension that the reporter extended by using the already mentioned particle *noch* ("still"). First, the respondent emphasizes the current process, which should lead to the longed-for goal. Linguistically, it is expressed with the help of a metaphor that corresponds conceptually with the metaphor of the path and the building. Something which cannot yet stand on its own feet has to reach this state. Initially, the abstract notion of "hard work" is named as the means to reach the goal. Subsequently, the youth of the club is underlined, similarly to the second question. The parallel is emphasized by the phrase *auch hier* ("even here"). The second possibility offered by the reporter is thus implicitly affirmed (the club is dependent upon the patron), but at the same time, the transition to the first possibility (financial independence) is implicated. The particle *sicherlich* ("surely") again indicates the argumentative uncertainty of the respondent rather more than his strong conviction. This assumption is also supported by the conjunctive form used in the following utterance.[46]

To provide a basis for the relatively abstract defensive behavior, two examples as arguments for the conclusion (achieving independence in the foreseeable future) are listed. At this point, "hard work" is specified – a reduction in the level of salaries and the positive transfer balance. Nevertheless, these two examples argumentatively support the assumption of financial

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45   S: "We are working hard to pull the club together financially. Even here we surely need more time, but I do not see a reason why we should not be able to do it. We have lowered the salary level almost to the necessary degree, and furthermore, there is the positive transfer balance from the past year."

46   The statement Ich wüßte aber nicht, warum wir das nicht schaffen sollen (I do not see a reason why we should not be able to do it) should – in Toulmin's (1996, 88–98) terminology – negate the postulate of an exceptional condition (→ There is no condition that is relevant for the failure of the process.). The conjunctive and the use of a modal verb, however, relativize the content of the message on the linguistic level.

dependence. At least the first example can be understood as the consequence of a bad financial situation rather than as grounds for its improvement.[47]

> **R 4:** *Im letzten Jahr wurde ein erneuter Versuch, die "50+1-Regel" abzuschaffen abgeblockt. Sehen Sie dies als Niederlage im internationalen Vergleich oder zeigt Deutschland gerade durch seine Jugendarbeit, dass es auch ohne Teilhaber-Millionen aus den Emiraten geht?*[48]

The next question represents another attack, which still goes back to the previously established dichotomy between the two clubs. The question is introduced with a contextually bound statement: the attempt to abolish the 50+1 rule was blocked.[49]

The question following this statement is formulated very indirectly by not mentioning the situation either at FC St. Pauli or at Hoffenheim. The reporter again offers two alternatives as consequences of the 50+1 rule not being accepted. One of these is clearly negatively marked. 1. The first alternative is defeat in the international context. It implies the following argumentation transition: Germany blocked the cancellation of the 50+1 rule (argument), so the other states will be at an advantage (conclusion). 2. The second possibility presents, from the argumentative perspective, a reason for further insistence on the 50+1 rule. Good work with young players is mentioned as an argument supporting this idea.

The line of argumentation could be reformulated as follows: Germany can choose its own good players from junior teams (argument 1); thus, there is no need for money "from outside" (conclusion 1), and the 50+1 rule will (regardless) have no negative influence on the position of German football in the international comparison (conclusion 2). On the linguistic level, neither alternative is presented in a neutral way; the answer is clearly guided. The negative marking of the first alternative is expressed only in the second alternative through the particle *gerade* ("especially"). Otherwise, the particle does not have any meaningful function in the second sentence. Normally, the usage of this particle implies that the work with young players has already been thematized and that the topic is only being incorporated again.

However, this is not the case here. Only the connection with the first sentence brings out the function of this particle; it is used as a signal of differentiation to the first alternative. In the context mentioned here, the particle is used to emphasize the difference, perhaps in the sense of the phrase *im Gegenteil* ("on the contrary"). The negative marking can also be identified on the lexical level: the phrase *Teilhaber-Millionen aus den Emiraten* ("shareholder millions from the Emirates") was obviously chosen with the intention of suggesting as much as possible a distant cultural frame, which, because of the Islamic context, is additionally perceived as threatening. The particle *auch* ("even") functions here as another emotional marker: in this context, it clearly signals the inclination of the speaker (R) to

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47 The particle *fast* ("almost") underlines the temporal dimension; it suggests a further lowering of salaries.

48 R: "In the past year, another attempt to abolish the '50+1 rule' was blocked. Do you see that as a defeat in the international context, or does Germany show, especially through work with young players, that it is possible even without shareholder millions from the Emirates?"

49 The 50+1 rule is a paragraph in the regulations of the German football league which forbids the take-over of a majority vote by investors in football teams. The majority of the capital, on the other hand, may belong to the investors. Through this normative regulation, professional teams of clubs coming under the complete control of big businessmen or other providers of capital, something which is known from England, for example, should be prevented. The goal is to preserve the priority of the sporting interest of the teams in comparison to the economic interest of the investors.

the second alternative. The reporter also puts out obvious linguistic signals that, on the one hand, mark his attitude and, on the other hand, anticipate the answer of the partner in the dialogue. With respect to Wohlrapp's model, T1 and T2 are established, with T2 being marked as the "right" thesis.

> **S 4**. *Über den Sinn der 50+1 Regel sollen sich andere Gedanken machen. Die Jugendarbeit in Deutschland aber ist hervorragend, was allein durch den Jugendstil in der Nationalmannschaft bewiesen wird. Wir verfolgen in Hoffenheim ein ganz ähnliches Konzept und treten in der Bundesliga mit einem der jüngsten Teams überhaupt an.*[50]

The respondent reacts with an explicitly admitted avoidance maneuver: he disqualifies himself by referring to his lack of competence and hands over the responsibility. In this way, he blocks the actual questions that were put (and another potential argumentation move). Subsequently, the explicit avoidance maneuver changes into an implicit one. The respondent ignores the transition from the argument "good work with young players" to the conclusion that "there is no need for money from outside." He merely reacts to the argument – the good work with young players – which he confirms. The particle *aber* ("however") points to the fact that the respondent is fully aware of the maneuver. The argument "good work with young players" is used for the transition to a new conclusion, in particular "the youthful style of the national team." At the same time, the respondent does not respond at all to the conclusion that follows from the reporter's first question. The reporter assumes a relation between the protracted process (work with young players) and the financial independence of the club. Stanislawski reacts affirmatively. Nevertheless, he mentions a situation (youthful style) from which no conclusion can be inferred and in which independence from outside assistance could be determined.

Instead, a new inference rule is established: the work with young players in Germany is good → there are many young players in the national team. In this way, a false connecting reaction is deliberately created. There is in fact no backing[51] for the suggestion that the high number of young players in the national team has to be the result of good work with young players. The players could have been acquired in different ways, perhaps through the bestowal of state citizenship, which is often the case. This conscious misconception allows the respondent to draw a parallel between the national team and Hoffenheim by calling attention to the common feature (the high number of young players). The attention of the recipient is thus steered solely to the feature "youth," to which positive connotations are attributed by the respondent, from the transition from the argument to the conclusion (if good work with young players → then no participation from outside). That this is the respondent's tactical step is relatively clearly signaled on the linguistic level.

On the lexical level, the very abstract lexeme *Jugendstil* ("youthful style") is used to avoid a specific statement. The specific statement, which could also count as an acceptable conclusion, would be: "The work with young players in Germany is excellent, which is proven by the fact that many young players are accepted to the national team from domestic junior teams." However, Stanislawski cannot infer this conclusion, because it simply does not correspond with the

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50   S: "Let other people worry about the sense of the 50+1 rule. The work with young players in Germany, however, is excellent, which is proven by the youthful style of the national team itself. In Hoffenheim, we pursue a very similar concept and put out one of the youngest teams in the national league."
51   The term "backing" is used here in the sense of Toulmin's argumentative model.

reality. That is why he deliberately chooses the abstract lexeme. The particle *aber* ("however") in the sentence "The work with young players in Germany, however, is excellent." is mainly supposed to soften the abrupt transition from the explicit avoidance maneuver to further argumentation. Indeed, it is used partially adversatively in the following sense: "I distance myself from the conclusion, but I agree with the argument." The particle *allein* ("only") fulfils a similar function: it should legitimize the avoidance maneuver. It could be paraphrased as: "One of the most obvious pieces of evidence is the youthful style of the national team." After the attention of the recipient is steered away from the false conclusion with the help of the above-mentioned linguistic means, eventually the parallel between the "concept" of the national team and Hoffenheim can be established. The respondent's pursuit of this parallel definitely has its justification, which can be found in the extra-linguistic context: at the time when this interview was recorded, the national team was celebrating important accomplishments. This parallel should help to outline the future success of the Hoffenheim team. At the same time, the assumption is suggested to the recipient that a preferably young team is a guarantee of success. This is indicated linguistically with the particle *überhaupt* ("altogether"). The respondent thus ensured, through a series of avoidance maneuvers on the argumentative and linguistic levels, that the question that was originally put receded into the background.

Argumentation moves R:
Alternative 2   Alternative 1

| A: good work with the youth | | A: banning the 50+1-rule |

▼   ▼

| CI impl+A for C2: good players from domestic junior teams | | C: other states will have an advantage |

▼

| C2: no need for "outside money" |

Implicit argumentative transition from alternative 2 in the replay from S:

| A: banning the 50+1-rule |

▼

| C: other states will not have an advantage |
| A: good work with the youth |

▼

| C1 (avoidance manoeuvre): youthful style of the national team |

| C2 (drawing of the parallel): youthful style of the Hoffenheim team |

A – argument
C – conclusion

Figure 1. *Argumentation moves in the sequences R4 and S4.*

With this avoidance maneuver on the level of argumentation moves, Stanislawski ensures that the reporter retreats from the offensive: in the next question, the reporter renounces his intensely offensive way of argumentation.

The transition to a cooperative argumentation style is also explicitly expressed: "Let's switch to sports and TSG."[52] Hereby, he abandons the offensively structured dichotomy and further only asks about facts, not opinions. In other words, normative rather than cognitive expectations predominate in the continuing process.

4. Conclusions

The analysis performed above certainly leads to several interesting findings. These conclusions should be understood as a tentative sketch of tendencies in reciprocal medial argumentation, since the sample of data is too small to give evidence of the relevant spectrum of overt linguistic realizations of defensive/offensive strategies from which to reach generalizations.

1. It was shown that the questions were steering the argumentative reactions of the partner in the dialogue, which seems often to be the case, especially in texts appearing in the media.
2. The absurd-sounding quote from the flyer partially proves itself: by deliberately inferring false conclusions and undertaking implicit or explicit avoidance maneuvers, the respondent prevented further offensive argumentation which would have been unpleasant for him.
3. The thesis of Wohlrapp that the processes of argumentation are realized in simple repetitive argumentation moves was proven to be true. In the multiple argumentation moves of the reporter and of Stanislawski, we can determine that they are only reformulations of previously presented arguments and conclusions.
4. The argumentation strategies could partially be identified on the level of linguistic expression on the basis of an analysis of certain relevant linguistic means. It turns out that in individual sequences of reciprocally structured texts, the linguistic signaling of the argumentation process is distinctly marked.

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52   In this case, merely the part of the interview that offers the most interesting material with respect to offensive and defensive argumentation behavior was analyzed.

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The Role of Information Structure in Czech Possessive Constructions

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Abstract: The paper deals with the functional properties of possessive constructions. It focuses on internal (adnominal) possession and external (affectedness) possession in Czech. The elements of both construction types (the possessor, the possessum, and the predicate) are first thoroughly investigated from a semantic and pragmatic perspective. In the main part of the article, it is claimed that the emergence of specialized possessive constructions can also be explained as a functional, speaker-oriented preference, based on different needs in terms of information structure. It concerns the hypothesis that the possessive construction types are correlated with different word order arrangements. A case study examining the relative frequency of word order patterns for each construction type corroborates this assumption. Specifically, for dative external possession, the emergence of the construction can be explained as a discourse preference of speakers to employ the possessor in the topic and the possessum in the focus.

Keywords: external possession; information structure; language use; animacy hierarchy; frequency

1. Introduction

Possession can be expressed by certain grammatical means in every language of the world. Three general concepts (i.e., construction types) conveying possession and ownership are distinguished cross-linguistically: internal (adnominal) possession (IP), predicative possession (PredP), and external (affectedness) possession (EP). Both IP (1a) and PredP (1b) are supposed to be encoded in all the languages of the world (Aikhenvald 2013 and Dixon 2010; cf. also Stassen 2009). On the other hand, EP (2) represents, for only some languages, a striking combination of the two basic types, in terms of both semantic and formal properties (see Payne and Barshi 1999).

(1)   (a)   *My dog.*
      (b)   *I have a dog.*

(2)   CZECH
      Zlomil   mi   nohu.
      broke:3SG.M   me:DAT   leg(F):ACC
      "He broke my leg," lit. "He broke a leg to me."[1]

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1   The system of notation for the glosses and abbreviations used adheres to *The Leipzig Glossing Rules* (Comrie, Haspelmath, and Bickel 2008).

Not surprisingly, for each of the three general types we can observe formal and functional variation across languages, i.e., what possessive meanings are actually expressed and how they are specifically encoded in grammar. However, as has been shown in a number of cross-linguistic studies, the employment of language-specific constructions is not haphazard. As a starting point, one typological difference between IP and PredP is notable: whereas IP is conveyed in a specific language inherently as a presupposed relationship (frequently by a construction that also encodes attributive and more general associative meanings), PredP is commonly expressed by means of a dedicated possessive construction, or a special verbal form that explicitly establishes possession (see Seiler 1983). If we focus our attention on a specific language, intra-categorical distinctions within each construction type can often be observed. They are generally related to the functional properties of elements of the construction (the possessor, PR; the possessum, PM; and – if relevant – the predicate, Pred), and to the nature of the possessive relationship itself. Many cross-linguistic similarities have been revealed in this respect.

The focus language of the present study is Czech; to what extent and how cross-linguistic findings on possession apply to this specific language will be shown. In addition, I claim here that the actual usage of the IP and the EP construction type in Czech is not only determined by specific semantic features of constructional elements (as described, e.g., in Haspelmath 1999), but it is also related to distinct discourse properties, present in actual usage, mainly by means of word order (cf. Fried 2009, 221 and 236, who treats the role of information structure in a slightly different way). From a functional perspective, I will examine the properties of EP and IP constructions in terms of the information status of the PR and the PM. A case study, presented in the second part of the paper, works with one specific group of data (predicate *poškodit*, "damage" or "harm," combined with both IP and EP constructions). I put forward the hypothesis that possessive constructions are correlated with different word order (i.e., information structure) arrangements. Subsequently, this could lead to diachronic explanations: the emergence of specialized possessive constructions in Czech can be explained as a functional, speaker-oriented preference based on different needs in terms of information structure. Therefore, the aim of this study is twofold: i) it should contribute to the detailed description of possession in Czech from a functional perspective and ii) it should extend our knowledge of how possessive constructions function in discourse.

The structure of the article is as follows: syntactic and semantic properties of possessive constructions in Czech, with respect to the subsequent survey, are presented in Section 2. The third section introduces the survey, a case study examining the role of information structure in Czech IP and EP. Section 4 briefly concludes the paper.

2. Properties of Possessive Constructions in Czech

As indicated above, possession in Czech may be conveyed by all three types of constructions. Internal and external possessive constructions will be described in more detail in § 2.1 and § 2.2; predicative possession will be shown only briefly in § 2.3, since for the case study, the most relevant point is the relationship between EP and IP. The relation of PredP and IP is parallel in some respects (see § 2.3), but it concerns a different set of language data.

2.1 Internal Possession

In general, Czech adnominal constructions can employ a wide range of possessive (and other comparable) relationships, similarly to English: i) central possessive meanings (ownership,

part-whole relations, kinship relations, e.g., [3a]–[3c]), ii) broader associational concepts (attribution, orientation and location, and association, e.g., [4a]–[4c]), iii) nominalizations, e.g., (5a)–(5b).[2]

(3) (a) *Petrovo auto* "Peter's car"
     (b) *moje ruka* "my hand"
     (c) *Evin manžel* "Eve's husband"

(4) (a) *prestiž pana prezidenta* "the prestige of Mr. President"
     (b) *předek auta* "the front of the car"
     (c) *jeho učitel* "his teacher"

(5) (a) *Pavlovo bránění* "Paul's defending"
     (b) *Pavlova obrana* "Paul's defense
     (c) *Obrana Manchesteru hrála dobře.* "The defense of Manchester played well."

In line with Dixon (2010, 265), I deal with both i) and ii) as varieties of possession, in contrast to nominalizations, which I take as a distinct function of the same grammatical marker (unless they are reanalyzed with possessive meanings, as in [5c]). All the constructions in (3), (4), and (5c) assume a possessive relationship between the two constituents; in this sense they can be substituted by a *mít* ("have") predicative construction; a substitutional schema for (3a) is illustrated in (6).[3] Although the nature of possession in ii) is not without problems, I decided to take the whole group into consideration as possessive, since a substantial amount of information would get lost if such borderline instances were omitted.

(6) *Petrovo auto* ← *Petr má auto.* "Peter's car" ← "Peter has a car."

The formal structure of IP in Czech varies. Two basic IP constructions can be distinguished: i) a prenominal construction, subsuming two subcategories: with adjectival possessive pronouns, as in (7a), or possessive adjectives, as in (7b)–(7c), in the role of PRs (henceforth Pro/Adj IP); ii) a post-nominal construction formed by a genitive noun phrase (7d)–(7f), which is the most general adnominal construction type (henceforth Genitive IP).

In addition, there is a third type of construction formed by a prepositional PR which can function in a fashion similar to the IP construction, see (7g). However, the prepositional phrase can furthermore be detached from the PM in some cases, and functions in a similar way to the dative PR in the EP construction, cf. (15). This will be discussed in § 2.2.

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2   Examples (3)–(5) briefly illustrate the semantic similarity of Czech and English internal possessive relations. Detailed examples with glosses follow.
3   A similar criterion for delimitation of possession was previously used in Zimek (1960). Possession in Czech was thoroughly surveyed in Piťha (1992; resumé in English on pages 139–45), yet his approach differs considerably from the one adopted in this study in its predominant focus on the clear-cut distinction between the "linguistic meaning" and the "cognitive content."

(7)   (a)   *moje*   *ruka*
           my:NOM.SG.F   hand(F):NOM
           "my hand"

       (b)   *Petr-ov-a*   *ruka*
           Peter(M)-POSS-NOM.SG.F   hand(F):NOM
           "Peter's hand"

       (c)   *prezident-ov-a*   *ruka*
           prezident(M)-POSS-NOM.SG.F   hand(F):NOM
           "the President's hand"

       (d)   *neviditelná*   *ruka*   *trhu*
           invisible:NOM.SG.F   hand(F):NOM   market(M):GEN
           "the invisible hand of the market"

       (e)   *ruka*   *Petra*   *Velikého*
           hand(F):NOM   Peter(M):GEN   Great:GEN.SG.M
           "the hand of Peter the Great"

       (f)   *den*   *matek*
           day(M):NOM   mothers(F):GEN
           "Mothers' Day," lit. "the day of mothers"

       (g)   *sklo*   *u*   *auta*
           windscreen(N):NOM   at   car(N):GEN
           "the windscreen of the car"

In terms of the systemic distribution of prenominal/postnominal IP constructions in Czech, there are obvious differences: i) Pro IP is the only choice if the PR is pronominal, as in (7a) (both singular and plural); ii) Adj IP can only be used with some proper names (7b) and human (and some animate) nouns (7c);[4] (iii) Genitive IP applies to the remainder set of common nouns (7d), for which it is the only way of possessive expression.

     Genitive IP must be also used if formal restrictions come into play: i.e., in all cases where the PR forms a plural (7f), or in a phrase consisting of more than one constituent, cf. (7e) and (8e), or where the PR is neuter. On the contrary, the genitive construction is not allowed to be combined with personal pronouns, cf. (7a) and (8a), and is stylistically disfavored (yet possible) with singular sole-constituent proper nouns (8b) and human animate nouns (8c). However, if the PR in (8c) is considered as referring to a non-specific "president" (e.g., in the context of the rules of conduct for presidents), the Genitive IP is appropriate.[5]

(8)   (a)   **ruka*   *mě*
           hand(F):NOM   me:GEN
           "the hand of mine"

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4   Adjectival PRs systematically only refer to a specific referent which is generally known from the context (i.e., similarly to proper nouns) or to a referent given in the context of the utterance. Some animals may be expressed as possessive adjectives if we refer to them in an anthropomorphic manner.

5   With respect to this fact, it should be mentioned that a special possessive adjectival form for generic animal referents also exists. However, its usage is more similar to the function of relational adjectives than to possession; for the sake of simplicity, these phenomena are omitted here.

(b) *??ruka*   *Petra*
     hand(F):NOM   Peter(M):GEN
     "the hand of Peter"

(c) *?ruka*   *prezidenta*
     hand(F):NOM   president(M):GEN
     "the hand of the President"

(d) **trh-ov-a*   *ruka*
     market(M)-POSS-NOM.SG   hand(F):NOM
     "the hand of the market"

(e) **Petr-ov-a*   *Velik-?*   / *Velikého*   *ruka*
     Peter(M)-POSS-NOM.SG.F   Great-POSS   / Great:GEN.SG.M   hand(F):NOM
     "Peter the Great's hand"

If we compare the data with cross-linguistic observations, it should be remarked that the variable usage of IP constructions in Czech appears to reflect the different statuses of the PR in the typological Animacy (Nominal) hierarchy (see also § 2.2; cf. Silverstein 1976; Seiler 1983, 76):

(9)   1/2 personal pronoun > 3 personal pronoun > proper name > other animate > inanimate
    (the Animacy hierarchy)

Aikhenvald (2013, 40), who has worked on possession in hundreds of different languages, states: "A possessor tends to occupy a relatively high position on the Nominal hierarchy: a prototypical possessor is animate, or human, and expressed with a personal pronoun or a proper name." In the case of Czech IP, these properties are specifically mirrored in the fact that PRs occurring higher in the hierarchy tend to occupy a more specialized type (i.e., Pro/Adj IP) of construction (which is not possible for the PRs of a lower status, as, e.g., inanimate nouns in [8d]). Eventually, on this basis, we can construct a language-specific scale for PRs (10), in terms of their involvement in Czech IP constructions:[6]

(10)   A Pro/Adj IP construction is favored if the possessor is a
    pronoun > proper noun individual > human (animate) individual
    > inanimate, plural noun, neuter, and noun phrase
    (Animacy hierarchy of PRs in Czech IP constructions)

The statement in (10) means that if a Pro/Adj IP construction is possible for a position at any point of the scale, then it is also possible with all of the positions that are higher (further to the left) on the scale.

2.2 External Possession

The concept of external possession is defined as a construction "in which a semantic possessor-possessum relationship is expressed by coding the possessor as a core grammatical relation of the

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6   The hierarchy in Czech is similar, in many respects, to the preferred distribution of *'s* IP over *of* IP in English. E.g., according to Dixon (2010, 295), the *'s* alternative in English is preferred if the PR is human, specific, and singular, has few words, and is familiar information.

verb, and in a constituent separate from that which contains the possessum" (Payne and Barshi 1999, 3), see (11a) and (2), here repeated for convenience as (12a).

(11) CZECH (simplified examples from the Czech National Corpus)

    (a) *pacientům   může   poškodit zdraví*
        patients(M):DAT may:3SG harm   health(N):ACC
        "It may harm the health of (the) patients," lit. "It may harm the health to (the) patients."

    (b) *může   poškodit   zdraví   pacientů*
        may:3SG harm   health(N):ACC patients(M):GEN
        "It may harm the health of (the) patients."

One striking property shows up here: although the PR is coded as a core dative relation, it is not a part of the argument frame of the verb. In addition, from a semantic viewpoint, the possessive relationship is not established by the predicate itself (cf. PredP in § 2.3).

    Formal and functional properties of Czech EP constructions roughly conform (but see below) to the European prototype, whose characteristics are (Haspelmath 1999, 111): "i) the marking of the [external] PR by the dative case, ii) the strict affectedness condition, i.e., external possessors are only possible if the possessor is thought of as being mentally affected by the described situation."

    The affectedness condition mainly discriminates the meaning of EP if compared with IP. However, the semantic relationship between IP and EP is far from being uniform. For instance, in (11a)–(11b) there is only a subtle difference in meaning: the external PR is perceived as (contextually) more affected than the internal PR. On the other hand, if we compare (12a) with (12b), the interpretation of the PR is radically different: in the case of EP, it carries a basic (neutral) body part meaning (the PR is affected via the broken body part), whereas the internal PM in (12b) might be interpreted either as somehow detached from the PR, or not as a body part at all.

(12) (a) *Zlomil   mi   nohu.*
        broke:3SG.M me:DAT leg(F):ACC
        "He broke my leg," lit. "He broke a leg to me."

    (b) *Zlomil   moji   nohu.*
        broke:3SG.M my:ACC.F   leg(F):ACC
        "He broke my leg."

Thus, the substantial nature of the EP construction is based on mutual relationships among the properties of the PR, the PM, and the predicate. The interplay in the Czech EP works as follows:

i)   PRs are marked by the dative. Their prototypical semantic properties correspond to the Animacy hierarchy, presented in (9): PRs tend to refer to a human animate being, overtly expressed as a personal pronoun. However, in contrast to other European languages,[7]

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7   In most languages, EP is possible only with possessors positioned further left in the Animacy hierarchy than in Czech. E.g., in French, PRs are restricted to pronouns.

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reference to the dative external PR is not so restricted; the external PR can also marginally refer to other animates and inanimates (e.g., plants in (14), cars, sports teams).

ii) PMs can occupy the object, subject, or oblique position in the clause. They prototypically refer to body parts and other nouns closely related to the PR, i.e., they correspond to the Inalienability hierarchy, depicted in (13) (König and Haspelmath 1998, qtd. in Haspelmath 1999). Once again, in Czech there is no clear semantic restriction on which nouns cannot appear as PMs. However, if PRs are inanimate, only part-whole relationships, as in (14), generally seem to be possible.

(13) body part > garment > other contextually unique item
      (the Inalienability Hierarchy)

(14) *Balzamínce   opadávají   poupata.*
      Garden.balsam(F):DAT   fall.off:PRS:3PL   buds(N):NOM
      "The buds of the garden balsam are falling off," lit. "Buds are falling off to the garden balsam."

iii) Both transitive and intransitive predicates can occupy the Czech EP construction. Transitivity corresponds to the syntactic role of the PM. If the PM is an object, the predicate must be transitive, as in (12a). If the PM is a subject, the predicate is intransitive, as in (14). If the PM is an oblique, both types are possible. Semantically, predicates tend to be dynamic and active; their inherent semantics is patient-affecting (somehow changing the quality of possession).

It should be emphasized that the semantic properties mentioned in i)–iii) are not absolute properties of the clausal elements, but need to be considered as relative with regard to the (pragmatic) context. For instance, the predicate itself need not be affective; it can only bear a potential context-dependent affective interpretation, i.e., the resulting semantics of the construction is affective. Similarly, in contrast to Haspelmath's (1999) account of the European external PR prototype, I do not regard the mental affectedness of the PR in Czech as an absolute requirement; rather, the affectedness of the PR concerns the pragmatic context; it pertains to the speaker's view of reality (cf. Fried 2009); therefore, it does not depend on the true mental or physical state of the PR, but rather on the discourse context reflected by the speaker. Very similar pragmatic conditions seem to hold for the external PR in terms of the information status. Since it concerns the basic hypothesis tested in this survey, this issue will be thoroughly explored in Section 3.

One additional note here: in § 2.1 I showed the prepositional *u* ("at") phrase, which resembles both IP (7g) and EP (15) constructions, since the PR phrase can be detached from the PM. This (nearly) possessive construction has its origin in the locative meaning. In addition, the *u* preposition is the most salient member of a larger set of similar prepositions. All of them are more natural with inanimates and/or with less prototypical possessive relations; therefore, they form an expression functioning on the boundary between possession and other (spatial) relations. For the purpose of this study, I introduce a new concept of mixed possession (MP) which subsumes both IP-like and EP-like instances of this prepositional PR construction.

(15) *u   auta   poškodí   sklo*
      at   car(N):GEN   damages   windscreen(N):ACC
      "It damages the windscreen of the car," lit. "It damages the windscreen at the car."

To sum up the typical functional properties of EP in Czech, the predicate of the construction has an effect on the possessum, and thereby the possessor is perceived by the speaker as being affected.

2.3 Predicative Possession

Predicative possession functions within an entire clause, in which it establishes a possessive relationship. In this respect, it differs from both IP and EP, where the relation is presupposed (inherent), and not established by the predicate (or by the predicative construction). Marking PredP in Czech involves the transitive verb of ownership *mít* ("have"), with the PR as the subject and the PM as the object. It can express all the possessive meanings mentioned in § 1.1, as previously illustrated in the scheme (6), here repeated for convenience: *Petrovo auto ← Petr má auto* ("Peter's car" ← "Peter has a car"). Specific possessive meanings can also be conveyed, as in English, by the special possessive verbs *patřit* ("belong"); *náležet*, *příslušet* ("pertain"); and *vlastnit* ("own").

One specific structure of "have" constructions resembles the relationship between EP and IP, cf. (11a)–(11b) and (16a)–(16b).

(16) (a) *pacienti   mají   poškozené   zdraví*
           patients(M):NOM have:3PL   harmed:ACC.SG.N health(N):ACC
           "The health of the patients is harmed," lit. "The patients have the harmed health."

      (b) *zdraví   pacientů   je   poškozené*
           health(N):NOM   patients(M):GEN is   harmed:NOM.SG.N
           "The health of the patients is harmed."

The difference in the meaning between (11) and (16) is obvious. In (11) the predicate (*poškodit*, "harm") has its basic verbal meaning; in (16) the adjective (*poškozené*, "harmed") forms a part of the resultative construction. The PredP construction (16a) forms a transitive counterpart to the *být* ("be") predicate, which subsumes the IP construction (16b). In the sense that both EP and PredP can replace IP in some clauses, the relationships EP-IP and PredP-IP are parallel: both constructions enable the PR to be detached from the PM, and change the information structure of the PR and PM (see Section 3). However, the only focus of the present study will be the EP-IP relationship; the resultative construction will be left aside.

3. Survey on Information Structure in Possessive Constructions

A general aim of this survey is to contribute to the question of how distinct possessive constructions function in common usage, and how they possibly emerged, i.e., by investigating language use, I strive to explain how different types of constructions could have come to be grammaticalized. I adopt the functional approach to the emergence of linguistic structure (e.g., Bybee 2007; Hopper 1998; Haspelmath 2008). Some ideas on information structure presented here were inspired by Du Bois's (1987) seminal article, which worked on the emergence of ergativity. Basically, I claim that the actual usage of IP or EP in Czech is not only determined by specific

features of constructional elements (introduced in § 2), but it is also correlated with word order (i.e., information structure) arrangements.

Some basic notions concerning information structure need to be introduced. First, I work on the assumption of the "given"–"accessible"–"new" continuum in the sense of Chafe (1987). According to Chafe, the notion of "given" is defined as a cognitively active concept, whereas "new" concerns the concepts previously inactive in the speaker's consciousness ("accessible" lies in the middle: semi-active concepts). As has been proven in different languages, this continuum shows an effect on language structure: e.g., according to Chafe, new concepts tend to be expressed by full lexical items, while given concepts are frequently expressed by pronouns or pronominal inflections. This indirectly implies that the Animacy hierarchy, mentioned above, also generally corresponds to the given-new continuum (see also Du Bois 1987, 830); in my study, the frequency of pronouns in the position of the PR will serve as an indicator of the amount of given information in each construction type.

The second assumption, based on word order, is closely related to the previous one. On the one hand, word order rules in a Czech clause are relatively free, and thus, the position of the external PR can be variable, whereas the position of the internal PR is fixed inside the nominal phrase (see Fried 2009). On the other hand, it has been shown that the Animacy hierarchy effects also apply cross-linguistically to topic-like (and agent-like) properties. This poses a more specific assumption that prototypical PRs in special (Pro/Adj IP and EP) possessive constructions may somehow behave along the Animacy hierarchy with respect to their information status. In my survey, word order serves as the main indicator of information structure, (since information flow in Czech is expressed mainly through word order [see, e.g., Daneš 1974]): elements closer to the front edge of the clause are expected to be "given" or "accessible" more frequently than the ones at the opposite edge. Consequently, I assume that the prototypicality of the PR (its "givenness") may be somehow manifested, besides its expression as a pronoun, by its proximity to the front edge of the clause. More radically, the prototypical PR is supposed to function in the clause as a topic,[8] and (since PMs are, on the contrary, typically inanimate) the prototypical PM as a focus.

Note: I base my definitions of "topic" and "focus" on Daneš's (e.g., 1985) simple definitions of "theme" and "rheme" (theme/topic: what is being talked about, rheme/focus: what is being said about the topic). For the purpose of the present study, I delimit the terms "topic" and "focus" simply by reference to word order: "topic" concerns the positions in front of the predicate; while the "focus" concerns the positions after the predicate (I only marginally assessed the role of phenomena violating this correlation, such as stress, in my data).[9]

Therefore, to achieve the main goal, I investigate which possessive word order patterns are most commonly used by Czech speakers in different constructions. Following that, in § 3.1, I present the object of the case study, the key categories I have used to describe the material, and how I have extracted the data from the corpora. In § 3.2 I describe the frequency data; the last section, § 3.3, is devoted to the proposed explanations.

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8   The topical status of the external PR has already been observed in different languages: Tz'utujil (Aissen 1999) and Creek (Martin 1999).
9   The predicate is regarded as a "switch" between the topic and the focus; I do not determine its particular information status.

3.1 Data

I analyzed the data from the *Czech National Corpus* (*SYN2000*, *SYN2005*, *SYN2010*). Each of these representative corpora consists of 100 million tokens of written Czech, i.e., the whole corpus for the survey comprises 300 million tokens in total. Spoken corpora would certainly provide more spontaneous data; however, for various reasons I decided to avoid them. I take written corpora as a good substitute, since I presuppose that the hypothesized phenomena may appear in spoken language more saliently than in written language, but not the other way round. The reason for the choice of written corpora was also practical: none of the existing corpora of spoken Czech could provide a reasonable amount of comparable data for my investigation. (I decided to work on a strictly delimited set of constructions relating to just one predicate lemma, distinguished solely by grammatical means.)

The objects of the survey are all clauses comprising: i) the predicate *poškodit* ("damage"), and ii) one of the possessive constructions (Genitive IP, Adj/Pro IP, EP, MP). The reason for such a restriction was as follows: if I take just one specific predicate into account, there will be no unpredictable semantic and syntactic variation among the arguments of the clause (e.g., in the case of *poškodit*, the PM is always an accusative object,[10] or a subject, if the verb is in the passive; the predicate is prototypically dynamic and affecting, i.e., attaching EP constructions). Hence, all different arrangements of word order (and that implies information structure) can be studied neatly, without major potential interferences.

The data from the corpus were mined using more than 60 queries to capture all the potential co-occurrences of all the grammatical constructions. The technique was based on identifying the boundaries of the clause, and finding the predicate (lemma *poškodit*, with all tokens in the active/passive voice, including negative forms) plus the PM and the PR in all potential possessive forms, and in different positions, with respect to word order (I distinguished constructions in terms of lexical and pronoun PRs; I used automatic lemmatization).

After that, I saved the concordances for each query and exported them to a spreadsheet editor, checked all the concordances, and excluded the inappropriate (non-possessive) data. Subsequently, the checked data were collected within individual spreadsheets, according to the type of the construction, and manually annotated.

For each line in the spreadsheet, I distinguished between the active and the passive construction, and identified the word order of the three constructional elements: the predicate, the PR, and the PM. Therefore, I did not take into account the word order position of the agent (mostly the subject, which can be dropped in Czech; this variation would concern a different set of issues). If the predicate consisted of the lexical element *poškodit* combined with a modal verb, I annotated both positions, but eventually used only the position of the lexical verb as relevant for the word order analysis. Finally, I counted the total number of occurrences for each construction, in all possible word order arrangements.

3.2 Description

For the three elements of possessive constructions with the predicate *poškodit* that were studied, six logically possible word order arrangements for the active voice and six arrangements for

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10   Admittedly, the oblique PM (see § 2.2) might produce a slightly different distribution of word order positions than the object PM; however, I have no evidence that the results would be radically different.

the passive voice need to be taken into account. Since the word order of the constituents in the Czech clause is relatively free, all 12 combinations can theoretically be found among EP constructions.[11] IP constructions with a fixed constituent structure PM-PR (for genitive noun phrases) or PR-PM (for possessive pronouns and possessive adjectives) permit only four settings each.[12] In the charts below (Figures 1–3), I refer to each pattern on the x-axis by the numbers 1–12. The numbers 1–6 refer to the active voice (*poškodit*, "damage"; not surprisingly, 84% of all *poškodit* tokens within the possessive constructions are active):

- 1–3 comprise the PR in the topic: [1] PR-Pred-PM, [2] PR-PM-Pred, [3] PM-PR-Pred
- 4–6 comprise the PR in the focus: [4] Pred-PR-PM, [5] Pred-PM-PR, [6] PM-Pred-PR

The numbers 7–12 refer to the passive voice (*poškodit se*, reflexive passive or anticausative; or *být poškozen*, "be damaged"):

- 7–9 comprise the PR in the topic: [7] PR-Pred-PM, [8] PR-PM-Pred, [9] PM-PR-Pred
- 10–12 comprise the PR in the focus: [10] Pred-PR-PM, [11] Pred-PM-PR, [12] PM-Pred-PR

In the rest of this section, I will show the results of the word order analysis for Genitive IP, Pro/Adj IP, and EP, respectively, and make a remark on MP. The remaining paragraphs show the entire picture.

GENITIVE IP CONSTRUCTION, as stated above, shows the lowest status of the PR in the Animacy hierarchy: it can be used with non-human PRs, it does not comprise any pronoun PRs (see § 2.1), and the data subsume many instances of non-prototypical relations (attribution and association). Its most frequent word order pattern is [5] Pred-PM-PR (76%), illustrated in (17).[13] It employs the PM in a position typical for objects; however, since the PR is firmly bound with the PM, the PR occupies the position in the focus, even to the right of the PM.

(17)   PRED   PM   PR
       kdo   *poškodí*   *zdraví*   *pacientů*
       who   harms   health(N):ACC   patients(M):GEN
       "who harms the health of (the) patients"

A comparison of all four patterns is given in Figure 1 (note: the vertical lines at the top of the columns in Figures 1–3 show the 95% confidence interval for multinomial distribution, and therefore illustrate which differences between patterns should be considered as significant). The frequency counts are presented in Table 1 at the end of this section (note: the table shows absolute and relative counts of word order patterns for each of the constructions that were studied).

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11   As an anonymous reviewer correctly noted, the word order of the Czech clause is not free in the case of clitics. Pronominal clitics (in the data, referring to external PRs) are fixed to the clausal second position. However, this does not affect the potential word order arrangements of the PR, the PM and the Pred in the EP construction. First, pronominal external PRs can also be expressed as non-clitics; second, the initial position of the clause can be occupied by any kind of constituent. Rather, clitics can be considered as another indicator of givenness (pronouns which are close to the front edge of the clause).

12   For the sake of completeness: in marginal (extremely low frequent) contrastive contexts, the reverse order of PR-PM elements in the Pro/Adj IP construction is possible. In addition, concerning the Genitive IP construction, there is a category of human nouns forming prenominal genitives which function just like possessive adjectives. Both phenomena were omitted here.

13   All examples in (17)–(19) from the Czech National Corpus.
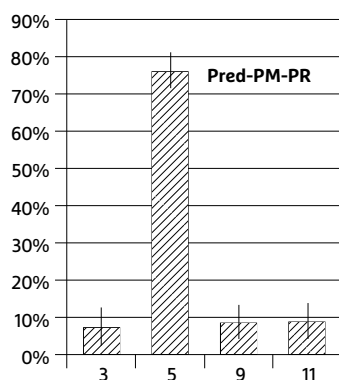
Figure 1. *Relative frequency (in %) of the Genitive IP word order patterns for the* poškodit *predicate.*

PRO/ADJ IP CONSTRUCTION has already been presented as a specialized sort of IP construction, and prototypical in terms of the semantic properties of the PR. Possessive pronouns (i.e., not possessive adjectives) are employed in a vast majority (91%) of all instances. I treat both adjectives and pronouns as one group, since the difference in distribution of word order patterns did not appear to be significant or relevant in terms of description.

(18)		PRED	PR	PM
	a	*velmi*	*poškodily*	*naše*	*věci*
	and	greatly	damaged:3PL	our:ACC.PL	stuff(F):ACC.PL

"and they greatly damaged our stuff"

The construction displays one major pattern [4] Pred-PR-PM (60%), as in (18). This pattern employs both PR and PM in the focus, similarly to [5] in the Genitive IP; however, the fixed PR-PM order is reversed, i.e., both elements are moderately approaching their presumed prototypes. In addition, if we compare Figures 1 and 2, we can observe a considerable increase in the relative usage of the pattern employing the PR in the topic; see [2] PR-PM-Pred in Figure 2.
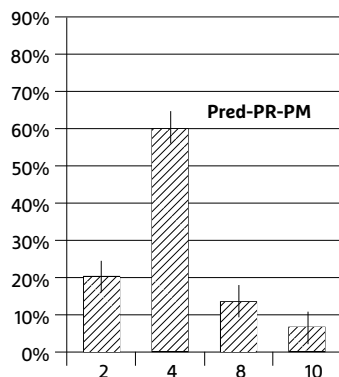
Figure 2. *Relative frequency (in %) of the Pro/Adj IP word order patterns for the* poškodit *predicate.*

EP CONSTRUCTION introduces an affected, dative PR. As demonstrated above, the PR is supposed to be very high in the Animacy hierarchy. This is corroborated by the data that were studied. Most external PRs (87%) are pronouns, and a vast majority of them are second position clitics. Again, there was no significant difference in the distribution of pronoun vs. adjectival word order patterns, and therefore no reason to split the category. Once again, there is only one major pattern [1] PR-Pred-PM (64%). It employs the PR in the topic, and the PM in the focus, illustrated in (19a)–(19b).

(19) (a)

PR	PRED	PM
že	*jí*	*poškodili*	*páteř*
that	she:DAT	harmed:3PL	backbone(F):ACC

"that they harmed her backbone," lit. "that they harmed a backbone to her"

(b)

PR	PRED	PM
a	*policistům*	*poškodila*	*stejnokroj*
and	policemen(M):DAT	damaged:3SG.F	uniform(M):ACC

"and she damaged the uniforms of the policemen," lit. "and she damaged a uniform to the policemen"

Additionally, the pattern [4] Pred-PR-PM, is relatively frequent (18%); see Figure 3. One note here: if we compare Figures 2 and 3, we can observe that both construction types, Pro/Adj IP and EP, make use of pattern [4]. My previous expectation was that if there were no tendency for external PRs to be used in a special word order position, the ratios of [4] in Figures 2 and 3 would appear to be comparable.
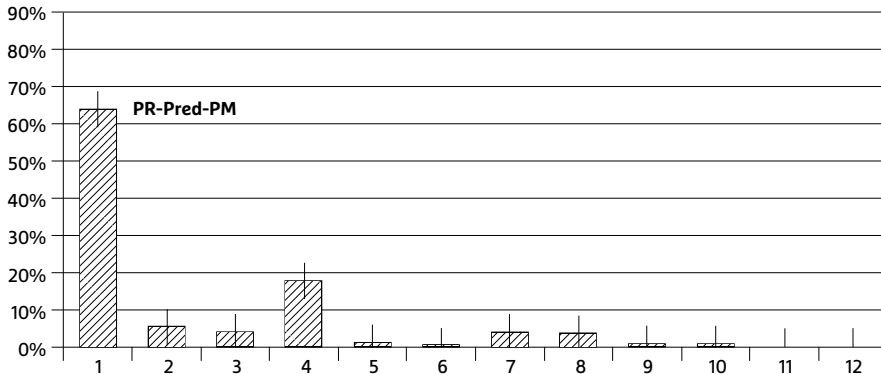
Figure 3. *Relative frequency (in %) of the EP word order patterns for the* poškodit *predicate.*

MP CONSTRUCTION, unfortunately, does not supply a sufficient amount of data for a plausible analysis. What should be noted is this: pattern [1], stated above as a major pattern for EP, shows significantly more occurrences than the rest of the patterns (not surprisingly, because of the mixed nature of the construction, except for the comparison with pattern [5], which turned out to be the major pattern for Genitive IP), see Table 1.

		EP		Pro/Adj IP		Genitive IP		MP		Total	
		f	%	f	%	f*	%	f	%	f	%
1	PR-Pred-PM	225	64%					16	37%	241	12%
2	PR-PM-Pred	19	5%	98	20%			0	0%	117	6%
3	PM-PR-Pred	13	4%			76	7%	5	12%	94	5%
4	Pred-PR-PM	62	18%	294	60%			1	2%	357	18%
5	Pred-PM-PR	3	1%			812	76%	12	28%	827	42%
6	PM-Pred-PR	1	0%					1	2%	2	0%
7	PR-Pred-PM	13	4%					6	14%	19	1%
8	PR-PM-Pred	12	3%	66	13%			0	0%	78	4%
9	PM-PR-Pred	2	1%			88	8%	1	2%	91	5%
10	Pred-PR-PM	2	1%	31	6%			0	0%	33	2%
11	Pred-PM-PR	0	0%			92	9%	1	2%	93	5%
12	PM-Pred-PR	0	0%					0	0%	0	0%
	Total	352	100%	489	100%	1068	100%	43	100%	1952	100%

* The frequency counts for Genitive IP were approximated (based on a one-quarter random sample).

Table 1. *Overall frequency overview of distinct word order patterns for the* poškodit *predicate. Frequency counts in the written corpora SYN2000 + SYN2005 + SYN2010.*

THE OVERALL PICTURE is displayed in Table 1. We can imply three preferred word order patterns for each of the basic possessive constructions (note that 73% of all tokens are subsumed under these arrangements):

- Genitive IP construction: [5] Pred-PM-PR
- Pro/Adj IP construction: [4] Pred-PR-PM
- EP construction: [1] PR-Pred-PM

Additionally, seven other low-frequency patterns play a role in discourse. On the contrary, the patterns [6] and [12] PR-Pred-PM, which employ the PR in the topic and the PM in the focus, appeared not to be preferred at all.

3.3 Explanation

The frequency data in § 3.2 indicated the existence of certain functional motivations, which may have given rise to distinct possessive constructions in Czech. I will state them here more systematically.

Two specialized possessive constructions (Pro/Adj IP and EP) show a highly prevalent number of PR pronouns. This supports the "givenness" and the animacy status of the prototypical PR and it corroborates the hypothesis that the emergence of possessive constructions could be motivated by a speaker's needs related to information structure.

First, the major word order pattern of the EP construction employs the PR as the topic and the PM as the focus. This supports the general idea of Aissen (1999, 189), based on findings in Tz'utujil, that one of the functions of the EP construction cross-linguistically may be "to present the possessor as the logical subject." Similarly, in Creek, according to Martin (1999, 243), in all

of the natural examples in his data, the external PR "is old information and is generally omitted." Consequently, the emergence of the EP construction appears to be functionally related not only to the semantic affectedness of the PR but also to its topical status.

Second, the Pro/Adj IP construction shows, in comparison with the Genitive IP construction, a reverse word order PR-PM; thus, the PR appears further to the left in the clause; this could be motivated by similar discourse needs. Simultaneously, pronouns are excluded from the Genitive IP construction, which appears to be the "least friendly" construction for PRs.

Third, as stated in the previous section, the pattern PM-Pred-PR is not used at all.

To sum up: my findings generally indicate that the Animacy hierarchy which corresponds to the typical semantic properties of the PRs is also operational in terms of the information status of the PR and the PM. It concerns a functional motivation for speakers to employ the possessor as given, typically in the topic, and to detach it from the PM, whose prototypical position is in the focus. Therefore, complementary needs to express the PM as new information and the PR as given could be the functional reasons for the emergence of the EP construction in Czech and, simultaneously, for the reversed PR-PM order of the Pro/Adj IP construction.

4. Conclusion

The data presented in this study suggest that information structure plays a crucial role in explaining the usage and emergence of distinct possessive structures. An overview of the Czech possessive construction types illustrates how different structures are related to the semantic properties of the constructional elements (the prototypical properties of the possessor can be widely explained by Animacy hierarchy effects); however, it cannot reveal the full story.

In the subsequent survey, the data on the *poškodit* construction brought remarkable results in terms of information structure and possessive constructions. It showed that each of the three IP and EP construction types has its own major word order pattern. Chiefly, the emergence of EP constructions supports the explanation in terms of different and complementary discourse needs: there is a tendency to express the "topical" information status of the possessor and the "focal" status of the possessum. These findings widely correspond to the Animacy hierarchy effects presented above.

Finally, the proposed hypothesis on the role of information structure has been corroborated by empirical findings; however, further research dealing with more variable data is needed to support it in a more general scope.

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Corpora

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List of Abbreviations

The abbreviations used in the glosses are not listed here (see note 1).

EP – external possession
IP – internal possession
MP – mixed possession
PM – possessum, possessed
PR – possessor
Pred – predicate
PredP – predicative possession
Pro/Adj IP – pronoun/adjective internal possession

The Role of Partitive Construction in Generating Scalar Implicatures

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Abstract: The paper is concerned with the facilitating effect of the partitive construction for the availability of scalar implicatures in the interpretation of utterances with the quantifier *neki* ("some") in Serbian, one of only a few languages in which even adult speakers show a relatively low rate of deriving scalar implicatures. The experimentally based research emphasizes the role of language-specific factors for the derivation of scalar implicatures, showing that the proportion of derived scalar implicatures depends on certain syntactic and semantic parameters. However, as the highest rates of scalar implicatures derived only go as high as 68%, our research argues in favor of the default status of the logical semantic component of scalar items, with the pragmatic effects being dependent on the pragmatic factors in the discourse.

Keywords: scalar implicatures; partitive construction; quantifier *neki* ("some"); Serbian

1. Introduction

In this paper we explore how partitive construction facilitates the availability of scalar implicatures (henceforth SIs) in the interpretation of utterances with the quantifier *neki* ("some") in Serbian. The research is experimentally based and aims to emphasize the role of language-specific factors relevant for the derivation of SIs. As the rate of derivation of SIs remains at around 65% even with the most encouraging types of stimuli, our research argues in favor of the default status of the logical semantic component of the scalar items, with the pragmatic effects being dependent on the pragmatic factors in the discourse. The paper is organized as follows. Section 1 introduces the relevant theoretical notions, previous research, and empirical data, and briefly outlines the hypothesis of our research. In Section 2, we introduce our experimental design, based on a Truth-Value Judgment Task, in Section 3 we present the results of the experiments, and in Section 4 we offer a discussion. Section 5 concludes.

1.1 Scalar Implicatures

According to the standard analysis, it is typically assumed that the quantifier *some* belongs to a larger class of terms called "(members of) informational scales" or "scalar items" (Horn 2006). Scalar items are sets of linguistic expressions competing for the same syntactic and semantic position, so that, in a context in which more than one of them can be used in the same position to yield a true proposition, they all differ in the degree of informativeness the respective propositions carry in the given context. These different degrees are modeled as points or intervals on a scale of informativeness. In the case of *some*, the set of competing scalar items includes other quantifiers <*some, many, most, all*>, with which the quantifier *some* is implicitly contrasted during the interpretation. Informativeness is defined on the basis of entailment: stronger scalemates

(on the right of the scale) entail the weaker ones (on the left of the scale), but the opposite does not hold:

        <weak, strong>   <some, all>

        $S(x) \rightarrow W(x)$ all$(x) \rightarrow$ some(x)

        $W(x) +> \neg S(x)$ some$(x) +> \neg$ all(x)

Scalar items may trigger scalar implicatures: the assertion of a weaker term conversationally implies the negation of the stronger ones (e.g., the inference from "some As are Bs" to "not all As are Bs"). For instance, when faced with the sentence *Some elephants have trunks* (Noveck 2001), adult speakers derive the SI that not all elephants have trunks, which is not true if we take our knowledge of elephants into account. Thus, the sentence with the quantifier *some* is underinformative or infelicitous, because the use of the stronger scalemate *all* would be more appropriate.

In the current linguistic literature, the nature of scalar expressions has become the topic of much debate. Assuming that a scalar item is one word with two possible readings,[1] the main question is which meaning is the default one: a lower-bounding truth-conditional component which cannot be canceled ("at least some"/"some and possibly all"), or an upper-bounding non-truth-conditional component typically bounded by a conversational implicature, which is cancelable ("some but not all"). Hence, the debate is set between the defaultist and the contextualist accounts (see Geurts [2011] for a detailed discussion).

According to strong defaultism, a scalar inference is triggered by a word and the triggering process is fast: given that the component "not all" is basically a part of the lexical content of *some*, it becomes available as soon as *some* is retrieved from the mental lexicon (Levinson 2000, Horn 2006). In its weaker form, defaultism assumes that scalar expressions give rise to upper-bounding inferences. According to Chierchia (2004), default interpretation is the one that most people would give in circumstances in which the context is unbiased one way or the other. Thus, scalar inferences are defaults: *some* will imply "some, but not all" unless special circumstances indicate otherwise and the inference is canceled.[2]

The contextualist account (Geurts 2011; Breheny, Katsos, and Williams 2006) has it that hearers always try to contextualize a sentence, even when it is presented in a "null context," i.e., without explicit information as to what kind of context the sentence is supposed to be uttered in. This account implies that scalar implicatures are not automatically available; rather, they need to be strengthened in the context. This contextualization process can be guided by various factors: word order, questions, focus, partitivity, the relative complexity of the alternatives, etc.

1.2 Previous Research

Despite their prominent place in developmental psycholinguistics, scalar implicatures have attracted relatively little attention with regard to (extra-) linguistically driven variation among adults. Previous empirical studies in the domain of SIs were focused on developmental problems, indicating that adults universally display a high performance, whereas children show significantly weaker results in the comprehension of utterances with scalar terms. Pragmatic delay (Noveck 2001), domain-general

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1   Although this is the standard notion of the scalar items, another view argues that the meanings of scalar items correspond to two different words, which is in line with Herburger's (1997) view of the quantifier *few* in English.

2   Geurts (2011) criticizes this approach, emphasizing the absence of experimental data, as well as the lack of explanation of why SIs would be generated by default, except that it just seems intuitively plausible.

processing limitations (Chierchia et al. 2001), and difficulty accessing lexical alternatives in a scale (Barner, Brooks, and Bale 2011) are often considered to be responsible for children's difficulties in deriving SIs.

However, several studies report on a lower percentage of implicatures in adult speakers of certain languages, Serbian being among them. According to the preliminary results of the "COST Action A33" project (Katsos, Anđelković, Savić, and Jošić 2009; Katsos et al. 2012), which investigated the acquisition of various quantifiers in 24 different languages, only 54% of adult speakers of Serbian derived implicatures (in comparison to 99% of English speakers). Moreover, in their material we have observed a major methodological problem: in some of the stimuli (for Serbian, among others) the non-partitive construction was used (e.g., "some apples"), whereas for other languages (for instance, English) the stimuli contained the partitive construction (e.g., "some of the apples").

Since it is unlikely that speaking one language or other has such a fundamental influence on pragmatic capacity, especially on working memory or processing constraints, our hypothesis was that aspects of syntax and semantics are responsible for the low percentage of scalar inferences in Serbian and some other languages. More particularly, we hypothesize that the use of the partitive construction should make the scalar inference more available because it raises the salience of a larger set. This hypothesis is in line with predictions already made in the literature; e.g., Geurts (2011) claims that partitivity could make SIs more available in the context. However, previous empirical data do not conform to this assumption. Two studies investigating the role of partitivity in SI derivation showed that either there was no difference in the rates of SIs with regard to the partitive expressions used or that the non-partitive expressions gave rise to more implicatures.

In their study of the differences between the quantifiers *certains* and *quelques* in French (Pouscoulous et al. 2007, experiment 3), the authors expected the partitive quantifier *certains* to give rise to more implicatures in adults, but also to be more difficult to process because of its complexity in comparison with the quantifier *quelques* – a simple existential. Given that *quelques* is more frequent in children's written production and children's books, as well as in adult speech, the authors expected *quelques* to give rise to more implicatures in children. The results show that nine-year-olds are more likely to produce implicatures with *quelques* than they are with *certains*, whereas adults are not affected by the choice of term. While the authors attribute this to the lexical complexity of *certains*, we think that it is more likely that the most relevant factor here is the input frequency. In the context of an experiment which features two close relatives in similar contexts (*certains* and *quelques*), one could predict that the more frequent one in the language input (in this case *quelques*) would be more easily accessible to children.

In their study of quantifiers in Dutch, Banga et al. (2009, experiment 2) showed that statements with *enkele*, a quantifier which can be used non-presuppositionally and can appear in expletive existential sentences, gave rise to implicatures significantly more than statements with *sommige*, a presuppositional quantifier with partitive interpretation. The presence or absence of an explicit partitive construction ("*sommige* van de"/"*enkele* van de"), in contrast, had no effect on the rate of SIs, so morphosyntactic partitivity was shown not to affect the computation of SIs.

1.3 Serbian Quantifier *Neki* ("Some")

One special property of Serbian, in comparison with most of the languages in which SIs were experimentally explored, is its lack of articles. The indefinite semantics of *neki* ("some") comes in handy for marking indefiniteness where the context is not sufficient. This is particularly the case with the weak interpretation of *neki* ("some"). As it is the strong interpretation that has the

potential to trigger a scalar implicature, implicature triggering belongs to the marked, less frequent use of the quantifier *neki* ("some"):[3]

$[\text{some}]_{\text{weak}} = A \cap B \neq \emptyset$ – DEFAULT USE
Neki studenti su položili ispit. = Neki, možda i svi, studenti su položili ispit.
"Some students passed the exam." = "Some, and possibly all, students passed the exam."

$[\text{some}]_{\text{strong}} = A \cap B \neq \emptyset \ [\neg (A \subset B)]$ – MARKED USE
Neki studenti su položili ispit. = Neki, ali ne svi, studenti su položili ispit.
"Some students passed the exam." = "Some, but not all, students passed the exam."

Our hypothesis is, however, that using the partitive construction should make a strong interpretation more prominent as a result of its direct reference to the definite restrictor set.

1.4 Hypothesis

In this paper we put forth the view that scalar implicatures are not an inherent part of the semantics of words, or the truth-conditional content carried by a sentence. SIs are pragmatic inferences that are affected not just by the contextual information or background knowledge, but also by linguistic factors external to the quantifier itself. Our study reports on the role of partitive construction in the process of generating SIs. We argue, on the basis of new experimental evidence from Serbian, that language-specific properties may affect the availability of SIs, and, in opposition to Pouscoulous et al. (2007) and Banga et al. (2009), that one such property is the availability of articles and its consequences for the status of the partitive construction.

We hypothesize that the derivation of scalar implicatures from the quantifier *neki* ("some") in adult speakers of Serbian fails as a result of a failure in the establishment of the right reference domain restriction. The lack of articles in Serbian makes it more difficult to make sure that the subjects correctly associate the relevant expressions in the linguistic expressions used in the experiments with the correct referents in the (usually visual) stimuli. This predicts that the proportional reading, and the scalar inference, should be facilitated if the proper reference domain is provided by linguistic means. One strategy to achieve this is to provide contexts that facilitate the definite interpretation of the noun and to use the partitive construction (*neki od* + NOUN.Gen ["some of the" + NOUN]), in which the noun necessarily receives a referential, definite interpretation.

2. Method

2.1 Participants

The participants in the study were 56 adult native speakers of Serbian (mean age = 24). They were mainly students recruited from the University of Belgrade. They all performed an online visual version of the experiment.

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3   Additional data that indicate the dominance of the weak interpretation come from our preliminary investigations of early child language and child-directed speech. In the speech of two children aged 1;6 to 4;0 and their language input there were no instances of *neki* ("some") with strong readings, or the contexts which triggered the implicature. The data were taken from a Serbian electronic corpus of early child language (Anđelković, Ševa, and Moskovljević 2001).

2.2 Stimuli and Procedures

In order to tap into the participants' comprehension of scalar expressions the present study used a pragmatic judgment task – a variation of the Truth-Value Judgment Task (TVJT). The participants were shown a set of visual stimuli (e.g., five apples on a table), followed by a sentence containing the quantifier neki ("*some*"): e.g., *Neke od jabuka su na stolu* ("Some of the apples are on the table"). They were asked to evaluate whether the utterance corresponds to the visually presented situation. There were two modifications of the TVJT:

1. the participants were introduced to a character named Pera. They were informed that he could not see well, so they would have to help him in the joint activity of looking at the pictures. The participants were told that Pera would state things about the pictures displayed and that they were to say whether Pera made appropriate comments about what he saw in the pictures. The main question for the participants was: *Did Pera see it well?* and they were asked to click on a *yes* or *no* button shown on the screen. This modification was made in order to avoid a direct meta-judgment usually introduced by questions such as *Was he right or wrong?/Is it true or false?* Given that these questions actually evaluate the logical correctness and not the felicity of the sentences in question, they might cause a confounding variable in this type of experiment;

2. preceding each picture, a sentence was introduced in order to provide an appropriate context, e.g., a larger set of apples – *We picked 5 apples from the tree*. This variation was particularly important given the strong preference for an indefinite interpretation of the non-partitive expression *neke jabuke* ("some apples") in Serbian.

The main phase of the experiment was preceded by a training phase (five warm-up sentences) which aimed at familiarizing the participants with the task. In the main part of the experiment, the participants were shown a set of eight target items, eight control items, and four filler sentences (Figure 1). Each target item satisfied the truth conditions of an informationally stronger element within a quantifier scale but was described by Pera in terms of a weaker element. For instance, the target item *Neke od jabuka su na stolu* ("Some of the apples are on the table") was used in a situation where in fact all the apples were on the table. The control items involved fully appropriate uses of *neki* ("some"), e.g., when three out of five objects were on the table, or ones in which it yielded a false description, e.g., when none of the objects was on the table. There were also four filler sentences (the quantifier being replaced by an adjective bearing a definite interpretation) in order to balance the ratio of the *yes/no* responses. The target items, control items, and filler sentences were administered in a pseudo-random order.
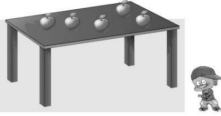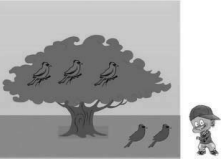
Target item (5/5): Some (of the) apples are on the table. Question: Did Pera see it well?

Filler item: (The) red birds are in the tree. Question: Did Pera see it well?

Control item (3/5): Some (of the) bananas are on the table. Question: Did Pera see it well?

Control item (0/5): Some (of the) balls are on the table. Question: Did Pera see it well?

Figure 1. *Types of stimuli used in the study.*

Three conditions were tested in the experiment: the partitivity condition was tested as a within-subject factor with two levels: non-partitive construction (*neke jabuke*; "some apples") and partitive construction (*neke od jabuka*; "some of the apples"). We also controlled for the contrastive focus condition and word order condition as between-subjects factors, with the participants being randomly assigned to one of the conditions.

Contrastive focus had three levels (marked by capital letters): focus on the quantifier, on the predicate phrase, and neutral focus, as in (1):

(1)   (a)   NEKE od jabuka su na stolu.
      (b)   Neke od jabuka su NA STOLU.
      (c)   Neke od jabuka su na stolu.
            "Some of the apples are on the table."

The word order condition had two levels: sentence-initial and sentence-final position of the quantified noun phrase, relying on the tendency of the focal constituent in Serbian to appear sentence-finally (Halupka-Rešetar 2011), as in (2):

(2)   (a)   Neke od jabuka su na stolu.
            "Some of the apples are on the table."
      (b)   Na stolu su neke od jabuka.
            "On the table (there) are some of the apples."

In the test trials, where the use of the quantifier *svi* ("all") was more informative for the given situations, we expected the participants to reject the sentence on the basis of a scalar inference (answers of the type: *No, he didn't see well, all the apples are on the table.*). Thus, a dependent measure was the percentage of rejected sentences used in the *all* contexts.

3. Results

General Linear Model Repeated Measures ANOVA test statistics were run on the response percentages with partitivity as a within-participants factor and contrastive focus and word order as between-subjects factors. The analysis revealed a main effect of partitivity ($F = 33.921$, $df = 1$, $p < 0.0001$), a main effect of word order ($F = 4.061$, $df = 1$, $p < 0.05$), and a reliable interaction between partitivity and contrastive focus ($F = 4.116$, $df = 2$, $p < 0.05$). The participants overwhelmingly rejected the underinformative sentences with the partitive construction in comparison with the ones with the non-partitive construction (Figures 2 and 3), showing that partitive construction in Serbian makes scalar reading of the quantifier *neki* ("some") more available. In addition, SIs are more likely to be generated when the Quantified Nominal Expression (henceforth QNP) is in final position, suggesting that information structure affects SIs as well. When a predicate phrase is contrastively focused in the final position SIs are inhibited, even when the partitive construction is used.

The participants had high rates of correct responses to the control sentences, which showed that adult Serbian speakers understand the basic meaning of the quantifier *neki* ("some"). However, the overall percentage of SIs – 59% for the partitive and 27% for the non-partitive construction – represents a rate lower than previous studies obtained for other languages. More precisely,

for the initial position of the QNP the participants derived SIs in 49% of the cases for the partitive construction and 16.6% for the non-partitive one, whereas for the final position of QNP SIs were derived in 68% of cases for the partitive construction and 37% for the non-partitive one.
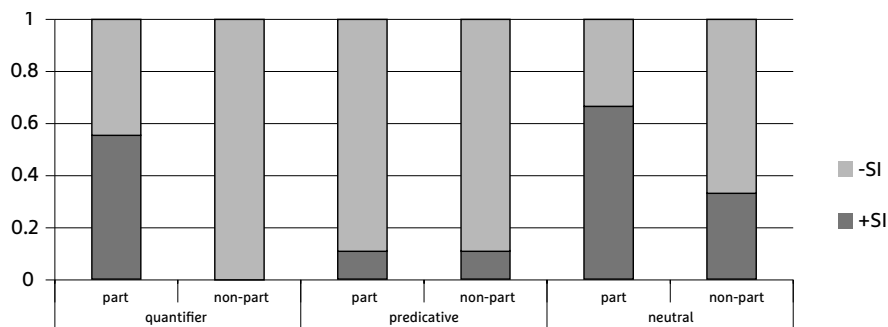
Figure 2. *The proportion of scalar implicatures with regard to contrastive focus and partitivity. QNP in the initial position, e.g.,* Some (of the) apples are on the table.
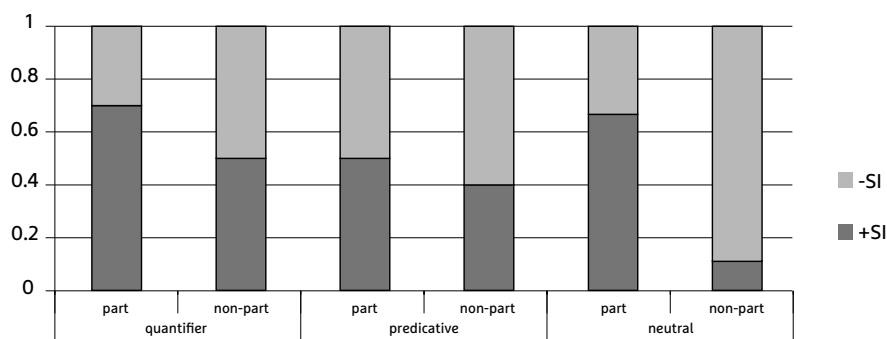

Figure 3. *The proportion of scalar implicatures with regard to contrastive focus and partitivity. QNP in the final position, e.g.,* On the table (there) are some (of the) apples.

4. Discussion

The use of the partitive construction significantly gave rise to the derivation of scalar implicatures. We attribute this to the obligatory definite familiar interpretation of the restrictor in the partitive construction and the partitive relation, which favors the establishing of the proportional relation between the QNP and its restriction. This effect is further strengthened by the tendency of the non-partitively used *neki* ("some") to mark indefiniteness.

This analysis posits two loci of scalarity in the type of utterances investigated:

1. the scalarity between the weaker *neki* + NOUN ("some" + NOUN) construction (as a result of its ambiguity between the cardinal and the proportional interpretation) and the stronger, partitive *neki od* + NOUN.Gen ("some of the" + NOUN) construction with respect to the expression of the meaning which includes the SI (i.e., in contexts where the SI is intended);

2. the scalarity of the term *neki* ("some") with respect to other terms such as *svi* ("all") or *nije-dan* ("none").

There are two ways to interpret our data and our analysis at a more general level. One is to state that speakers of Serbian (and languages similar to Serbian) are exceptional as they remain at a relatively low level in deriving SIs even with the most supportive stimuli (68% for the partitive construction in combination with a sentence-final contrastively focused QNP), and perhaps look for additional linguistic reasons for this exceptional behavior or perhaps to postulate a variable degree of logical vs. pragmatic tendencies of the speakers of different languages. The other and more parsimonious interpretation is to actually consider the attested data the default behavior, in the absence of any pragmatic clues for deriving SIs. From such a point of view, our results conform to the pragmatic account of the meaning of the quantifier *some* in different languages, indicating that the logical interpretation might be the default one, requiring a certain level of contextualization and reference domain restriction in order to trigger scalar inference, as has already been suggested to be the case by Geurts (2011, 97–98):

> when contextual factors are factored out and the experimental paradigm is as neutral as possible, rates of scalar inferences are below 50%, on average, and never higher than 65%.

Our results indicate that language-specific factors might be responsible for the differences obtained for Serbian in comparison to some other languages, such as English, especially in the case of reference domain restriction: while in certain languages simple contextual clues might be enough to trigger the implicature, for speakers of other languages, linguistic clues might be required.

5. Concluding Remarks

We carried out an experiment investigating the influence of partitivity on the process of deriving scalar implicatures. The experimental results reported in this paper contribute to recent attempts to investigate the nature of scalar implicatures by taking linguistic factors into account (Chevallier et al. 2008; Pouscoulous et al. 2007; Geurts 2011). The results show that SIs are not generated automatically, but rather there are different linguistic factors that make them more available. The strongest effect we reported here was provided by partitivity, given that the use of a partitive construction facilitated the generation of SIs in the interpretation of the Serbian quantifier *neki* ("some"). These findings go against Pouscoulous et al. (2007) for French and Banga et al. (2009) for Dutch, which may indicate the effects of the specific properties of Serbian, or of French and Dutch, but could be a matter of the experimental design or differences between the particular expressions in the three languages; either way, a more thorough investigation is merited.

The low proportion of SIs obtained in the study indicates that the Serbian quantifier *neki* ("some") is not scalar by default, but it has to be strengthened in the context. Even when provided with the appropriate context and a partitive construction, Serbian adult speakers derive SIs at a lower rate than has been reported for other languages. This suggests that there is a strong, linguistically driven variation which should be taken into account when SIs are being investigated.

In addition, our findings have implications for the developmental perspective: given the variation in the adult population, standards for children's performance should be reconsidered.

In addition to cognitive limitations, other factors, such as problems in establishing the right reference domain, might cause children's difficulties in generating SIs. Therefore, future studies should explore children's early sensitivity to linguistic clues in the process of generating scalar implicatures.

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Tackling "Legalese":
How Linguistics Can Simplify Legal Language and Increase Access to Justice

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Abstract: In US courtrooms, judges read jurors a set of "jury instructions" to help them reach a verdict. One Massachusetts instruction concerns jurors' memories: "Failure of recollection is common. Innocent misrecollection is not uncommon." Since most jurors find this – and many instructions – nearly incomprehensible, a task force of judges, lawyers, and linguists has started a project for reform. The project began by testing how well a sample of instructions is understood. In one experiment, subjects heard six sample jury instructions and answered true/false questions about them. The results showed that comprehension varied with linguistic complexity, significantly worse on instructions containing passive verbs and presupposed information, factors known to increase processing load. A second experiment used Plain English versions that eliminated these factors, and comprehension improved significantly. The results suggest that though legal language is entrenched and reform is difficult, psycholinguistic research can help diagnose problems and suggest a course of action toward improving verdicts – and justice – overall.

Keywords: language and law; psycholinguistics; linguistic structure and text comprehension

1. Introduction

This paper is about a problem in one area of language and law, specifically, the area of "jury instructions." To provide some context, let me first introduce some facts about the jury system in the United States, which is unlike many European systems.

The definition of *jury* is given in (1).

(1) **ju·ry**
n. pl. **ju·ries**
a body of persons selected to decide a verdict in a legal case, based upon the evidence presented, after being given instructions on the applicable law (*The American Heritage Dictionary* 2011)

The key phrase here is "after being given instructions." Juries, which are composed of ordinary citizens and not legal experts, must be instructed on the law that applies in the particular cases that they are hearing. But how did ordinary citizens come to serve on juries? A chronology of the US jury system, shown in (2), begins in the 1600s, when colonists brought the British jury system to the colonies. Under Britain's rule, however, the mother country took away the colonist's right to a jury trial.

(2)   1600s   British colonists bring the jury system to the colonies
       1764   Britain revokes the colonists' right to a jury trial
       1776   the Declaration of Independence blames the King "for depriving us, in many
                    cases, of the benefit of Trial by Jury"
       1791–today   the US Constitution, Sixth Amendment: "In all criminal prosecutions, the
                    accused shall enjoy the right to a speedy and public trial, by an impartial jury."

Jury trials were reinstated when America became independent in 1776, and since 1791, when the right to a jury trial was enshrined in the US Constitution, the US has used jury trials and jurors.

Now consider what jurors must do. After they have listened to the case, and just before they go into the jury room to deliberate and reach a verdict, the judge reads them a set of instructions. One instruction that they might hear, shown in (3), concerns their memories:

(3)   *Failure of recollection is common. Innocent misrecollection is not uncommon.*
       [California Book of Approved Jury Instructions (BAJI), 2.21]

Don't be surprised if you have trouble understanding this instruction. Most native English speakers find it challenging (Tiersma 1999). But this is an official instruction that, until recently, was used in California and it is similar to instructions used in other states. But now compare (3) to (4):

(4)   *People often forget things or make mistakes in what they remember.* [Judicial Council of
       California Civil Jury Instruction (CACI), 2003]

This new version comes from the revised *California Civil Jury Instructions*, adopted in 2003, the result of a project to rewrite that state's instructions into Plain English. California was not the first state to rewrite its jury instructions; a movement had been spreading as the result of a mounting body of research on the comprehension – actually, the *miscomprehension* – of jury instructions. The classic study by Charrow and Charrow (1979) was followed by more research that all reached the same conclusion: jury instructions are too difficult for the average juror to understand (Elwork, Sales, and Alfini 1982; Reifman, Gusick, and Ellsworth 1992; Saxton 1998).

In one study, for example, conducted with jurors who had served on a trial, more than a quarter could not define *burden of proof*, *impeach*, *admissible evidence*, or *inference*; more than half could not define *speculate* and thought that *a preponderance of the evidence* meant either "a slow, careful, pondering of the evidence" or "looking at the exhibits in the jury room" (Tiersma 1993; see also Diamond and Levi 1996; Diamond 2003; Tiersma 1999, 2001, 2009). But the problem is not only in defining the specialized terminology that instructions contain (sometimes referred to as "legalese"). Recall that the example in (3) above contained no legal terms at all. So the difficulty must come from something else.

2. Linguistic Factors in Comprehending Jury Instructions: A Study

We know from research in two fields, psycholinguistics and reading, about linguistic factors – semantic and syntactic – that influence comprehension. One semantic factor that operates in (3)

is the presence of negatives, which are more difficult to process than positive statements, whether they are overt negatives, such as *not* and the affixes *mis-* and *un-* (Wason 1959; Just and Carpenter 1976) or inherent negatives, such as *failure* (Just and Clark 1973). Processing load is increased even more when negatives are syntactically nested, as in [not [uncommon]] (Cutler 1983).

Another factor is the use of nominals, such as *failure* and *recollection*, which are harder to process than their underlying verbs, *fail* and *recollect* (Klare 1976). One problem is that they use nouns to express actions usually expressed by verbs. But what is even more challenging is that they omit the verb's arguments. As shown in (5), the subjects and objects of both verbs are missing. We do not know who is failing to recollect or misrecollect what.

(5)   [x's] failure of recollection [of y] is common.
       [x's] innocent misrecollection [of y] is not uncommon.

The cumulative effect of the negatives, nominals, and missing arguments leads to a problem in clarity, which Grice (1975) characterized in his "Maxim of Manner," shown in (6). The problem is specifically with clause (a) "Avoid obscurity of expression." And notice that the two sentences in (3) are much more obscure than their counterpart in (4), despite the fact that they are one word shorter (10 vs. 11 words).

(6)   Maxim of Manner: Clarity ("Be Perspicuous")
       (a) Avoid obscurity of expression.
       (b) Avoid ambiguity.
       (c) Be brief (avoid unnecessary prolixity).
       (d) Be orderly.

With such problems being the rule in jury instructions, and not the exception, there is a lot of justification for revising them.

California began a full-scale revision of its jury instructions in 1997, and the project included linguists in addition to legal professionals. But the revision movement faces barriers. For one, judges and lawyers are often blind to the problems with the instructions, since they are so familiar with them. Inertia also makes change slow. Some feel that jury instructions are "sacred texts" and should not be altered. Others think that they do an important job: inspiring awe and respect for the court. Many claim that the empirical studies were wrong. Others think that the problem is not with the instructions but with jurors paying attention to them, and that revising the instructions would not change that. And some harbor the fear that if the instructions were changed, past decisions would be challenged. This, in fact, is not true. According to an official of the California Civil Jury Instructions Legal Services Office, Bruce Greenlee (pers. comm., January 24, 2013),

> on the civil side we have had a few reversals (less than five in 10 years now), [but] *none of these reversals or criticisms had anything to do with plain language*. They were all about the underlying legal premise. In short, there is absolutely no reason to hesitate with plain-language civil jury instructions based on a fear that appellate courts will require the verbatim iteration of legalistic language found in civil statutes and case law. It just doesn't happen.

Despite these roadblocks, the Massachusetts movement was not deterred. In 2007, a group of Massachusetts judges and lawyers formed the Plain English Jury Instruction Task Force, and in 2010, they invited two linguists to join. We studied the literature and determined that a rewriting project would require funding, which in turn would require two more things: 1) evidence that our current instructions need rewriting and 2) data showing that rewriting will actually improve comprehension. So in 2012, after finding an appropriate test methodology, we began our empirical research.

2.1 Research Questions

Our research addresses the research questions in (7):

(7)   (a)   Do people have trouble understanding the current Massachusetts jury instructions?
      (b)   If so, why?
      (c)   Will Plain English jury instructions be easier to understand?
      (d)   What factors influence comprehension?

And, to investigate (7d), in addition to negatives, nominals, and missing arguments, we considered the effect of a range of other linguistic factors, both semantic and syntactic.

2.1.1 Semantic Factors

Lexical choices could influence comprehension: low-frequency and formal register words and phrases that we saw in (3), repeated in (8a) below, such as *failure of recollection*, *misrecollection*, and *uncommon*, might pose more difficulties than their high-frequency synonyms such as *forget*, *make mistakes*, and *often* in (4), repeated in (8b) below.

(8)   (a)   *Failure of recollection* is common. Innocent *misrecollection* is not *uncommon*.
      (b)   People *often forget* things or *make mistakes* in what they remember.

Expressions whose meanings are presupposed and not given anywhere in the instruction, or are supplied only much later in the instruction, could also tax comprehension. Also potentially challenging are words with special legal meanings that differ from their everyday definitions.

2.1.2 Syntactic Factors

Certain syntactic constructions are known to cause the processor to work harder than others. Sentences with passive verbs are more difficult to comprehend than those with active verbs (Gough 1966; Slobin 1966; Olson and Filby 1972; Ferreira 2003) since they not only reverse the standard subject-verb-object order of the participants but are often used without a *by*-phrase, which omits one participant altogether and can obscure the grammatical relations. The excerpt in (9a), with the passive form italicized, comes from the same California instruction as (3), and is certainly more challenging than its rewritten active-verb counterpart in (9b).

(9)   (a)   Whether a discrepancy pertains to an important matter or only to something trivial should *be considered by you*. [BAJI 2004]
      (b)   You should *consider* whether a discrepancy pertains to an important matter or only to something trivial. [CACI 2003]

Phrases interjected in the middle of sentences can also increase processing load, because they delay the semantic integration of the arguments with the verb. This example, from Massachusetts Continuing Legal Education (MCLE) instruction §1.20 "Burden of Proof" (Brady, Lipchitz, and Anderson 2008), interjects a long phrase (containing a series of passives) *when considered and compared with any opposed to it*:

(10)   A preponderance of the evidence is such evidence which, *when considered and compared with any opposed to it*, has more convincing force and produces in your minds a belief that what is sought to be proved is more probably true than not true.

Other features of this sentence tax the process even further: a missing constituent and a constituent moved from its expected position. The missing constituent is the second half of a comparative structure: *such evidence which . . . has* more *convincing force*. More convincing than what? Presumably, than some other evidence, but the *than*-phrase never arrives. And as we wait for it, holding it in memory, we must simultaneously process the rest of the sentence. This is where we are challenged by a moved constituent, which, by not appearing in its expected position, also adds to processing load. Following the transitive verb [produces], we expect the obligatory Noun Phrase object. But that NP, [a belief that . . .], does not come right away. As a "heavy NP," it undergoes the rule of "Heavy NP Shift" and is moved to the right of the Prepositional Phrase, [in your minds]. The result: two challenging delays to the processor, one nested within the other.

Sentences that contain multiply embedded structures can also challenge the parser, especially if the embedded material is in a left branch, as (11a) illustrates. Such subject-relative clauses are much more difficult to parse than their right-branching object-relative versions in (11b) (Chomsky and Miller 1963).

(11)   (a)   The rat [the cat [the dog chased] bit] died.
       (b)   The dog chased the cat [that bit the rat [that died]].

The left-branch problem occurs in the sentence in (10), with its subject relative clause modifying [a belief]. Moreover, that NP, [a belief [that [what is sought [to be proved]]], is three clauses deep and is itself inside the relative clause headed by *which*, giving the sentence four nested levels of embedding.

2.2 Experimental Design

We designed the three-factor study in (12) to test the research questions in (7), varying Current Jury Instructions versus Plain English Instructions (written by our Task Force), College Students vs. Jurors, and Listening Only vs. Listening plus Reading. All eight experiments in the study use the same six instructions recorded by the same judge and the same six sets of true/false questions.[1] In what follows we report on Experiments 1 and 2.

---

1   Two sample instructions, Instruction 3, Burden of Proof, and Instruction 6, Direct and Circumstantial Evidence, are given below, in both Current and Plain English versions. The complete list of the six sample Jury Instructions plus a seventh, warm-up, instruction, is given in Appendix 1. The true-false questions for Instruction 6 are given in Appendix 2.

(12) Experimental Design

	LISTENING	
	Current Jury Instructions	Plain English Jury Instructions
Students	Experiment 1	Experiment 2
Jurors	Experiment 3	Experiment 4
	LISTENING + READING	
	Current Jury Instructions	Plain English Jury Instructions
Students	Experiment 5	Experiment 6
Jurors	Experiment 7	Experiment 8

2.3 Hypotheses

Our main hypotheses are given in (13):

(13) (a) Current Jury Instructions are harder to understand than Plain English Jury Instructions.
       (b) Students will perform better on a comprehension test than jurors.
       (c) Reading with listening will improve comprehension over listening alone.

In addition, we hypothesize that linguistic complexity contributes to comprehension. This study focuses on (13a) and on (13d), below. Of the many factors discussed above that may play a role, we focus on two: one syntactic, passive verbs, and one semantic, presupposed, undefined words and phrases:

(13) (d) Linguistic factors play a role in comprehension.
       (i)   Passive verbs cause more processing difficulties than active verbs.
       (ii) Presupposed, undefined words and phrases cause more processing difficulties than those whose definitions are known.

Recall that Experiments 1 and 2 involved only students and not jurors, and did not include Reading, so we will not be discussing hypotheses (b) or (c).

2.4 Method

2.4.1 Subjects

Our subjects were undergraduate students at Northeastern University. To be included in our study, a student had to meet our "student subject criteria," by being: a) a US citizen, b) at least 18 years of age, and c) a native speaker of English. Juror subjects must meet a) and b) but not c), since non-native speakers are permitted to be jurors in Massachusetts. There were 58 students who qualified; 29 in Experiment 1 and 29 in Experiment 2, about equally balanced between males and females.

2.4.2 Materials

The study used six instructions (plus one practice, "warm-up" instruction) from the MCLE *Massachusetts Superior Court Civil Practice Jury Instructions* (Brady, Lipchitz, and Anderson 2008), the

recommended civil jury instructions used throughout the state of Massachusetts. (The state does not *require* that any specific instructions be used, either civil or criminal.) Experiment 1 used the instructions verbatim. Experiment 2 used Plain English versions written by our project team, which included Massachusetts judges and lawyers who are all familiar with the current civil instructions. This team also constructed a set of 72 true-false comprehension questions, which were used in both experiments, the number for each instruction varying with the length of the instruction. Current Jury Instruction, Massachusetts MCLE §1.20 "Burden of Proof" (Brady, Lipchitz, and Anderson 2008) and the Plain English version of that instruction are in Figure 1.

Jury Instruction 3: Burden of Proof

Current Jury Instruction	Plain English Jury Instruction
The standard of proof in a civil case is that a plaintiff must prove (his/her) case by a preponderance of the evidence. This is a less stringent standard than is applied in a criminal case, where the prosecution must prove its case beyond a reasonable doubt.	*This is a civil case. In a civil case, there are two parties, the "plaintiff" and the "defendant." The plaintiff is the one who brings the case against the defendant. And it is the plaintiff who must convince you of his case with stronger, more believable evidence. In other words, it is the plaintiff who bears the "burden of proof."*
By contrast, in a civil case such as this one, the plaintiff is not required to prove (his/her) case beyond a reasonable doubt. In a civil case, the party bearing the burden of proof meets the burden when (he/she) shows it to be true by a preponderance of the evidence.	*After you hear all the evidence on both sides, if you find that the greater weight of the evidence – also called "the preponderance of the evidence" – is on the plaintiff's side, then you should decide in favor of the plaintiff.*
The standard of a preponderance of the evidence means the greater weight of the evidence. A preponderance of the evidence is such evidence which, when considered and compared with any opposed to it, has more convincing force and produces in your minds a belief that what is sought to be proved is more probably true than not true.	*But if you find that the evidence is stronger on the defendant's side, or the evidence on the two sides is equal, 50/50, then you must decide in favor of the defendant.*
A proposition is proved by a preponderance of the evidence if, after you have weighed the evidence, that proposition is made to appear more likely or probable in the sense that there exists in your minds an actual belief in the truth of that proposition derived from the evidence, notwithstanding any doubts that may still linger in your minds.	*Now, you may have heard that in some cases, the evidence must convince you "beyond a reasonable doubt." That's only true for criminal cases.*
Simply stated, a matter has been proved by a preponderance of the evidence if you determine, after you have weighed all of the evidence that that matter is more probably true than not true.	*For civil cases like this one, you might still have some doubts after hearing the evidence, but even if you do, as long as one side's evidence is stronger – even slightly stronger – than the other's, you must decide in favor of that side.*
	Stronger evidence does not mean more evidence. It is the quality or strength of the evidence, not the quantity or amount, that matters.

Figure 1

Audio recordings of the fourteen instructions – the six Current Instructions, six Plain English Instructions, and two warm-up instructions – were made by the Honorable Judge Judith Fabricant of the Massachusetts Superior Court.

2.4.3 Procedure

Each subject was given a stack of seven sheets, face down, and was asked to listen as a member of the research team read a brief paragraph explaining the procedure: 1) listen to the audio recording

of each instruction, 2) turn over the top sheet to find a set of questions about each instruction (in the form of true/false statements), 3) circle all the statements that you think are true, and 4) move the sheet to the bottom of the stack. Recall that in these experiments, the text of the instructions was not supplied; the subjects simply listened to the recordings.

2.5 Results and Discussion

Hypothesis (13a) states that subjects will perform better on the Plain English Jury Instructions than on the Current Instructions, and Figure 2 confirms this, showing the proportion of questions that at least 90% of the subjects answered correctly, a level of understanding that we considered our "comprehension criterion" for an instruction. For the Current Jury Instructions, 30% of the questions were answered correctly by 90% or more of our subjects, in comparison to 52% for the Plain English Jury Instructions. The 22% difference was shown to be statistically significant, as analyzed using a mixed-effect logistic regression model ($z = -2.08$, $p < .05$). So overall, the subjects performed better on the Plain English than on the Current Instructions.

Subject Performance: Proportion of questions answered correctly by ≥ 90% of subjects
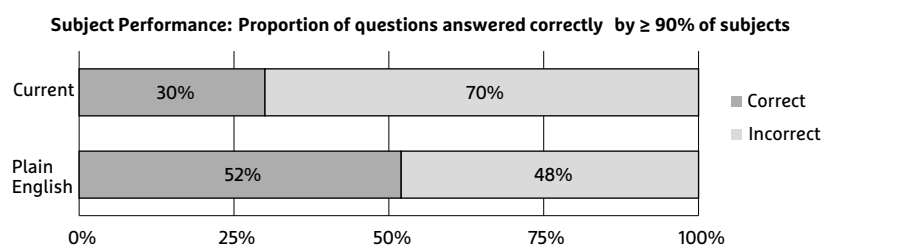
Figure 2

Interestingly, however, correct answers were not distributed uniformly across the instructions. Focusing on the Current Jury Instructions, Figure 3 shows that the comprehension scores ranged from a low score of 61% on Instruction 6 to nearly 90% on Instructions 1 and 2.

Current Jury Instructions
Subject performance: average rates of comprehension by instruction

Figure 3

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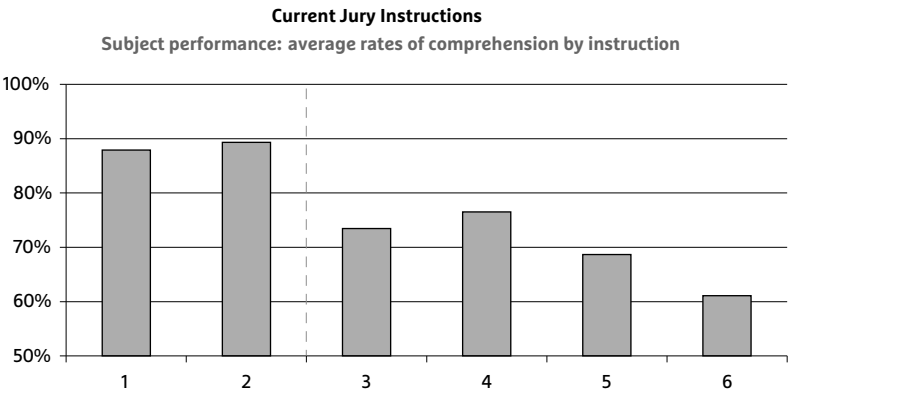
In other words, the subjects performed significantly better on Instructions 1–2 than on Instructions 3–6 ($z = -3.12$, $p < .01$). Why this was the case is addressed by hypothesis (13d).

Hypotheses (di) and (dii) (repeated here) address two linguistic factors that may contribute to this variation across the instructions, passive verbs and presupposed terms.

(13) (d) Linguistic factors play a role in comprehension
        (i)   Passive verbs cause more processing difficulties than active verbs.
        (ii)   Presupposed, undefined words cause more processing difficulties than words whose definitions are known.

Figure 4 shows the proportion of passive verbs across the six Current Instructions: Instructions 1–2 contain the lowest rates of passives; Instructions 3–6 contain higher rates. Figure 5 shows the proportion of presupposed terms across the six instructions: again, Instructions 1–2 contain the lowest percentages of presupposed terms, Instructions 3–6, higher percentages.

Current Jury Instructions
Passive verbs / total words

Figure 4

Current Jury Instructions
Presupposed terms / total words
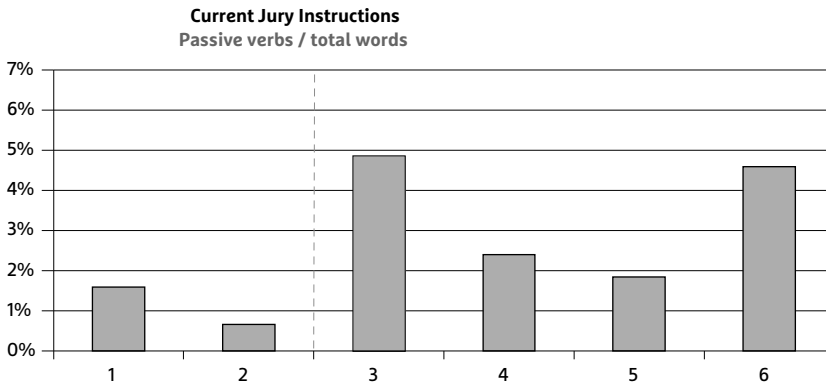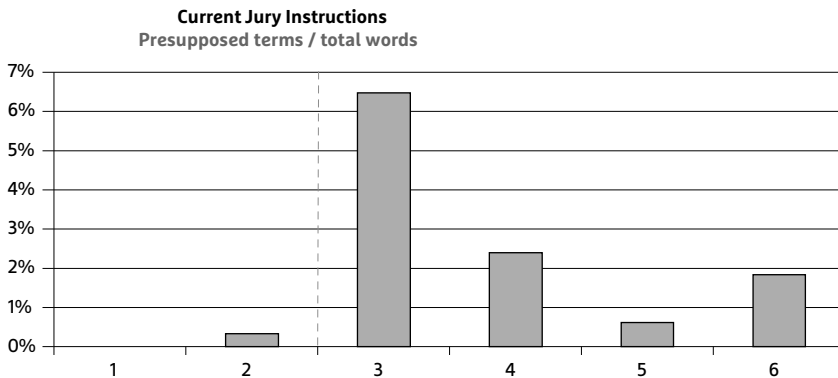
Figure 5

A striking correlation emerges when Figures 3, 4, and 5 are considered together, in Figure 6. For the instructions in which the rates of both passive verbs and presuppositions were lowest, Instructions 1–2, subject performance was highest; for those instructions in which the rates of passives and presuppositions were high, 3–6, comprehension was low. This suggests that hypothesis (13d) is correct: these two linguistic factors may be at least partly responsible for how well the subjects understood the Current Jury Instructions.
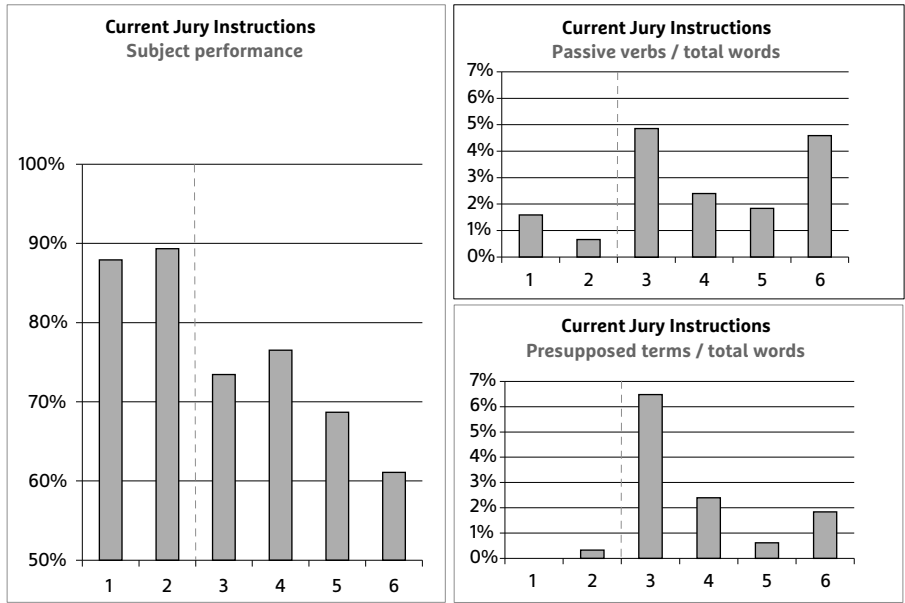
Figure 6: *A Correlation?*

This correlation is even more revealing when we consider the instructions individually, as in Figure 7.
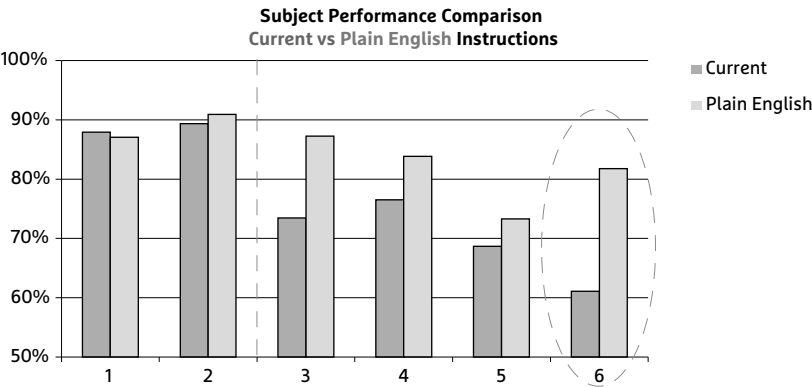
Figure 7

The darker, left-hand bars of each pair are the individual comprehension scores of the Current Instructions, repeated from Figure 3. The lighter, right-hand bars are the comprehension scores of the Plain English Instructions. In the Current Instructions with the highest rates of comprehension, Instructions 1–2, the Plain English versions led to little or no improvement, because there was little room to improve: the scores were already near 90%. Instructions 3–5 showed more significant improvements, which ranged from 5% to 14%. However, the largest improvement was on instruction 6, from 61% to 82%, a highly significant difference of 21% (z = -2.86, *p* < .01). What accounted for this large difference? Given the correlation that emerged across the Current Jury Instructions between linguistic complexity and comprehension, in Figure 6, we might expect linguistic complexity – the rates of passive verbs and presupposed terms – to be playing a role. And they are.

The two versions of Jury Instruction 6, "Direct and Circumstantial Evidence," are in Figure 8.

Jury Instruction 6: Direct and Circumstantial Evidence

Current Jury Instruction	**Plain English Jury Instruction**
There are two types of evidence that you may use to determine the facts of a case: direct evidence and circumstantial evidence.	*You have heard evidence that you must use to decide what the facts are in this case. There are two types of evidence. One type is called direct evidence, which is what a witness claims to have seen or heard or smelled. So, a witness saying that she saw a mailman put mail into her mailbox is direct evidence that the mailman delivered her mail.*
You have direct evidence where a witness **[testifies directly]** *about the fact that* **is to be proved**, *based on what (he/she) claims to have seen or heard or felt with (his/her) own senses, and the only question is whether you believe the witness.*	*The other type of evidence is indirect or "circumstantial" evidence. A witness saying that she saw that her mailbox was empty when she left the house, and full when she came home is indirect evidence that the mailman delivered her mail.*
You have circumstantial evidence where no witness can **[testify directly]** *about the fact that* **is to be proved**, *but you* **are presented** *with evidence of other facts and then* **asked** *to draw reasonable inferences from them about the fact that* **is to be proved**.	*Indirect evidence allows you to reach the same conclusion as direct evidence, but you have to make an inference -- a logical connection – to get there. It makes no difference whether evidence is direct or indirect. One is not better than the other.*

Figure 8

Current Jury Instruction 6 contains five passive verbs (underlined) and two presupposed terms (in brackets), out of a total of 109 words. In contrast, in the longer, 150-word, Plain English version, there are no presupposed terms and only one passive verb. Figure 9 shows the inverse correlation for this instruction. The subjects scored 61% correct responses on the Current instruction, which had high rates of passives and presupposed terms; they scored significantly better, 82%, on the Plain English instruction, which had lower rates of passives and presupposed terms.
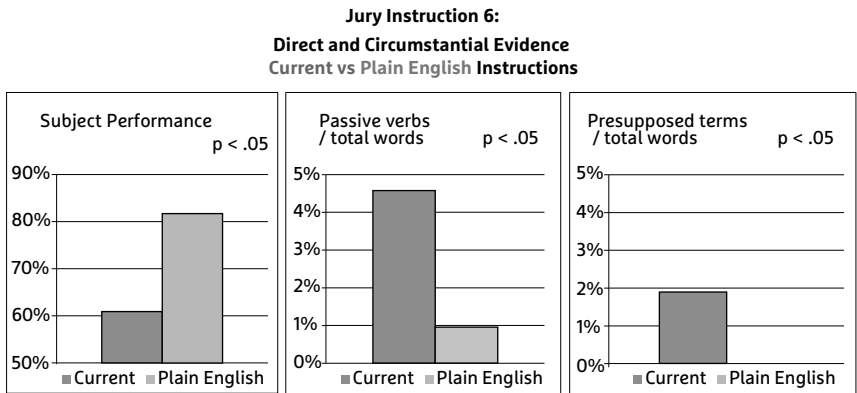
Jury Instruction 6:
Direct and Circumstantial Evidence
Current vs Plain English **Instructions**

Figure 9

What this suggests is that it is possible to change jury instructions to improve jurors' comprehension by considering those linguistic factors that increase processing load and doing our best to eliminate them.

3. Conclusions

Three striking results have emerged from this study, and they begin to answer the research questions that we began with in (7).

(7)   Research Questions
    (a)   Do people have trouble understanding our current Massachusetts jury instructions?
    (b)   If so, why?
    (c)   Will Plain English Jury Instructions be easier to understand?
    (d)   What factors influence comprehension?

Yes, our subjects did have trouble understanding current Massachusetts jury instructions overall, as Figure 2 illustrated, but the degree to which they understood them varied from instruction to instruction, as we saw in Figure 3. Their relative difficulty appears to be attributable, at least in part, to linguistic complexity. We focused on two factors that are known to cause difficulties in processing, one syntactic factor, passive verb forms, and one semantic factor, presupposed terms. As Figures 4, 5, and 6 showed, the "easiest" instructions for the subjects to comprehend, Instructions 1–2, contained the lowest rates of both passive verbs and presupposed terms. The "hardest" instructions for the subjects to comprehend had the highest rates of these linguistically complex factors. In other words, we found an inverse correlation between how well the subjects performed in comprehension and the occurrence of the linguistic complexity contributed by these two linguistic elements.

We also found strong evidence that the Current Jury Instructions were harder to understand than the Plain English versions, as Figure 7 showed. And again, linguistic complexity played a role. Where the improvement with the Plain English Instruction was greatest, in Instruction 6, "Direct and Circumstantial Evidence," we found the same reverse correlation between high improvement and low rates of passives and presupposed terms. Looking at these findings in

terms of our hypotheses, repeated here from (13), they suggest strong support for (a) and (d), both (di) and (dii):

(13) Hypotheses
    (a) Current Jury Instructions are harder to understand than Plain English Jury Instructions.
    (b) Students will perform better on comprehension than jurors.
    (c) Reading with listening will improve comprehension over listening alone.
    (d) Linguistic factors play a role in comprehension.
        (i) Passive verbs cause more processing difficulties than active verbs.
        (ii) Presupposed, undefined words cause more processing difficulties than words whose definitions are known.

Our approach to the problem of jury instructions builds on research showing subjects' difficulties in comprehending jury instructions in many states across the US (Charrow and Charrow 1979; Elwork, Sales, and Alfini 1982; Reifman, Gusick, and Ellsworth 1992; Saxton 1998; Diamond and Levi 1996; Diamond 2003; Tiersma 1993, 1999, 2001, 2009). And our results are consistent with theirs. And though we have so far tested only students, we anticipate that many actual jurors would have even more difficulty, because they may not have the language skills or education of the college students in our study.

In Massachusetts, the Supreme Judicial Court states:

> Not only should the ideal jury pool reflect the ethnic diversity of the community, but it should also reflect a cross-section of residents from all the member towns of that judicial district . . . When all eligible citizens participate in jury duty, they guarantee the fundamental right to a fair trial to all those who appear before the court. (Massachusetts Judicial Branch 2011)

These two statements express two important expectations about representative juries: 1) jurors should represent the state's ethnic and geographic diversity, and 2) representative juries are necessary to guarantee fair trials. But these expectations are met only if every one of the diverse group of jurors can actively participate, whatever their first language and level of education. Unclear instructions that shut certain jurors out deprive them of their right to take part equally with other jurors. At the same time, they deprive "those who appear before the court" of a diverse group of jurors to hear and judge their case.

As linguists, we are in a position to change the situation. Our studies demonstrate that unclear jury instructions can be effectively rewritten. Our linguistic analyses reveal some of the factors that matter. Our hope, after completing all of our experiments, is that the results of our research will lead to new jury instructions that will make courtroom verdicts more reliable and improve the administration of justice in Massachusetts and beyond.

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Appendix 1

The Jury Instructions used in the studies

Warm-Up	Negligence
Instruction 1	Breach of Contract
Instruction 2	Credibility of Witnesses
Instruction 3	Standard of Proof
Instruction 4	What Is Evidence?
Instruction 5	Inferences
Instruction 6	Direct and Circumstantial Evidence

Appendix 2

True-false questions for Instruction 6: Direct and Circumstantial Evidence

(1) Suppose a convenience store owner arrives at his store one morning and sees fresh graffiti on the store window. Later that day, he sees two teenagers with cans of spray paint pass outside the store. Which of the following is direct evidence that these teenagers sprayed the graffiti on his storefront? (Circle all that apply.)

    (a) A witness said that she was walking her dog that night and saw two teens running away from the store.

    (b) A video recording taken by a security camera showed the teens spraying the graffiti.

    (c) A 6-year-old boy watching from his window across the street said that he saw the two teens using spray paint on the storefront.

    (d) A classmate said he heard the two teens boasting about the graffiti at school the next morning.

(2) Indirect or circumstantial evidence is evidence that:

(circle all that apply)

    (a) requires you to make an inference

    (b) depends on other evidence

    (c) must be confirmed by direct evidence

    (d) is just as strong as direct evidence

Pragmatic Aspects of Comment Clauses in Courtroom Interaction

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Abstract: The study shows different approaches to the notion of "comment," including those of Quirk et al. (1985), Biber et al. (1999) and Huddleston and Pullum (2002). It focuses, in agreement with Stenström (1984, 1994, 1995) and Brinton (2008), on various realizations of selected comment clauses (or pragmatic markers) in courtroom discourse, based on transcripts from a high-profile libel case. It is also an attempt to find a linkage between the most frequent *I-* and *you*-oriented comment clauses, their deployment by the participants in the trial and the discourse functions they perform in courtroom talk. The study aims to show that comment clauses can be approached as a discourse phenomenon and that their examination in the context of courtroom interaction may provide insights into how pragmatic meanings are created in an institutional setting.

Keywords: comment clauses; pragmatic markers; courtroom discourse

1. Introduction

Comment clauses have undeniably received extensive coverage in the linguistics literature. They have been approached as a grammatical category (e.g., Quirk et al. 1985; Biber et al. 1999; Kaltenböck 2006), described as inserts, fillers and parentheticals (e.g., Urmson 1952; Leech and Svartvik 1994; Huddleston and Pullum 2002) or, increasingly, regarded as discourse or pragmatic markers (e.g., Stenström 1984, 1994; Östman 1981; Schiffrin 1987; Fraser 1990; Aijmer 1996; Brinton 2008; Povolná 2010). And yet, despite this multitude of studies, to date, relatively less attention has been paid to the realization of clausal pragmatic markers in the context of institutional discourse. To fill this gap, the article aims to provide a discourse-functional account of selected *I-* and *you*-oriented clausal markers, such as, for instance, *I mean*, *as I said*, *you know* or *as you will see*. Relying on transcripts from a high-profile libel case, the study will reveal recurrent patterns in the use of comment clauses by the participants in the trial, as well as offering a pragmatic reading of them. An attempt will also be made to find a linkage between the most frequent *I-* and *you*-oriented comment clauses and the discourse functions they perform in the courtroom setting.

2. Parentheticals, Comment Clauses, or Pragmatic Markers?

Falling under the broad category of parentheticals, comment clauses or clausal pragmatic markers (Brinton 2008) are of interest not only to syntactic theorists, but also to discourse analysts. It is no exaggeration to say that there is a legion of labels used to refer to them. Suffice it to mention asides, D-items, pragmatic markers, interactive discourse markers, void pragmatic connec-

tives, verbal fillers, softeners, pause-fillers, supplements, pragmatic particles, hesitation-markers, fumbles, cajolers, underscores or let-me-explains. The terms used in this study, i.e., "comment clauses" and "pragmatic markers," reflect the view, in agreement with Stenström (1984, 1994, 1995) and Brinton (2008), that the pragmatic force of the items being analyzed prevails over their function as clause elements. That is not to say that grammar-oriented descriptions of comment clauses do not have any bearing on their discourse-functional examination. In fact, well-established traditional approaches to comment clauses will be the starting point of the review of the investigations which inspired this research.

Among the grammar books which inform this study are Quirk et al.'s (1985) *A Comprehensive Grammar of the English Language* and Biber et al.'s (1999) *Longman Grammar of Spoken and Written English*. The first of the two books offers an exhaustive classification of comment clauses or "parenthetical disjuncts" which "express the speakers' comments on the content of the matrix clause" or "convey the speakers' views on the way they are speaking" (Quirk et al. 1985, 1112). The six syntactic types of comment clauses defined by Quirk et al. (1985, 1112–18) can be illustrated by the following examples: *I believe*, *as you know*, and *what is more interesting* (content disjuncts) and *to be honest*, *speaking as an expert*, and *stated bluntly* (style disjuncts). As will be demonstrated further in the article, by far the most frequent type of comment clause is that resembling the matrix clause of a main clause and containing a transitive verb (e.g., *I believe*, *I hope*, *I know*, *you know* or *you see*). What is more, Quirk et al. (1985, 1114–15) maintain that comment clauses such as *I believe* or *you know* perform various semantic functions such as hedging, expressing certainty/emotion, claiming the hearer's attention/calling for agreement or expressing warmth/informality.

Biber et al. (1999, 966), on the other hand, approach comment clauses as stance markers expressing "personal feelings, attitudes, value judgments, or assessments," or, broadly speaking, the speaker's attitude to what is said. In their view, "stance adverbials," as they call them, "have the primary function of commenting on the content or style of a clause or a particular part of a clause" (853). And even though single adverbs represent the highest percentage of stance adverbials in all the registers they analyze, finite clauses (which are the focus of this study) are the second most frequent syntactic realization of stance adverbials in conversation and fiction (862). What is more, commenting on "the common routine use in conversation of discourse markers and other elements on the periphery of clause structure," they hold that these "are typically used to signal the pragmatic or discoursal role of the speaker's utterance, dynamically shaping it to the ongoing exchange" (1046). Further still, in their discussion of the positional mobility of these expressions, Biber et al. (1999, 1077) point out that, whether in initial or non-initial position, discourse markers are both interactive and cohesive.

Already noted above, the concept of "periphery," on the other hand, comes to the fore in Huddleston and Pullum's (2002) *Cambridge Grammar of the English Language*. While not followed in this study, their idea of "supplements," including relative clauses, verbless clauses, non-finite clauses and interjections (Huddleston and Pullum 2002, 1356) merits a mention. The authors employ the term "parentheticals," rather than "comment clauses," to refer to "expressions which can be appended parenthetically to an anchor clause" (895). At the same time, they stress that parentheticals can also have non-parenthetical uses, with the anchor serving as a complement (895). The subjectivity of parentheticals, in turn, is underlined by Palacas (1989, 516), for whom parentheticals express a "self, a first person, expressing reflections for

the benefit of the implied second-person listener/reader, thus drawing the latter into the communicative event." And even though there is no consensus about what the term "parenthetical" subsumes, the majority of researchers share the view that parentheticals are syntactically unintegrated or independent[1] and that they are marked off, whether graphically or prosodically, from the anchor or host clause (see, for instance, Bolinger 1989; Espinal 1991; Rouchota 1998; Kaltenböck 2005).

Finally, situated among pragmatically-oriented accounts of comment clauses, Brinton's (2008) diachronic investigation of pragmatic markers and Stenström's (1984, 1994, 1995) exploration of the organization of spoken interaction are the next two studies which motivated this research. In particular, the present analysis draws on Brinton's (2008, 1) understanding of a "pragmatic marker" denoting "a phonologically short item that is not syntactically connected to the rest of the clause (i.e., is parenthetical), and has little or no referential meaning but serves pragmatic or procedural purposes" and encompassing single-word items as well as phrases (Brinton 1996, 30). Equally vital for the foregoing investigation of clausal markers is Stenström's (1984) research, which views clausal forms as a distinct discourse category comprising items used for turn-taking, turn-keeping and turn-yielding, i.e., for floor management. Of particular relevance to this study are Stenström's (1984) findings regarding the position-function correlation. It is believed by Stenström (1984) that the same markers can be linked to different functions, even when they occur in the same turn positions. In general, as maintained by her, the pragmatic interpretation of comment clauses is affected by the inherent semantic content of the verbs, the position in the turn and prosody, and, finally, the entire situational context (Stenström 1995, 294). In addition, Stenström (1994) distinguishes the following functional categories of comment clauses: empathizers, appealers, inform markers, verbal fillers, and monitors. Povolná (2010, 72), similarly, underlines that, apart from performing a number of pragmatic functions, finite clausal forms enhance the smooth flow of interaction, establish discourse coherence and participate in politeness strategies, and, further, extending Stenström's list of categories, she includes opine markers, markers of certainty, and markers of emotion in her study of conversational English.

Thus, while sharing much of the theoretical basis referred to above, the analysis performed here will investigate recurrent patterns in the use of comment clauses in courtroom interaction, as well as attempting to decode their pragmatic meanings in the context of adversarial proceedings.

3. Data and Method

The 230,377-word corpus compiled for this research is a collection of five courtroom transcripts from the *Irving v. Lipstadt* libel case heard by the High Court of Justice of England and Wales in 2000, which were downloaded from the *Holocaust Denial on Trial* site. The transcripts represent the parties' opening statements (day 1), examination and cross-examination of the Claimant (days 2 and 3), and the cross-examination of two expert witnesses (days 10 and 18).

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1   Even though there are certain syntactic constraints on the position of a parenthetical. For instance, as argued by Jackendoff (1972, 98), parentheticals cannot occur between a verb and its complement. Nor can they be used within the premodifier of a noun phrase or between a preposition and its complement (Schelfhout 2000; Potts 2002, 645–46). It has also been reported that parentheticals cannot be the subject of syntactic operations occurring in the host structure, e.g., they cannot be questioned or become the focus of *it*-clefts (Dehé and Kavalova 2006, 293).

Since the data document adversarial proceedings, a note regarding the communicative context of this kind of trial involving an overt or concealed conflict seems in order. Prevailing in common-law jurisdictions, the adversarial procedure entails "the vigorous presentation of evidence slanted toward different positions" (Solan 2010, 395) and, consequently, no attempt is made "to find any middle ground or a compromise solution" (Gibbons 2005, 77). In fact, to reach their ultimate goal of winning the case, counsels present prepared accounts of events to the judge and jury with a view to affecting their perception of the evidence (Gibbons 2005, 96). Thus, rather than providing new information, witnesses merely confirm the counsels' version of events.

Also worthy of note at this point are the typical features of courtroom talk, as mentioned by Stenström (1994, 169–174). Juxtaposing interviews – exemplified by an admissions interview, a radio-broadcast political interview, and a courtroom examination – with other forms of interaction, Stenström (1994, 198) lists the following characteristics:

- what parties "do" is predetermined
- who talks when is predetermined
- it contains phatic talk
- it contains asides
- it is goal-oriented
- it is cooperative
- it contains signals and markers

It should also be remembered, after Stenström (1994, 198), that interviews, including courtroom hearings, typically do not contain simultaneous speech, digressions or speech-in-action and, further, that they are not social. Still, the features listed above should not be regarded as universally valid since, as Stenström (1994, 198) herself admits, this characterization is a generalization and a simplification.

Accordingly, in line with the discourse-functional orientation of this research and in particular drawing on Stenström (1994) and Povolná (2010), the following criteria were used in the selection of comment clauses for analysis:

- situational context (courtroom interaction, adversarial procedure, trial participant roles)
- syntactic type (finite clausal forms: *I/you* + verb, *as*-, *if*-, *and*-clauses)
- *I-/you*-orientation
- positional mobility (initial, medial, final)

Though they were deemed important in an examination of comment clauses, prosodic features were excluded from the analysis, since no relevant annotation was present in the transcript data.

Finally, as implied by the above considerations and given that the present study focuses on the pragmatic role of the clauses selected for analysis, a qualitative perspective was adopted to reveal recurrent function-form correlations in the data. To this end, the investigation addressed the following questions: 1. What are the most frequent comment clauses in the data? 2. How are they deployed by the respective participants in the trial? and 3. What discourse-pragmatic functions do these clausal markers perform in the context of courtroom interaction? It is hoped that the findings reported below, together with my analysis of epistemic lexical verbs in courtroom discourse (Szczyrbak 2013), will pave the way for a more extensive research project on a variety of stance-taking resources deployed in dyadic legal encounters such as courtroom hearings and police interviews.

4. Findings

4.1 Types of Comment Clauses Analyzed

The clausal markers recognized in the data shared a number of characteristics reported in previous studies (e.g., Stenström 1995; Povolná 2010) and as such they did not belong to a uniform and readily identifiable class or category. As expected, they:

- occurred outside the syntactic structure or were loosely appended
- were typically separated by commas or parentheses
- were syntactically deletable, but pragmatically required
- tended to be multifunctional (conveyed textual and interpersonal meanings)
- served a different function in a different position or a different function in the same position
- organized interaction (were interactive and cohesive)

With regard to position mobility, it is worth stressing that the majority of comment clauses in the corpus (e.g., *I think*, *I mean* and *and I*-clauses) appeared sentence-medially, while sentence-final position was a frequent choice only in the case of *if*-clauses (especially *if I may* linked to politeness and formal discourse). The position-function correlation, in turn, was clearly visible in instances with sentence-initial *I think* (marking authority) and sentence-medial *I think* (associated with hedging and mitigation). The pragmatic reading of *as you*-clauses, conversely, remained the same irrespective of the position in which they were placed.[2]

What is more, when approached as a discourse phenomenon, the items analyzed were found to operate as stance-taking resources employed interactionally to evaluate objects and to position subjects (cf. Du Bois's [2007] interactional concept of stance).

Of particular interest to this study, then, were four types of *I*- and *you*-oriented clausal markers (see Table 1), which proved to be the most commonly used comment clauses in the data. More precisely, the scope of this investigation was narrowed down to the following types of markers:

1. *I* + verb, *you* + verb
2. *As I*-clauses, *as you*-/*as your Lordship*-clauses[3]
3. *If I*-clauses, *if you*-/*if your Lordship*-clauses
4. *And I*-clauses[4]

Type of CC:	I-oriented CCs	You-oriented CCs
I/you + verb	*I think, I mean, I believe*	*you know, you see*
as I-/as you-clauses	*as I say, as I understand (it), as I said, as I think, as I would call them*	*as you know, as you say, as your Lordship is aware, as you will see*
if I-/if you-clauses	*if I may call it that, if I may say so, if I may, if I remember correctly*	*if you remember, if you wish, if you look, if your Lordship is interested*
and I-clauses	*and I do not say, and I have explained, and I have to emphasise . . .*	—

Table 1. *Examples of* I-*oriented and* you-*oriented comment clauses in the data.*

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2   The multifunctionality of selected clausal markers will be addressed in greater detail in the remainder of the paper.
3   Judges of the High Court of Justice of England and Wales are referred to as *Your Lordship* or *Your Ladyship*.
4   There were no attestations of *and you*-clauses in the data.

4.2 Frequency and Distribution of Comment Clauses in the Data

In total, the analysis revealed 433 clausal pragmatic markers which met the criteria that had been adopted. As could be expected, with almost identical frequencies, *I think* and *I mean* emerged as the most common items in the data, accounting for 18% and 17.5%, respectively. Less predictably, with a mere 4.4%, *I believe* turned out to be the third most frequent comment clause in the corpus. As regards *I-* vs. *you-* orientation, in turn, it was established that *I*-oriented clausal markers (73.7%) significantly outnumbered their *you*-oriented counterparts (26.3%), as shown in Tables 2 and 3. Of all the clauses found within the former category, *I + verb* was the preferred choice (40%), followed by the decidedly less common *as I*-clauses (14.3%), *and I*-clauses (10.2%), and *if I*-clauses (9.2%). *You*-oriented clausal markers, conversely, were represented mainly by *as you-/as your Lordship*-clauses (11.3%) and *if you-/if your Lordship*-clauses (8.3%), and, least frequently, by *you + verb* realizations (6.7%).

I-oriented CCs	Frequency
I + verb	173 (40.0%)
as I-clauses	62 (14.3%)
and I-clauses	44 (10.2%)
if I-clauses	40 (9.2%)
TOTAL:	319 (73.7%)

Table 2. *Frequency of* I-*oriented comment clauses in the data.*

You-oriented CCs	Frequency
as you-/as your Lordship-clauses	49 (11.3%)
if you-/if your Lordship-clauses	36 (8.3%)
you + verb	29 (6.7%)
TOTAL:	114 (26.3%)

Table 3. *Frequency of* you-*oriented comment clauses in the data.*

In connection with the above findings, a few points deserve further development. Unsurprisingly, the lowest number of comment clauses was identified in the least interactive portion of the data, that is, in the parties' opening statements. The cross-examination, on the other hand, yielded a variety of clausal markers, among which *as*-clauses and the markers *you know* and *as you know* were quite prominent. Being the most common markers in the whole corpus, *I think*, *I mean*, and *I believe* were at the same time the most frequently selected *I*-oriented clauses (Table 4). It was also noted that *I think* was often relied on by the Judge, the Claimant and the Counsel, while *I mean* was chiefly used by the witnesses during cross-examination. *I believe*, on the other hand, which was linked to epistemic stance and the negotiation of the status of knowledge, was readily deployed by the Claimant. Finally, among *you*-oriented clauses, *you know* and *you see* resurfaced as the two most common items (Table 5).

I-oriented CCs	Frequency
I think	78 (18.0%)
I mean	76 (17.5%)
I believe	19 (4.4%)

Table 4. *The most frequent* I-*oriented comment clauses in the data.*

I-oriented CCs	Frequency
you know	17 (3.9%)
you see	12 (2.7%)

Table 5. *The most frequent* you-*oriented comment clauses in the data.*

More generally, taking the participant variable into consideration, the research confirmed what could have been tentatively proposed prior to the examination of the data. It transpired that the participants in the trial opted for *I*-oriented clauses linked to mitigation and hedging, rather than for the *you*-oriented markers typical of informal conversations and calling for agreement and cooperation (Table 6). As determined by the context of the adversarial procedure, the participants in the trial (excluding the Judge) were antagonistic rather than cooperative, which found its reflection in the structuring of the courtroom interaction, with the participants seeking to "sell" their testimony, while discrediting that of the opposing party. What is more, realizing that whatever they declare in a court of law may have actual legal consequences, the Claimant and the witnesses often relied on hedging and mitigation associated with *I*-oriented comment clauses. It may also be speculated that the preference for *I*-oriented markers resulted from the entire speech situation of a courtroom trial, during which the speakers concentrate on their own messages and arguments, rather than tending to cooperate with one another (cf. Povolná's [2010, 149] conclusions regarding radio discussions).

Participant	I-*oriented CCs*	You-*oriented CCs*
Judge	63 (14.5%)	21 (4.8%)
Claimant	114 (26.3%)	44 (10.1%)
Counsel	61 (14.1%)	19 (4.3%)
Witness 1	38 (8.8%)	18 (4.2%)
Witness 2	43 (9.9%)	12 (2.8%)

Table 6. I- *and* you-*oriented comment clauses per participant.*

4.3 Selected Functions of Comment Clauses in the Data

As established in the previous sections of this article, clausal pragmatic markers can be linked to a number of pragmatic and procedural functions. In what follows an attempt will be made to interpret the contextual meanings of selected items, starting with the high-frequency *I think* and *I mean* clauses.

4.3.1 "I Think" and "I Mean"

In general terms, *I think*, which has been studied extensively (see e.g., Hyland 1998; Aijmer 2002; Kärkkäinen 2003, 2007; Brinton 2008), operates either as a hedging device or as a marker of expertise and authority. It has also been postulated that rather than indexing stance itself, *I think* performs the role of a "stance frame" projecting "an upcoming stanced action" (Kärkkäinen 2007, 185). What is more, *I think* appears to act like a unitary epistemic particle in the case of which "the implicature of uncertainty in the mental mode of knowing is conventionalised" and which itself operates as a politeness marker with an intersubjective function (Brinton 2008, 59). Thus, parenthetical occurrences of *I think* do not denote real thought operations, nor do they convey conviction or authority. Seen from this angle, examples (1) and (2) demonstrate how *I think* is used for the purposes of hedging and mitigation during courtroom examination.[5]

(1) Mr Rampton. *Yes, so I understood, at Frankfurt. The last document in this little clip is,* **I think***, not connected. It is a letter,* **I think***, from Hans Frank to Heinrich Himmler dated 23rd June 1942.* [day 18, p. 11, lines 13–15]

(2) *A. [Professor Richard John Evans]. Published an article about it,* **I think***, in a learned journal. It is a somewhat problematic document,* but I think *it is of some interest and importance.* [day 18, pp. 39–40, lines 26, 1–2]

Similarly, referred to as a staller, mistake editor, mitigator, and a compromiser, *I mean* is linked to a number of discourse-pragmatic functions. The view held in this study is that *I mean*, as proposed by Brinton (2008, 114), adopts the following pragmatic meanings: "(a) appositional meanings (repair, reformulation, explicitness, and exemplification), (b) causal meaning, (c) expressions of speaker attitude (evaluation and sincerity), and (e) interpersonal meaning." In line with this view, (3) illustrates the "what-I-mean-to-say" interpretation, while *I mean* in (4) renders the "namely-that-is" reading, both falling within the category of appositional meanings. Likewise, it is believed, in agreement with Koczogh and Furkó (2011), who enumerate as many as eleven different functions of *I mean* in media discourse, that this marker can also signal topic shift, as shown in (5). Lastly, with regard to position mobility, it can be observed that *I mean* in (3) is used sentence-initially, whereas in the other two instances it occurs sentence-medially. Interestingly, as attested by the data and corroborated by other studies of *I mean* (cf. e.g., Stenström 1995; Povolná 2010), the clause is used predominantly as a parenthetical. What is more, when used sentence-medially, *I mean* is associated with the modification of the preceding utterance or the speaker's original intention. On the other hand, sentence-initial *I mean* followed by a *that*-less declarative clause, which can be interpreted either as a matrix clause or a parenthetical, tends to co-occur with explicitness and exemplification.[6]

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5   It might also be added that, in contrast to the parenthetical uses of *I think* referred to above, the non-parenthetical *but*-prefaced *I think* in (2) signals the witness's conviction and certainty.

6   Povolná (2010), similarly, reports a correlation between the turn position and the function of *I mean*. As her data indicate, monitor *I mean* occurs typically in the middle of the turn, thus marking the speaker's "endeavour to create a coherent contribution to the further development of the communication" (Povolná 2010, 98). At the same time, investigating the prosody-function interplay, Povolná (2010, 82) notes that let-me-explain *I mean* carries no tone at all.

On balance, it can be argued that apart from its full meaning of "intention," *I mean* as used in courtroom interaction performs similar discourse-pragmatic functions to those identified in non-legal settings.

(3)   A. [PROFESSOR RICHARD JOHN EVANS]. *No, not really.* **I mean**, *I do not, I do not really want to   speculate as to why they are being written.* [day 18, p. 44, lines 3–4]

(4)   A. [PROFESSOR ROBERT JAN VAN PELT]. *OK. I have one of the documents right here in my hand, so,* **I mean**, *I could give it to you, I could quote it, I could read, because we have the report of the trip of 17th September.* [day 10, p. 102, lines 23–26]

(5)   A. [MR IRVING]. *I did not ask a question. I just said,* **I mean,** *shall we talk about Anne Frank . . .* Q. [MR RAMPTON]. *No, I do not want to talk about Anne Frank.* [day 2, p. 233, lines 11–12]

4.3.2 "You Know" vs. "As You Know"

Interesting observations can also be made about the markers *you know* and *as you know*. As reported by Stenström (1984, 77), the two clauses differ in that the first of them calls for feedback, while the other does not. In addition, *you know* does not necessarily presuppose previous knowledge on the part of the listener, whereas *as you know* does. What is more, *as you know* operates as a politeness device, which is not always the case with *you know*.

In the data set analyzed in this study, *you know* was preferred by Witness 1, while *as you know* was favored by Witness 2, which, however, might have resulted purely from idiosyncratic preferences. By way of illustration, "claiming the hearer's attention" can be attributed to *you know* in (6), while "appealing to shared knowledge" is instantiated by *as you know* in (7). For obvious reasons such as (in)formality and politeness considerations, *you know* was never used in combination with *Lordship*, nor were there any instances of the clause *as your Lordship knows* (the more formal clause *as your Lordship is aware* was preferred instead).

(6)   A. [PROFESSOR ROBERT JAN VAN PELT]. *I do not know of any photo opportunities for Mr Tau-ber having been published in the press. If you can bring this,* **you know,** *I would be very happy to consider it.* [day 10, p. 43, lines 9–11]

(7)   A. [PROFESSOR RICHARD JOHN EVANS]. *It depends on how you do it. I mean,* **as you know**, *dictionaries give a number of different alternative English equivalents for German words and you have to decide which one is the most accurate in the circumstances.* [day 18, pp. 24–25, lines 25–26, 1–3]

4.3.3 "If I"- and "If You"-/"If Your Lordship"-Clauses

With a comparable number of attestations, *if I*-clauses (40 tokens) and *if you-/if your Lordship*-clauses (36 tokens) came to be used chiefly for purposes of hedging, mitigation, tentativeness and, generally speaking, politeness strategies, as instantiated by (8), (9) and (10). It is also worthy

of note that *if*-clauses were clearly preferred by the Judge and the Claimant, with the latter frequently relying on the formulaic *if I may*.

(8) A. *[M*R *I*RVING*]. Mr Wisliceny is a man who is in deep trouble. First of all he is facing –*
    Q. *[M*R *J*USTICE *G*RAY*]. That is a different point,* **if I may say so**. *He is not a janitor.* [day 3, pp. 194–95, lines 24–26, 1]

(9) Q. *[M*R *J*USTICE *G*RAY*]. You said you wanted to develop that and I think now is probably the appropriate time to do that,* **if you want to**. [day 2, p. 134, lines 1–2]

(10) *[M*R *I*RVING*]. This happy situation, namely having my works published in the leading publishing houses of the world, ended a year ago, a year or two ago, under circumstances which I shall venture,* **if your Lordship permits**, *to set out later in my remarks.* [day 1, pp. 16–17, lines 25–26, 1–3]

4.3.4 "And I"-Clauses

Last but not least come *and I*-clauses co-occurring with verbs of cognition and verbs of speaking, and found mostly in the language of the Claimant. As was observed, *and I*-clauses – which organized courtroom rhetoric and ensured coherence as well as being used for stress and emphasis – primarily performed the function of metacomments. However, apart from serving as comments on the manner of speaking, as shown in (11), *and I*-clauses were also used as reporting clauses, as in (12) or as evidential/epistemic parentheticals, as evidenced by (13). Strikingly, *and you*-clauses were not attested by the data and so it may be speculated that they did not prove useful for conveying pragmatic or procedural meanings. Instead, it may be argued, the speakers focused on the projection of a coherent image of themselves and their arguments, especially in the opening statements which were prepared beforehand, for which purpose *and I*-clauses seemed fit.

(11) Q. *[M*R *I*RVING*]. That would be even worse then. The bodies would presumably get jammed against the side of the lift shaft if they piled them too high. I am just looking at practicalities here, that although technically the final version of the lift,* **and I emphasise that**, *was going to; have the 1500-kilogram capacity, in theory, when was that lift actually installed?* [day 10, p. 185, lines 3–9]

(12) Q. *[M*R *I*RVING*]. He says,* **and I am quoting again**, *"The gas chamber had no water supply of its own."* [day 10, p. 74, lines 2–3]

(13) *[M*R *J*USTICE *G*RAY*]. Can I just put to you this and then complete your answer. The Defendants may be saying that whether or not they can actually prove that you specifically knew of the particular fact, it was there available in the historical records. They may be saying,* **and I believe they are saying**, *that you shut your eyes to it.* [day 1, p. 87, lines 9–14]

5. Conclusions

The article has explored the discourse-pragmatic functions of selected comment clauses in courtroom interaction to show how these operate in formal, institutional discourse. Approaching clausal pragmatic markers as a discourse phenomenon rather than a traditional grammar category, it has shown the frequencies and the distribution of the items analyzed, as well as the prevalent patterns of use and their contextual interpretation. More precisely, it was found that *I*-oriented comment clauses (such as *I think* or *I mean*), which significantly outnumbered *you*-oriented markers, operated as stance-taking devices linked to epistemic stance, hedging and politeness strategies, and metacomments organizing discourse and ensuring coherence. As expected, the deployment of the individual markers depended on the roles of the participants in the trial and, more generally, on the entire communicative context of the courtroom hearings. Still, given the size of the corpus and the limited number of participants, it should be admitted that the data indicate certain trends in the usage of selected comment clauses rather than providing conclusive findings. It should also be stressed that since idiosyncratic style might be an issue, at this stage no generalizations should be attempted as the trends analyzed might not be so strongly manifested in other legal genres.

Irrespective of the foregoing limitations, however, it is believed that the findings will contribute to discourse analysts' better understanding of the interactional construction of stance in legal genres, especially in the courtroom setting. It is also hoped that they will, though perhaps to a lesser extent, assist court interpreters in decoding interpersonal meanings conveyed by participants in trials and subjected to both legal and linguistic interpretation and evaluation.

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On the Linguistic Structure of Evaluative Meaning in Czech

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Abstract: In this paper we present the results of preliminary research into the linguistic structure of evaluative meaning in Czech. We describe the ways evaluative meaning is expressed in Czech using means from different layers of linguistic description, mainly morphology. Moreover, we use the construction grammar framework (see Fried and Östman 2004) to capture evaluative sentences and to depict the relationship between structure, meaning, and the use of evaluative expressions in language, joining the growing body of constructional research concerning the expressions of subjective judgment, as broadly defined (e.g., Matsumoto 2008; Fried and Östman 2005; Terkourafi 2010).

Keywords: evaluative meaning; subjective language; linguistic structure; construction grammar

1. Introduction

This paper is based on the assumption that there is a distinction between descriptive and evaluative meanings of language structures (Hare 1952). Whereas descriptive meanings express objective facts (*Black Ivory coffee is made from elephant dung*), evaluative meanings convey attitudes instead (*I find Black Ivory coffee disgusting*). This classification has again gained much attention over the past decade with the rise of Web 2.0 (see Wiebe et al. 2004) and with the newly-emerged evaluative data obtained from weblogs or social networks which serve as a basis for numerous applications for processing natural language, including information extraction and text categorization (see Liu 2010).

Although there are some relevant linguistic theories dealing with evaluative meaning (see Section 2), we are not aware of any systematic description of evaluative structures by means of the currently available grammatical formalisms.

2. Related Work

2.1 International Scene

Issues of evaluation in language are mostly connected with philosophy, where they have a long tradition within the field of ethics (e.g., Hare 1952) and they have become a linguistic topic quite recently. However, there exist some relevant linguistic theories dealing with evaluative meaning. The commonly accepted functional approach is represented by the "appraisal theory" developed by Martin and White (2005) and based on the tradition of Systemic Functional Linguistics (SFL). SFL regards language as performing different functions, such as ideational (construing a world experience) or textual (organizing instances of discourse). One of the major functions within this theory is

the interpersonal function, i.e., construing relationships using, among others, evaluative utterances. Appraisal is defined here as "one of three major discourse semantic resources construing interpersonal meaning (alongside involvement and negation)" (Martin and White 2005, 34–35). Appraisal theory is quite significant in that it explores "semantic resources," i.e., which kinds of meanings are constructed, with less attention being paid to specific linguistic features. Conrad and Biber (2000), on the other hand, take into consideration both aspects of the evaluative items – the grammatical form and the kind of stance expressed. As demonstrated by means of the case of evaluative adverbials, they are then able to quantify, e.g., the proportion of different parts of speech in different evaluative texts and apply the quantitative approach to huge amounts of data. They use the term "stance" instead of "evaluation," e.g., when speaking about stance adverbials.

Similar terminology, namely "stance" and "stance-taking," is also used in a more fine-grained analysis of evaluation performed within the framework of "conversation analysis," e.g., by Englebretson (2007). Here, stance is considered as an activity rather than a set of markers or expressions. Stance-taking in spoken dialog is also widely described by the "stance-triangle theory" introduced by Du Bois (2007). Du Bois consistently distinguishes between the evaluating subject, evaluated object, and evaluation as the item giving value to an object, which is a crucial distinction for most of the present-day computational models of evaluation. Moreover, one needs to take into account the fact that the evaluative subject can also be the author of a given text, as described by the "metadiscourse theory." Hyland and Tse (2004), following Crismore and Farnsworth (1990), work with the assumption of interaction between writer and reader where "attitude markers" are seen as items expressing the interpersonal function of metadiscourse.

All the primary approaches introduced above are based on plain text or discourse. The latest research carried out by Susan Hunston (2011) is based on corpus data. Besides the quantifying point of view, Hunston is focused on the slippery nature of evaluative language, with respect to lexical semantics and phraseology.

It is quite surprising that none of the above-mentioned theories include the formalization of the evaluative meaning. Even though we have in view the constructional grammar research concerning expressions of subjective judgment (e.g., Matsumoto 2008; Fried and Östman 2005; Terkourafi 2010), we are not aware of any systematic description of evaluative structures by means of the currently available grammatical formalisms.

2.2 Czech Scene

Generally, there have only been a few attempts to describe evaluative meaning in morphologically rich languages (Jang and Shin 2010). To the best of our knowledge, evaluative language has not been the center of attention of Czech linguistics so far. However, there exist several isolated studies on this topic in the theoretical domain. In his paper "Subjektivnost a polarita výrazu" (1975; On subjectivity and polarity of expression), J. V. Bečka uses the up-to-date terminology (cf. Wilson 2008) in a different sense. He considers the term "subjective" as referring to the author of the given text, whereas the term "polar" is used when the author communicates with the addressee. But Bečka still reflects some basic facts about expressive (including evaluative) items and demonstrates some direct and indirect ways to express evaluation in Czech. Expressive language, e.g., vulgarisms, as the opposite of cultivated language, is mentioned in the paper "Kultura mluvených projevů" (1969; The culture of spoken utterances) by František Daneš and

occasionally investigated in some works by Světla Čmejrková, Karel Hausenblas, Jana Hoffmannová, and Marie Krčmová.

Evaluative use is sometimes mentioned in various Czech and Slovak handbooks of stylistics, mostly in connection with pragmalinguistics and performative language. Most of the authors also take expressive language in general into account, but with no special stress on evaluative language as a distinctive category. Mistrík (1985), like Jelínek (1995), emphasizes the relevance of the expressive lexicon in connection with different styles. They also distinguish between objective and subjective styles according to the degree of expressivity. Čechová et al. (1997), on the other hand, pays attention to the context and stylistic homogeneity of expressive words.

3. Czech Evaluative Data Resources

Even though the theoretical resources available for Czech are sparse, we can find large amounts of language data suitable for the study of evaluative meaning. There exists a Czech subjectivity lexicon, *SubLex* 1.0 (Veselovská and Bojar 2012), which is a list of 4,625 domain-independent evaluative items in Czech that bear an inherent positive or negative value. The Czech subjectivity lexicon was created by the automatic translation of the freely available English *MPQA Subjectivity Lexicon* (2005), using the Czech-English parallel corpus *CzEng* (Bojar and Žabokrtský 2006). All the expressions obtained were manually refined.

We can also use the manually annotated evaluative data from different internet domains (news, movie reviews, and kitchen appliance reviews), which are minutely described in Veselovská, Hajič Jr., and Šindlerová (2012). The data were annotated either by professional annotators or by online reviewers following certain guidelines. The data are tagged not only with the positive or negative polarity of a given sentence, but also with the sources and targets of evaluation (see Section 4).

In addition, there are some traditional data resources available for the evaluative language survey. The *Czech National Corpus*, or more specifically the collection of *SYN* corpuses, contains 1.3 billion tokens from different types of corpora (journalistic, fiction, and technical). The great number and variety of texts make it possible to use a quantitative approach together with a complex linguistic analysis. The *Prague Dependency Treebank* (PDT; Hajič et al. 2006) is an annotated corpus of Czech texts (for guidelines, see Mikulová et al. 2006), which consists of 3,165 documents containing 49,431 sentences. All the documents are annotated with regard to the morphological, surface syntactic, and underlying structure of the sentences, including their information structure; in about 90% of them basic anaphoric links have also already been registered, which is crucial for distinguishing the authors of the evaluation that is expressed, as well as the entities being evaluated. PDT is an advantageous resource for analyzing the syntactic and semantic nature of evaluative sentences.

4. Czech Evaluative Structures

Generally speaking, subjectivity in natural language refers to those aspects of language that are used to express opinions, evaluations, and speculations (Banfield 1982; Wiebe 1994). The three main participants of evaluative structures are

(a)   the source, i.e., the person or entity that expresses or experiences the evaluation;
(b)   the target that is evaluated;
(c)   evaluative elements, i.e., words or phrases inherently bearing a positive or a negative value.

The research into evaluative structures indicates that in the basic predicate-argument structure the source is usually the grammatical subject and the target tends in most cases to be the object. Semantically, the source is the actor, whereas the target is the patient:

(1) Petr   nesnáší   Pavla.
     "Peter   hates   Paul."
     SUBJ   PRED   OBJ
     ACT   PRED   PAT

Moreover, both source and target can be external, e.g., when the evaluation is expressed by the non-mentioned author of the text – consider sentences such as *Facebook is no good* – or when the target is known from the communication context – e.g., *Such a shame!* Besides, both the source and the target can be embedded within the evaluative structure: *All the newly-appointed professors are annoyed by the fact that President Zeman belittled Martin Putna.*

Even though the source and the target are both essential constitutive participants of evaluative structures, the core of the evaluation naturally consists of evaluative expressions. The most frequent ones in the Czech subjectivity lexicon (see Section 2) are nouns (e.g., *hulvát* ["a boor"]), followed by verbs (e.g., *ctít* ["to honor"]), adjectives (e.g., *špatný* ["bad"]), and adverbs (e.g., *dobře* ["rightly/well/correctly"]).

The evaluative expressions are frequently accompanied by intensifiers: e.g., *strašně, pěkně* ("terribly, pretty"), etc.; see (2). Keeping them in the structural account would require a more fine-grained description of evaluative meaning, i.e., not only the opposition of positive and negative polarity, but also the employment of a scalar classification, etc. Intensifiers can be identified automatically using collocations.

(2) Ještě si pamatuju, že to kafe bylo strašně dobrý.
     "I just remember that the coffee was terribly good."

Since we supposed that most of the part-of-speech tags in the *Czech National Corpus* are correctly assigned, we confronted the selected evaluative items from our subjectivity lexicon with the evidence in the corpora to verify the possibility that the most frequent parts of speech should also be the most influential ones in terms of sentential polarity. However, not all of the corpus findings confirmed this assumption.

It emerges from the up-to-date research that by far the most influential part of speech (in terms of positive or negative orientation of the evaluation) is the verb. This holds not only because most of them are in the position of the main predicate of the sentences that were investigated (verbs such as *love*, *hate*, *appreciate*, etc.), but also because there is a number of verbs which express individual meaning (e.g., verbs such as *think*, *mean*, *suppose*, *consider*, etc.). The verbs that express an explicit evaluative meaning have a higher indicative strength than, e.g., nouns, which are more frequent in *SubLex*:

(3) (a) [Toho hrdopýška všichni nesnášejí.] −
          [Everybody hates that braggart.] −
     (b) [Toho hrdopýška všichni chválí.] +
          [Everybody praises that braggart.] +

Although the negative noun *hrdopýšek* ("braggart") appears in both of the sentences, the overall polarity is still conditioned by the verb.

On the other hand, the fact that in *SubLex* nouns outnumber verbs, i.e., a part of speech with higher indicative strength, may be attributed to the fact that evaluative nouns frequently appear as part of the verbonominal predicate. Thus they are incorporated in the typically verbal syntactic position, acquiring indicative strength in the construction as well. Since we do not yet have at our disposal a thorough analysis of dependency data, this remains only a hypothesis for the time being.

Another important part of speech which influences the orientation of evaluation in a given sentence is obviously particles, or more specifically evaluative particles such as *bohudík* ("fortunately"), *bohužel* ("unfortunately"), and *chválabohu* ("thank God"), etc. Unfortunately, they are not present in the Czech subjectivity lexicon, since the original *MPQA* lexicon contains only autosemantic parts of speech. However, we concluded from the evidence from the *Czech National Corpus* that the particles can switch the overall polarity of a given sentence just on their own: see example (5):

(4)   [Bohudík toho hrdopýška všichni nesnášejí.] +
        [Fortunately, everybody hates that braggart.] +

This example shows that even if the number of negative polarity items (*to hate*, *a boor*) is higher than the number of positive polarity items (*fortunately*), the overall polarity of a sentence is still positive as a result of the evaluative particle. This also corresponds nicely to its syntactic position; a discourse particle modifies the whole sentence, and thus it gains the power to rule the overall polarity. However, we still need to bear in mind the fact that the polarity can be embedded and thus the evaluation can be positive or negative, depending on the source.

Concerning the role of particular parts of speech, it also turned out from the corpus research that evaluative nouns are somewhat weaker than evaluative adjectives.

(5)   Byl to však [příjemný nepořádek] +, v němž se návštěvníci cítili uvolněně.
        However, it was a [pleasing mess] +, in which the guests felt good.

After the plain text survey, we searched for similar structures in the treebank data. The results show that the adjective depending on a noun is always more influential towards sentential polarity. Moreover, when the adjective happens to precede a noun with the opposite polarity, we can very often find an ironic meaning to the sentence (if we accept the hypothesis that we can even talk about irony without prosody), e.g., *Byl to hrdinný chlípník* ("He was a heroic lecher"). As in the case of the verbonominal predicate, more thorough research on the dependency data is needed.

In connection with the morphosyntactic properties of evaluative structures, we also have to mention negation, most importantly the fact that negation often switches polarity (as shown in Wiegand et al. 2010). A very similar behavior can be seen in the case of adversative coordinations (Veselovská 2011). According to the principle of semantic consistency (Hatzivassiloglou and McKeown 1997), the different parts of constructions with the conjunction *but* are likely to have the opposite polarity. This very often holds for the Czech *ale* as well.

(6)   [Pláž byla hrozná] −, ale [v hotelu se nám líbilo.] +
        [The beach was awful] −, but [we liked the hotel.] +

Furthermore, concessive sentences beginning with *ačkoliv* ("although"), *jakkoliv* ("even though"), *byť* ("albeit"), etc., deserve to be treated carefully: they still express evaluative meaning, although it is in a way weakened.

(7)   Přestože baterie dlouho nevydrží, jsem spokojen.
        "Although the battery life is not long, that is OK for me."

Apart from the morphosyntactic patterns, evaluative structures must be looked upon from the point of view of lexicalization and lexical features as well. In this respect it is necessary to mention the importance of idioms bearing evaluative meaning (e.g., *není to můj šálek čaje* ["it is not my cup of tea"]), which are frequently used in evaluative data. Structures with idioms were also one of the reasons why we decided to use the construction grammar framework.

5. Formalizing Evaluative Structures

To formalize the evaluative structures, we use the construction grammar framework; see, e.g., Fillmore (1988) or Fried and Östman (2004). Construction Grammar (CxG) is a theoretical approach in which generalizations about linguistic structure are formulated in terms of "constructions," i.e., conventionalized clusters of features (syntactic, prosodic, pragmatic, semantic, textual, etc.) that recur as further indivisible associations between form and meaning. CxG works on the assumption that form is connected not only to meaning, but also to communicative function. Thus the basic unit of the theory is not the syntactic structure, but rather the grammatical construction, i.e., the conventionalized unit of language features which together form a structure.

We decided to use CxG to explore the relationship between structure, meaning, and the use of subjective expressions, to look at the morphological context of evaluative items, and to analyze possible relations between the syntactic structure and the polarity of the given sentence. We can employ the CxG formalism to study evaluative idioms.

For the purpose of the analysis of evaluative structures, we address a new type of construction, the Subjective construction, and integrate it with the CxG formalism, suggesting relevant attributes. A subjective frame also bears the form of a common attribute value matrix. The new matrix contains not only well-examined attributes (e.g., *cat* for category) but also new attributes assigned especially for subjectivity (see Figure 1).
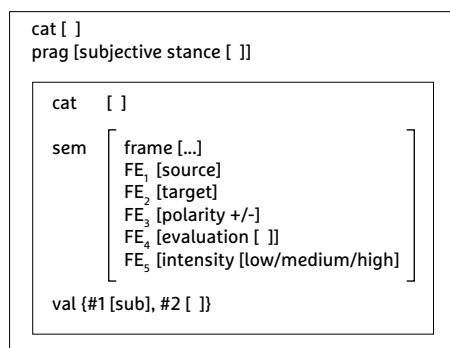


```
cat [ ]
prag [subjective stance [ ]]

    cat    [ ]

    sem    ┌ frame [...]
           │ FE₁ [source]
           │ FE₂ [target]
           │ FE₃ [polarity +/-]
           │ FE₄ [evaluation [ ]]
           │ FE₅ [intensity [low/medium/high]
           └

    val {#1 [sub], #2 [ ]}
```

Figure 1. *Subjective construction*

Here we introduce evaluative attributes: we show that pragmatically, the construction captures a subjective stance. The subjective stance attribute can have different values assigned, e.g., approval, astonishment, etc.

Semantically, the frame consists of several frame elements: the source, the target, positive or negative polarity, the type of evaluation, and also the intensity of the state that is expressed. We introduced a special slot for valency in the event that the evaluative element is a verb. Different parts of a valency frame can be identical to the particular frame elements.

Let us show the constructional analysis of the evaluative structure *Bohužel, matka ho zbožňuje* ("Unfortunately, mother adores him"; Figure 2). The structure seems to support the claim that the higher the frame is in the construction, the more influential it is. This means that the overall evaluation expressed by this construction is negative.
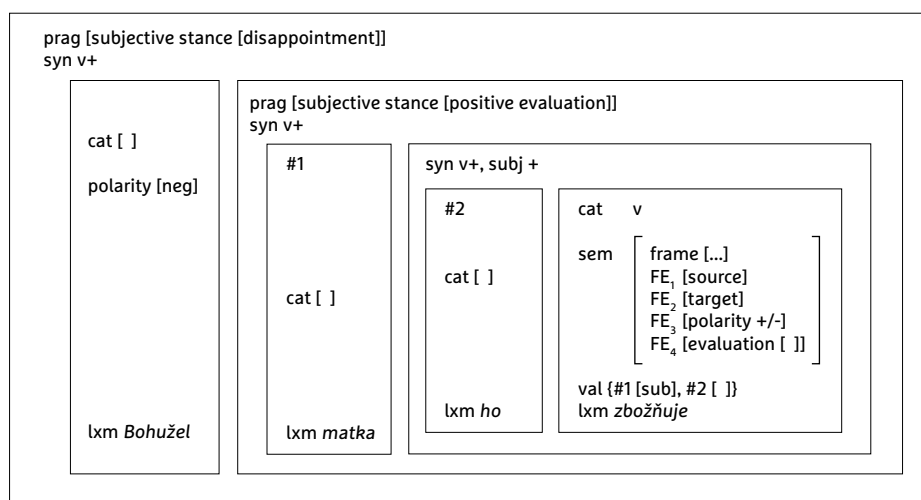
Figure 2. *Unfortunately, mother adores him.*

6. Conclusion

We described the basic parts of speech comprising evaluative language and introduced a new subjective frame in the framework of construction grammar. As for future work, we would like to further investigate the interaction between lexical and structural meaning and the role of specific areas of linguistic research, such as valency, idiomatics, or coreference in the system of evaluative expressions.

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Phonetics and Phonology

Phonological Structure and Articulatory Phonetic Realization of Syllabic Liquids

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Abstract: Syllabic liquids, such as /l/ or /r/ in Slovak words such as vlk ("wolf") or krb ("fireplace"), occur freely in stressed positions and with complex onsets. Phonologically, they behave like vowels, which can be seen in several morpho-phonological alternations. The paper addresses two questions: how a phonetic consonant with a significant obstruction in the vocal tract can function phonologically as a vowel, and why liquids are cross-linguistically more marked syllable nuclei than vowels. Previous proposals suggested that the syllabicity of liquids relates to their coordination patterns: liquids in the nucleus position require so-called "open transition," which facilitates the recoverability of the consonants adjacent to the syllabic liquid. Here we extend this research by examining the differences between the two articulatory liquid gestures: consonantal tongue tip raising and vocalic tongue dorsum retraction. Our articulatory data suggest that the coordination of the vocalic liquid gesture with the consonantal onset gesture also facilitates the syllabicity of Slovak liquids.

Keywords: syllabic liquids; articulation; phonetics-phonology relation

1. Introduction

The syllable is a basic organizational unit of speech. This applies to many levels of the cognitive system underlying human speech, such as speech planning: e.g., research on speech errors (Fromkin 1971; Shattuck-Hufnagel 1979), speech production (review in Krakow 1999), or speech perception (Mehler et al. 1981; Cutler et al. 1986). The syllable also formalizes the fundamental insights into the differences between consonants and vowels and their functions. More specifically, vowels always appear in the syllable nucleus position, while consonants mostly occupy the syllable edges, i.e., onsets and codas.

Additionally, consonants in the pre-vocalic onset positions were found to differ systematically from the same consonants appearing post-vocally in coda positions (Krakow 1999), and this applies particularly to sonorant consonants. Sonorants commonly consist of two articulatory gestures: one of these gestures is more "vocalic" and the other is more "consonantal." For example, English has two basic allophones of /l/: one appearing in the onsets, where it is so-called "clear," and another which is possible only in the coda position, the so-called "dark" /l/. This allophonic difference has been described as a difference in coordination between the two articulatory gestures of /l/: tongue tip raising and tongue dorsum retraction (Sproat and Fujimura 1993). While the two gestures are timed roughly synchronously in the onset position, in the coda tongue body retraction precedes tongue tip raising. Other sonorants, such as nasals (Krakow 1999), glides,

or /r/ (e.g., Gick 2003), have also been shown to have two gestures and their timing to function similarly in terms of their syllabic affiliation.

In addition to these differences in coordination, one of the fundamental insights of articulatory research into syllables is that the coordination of onsets and codas with respect to vowels as syllable nuclei is also different. The beginning of the articulatory movement toward forming the onsets consonant tends to be timed roughly synchronously with the beginning of the vocalic movement. Additionally, the temporal midpoint of the onset as a whole (whether it is a singleton consonant or consonantal cluster) exhibits little variability in its timing in relation to the vowel. This notion has been called the c-center effect (e.g., Honorof and Browman 1995; Goldstein, Chitoran, and Selkirk 2007; but see also Marin and Pouplier 2010). It was further suggested that the consonants in the onset are underlyingly coordinated simultaneously, and perceptual recoverability dictates their surface order (Browman and Goldstein 2000). Contrary to the synchronous nature of timings associated with the left edge of the syllable, coda consonants exhibit asynchronous timing both with the preceding vowel and between each other when in a cluster. These results of experimental studies, as well as dynamic modeling, have been taken as supporting the view that syllable onsets have greater phonetic and phonological stability of syllables than codas do.

Hence, vowels in the syllable nucleus position seem to form the basis for articulatory coordination. This applies both intra-syllabically, given the differential coordination of onsets and codas with the vowel, as well as inter-syllabically, given the basic rhythmic coordination that takes place between adjacent vowels relatively independently of the intervening consonants, commonly referred to as vowel-to-vowel coordination (Fowler 1983).

Given the strong link between syllabic affiliation on the one hand and consonants and vowels on the other hand, it is hardly surprising that the phonological difference between consonants and vowels is one of the strongest universals observable in all languages. However, this strong link may also be considered a confounding factor supporting the view that the differences between vowels and consonants are solely attributable to the differences in their syllable affiliation. Since the variability of affiliation (onset and coda vs. nucleus) varies, as does the nature of the sound (consonant vs. vowel), one of the ways of illuminating this issue is to control one dimension and vary the other one. Vowels cannot form syllable edges, and we thus cannot compare syllables in the nucleus and edge positions. Nevertheless, consonants can form both the edges and the nuclei of syllables. Cross-linguistically, the most common syllabic consonants are sonorants.

Syllabic liquids, such as /l/ or /r/, are not particularly rare cross-linguistically. For example, Bell (1978), surveying 182 languages of the world, reported that 46% of them have some syllabic consonants, and of these, there are twice as many languages with syllabic sonorants as those that also have syllabic obstruents. However, in many languages that have syllabic sonorants, they are significantly restricted to occurring predictably in certain phonotactic contexts and prosodically weak (unstressed) syllables (Bell 1978), which happens, for example, in English or German. These restrictions most plausibly arise from the phonetic differences between vowels and consonants mentioned above.

1.1 Slovak Syllabic Liquids

Slovak is a West Slavic language with two basic syllabic liquids: dental-alveolar lateral /l/ and apical trill /r/. Similarly to many other Slavic languages, Slovak exhibits relatively minor restrictions in the distribution of syllabic liquids. In Slovak, strong phonological evidence suggests that syllabic liquids behave phonologically in a manner identical to vowels. First, they

occur in monosyllabic words such as *vlk* ("wolf") or *krb* ("fireplace") and can thus freely form stressed syllables. Furthermore, they can occur in syllables with complex onsets, e.g., *smrť* [smrc] ("death") or *stlč* [stltʃ] ("beat" – imperative), and can have a maximum of three onset consonants, *štvrť* [ʃtvrc] ("quarter"), and two coda ones, *krst* ("baptism"). Moreover, since vowel duration is phonemic in Slovak, liquids in the syllable nucleus position can also be short or long.

The most convincing evidence for the identical phonological behavior of syllabic consonants and vowels comes from several morpho-phonological alternations, including the so-called rhythmic law (e.g., Kenstowicz and Rubach 1987), in which syllabic nuclei change their phonemic length either by shortening or lengthening (Pouplier and Beňuš 2011). These phonological processes take place irrespective of the nature of the syllabic nuclei; they target vowels and liquids alike, thus putting these two phonetically quite different types of sounds into a natural class. A subset of these alternations taken from Pouplier and Beňuš (2011) is shown in (1); acute accents denote phonemically long nuclei and apostrophes or "hačeks" denote palatal consonants. The first two lengthening alternations (1a)–(1b) and the third shortening one (1c) show the data for syllabic consonants in the leftmost two columns and the same alternations with vocalic nuclei in the rightmost two columns. These nuclei are targets for the processes. The rhythmic law data in (1d) show that the stem-final nuclei, whether consonantal or vocalic, are the triggers for the length of the suffix vowels: the long stem-final nucleus triggers the shortening of the suffix vowel.

(1)   (a)   Lengthening in genitive plural

      srn-a (deer)   *sŕn*   *ran-a* (wound)   *rán*

      jablk-o (apple)   *jabĺk*   *bral-o* (hill)   *brál*

   (b)   Lengthening preceding diminutive suffix –ok

      vrch (hill)   *vŕš-ok*   *hrad* (castle)   *hrád-ok*

      chlp (hair)   *chĺp-ok*   *sud* (barrel)   *súd-ok*

   (c)   Shortening through suffixation

      predĺž-i-ť (lengthen) *predlž-ova-ť* *zváž-i-ť* (think) *zvaž-ova-ť*

      vykŕm-i-ť (feed)   *vykrm-ova-ť* *zníž-i-ť* (lower) *zniž-ova-ť*

      dĺžk-a (length)   *dĺžk-ach*   *dĺžk-am*   *lúk-a* (meadow)   *lúk-ach*   *lúk-am*

   (d)   Rhythmic law

Word	Gen.Pl.	Dat.Pl.	Word	Gen.Pl.	Dat.Pl.
srn-a (deer)	*srn-ách*	*srn-ám*	*ryb-a* (fish)	*ryb-ách*	*ryb-ám*
vln-a (wave)	*vln-ách*	*vln-ám*	*ruk-a* (hand)	*ruk-ách*	*ruk-ám*
vŕb-a (willow)	*vŕb-ach*	*vŕb-am*	*tráv-a* (grass)	*tráv-ach*	*tráv-am*

Pouplier and Beňuš (2011) analyzed Slovak liquids in all three syllabic positions: onsets, nuclei, and codas. They designed triplets of words such as *mrak* ("cloud"), *mrk* ("wink"), and *park* ("park"). Then they compared pairwise the articulatory characteristics of onset /r/ in *mrak* and its coordination with /m/ in the onset cluster with the articulatory characteristics of nucleus /r/ in *mrk* and its coordination with onset /m/. Similarly, they examined the articulatory features of coda /r/ in *park* and its coordination with another coda consonant /k/, and compared this with nucleus /r/ in *mrk* and its coordination with coda /k/. The first question they asked was if consonantal nuclei are more vowel-like compared to their onset/coda counterparts. More specifically, they tested the hypothesis that when liquids are in

the nucleus position, they resemble vowels articulatorily more than when they are in the onset or the coda position. Analyzing kinematic measures of the liquid tongue tip gestures such as plateau duration, peak velocity, or stiffness, they did not find any systematic evidence to support this hypothesis. However, they observed a relatively small overlap in consonant sequences and a tendency to an epenthetic schwa (open transition; Catford 1977). Testing for the effect of syllable affiliation on the timing of liquids showed that the overlap with adjacent consonants was greater for the onset-coda liquids than for the nucleus ones. Hence, Pouplier and Beňuš (2011) proposed that the syllabicity of liquids relates to the coordination patterns of liquids with the gestures of the consonantal onsets and codas. In other words, they extended the arguments for the importance of both inter- and intra-syllabic gestural coordination patterns and, in general, provided additional evidence for conceptualizing gestural coordination as a defining principle behind the syllable.

Finally, Beňuš (2011) included syllabic liquids together with vocalic nuclei in examining the articulatory strategies for signaling length, both phonemically and non-phonemically as speech rate modulations. The data for this study included nonsense words in the form of *pNpa*, in which N represented all 14 possible nuclei in Slovak: [i], [e], [a], [o], [u], [r], [l], [iː], [eː], [aː], [oː], [uː], [rː], [lː]. The reported results that are relevant for the current study include these:

- syllabic and vocalic liquids did not differ in the realization of acoustic duration, and this applied to both phonemic quantity and speech rate differences;
- the major articulatory signature of nucleus duration was the coordination between the two labial movements in *pNpa*. The nucleus type (vocalic vs. consonantal) affected various measures of this coproduction either minimally or not at all;
- robust kinematic differences between the tongue tip gesture of the syllabic liquids and the tongue body gesture of the vowels were reported, for example, in peak velocity or stiffness. Similarly, robustly greater lag (i.e., more open transition) between the gesture for the first /p/ and the syllabic liquid than the vocalic nucleus was reported.

Beňuš (2011) concluded that stable coordination between the two consonants (in this case the two /p/ sounds in *pNpa*), irrespective of the nucleus type of N, may facilitate the similarity in the phonological behavior of vocalic and consonantal liquids in Slovak, despite great kinematic differences and other coordination patterns related to these two types of nucleus. Hence, Beňuš argued that these results are in line with the approach outlined in Section 1 that construes the syllable as a set of timing gestural requirements.

1.2 Motivation for the Current Study

The papers reviewed in the previous subsection addressed the articulatory characteristics of syllabic liquids primarily by analyzing their tongue tip gestures. Pouplier and Beňuš (2011) kept liquids stable and varied their syllabic affiliation. Beňuš (2011) kept the syllable affiliation stable by analyzing only nuclei but varied the nucleus type (liquid vs. vowel). These studies analyzed the kinematic and coordination patterns of the more "consonantal" liquid gesture of tongue tip raising. However, as already mentioned in Section 1, the production of liquids also requires a more "vocalic" gesture of tongue dorsum retraction and the coordination of these two gestures defines the onset-coda affiliation of liquids. Given the importance of gestural coordination for syllables and the absence of information about the vocalic tongue dorsum retraction gesture, this paper asks if the "vocalic" gesture of liquids can fulfill the coordination requirements for the syllable nucleus. More specifically, the question addressed is if the "vocalic gestures" of liquids

are timed with consonantal onset gestures in a similar way to vowel gestures. Hence, this paper addresses the question of how a phonetic consonant with a significant obstruction in the vocal tract may function phonologically as a vowel, and why the syllabicity of liquids, as in Slovak, is more marked cross-linguistically than the syllabicity of vowels. In other words, we ask how the structural properties of syllables and their constituents relate to the phonetic realization and thus to the practical use of language.

2. Methodology

The data for this study represent a partial overlap with the data analyzed in Beňuš (2011). Two datasets will be examined. In the quantitative analysis we analyze nonsense words in the form of *pNpa*, in which N represents all 14 possible nuclei in Slovak: [i], [e], [a], [o], [u], [r], [l], [i:], [e:], [a:], [o:], [u:], [r:], [l:]. We will refer to this dataset as *pNpa*. In the limited qualitative analysis we also complement this dataset with similar data including the coronal and dorsal flanking consonants: *tNta* and *kNka*. We refer to this larger superset as *CNCa*.

The procedure for recording both datasets is described in detail elsewhere (Beňuš 2011). Briefly, five native speakers of Slovak produced target nonsense words embedded in the prompt sentence *Čítame ____ pyšne* ("We read ___ proudly.") Each speaker produced five repetitions of each sentence at both normal and fast speech rates totalling 2100 tokens (5 speakers × 14 nuclei × 2 rates × 3 consonants × 5 repetitions) for the entire *CNCa* dataset and 700 for the *pNpa* subset.

Both articulatory and acoustic data were recorded. We used electromagnetometry (Hoole and Zierdt 2010; Beňuš 2012) to collect the kinematic trajectories of sensors attached to the active articulators. This technology allows up to five-dimensional kinematic data of articulatory movements to be collected with high temporal and spatial resolution. An example of data from the target word [pr:pa] is illustrated in Figure 1. The x-axis represents time in milliseconds. The first panel shows the oscillogram for the entire prompt sentence with the rectangle of the zoomed target interval. The second and third panels show the oscillogram and spectrogram for this zoomed target sequence. The bottom four panels show the vertical or horizontal trajectories of the sensors most relevant for this study: vertical movement of the tongue tip, horizontal and vertical movement of the tongue dorsum, and vertical movement of the lower lip.
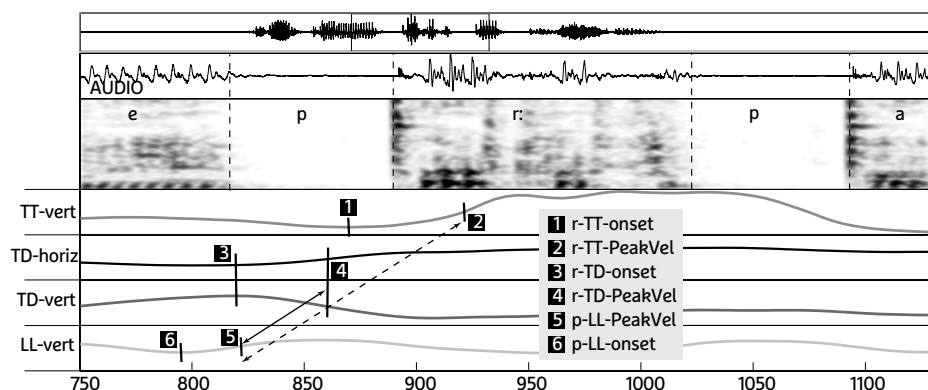

Figure 1. *Example of acoustic and articulatory data collected. See text for explanations.*

For the complete *CNCa* dataset, an independent experienced annotator labeled the acoustic intervals for all consonantal closures using the cessation of the formant structure for the preceding vowel as the consonant onset and the discontinuous increase of energy associated with the burst as the consonant offset. These labels are shown with vertical dashed lines in the spectrogram in Figure 1. For the *pNpa* subset, another experienced annotator (the author) used a semi-automatic Matlab procedure developed by Mark Tiede for identifying gestural targets on the basis of velocity landmarks, thus labeling the gestures of articulatory phonology (e.g., Goldstein and Fowler 2003). The labels for the onsets and peak velocities of articulatory movements resulting from this labeling are depicted in the four bottom panels of Figure 1.

The two double arrows in Figure 1 – one solid and one dashed – show the crucial dependent variable for this study. It measures the interval between peak velocities as the most stable articulatory landmark. The dashed arrow depicts the peak velocity lag between the consonantal onset /p/ and the tongue tip raising for the syllabic nucleus. The solid arrow shows the lag between /p/ and the vocalic tongue body retraction (and lowering). Hence, we will examine how consonantal nuclei are coordinated with their onset consonants by analyzing both the consonantal and vocalic gestures of syllabic liquids and the vowel gestures. The hypothesis that we will test with this dependent measure is that peak velocity lag in the vocalic tokens *pVpa*, in which V corresponds to all vowels, is similar to the lag of the vocalic movement in *pLpa*, in which L corresponds to the two liquids.

3. Results

We start with descriptive observations of the kinematic movement of the tongue tip and tongue dorsum during syllabic liquids. Figure 2 shows the vertical trajectories of the tongue tip (top row) and the horizontal trajectories of the tongue dorsum (bottom row) in *pr(:)pa* (left), *tr(:)ta* (middle), and *kr(:)ka* (right) for short (black) and long (red/gray) /r/. These data come from a single subject and because of space limitations we do not sho w all ten figures (five subject and two syllabic liquids). Importantly, all trajectories are time-normalized so that the time point 50 on the x-axis corresponds to the acoustic release of the onset consonant preceding the nucleus and the time point 150 to the acoustic closure of the consonant following the nucleus.

The analysis of these ten figures suggests the following observations. First, both /l/ and /r/ display both tongue tip raising and tongue dorsum retraction. Crucially, the former consistently follows the latter. This can be observed by comparing the onset of the tongue tip raising in the top row, commonly at or slightly later than the leftmost vertical line at 50 units of the x-axis. This applies to the *prpa* and *trta* tokens, with *krka* starting a bit earlier. The onset of the tongue retraction in the bottom row starts well before this vertical line for *prpa* and *trta*. Again, the pattern for *krka* is slightly different, which relates to the tongue dorsum closure needed for the flanking /k/ sounds. The second observation is that long liquids show slightly greater displacements but similar temporal coordination to short liquids. Additionally, both tongue tip and tongue dorsum movements seem to show greater overlap with the preceding onset consonants for the long liquids than for the short ones. This can be assessed through the distance between the leftmost vertical dashed line at 50 and the onset of the target gesture (major vertical movement of the plots). Finally, when /r/ and /l/ are compared, these patterns are more robust and visible for /r/ than for /l/; nevertheless, they are all, at least partially, observable for /l/ as well. Hence, the patterns shown in Figure 2 are in general symptomatic of the entire corpus and applicable to all five subjects.
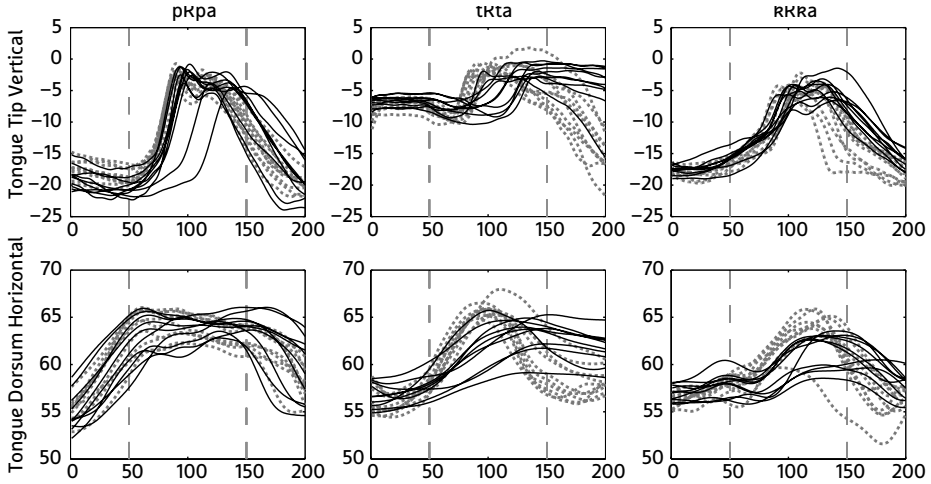
Figure 2. *Trajectories of two sensors: vertical movement of the sensor placed on the tongue tip in the top row (TT-y, up means tongue is moving up) and horizontal movement of the sensor placed on the tongue dorsum (TD-x, up means tongue dorsum is moving back). All trajectories are time-normalized with respect to the acoustic release of the C1 (left-hand dotted vertical line at 50) and acoustic closure of C2 (the right-hand dotted vertical line at 150). Black trajectories represent short rhotics, and red/ gray dotted ones their long counterparts. The data are from a single subject.*

We next move to quantitative examination of the coordination between the two movements for liquids with the labial movement of the *pNpa* dataset. Figure 3 shows the data. The y-axis shows the lag between the peak velocities (peak velocity lag; see discussion of Figure 1); the greater the value, the less overlap there is, i.e., the more open the transition is. The white boxes (on the left in each panel) show the lag for the vocalic nuclei. The light gray boxes in the middle of each panel illustrate the data for /l/, the solid ones for the consonantal tongue tip raising, and the striped ones for the vocalic tongue dorsum retraction. Finally, the dark gray boxes on the right of each panel illustrate the data for /r/: the solid ones are for the tongue tip and the striped ones for the tongue dorsum.
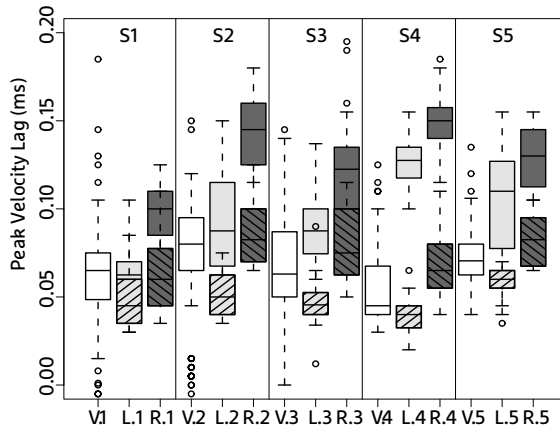
Figure 3. *Peak velocity lag in ms. for vocalic nuclei (V, white boxes), lateral (L, light gray), and rhotic (R, dark gray). The solid boxes show the tongue tip gesture and the striped ones the vocalic gesture of liquids.*

We first report the patterns observable in the figure, followed by the results from the quantitative statistical testing. We employed mixed-models tests in the lme4 package of R that allow multiple factors to be filtered and thus to be treated as random, and used Monte-Carlo simulations for determining *p*-values (Baayen 2008).

The first observation is that *consonantal* tongue tip gestures of syllabic liquids start significantly later than vowel gestures. In a mixed-model test with SUBJECT, TEMPO (fast vs. normal) as random factors, the factor NUCLEUS TYPE (vowel vs. /l/ vs. /r/) showed a significant effect on the lag measure (F = 227.1, $p < 0.001$). Phonemic quantity affected gestural coordinations less robustly (F = 5.3, $p = 0.02$) so that the lags were slightly shorter for short nuclei, especially for vowels and /r/, than the long ones. The interaction was not significant. In the crucial Welch t-tests, /l/s started later than vowels with respect to preceding /p/ (t = 8.8, $p < 0.001$) and the same, and more robustly, applied to /r/ (t = 20.8, $p < 0.001$). Hence, the coordination of the consonantal tongue tip gestures of the syllabic liquids with /p/ is significantly different from that of vocalic gestures.

Let us recall that the main hypothesis of this work predicted that the vocalic gestures of syllabic liquids would be coordinated with the onset consonants in a similar way to the vocalic nuclei. The factor NUCLEUS TYPE showed a significant effect on the lag between the onset and *vocalic* gestures (for vowels and liquids) in a mixed-model test with SUBJECT and BLOCK (fast vs. normal) and QUANTITY (short vs. long) as random factors (F = 87.5, $p < 0.001$). Welch t-tests showed that vocalic gestures for /l/ have a significantly shorter lag than vowel gestures (t = -6.5, $p < 0.001$), which is shown with the white and light gray striped boxes in Figure 3. Vocalic gestures for /r/, shown with dark gray striped boxes, have a significantly longer lag than vowel gestures (t = 4.1, $p < 0.001$).

4. Discussion and Conclusion

In this paper we started with the proposal of Pouplier and Beňuš (2011) that open transitions between the onset consonant and the tongue tip gesture of the nucleus in words like *mrk* facilitates the syllabicity of liquids. This work stems from much recent work about the syllable and its underlying articulatory coordination patterns. The main goal of the current paper was to test an extension of this general proposal, namely, that Slovak liquids have both the "consonantal" tongue tip gesture and the "vocalic" tongue dorsum gesture, and if that is the case, then the "vocalic" gesture fulfills the coordination requirements for the syllable nucleus. More specifically, we wanted to compare the timing of the syllabic liquid's "vocalic gestures" with syllable onsets and hypothesized that this temporal coordination would be similar to the coordination of vowels with syllable onsets.

The answer to the first question, whether Slovak syllabic liquids have both consonantal and vocalic gestures, is convincingly affirmative. The descriptive analysis of normalized sensor trajectories shows distinct retraction (and lowering) of the tongue dorsum at or before the movement of the tongue tip. The difference between these two gestures was also clearly visible when their timing with the onset consonant was examined with the measure of peak velocity lag.

The answer to the second question, whether the "vocalic" gestures of the liquids function as the vowel gestures in vocalic nuclei, is less clear. On the one hand, "vocalic" gestures of the tongue dorsum of syllabic liquids coordinate with the onset in a more similar way to vowels than the consonantal tongue tip gestures. This could be seen by looking at Figure 4, as well as

by the lower F and t values in the reported statistical tests. Hence, the presence of the vocalic gesture of the tongue dorsum and its coordination with the onset might facilitate the syllabicity of liquids. On the other hand, the vocalic gestures of the syllabic liquids were still timed significantly differently with the onset compared to the vowel gestures of vocalic nuclei. Moreover, the directions of these differences were opposite for the two liquids. These two results suggest that the coordination patterns of the vocalic gesture of syllabic liquids cannot, on its own, explain the phonological behavior of Slovak syllable liquids since they pattern together, and also form a natural class with vowels.

There are several avenues for future research, given these results. First, it seems that subject variability plays a role. The statistical tests filtered this variability as we were interested in the general pattern, but Figure 3 showed significant differences among the subjects. For example, when vowels with syllabic /l/ (white with light gray boxes) are compared, the data from subjects 1 and 2 display similarities between vowels and the consonantal tongue tip gestures of /l/ (light gray solid boxes), while the data for subjects 3–5 show similarities to the vocalic gestures of the tongue dorsum (light gray striped boxes). The comparison between the vowels and /r/ was, however, remarkably stable among the subjects. This stability might be related to the other aspects worth pursuing in the future: the Slovak syllabic liquids /l/ and /r/ differ in their acoustic and aerodynamic properties and requirements. While /l/ is relatively unproblematic, /r/ displays severe aerodynamic, and possibly also acoustic, limitations on its production. Specifically, before the contact between the tongue tip and the palate the vocal tract needs to be open and the airflow must reach a certain threshold for the canonical production of the trill. Hence, the two gestures for a trill /r/ must be coordinated with greater precision than is assumed for /l/. In future research, we plan to examine whether these "mechanistic" requirements and differences between /l/ and /r/ are sufficient to explain the observed patterns reported in this paper, and how these phonetic aspects relate to the stable phonological behavior of syllabic liquids in general.

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Pre-Vocalic Glottalization vs Resyllabification in Regional Varieties of Czech (A Pilot Study)

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Abstract: This is a report of a pilot study conducted to examine some of the factors which influence pre-vocalic glottalization in Czech with respect to its form and frequency of occurrence. The main goal is to prepare a more extensive experiment for the assessment of the differences between the two basic regional varieties, Bohemian and Moravian Czech. Preliminary results suggest that examinations of glottalization should take into account different speech styles and they should not rest only on read speech. Reading seems very conducive to glottalization, especially in female speakers. The strong general preference for glottalization in samples of read speech makes the assessment of other possible factors (segmental context, prosody, gender, etc.) difficult if not impossible.

Keywords: glottalization; Czech; dialect; speech style; gender

1. Introduction: Influences on Glottalization

In languages that allow onsetless syllables, initial vowels can be delimited from the preceding segment by various glottalization phenomena. These are modifications of the voice quality which act as consonantal or consonant-like onsets. Despite acoustic similarities, the use of such pre-glottalizations is language-specific – it is determined by different factors and it fulfills different functions. For instance, in Czech it is supposed to enhance the *intelligibility* of an utterance (Palková 1997, 325), whereas in English, the overuse of glottalization can result in an impression of *jerkiness* (Volín 2003, 13). Both impressions stem from the same perception of discontinuity. However, while in Czech pre-glottalization is regarded as mostly facultative within a phrase and can be used positively by the listener to identify word boundaries (Palková 1997), in English it is mainly a means of emphasis and phrase structuring (Dilley et al. 1996), and unnecessary discontinuity marks an utterance as unnatural or as having a foreign accent.

In literature, various factors are taken into consideration in studying the frequencies with which initial vowels are pronounced with glottal reinforcement. These factors are often:

- sociolinguistic – gender, age, dialect;
- stylistic – read vs. spontaneous speech, formality, professionalism;
- prosodic – position in the intonation phrase, prominence, speech rate, etc.;
- syntactic – word position (e.g., in compounds), sentence position;
- segmental – target vowel quality, the category of the preceding sound and its voicing, preceding glottalization;
- lexical – target word type and frequency, word length.

One study (Volín 2012) found that in Czech, the combined factors of speech style and gender accounted for glottalization frequencies as different as 41% for males in semi-spontaneous dialogues, as opposed to 97% for females in read speech. However, previous research on glottalization in other languages has presented conflicting results regarding the role of gender.[1]

In another study, advanced Czech learners of English had much higher rates of glottalization overall than native British English speakers and their production was "less influenced by phrase boundaries" (Bissiri and Volín 2010, 23). However, it is not clear if the scant effect of prosody was caused by transfer from the Czechs' mother tongue, i.e., if the speakers' glottalization rates would be as high and unaffected by prosody when speaking Czech as well. It may be that the inability to produce native-like glottalization patterns was in fact an inability to use native-like prosody. The mere fact that they were speaking a foreign language might have led the speakers to slower and less fluent pronunciation. Moreover, the professionalism of the BBC newsreaders, as opposed to the lower levels of oral skills of the Czech university students, may also have played a role. Czech non-professionals in (Bissiri and Volín 2010) had a very different distribution of glottalization forms from those observed in recordings of professional Czech newsreaders (Skarnitzl 2004).[2] Furthermore, (Bissiri and Volín 2010) only analyzed read speech, which has been shown to support frequent glottalization in German (Rodgers 1999),[3] and prosody might turn out to be a more important factor in spontaneous speech.

In Czech, pre-vocalic glottalization can occur in several morphosyntactic positions, which could differ with respect to the frequency of glottalization (cf. §1.2): at a word boundary, within compounds, after prefixes, after syllabic prepositions, and after non-syllabic prepositions (Pavelková 2001, 79). In recent studies, however, typically only word-initial vowels have been studied (e.g., Skarnitzl 2004, Volín 2012). Pavelková (2001) wanted to assess the effect of syntax on glottalization but was not able to do so because initial vowels appeared too rarely in most of the positions in her sample. Apart from such differences in frequency, the interaction of syntax and prosody presents a further complication (cf. Frazier, Carlson and Clifton 2006).[4]

Pavelková (2001) further considered the role of segmental context. She found higher rates of glottalization in cases where the target vowel was preceded by the same vowel than for different vowels, and higher rates for preceding sonorants than for voiceless obstruents; however, she did not pay attention to lexical and other factors. Her conclusions are very general, to the effect that glottalization is facultative and frequent in public speech.

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1   See Redi and Shattuck-Hufnagel (2001, 408–409) for an overview.
2   Regrettably, Skarnitzl (2004) was only concerned with the different acoustic categories of glottalization phenomena and did not report on overall glottalization frequencies.
3   It seems useful to compare pre-vocalic glottalization in German and in Czech. Firstly, German has been considered a major influence on glottalization in Czech (Vachek 1968, 122). Secondly, glottalization in the two languages has been treated in similar ways in the literature: earlier works usually only dealt with the canonical glottal stop. Later, non-prescriptivist accounts revealed a similar variability of glottalization forms in both Czech and German, and recognised them as equally functional (cf. Rodgers 1999, and Palková et al. 2004).
4   This also shows implicitly in Pavelková's (2001) separation of prepositions as opposed to other parts of speech, since in Czech, syllabic prepositions typically create one foot with the word they govern and take over the stress from it.

1.1 The Role of Dialect

In general, most of the aspects of glottalization in Czech have been dealt with only marginally; some of them have not yet been touched upon at all. Dialect, for instance, has often been assumed to play a significant role in the frequency of glottalization (cf. Volín 2012), without actually having been experimentally tested. Speakers from Bohemia have been said by some authors to glottalize more often than speakers from Moravia (Hála 1962; Vachek 1968). In contrast, others consider regional differences to be far less significant than the differences caused by speech rate and style (Bělič 1972).

Even though Pavelková's (2001) study was based on the recordings from one Bohemian city, the individual speakers' dialectal background was not taken into account. Since the speech samples were recorded at official town hall meetings, the speakers could have been of Moravian origin and Pavelková's results cannot be taken as baseline data for a dialectal comparison.

The impressionistic notion of higher resyllabification rates in Moravia can be supported from the literature by the fact that Moravian dialects form a continuum with Slovak (Bělič 1972, 16). Slovak is sometimes said to have "no glottal stop insertion at all" (Rubach 2000, 274)[5] and its standard voice assimilation patterns are like those of Moravian Czech. These differ from those of Bohemian Czech in the voiced production of final obstruents before sonorant consonants, e.g., *k mostu* "to the bridge" [g mostu], and before vowels if no glottalization interferes, e.g., *pět oken* "five windows" [pjɛd‿okɛn]. In contrast, Bohemian Czech, in accord with Standard Czech, has voiceless (and devoiced) obstruents before initial vowels even in the absence of glottalization, e.g., *pět oken* [pjɛt‿okɛn]) (cf. Palková 1997). However, another interpretation of the earlier impressionistic observations is possible. Since in Moravian pronunciation the voicing of obstruents in the absence of glottalization is perceptually more salient, it may be wrongly interpreted as a stronger preference for linking, while the rate of resyllabification in Bohemian Czech could simply be obscured by the fact that the voicing of the preceding obstruent does not differ for glottalized and non-glottalized vowels. Of course, final obstruents are not the only preceding context of initial vowels, but their voiced production before sonorants is a prominent feature of Moravian pronunciation.

There are differences between Czech dialects in the use of prosthetic consonants in front of initial vowels. Prosthesis can be seen as a tendency to avoid onsetless syllables. The most prominent of these consonants is the prosthetic *v-* in words which in Standard Czech have initial *o-*, e.g., Standard Czech *on* "he" and *okno* "window" correspond to the dialectal *von* and *vokno*. Although the difference is popularly thought to be one between Bohemian (with *v-*) and Moravian (without *v-*) dialects, the actual isogloss for *v-* divides Central Moravia, the western part of which, bordering on Bohemia, also has prosthesis. The rest of Moravia and only parts of Southern Bohemia have initial *o-*, just like Standard Czech. This is considered archaic among traditional Czech dialects and is said often to be accompanied by glottalization (Balhar et al. 2005, 370). This prosthesis is, however, not universal; it usually only applies to words of domestic origin and it is blocked in some words which are under the influence of Standard Czech, e.g., *otec* "father" and *okres* "district" (372). Prosthetic *v-* is a feature of

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5   This is even explicitly put into contrast with Czech in that "any trace of a glottal stop anywhere in the phonological string is a sure giveaway of a Czech accent in Slovak" (Martin Votruba, personal communication in Rubach 2000, 274).

Common Czech, which is the most widely used Bohemian interdialect, as well, and though *v-* can occasionally be encountered in formal speech (cf. Pavelková 2001, 82), it is usually avoided in formal contexts. Such conscious avoidance can be expected to support pronunciation with glottalization instead.

1.2 Prescriptive and Descriptive Approach

Pre-vocalic glottalization is usually considered automatic in Czech after a pause (Palková 1997, Volín 2003). For continuous speech, however, even standard works on Czech phonetics and phonology resort to prescriptivist approaches. The following is an overview of the basic rules given by Palková (1997). Glottalization is considered to be a *facultative* delimitation of initial vowels from preceding segments; however, its use is *recommended* to avoid hiatus and to enhance comprehensibility in general. Pronunciation without glottalization is mostly *acceptable*; however, the syllable boundary must not be broken, and thus complete resyllabification is considered *incorrect*. Finally, glottalization (and thus the voiceless production of preceding obstruents) is *required* by Czech orthoepy after non-syllabic prepositions, e.g., *k* "to" and *v* "in." However, Hůrková (1995) reports that non-orthoepic pronunciations of non-syllabic prepositions are used even by speakers who themselves judge them as non-standard.

In contrast, some descriptive works argue that, for various phonetic and syntactic reasons, pronunciation without glottalization does not cause ambiguity and thus is perfectly functional (Vachek 1968).[6] Indeed, this is attested to by other languages, e.g., Slovak, which is quite similar to Czech in terms of phonotactics and prosody (e.g., initial stress) and in which the use of pre-vocalic glottalization in continuous speech is very limited in comparison to Czech (cf. §1.1). Vachek (1968) expected that glottalization would be free to lose its function as a boundary signal and become a signal of emotion and emphasis. The presupposed change is not documented in the subsequent literature; however, no study yet has compared glottalization across different generations of speakers.

1.3 Connection between Form and Frequency of Occurrence

Glottalization is realized as various forms of voice irregularity caused by the sudden adduction or abduction of the vocal folds. The presence of glottalization in the speech sample is usually attested to in two ways:
- perceptually – the segment gives the impression of discontinuity, roughness or creakiness;[7] and
- acoustically – glottalization shows in the waveform and spectrogram as any of the following: irregularity in the shape and/or spacing of pitch periods; shifts of F0 and/or amplitude (Redi and Shattuck-Hufnagel 2001).

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6   Complete resyllabification would render *tam oře* "is ploughing there" /tam oρε/ as [ta moρε], which would be identical to *ta moře* "the seas." This should, however, pose no crucial problem of interpretation, since similar ambiguities are common and very well resolvable in lexical homophones.

7   The perceptions of roughness and creakiness are more relevant in the case of phrase final glottalization, which can extend over longer strings of segments. Usually, glottalization phenomena in both contexts, pre-vocalic and phrase final, are treated as acoustically equivalent; however, phrase final glottalization is often connected with low subglottal pressure and low F0, while word-initial glottalization is not restricted to any such conditions (Redi and Shattuck-Hufnagel 2001, 426). The independence of glottalization from other airstream mechanisms is attested to in some languages by the fact that in these languages non-modal phonation (e.g., creaky voice) has a distinctive function (cf. Gordon and Ladefoged 2001).

The phonetic form of this delimitation is highly variable and it can range from a *full glottal stop* [ʔ], which is characterized by the complete closure and sudden release of the vocal folds, to various kinds of non-modal phonation. All these forms can be interpreted by the listener as equivalent instances of glottalized voiced quality (Palková et al. 2004). Redi and Shattuck-Hufnagel (2001, 427) mention the possibility that "[speakers could be allowed] greater flexibility to produce glottalization by means of any number of (closely related) articulatory mechanisms," particularly because "listeners [appear to] accept a variety of acoustic cues as evidence of glottalization." However, as an anonymous reviewer of the present paper notes, listeners might treat these forms of glottalization as equivalent either because they "produce equivalent percepts in a human simply because of [their] acoustic properties, [independently] of the linguistic system" or because of the categorization acquired by "perceptual training during language acquisition." Since the present paper is concerned mainly with dialectal differences in the production of glottalization this point will not be further discussed here but it should not be overlooked in a perceptually oriented account.

Attempts at categorizing these acoustic phenomena have been made in several studies on English, usually based on the inspection of waveforms and spectrograms (see the review in Redi and Shattuck-Hufnagel 2001). These were followed by studies on other languages, including Czech (Skarnitzl 2004). The motivation for the categorizations, however, is sometimes not very clear, since some of the terms are used interchangeably; sometimes, in contrast, the same term is used for different phenomena by different authors.[8]

Earlier and traditional accounts often regard glottalization as a binary categorical phenomenon, the two options being either the presence of a full glottal stop or its absence (Cruttenden 2001, Palková 1997). However, at least since the 1990s[9] acoustic analyses indicate that rather than the occurrence of the glottal stop being categorical, there is a gradient continuum of glottalization forms. These forms should also be taken into account when dealing with the frequency of glottalization. Not only is it a matter of deciding which tokens count as glottalized and which do not, it is also revealing with regard to the speakers' glottalization patterns at large. Bissiri and Volín (2010) found that Czech speakers of English glottalized much more often than British speakers. However, they also used full glottal stops (as opposed to, e.g., creaky voice) much more often than did native Czech newsreaders in Skarnitzl (2004). This suggests that the Czech English speakers did not simply transfer their glottalization patterns from their L1 to the L2, but they were influenced by other factors as well, presumably by not being professionals and by some aspects of L2 speech (slower rate etc.). The reasons that caused the Czech English speakers to use glottalization forms that were different from those of the Czech newsreaders probably influenced their glottalization rates as well. However, as mentioned above, a comparison with professional Czech newsreaders with respect to the glottalization rate was not possible. The effect of transfer can only be confirmed by comparing the speakers' L1 and L2 production. In fact, the precise connection between

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8   Among the terms which are usually considered synonymous are, e.g., *glottal fry*, *creak*, and *creaky voice*. On the other hand, *diplophonia* has more definitions (see Skarnitzl 2004, 58 for a review of some of these terms).

9   Pierrehumbert and Talkin (1992, 94) consider "a full glottal stop (with complete obstruction of airflow at the glottis) [to be] quite unusual." Instead, "[a] 'pressed' or 'braced' glottal configuration is used to produce /ʔ/. This is realized acoustically as period-to-period irregularities in the timing and spectral content of the glottal excitation pulses."

glottalization forms and frequencies in Czech native speech has not been analyzed yet. The one recent study (Volín 2012) on glottalization in Czech which controls for stylistic and sociolinguistic factors is mainly concerned with frequencies, and even though it acknowledges the existence of different acoustic and/or articulatory forms, it treats them in the end as one category.

2. Pilot Study

With respect to the above literature review, a pilot study was conducted to examine the differences in the rate and the acoustic characteristics of glottalization in the speech of Bohemian and Moravian speakers of Czech. The aim was to control for the factors of gender, age, speech style, segmental and lexical context, and the strength of the phrasal boundary.

2.1 Stimuli

To obtain material with comparable characteristics, the speakers were asked to read a set of stimulus sentences. For the purposes of a basic dialectal comparison the pilot experiment was designed to limit the number of variables. Since previous studies showed some effect of segmental factors (Pavelková 2001; Skarnitzl 2004), the stimuli were created to contain various combinations of target vowels and preceding segments, and the lexical and syntactic characteristics were kept constant. Preliminary observations had shown that clause boundaries tend to cause the production of pauses before target vowels, which usually leads to the automatic insertion of full glottal stops (cf. §1.2). The stimuli were chosen to encourage the production of target vowels within phrases with the opportunity for resyllabification,[10] and with equivalent prosodic characteristics.

The target words were ten common disyllabic nouns beginning with /a ɛ o u/[11]: *album*, *atlas*, *auto*, *eso* "ace," *Eva*, *oběd* "lunch," *obraz* "picture," *oheň* "fire," *okno* "window," and *ucho* "ear." These words were used as direct objects after various disyllabic imperative verbs, and were followed by a three-syllable complement to prevent phrase final glottalization on the target vowel. Each target word was used with four different verbs, whose final segments belonged to four different classes: vowels, sonorants, phonemically voiced obstruents, and phonemically voiceless obstruents. So, for instance, for the target word *obraz* there were these four sentences: *Otři obraz prachovkou*. "Wipe the picture with a duster." *Sežeň obraz pro tátu*. "Get a picture for Dad." *Dovez obraz do školy*. "Take the picture to school." *Otoč obraz doleva*. "Turn the picture to the left." There were forty sentences with the target words in total, which were mixed with forty distractors. These had the same syntactic structure (i.e., verb$_{IMP}$ + noun$_{OBJ}$ + complement) and the same number of syllables; the direct objects, however, were ten *consonant-initial* nouns, as in *Rozdej noty zpěvákům*. "Hand out the notes to the singers." Different semi-randomized sets of the eighty sentences were created.

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10   However, the voice onset in vowels after a pause is not without interest, either. In contrast to Czech, in other languages the insertion of glottal stops in front of such vowels has been observed to be far from automatic, e.g., only 64% of word-initial vowels were glottalized after a pause by American English speakers (Dilley, Shattuck-Hufnagel, and Ostendorf 1996). This should not be overlooked in the interpretation of glottalization in continuous speech.

11   Back vowels are more frequent at the beginning of common Czech words than front vowels (Volín 2012). This is also because of the very productive prefixes *o-*, *od-*, *ob-*, *u-*, and *ú-*. Words beginning with /ɪ/ and with long vowels are quite rare in Czech in general, the vast majority of them being borrowings, except for those formed with the prefix *ú-*.

2.2 Participants

The four speakers in the pilot study were one male and one female from Eastern Bohemia (BM and BF), one female from Central Moravia (MF) and one male from Eastern Moravia (MM). They were residents of the countryside and small towns whose parents came from the same region. The speakers were aged 23–25 years and they had acquired non-linguistic college or university education in cities in their respective dialectal region. The participants were neither paid nor rewarded in any way other than their good feeling for helping with the experiment. They did not know the purpose of the experiment beforehand and were not able to find it out in the course of it.

2.3 Procedure

The speakers read the texts off a laptop screen. Before the recording, they were presented with a randomized list of the sentences for familiarization in order to support fluency. They were instructed to read at a comfortable pace and in an informal manner, as if they were talking to a friend. Then the eighty stimulus sentences were presented to them twice, one by one, in two different orders, with a break between the two readings. The reading was indirectly paced by the experimenter, who manually controlled the course of the presentation of the stimuli. In the end, each speaker recorded 80 sentences containing the target words. Only samples from the second reading were analyzed and annotated, while the first reading was used only as a backup in individual cases of disfluencies, mis-pronunciations, etc.

A major drawback of the procedure was that the recording sessions were not carried out in a sound-treated environment, but rather in the households of the speakers (kitchen or living room). This meant more natural conditions for the speakers but worsened the recording quality.

The annotation and acoustic analysis were conducted in *Praat* (Boersma and Weenink 2013). The tokens were annotated according to the phonological category of the preceding segment (Vowel, Sonorant, Voiced Obstruent, Voiceless Obstruent), for the phonetic voicing if the preceding segment was an obstruent, and for the realization of the target sequence. Tokens which did not show any signs of glottalization were labeled as resyllabified (preceding consonants) or as having hiatus (preceding vowels). Tokens which were perceptually identified as discontinuous and showed irregularities in the waveform and/or spectrogram were labeled as glottalized. Only the categories *glottal stop* and *creaky voice* were distinguished according to the criteria proposed in Redi and Shattuck-Hufnagel (2001) and Skarnitzl (2004). Glottalized tokens were labeled as having an *other* kind of glottalization if they could not easily be fitted into the category of a glottal stop (*a clear hold phase* and possibly a sudden voice onset with irregularities in the pulses) or of creaky voice (*a continuous* stretch of irregular glottal pulses which gave the impression of creakiness).

2.4 Results

The results are shown in Table 1. Virtually all the tokens in the second reading were glottalized. There was only one questionable token of hiatus, produced by BM; in the first reading by MM there was also one instance of linking without glottalization. BM, BF, and MF realized /voiceless/ as well as /voiced/ obstruents clearly as [voiceless] before all the target vowels. The one token with linking also showed "Moravian" assimilation of voice, as described in §1.1. It appeared in the sequence *Přilep ucho* "glue the handle" [ˈpr̝̊ɪlɛb‿uxo]. MM used a pronunciation of obstruents which was suggestive of (at least partial) voicing in several other cases; however, his peculiar way of glottalization (see below) and the amount

of noise in the recording did not allow a definite decision to be made about the voicing category. These possibly [voiced] obstruents, however, were always followed by a glottalized vowel, which would contradict the usual assumption that glottalization has an equivalent effect on preceding segments to other voiceless sounds, i.e., that it causes complete loss of voicing in preceding /voiced/ obstruents (cf. Volín 2003, 13). MM also pronounced voiced obstruents in front of initial sonorants (cf. §1.1).

Although the speakers did not differ in terms of the overall rate of glottalization, there was great variability in the preferred forms of glottalization. BF used clear full glottal stops, with a hold phase of at least 20 ms, in every single target sequence. MF had a similar pattern, with only a few cases of creaky voice between vowels. The male speakers showed greater variability and they also used forms which could not easily be classified as glottal stops or creaky voice. MM often used a kind of amplitude lowering which was a clear signal of glottal marking; individual instances were very similar in form but differed significantly in the degree of amplitude lowering and did not fit into just one of the previously described categories. A similar tendency could be observed for BM, who also used a continuum of amplitude lowering which was responsible for different degrees of perceived glottalization so that one token with particularly inconclusive characteristics was classified as a questionable hiatus.

	V_V				S_V				voiced O_V				voiceless O_V			
	MM	MF	BM	BF	MM	MF	BM	BF	MM	MF	BM	BF	MM	MF	BM	BF
Glottal stop	1	6		10	5	9	3	10	2	10	8	10	5	10	7	10
Creaky voice	3	4	9				2		1							
Other	6				5	1	5		7		2		5		3	
Resyll./Hiatus			1?													

Table 1. *An overview of the preferred productions of word-initial vowels, according to the preceding segmental contexts: Vowel, Sonorant, Voiced Obstruent, and Voiceless Obstruent. Columns show what forms individual speakers (Moravian and Bohemian males and females) used in each context. The question mark identifies the only token that was very close to the absence of glottalization, which, however, was not completely free of perceptual and acoustic signs of irregularity.*

Another problematic area was the distinction between glottal stops and some instances of creaky voice which had particularly long gaps between individual glottal pulses. Previous accounts (e.g., Skarnitzl 2004) did not make it clear how long such a gap should be to constitute a hold phase of a full glottal stop. And indeed, the present data show various degrees of pulse spacing, together with a continuum of different pulse intensities. The amount of glottal marking observed in the sample thus ranged from small irregularities in the voicing of the vowel to extreme cases when the whole target vowel was realized as a single glottal pulse.[12] This was the case, for instance, in MF's production of *vylož eso* "play the ace," which, in isolation, was interpreted by a naïve listener as */ˈvɪloʃ kso/ but it was still possible to identify it correctly in the context of the whole sentence.

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12   This was only found when the target vowel appeared between two voiceless consonants.

3. Concluding Remarks

The size of the sample in this pilot study does not allow generalizations as to whether glottalization is more common in Bohemian or in Moravian Czech. There is a preference for stronger glottal marking, i.e., full glottal stops, in both female speakers as opposed to the two male speakers. This is, however, not necessarily a difference in glottalization itself. Rather, it seems that the female speakers were more influenced by the unusual situation of recording themselves reading aloud and they resorted to more careful pronunciation. The male speakers showed less precise articulation in other segments as well.

For future research the goal should be to elicit more natural productions, ideally of spontaneous, or at least of semi-spontaneous speech, from male and female speakers of different regional varieties of Czech. The methodological issues that will have to be dealt with include the need (a) to elicit words with initial vowels in comparable segmental, lexical, and prosodic contexts and (b) to ensure high-quality recordings which would enable more precise acoustic analysis to be performed.

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consonant quality can thus represent the only relevant difference between some Spanish and Czech words, at least from the Czech speaker's point of view;

b) in contrast, acquiring the high quality of Spanish can require the suppression of some Czech phonic habits, an objective that can be reached only through a process of learning, that is, a conscious modification of the articulatory basis. From this point of view, a Czech speaker with a high competence in Spanish would pronounce the two abovementioned words differently, not only as far as the consonantal articulation is concerned, but also the quality of the following vowel.

The question we may pose is thus the following: do Czech bilinguals pronounce the Spanish high front vowel [i] in the same way as the corresponding Czech [ɪ]? This central question leads to some more specific questions, namely:

a) is there any difference between the phonetic realization of the Czech high front vowel and its Spanish counterpart, as far as the quality is concerned?

b) if so, is this difference statistically significant?

c) in which context does this difference appear, if any?

The hypothesis to be verified is based on the phonetic similarity of the high front vowels in the two languages, which, as has been argued, might lead to a negative transfer from L1 to L2. In more detail, this paper focuses on the quality of the Spanish high front vowel [i] and compares it to the quality of its Czech counterpart [ɪ], expecting that these two sounds will be pronounced in a very similar, or even identical, way. Assuming that the backness of both vowels is more or less the same, special attention is paid to the degree of openness, which, according to some authors (e.g., Dankovičová 1999 for Czech, and Martínez Celdrán and Fernández Planas 2007 for Spanish), might be slightly different, given that the Czech high front vowel is a little bit more open than the Spanish one.

2. Method

2.1 Participants

The participants in this study were ten Czech women who had studied Spanish at the university level for at least three years and who were, at the time of the recording, between 22 and 30 years old. Their competence in Spanish was thus quite high, even though none of them had acquired it as their mother tongue. All of them started to learn Spanish after puberty, that is, at the critical period after which, according to some authors (Lenneberg 1967), it is difficult to acquire a native-like pronunciation, given the decline of brain plasticity. The speakers were recorded in a sound-attenuated booth and, at the moment of the recording, were provided with the

different vowel quality, primarily the relatively lower F1, typical of Spanish vowels (Čermák 2005, 63–65; Real Academia Española [RAE] 2011, 87–88) would not be realized.

b) hypothetically, the L2 Spanish production of Czech speakers does not lead to misunderstandings: in Spanish communication in general, even a very inaccurate articulation of Spanish vowels does not usually lead to misunderstandings, which is comparable with issues such as *ship/sheep* in English (except for cases where the very open articulation of the front high vowel, which is typical of some regions in the Czech Republic, mainly Prague, causes problems for Spanish listeners, who assume that they have *heard* a mid-vowel [e], as in *Ávila* [ˈaβɛla]~[ˈaβɪla]). This means that in normal interaction in Spanish no feedback is usually given if pronunciation inaccuracies occur and Czech L2 speakers do not feel an urge to adjust their categories.

As for a possible counterpart of the Spanish high front vowel [i], there are two options in Czech: a "short" one and "long" one. Despite their labels, the difference is not purely quantitative: the Czech "long" high vowel /iː/ is differentiated from its "short" counterpart not only by its longer duration, but also, and more importantly, by spectral differences, given the fact that the vowel /ɪ/ is becoming a more open sound. The phonemic contrast between the long and short vowels is thus realized primarily by the timbre (Podlipský, Skarnitzl, and Volín 2009); however, this matter is somewhat more complicated when the dialectal areas are taken into consideration as well.[2] As a result of the presence of phonemic length in Czech, it can be suggested that a higher sensitivity to vowel duration would encourage Czech L2 Spanish speakers to prefer "short" [ɪ] as an appropriate category in Spanish production.

Whether, or to what extent, the L2 Spanish of Czech bilinguals is native-like is a matter that only Spanish native speakers can decide. Still, it could be useful to see whether the realization of Czech [ɪ] and L2 Spanish [i] differs significantly in terms of the first two formants and whether a more close articulation occurs as a consequence of a (conscious or unconscious) effort to realize the slightly different spectral characteristics in L2 Spanish.

2. Methodology

2.1 Speakers

The experiment was based on the performance of ten carefully-selected female speakers, aged 20–22, who were Charles University students of Spanish philology programs, i.e., advanced L2 speakers who aspire to be Spanish language professionals and who are therefore strongly motivated to perform well.[3]

Moreover, the subjects were trained in Spanish phonetics and phonology during a long-term course at the same university. In order to collect data from the most homogeneous group possible, only speakers with minimal experience abroad were selected (from 0 to 3 weeks in

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2   In Moravian areas, the traditional temporal difference between long and short vowels is claimed to be maintained (Podlipský, Skarnitzl, and Volín 2009), and therefore, the front vowels are more close: the phonemic length is indeed manifested by duration in both production and in perception. In Bohemia, this difference has been fading and vowel quality has become the preferred acoustic cue.

3   As many language teachers and investigators claim, the motivation is the cornerstone of good or even (near) native-like pronunciation, e.g., in Jenkins (2000).

a Spanish-speaking country), both of whose parents were Czech and who were living in Prague or its surroundings.

2.2 Design of the Experiment

The aim of the study was to obtain the values of the first two formants in Czech learners' production of [i] in highly-controlled contexts both in Spanish and in Czech, and, subsequently, to make a comparison of the Czech and Spanish production of the vowel in lexical items with the same consonantal environment, e.g., *Pippa* (Kate Middleton's sister) – *pipa* ("pipe"), with special attention being paid to the consonantal context (1) and style (2).

1) Regarding the environment, the high front vowel was elicited in four consonantal contexts: bilabial, dental[4]/alveolar, velar and uvular[5]/velar. Specifically, these included the combinations p-i-p, t-i-t, k-i-k and χ-i-χ in stressed open syllables, i.e., the second consonant always belonged to the following syllable, which is illustrated in Table 1.

The choice of voiceless explosives was motivated by two reasons. First, voiced obstruents in Spanish are associated with explosive-fricative[6] allophony, e.g., *vivo* "alive, vivid" (after a pause) [ˈbiβo]. Second, voiceless explosives provide a *neutral* context, or, as Albalá et al. (2008, 2) puts it, "contextos con menor influencia coarticulatoria" [contexts with less coarticulatory influence], in comparison with e.g., the palatal consonant /ɲ/. Moreover, the voiceless uvular consonant [χ] was added to these contexts to enrich the variety of consonantal environments. Other contexts were excluded from the consideration.

Each Ci.C combination became the base for words sought in the Royal Academy Dictionary (RAE, 2001) in such a way that the Czech and Spanish words shared the particular consonantal environment and at the same time they constituted a meaningful lexical item in both languages, at least to some extent (e.g., **pipa** – **Pipp**a, but also **jijas** – **chich**otá where a better solution was found impossible).

2) Such an item was realized in three speech "styles": nonsense words (only Czech), real words in the carrier sentence (in Czech *Řekni _ prosím*; in Spanish *Diga _ por favor*. "Say x, please.") and real words in a coherent text. In the text, the Czech and Spanish items under investigation were distributed in comparable positions with respect to the information structure of the sentence.

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4   The Spanish voiceless explosive /t/ is dental. In Czech, this sound is realized as alveolar or dento-alveolar (Skarnitzl 2011, 146–7).
5   In *la lengua culta* in Madrid, the uvular realization [χ] is the standard pronunciation of /x/ (RAE, 194), (even though, especially when preceding front vowels, the velar fricative [x] is also quite frequent), which is the reason why it was included in the experiment.
6   Although these sounds are sometimes considered to be *fricative* consonants [β], [ð], [ɣ] (e.g., Penny 2002), in Spanish literature the allophones are treated as approximants, transcribed as [β̞], [ð̞], [ɣ̞]: "Los segmentos oclusivos sonoros poseen dos clases de alófonos principales: los oclusivos [b], [d] y [g] y los aproximantes [β̞], [ð̞] y [ɣ̞], que aparecen en español en distribución complementaria . . ." ([Spanish] voiced plosives have two sets of allophones: the plosives [b], [d], and [g], and the approximants [β̞], [ð̞], and [ɣ̞], which occur in complementary distribution.) (RAE, 135).

		CONTEXT						
		bilabial		alveolar/dental		velar		velar/uvular	
		p		t		k		x/χ	
STYLE	nonsense words	pipi		titi		kiki		chichi	
	words	*Pipi*	Pippa	*título*	tituly	*kiko*	Kiki	*jijas*	chichot
	text	*pipa*	Pippa	*títulos*	titulek	*kiko*	Kiki	*jijas*	chichotá
		LANGUAGE: *Spanish*/Czech							

Table 1. *Table with lexical items used in the L2 production experiment. The high front vowel [i] / [ɪ] was elicited in four consonantal contexts and three styles, both in Spanish and in Czech. The independent variables, context and style, embedded in the primary variable – the language (Spanish – Czech).*

Moreover, in order to avoid the observer's paradox, those words were read in random order (but first all in Czech, then in Spanish, with the order of "styles" being nonsense words > words > text) and also a great number of different lexical items were included as fillers, so that the speakers were not aware of what exactly was being investigated.

Every word was elicited twice, giving 40 tokens from every speaker (400 tokens in total). The production of the Spanish high front vowel was then considered with respect to (1) style (n=40 for each style category) and (2) context (n=20 for each contextual category).

Recording the speakers' performances took place in a laboratory of the Institute of Phonetics. Before the recording, it was made clear that every speaker had been familiarized with all the lexical items, with any doubts about the meaning being solved in advance. Every subject was given a set of sheets of paper with the items in carrier sentences organized into paragraphs and was encouraged to read them aloud in a natural manner. The speakers were also asked to repeat a whole section of those sheets if it appeared to be needed.[7] The recording was realized with a sampling rate of 32 kHz and 16-bit resolution.

2.3 Analysis of the Data

All the samples were analyzed using the phonetic software Praat (Boersma and Weenink 2012), applying the Burg algorithm based on LPC. The formant values were calculated as the mean of the middle third of the monophthong, to avoid the influences of coarticulation on the one hand, and to explore the effect of the surrounding consonants just on the middle of the vowel on the other.

The formant values obtained in Hz were converted into ERB, (psychoacoustic units that reflect the way we perceive the vowel) according to the following formula (Glasberg and Moore 1990)

$$[21.4*\log10(0.00437*f+1)],$$

and these values were considered as formant values and compared, with the comparison being made between Czech and Spanish realizations that were comparable with respect to the consonantal context and style. The statistical significance of the results was checked by means of paired two-tailed t-tests.

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7   This was done in cases of problematic realizations, such as a voiceless sound in *pipi* [pɪ̥pɪ].

3. Results

3.1 Context

In general, the data collected during the experiment can be considered highly compact and reliable, with the coefficient of variation C_{var} fluctuating between 3.6% and 9.3% (Table 2). It should be noted that in Spanish production there is a greater deal of variation than in the Czech tokens, which reflects, to some extent, different individual strategies: adherence towards native pronunciation on the one hand, and tendency towards a more close realization on the other.

C_{var} [%]	p	t	k	x
F1 (Cz)	5.6	4.5	6.7	6.4
F1 (Es)	9.3	7.6	6.7	7.8
F2 (Cz)	3.1	3.8	3.6	3.7
F2 (Es)	3.8	4.8	3.6	3.7

Table 2. *Values of the coefficient of variation in the Spanish and Czech data, with the highest values being associated with Spanish realizations of [i] in p-context. Values are rounded to one decimal place (as in all tables in this paper).*

The mean formant values for each contextual category were calculated and they are given in Table 3 with their standard deviations.

context	Czech realizations [ERB]				Spanish realizations [ERB]			
	F1	s.d.	F2	s.d.	F1	s.d.	F2	s.d.
p	9.3	0.5	22.0	0.7	8.5	0.8	23.0	0.9
t	9.4	0.4	21.7	0.8	8.3	0.6	23.3	1.1
k	8.8	0.6	23.5	0.9	8.4	0.7	23.5	1.2
x	8.8	0.6	23.3	0.9	8.7	0.7	23.3	0.9

Table 3. *Mean formant values of the high front vowel [i] with standard deviation in four consonantal contexts in Czech and L2 Spanish in ERB with n=20 for every contextual category.*

From this we can see that there are at least minor differences between the pronunciation of Czech [ɪ] and L2 Spanish [i]. Nevertheless, it was only in the *t*-context and, less obviously, in the *p*-context that significant differences were found, as illustrated in Table 4. The low *p*-value (with the significance level being α=0.01) indicates that the differences in these two cases are highly significant, especially for the *t*-context. The lower F1, associated with the articulatory dimension of vowel height, being manifested by the shorter distance between the tongue and the hard palate in L2 Spanish pronunciation, accompanied with a slightly higher F2, reflects a tendency towards a rather close articulation. Such realization is to be distinguished from the more centralized Czech [ɪ]. This trend was seen neither in the *k*-context nor in the *x*-context, which becomes clear from the scatterplots below (Figure 1).

difference Cz-Es	p	t	k	x
Δ F1[ERB]	0.7	1.2	0.4	0.1
p-value	< 0.01	< 0.001	0.1	0.7
Δ F2[ERB]	1.0	1.5	0.03	0.04
p-value	< 0.01	< 0.001	0.94	0.89

Table 4. *Significant differences found in F1 and F2 between Czech [ɪ] and L2 Spanish [i] in p-context and t-context, with lower values always associated with L2 Spanish F1 and Czech F2.*
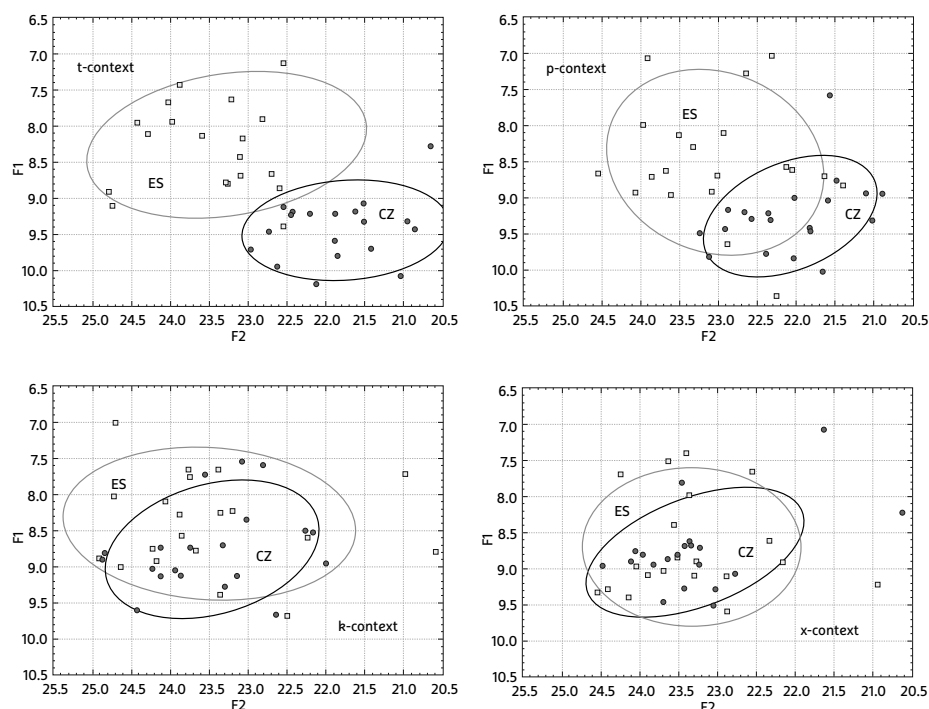

Figure 1. *F1-F2 scatterplots of realizations of L2 Spanish [i] and Czech [ɪ] in four consonantal contexts, i.e., p-i-|p; t-i-|t; k-i-|k; χ-i-|χ. The significant difference between the Czech and Spanish realizations with respect to context is found in the t-i-|t context and the p-i-|p context, with lower values being associated with the first formant in the Spanish tokens.*

As Figure 1 shows, apart from the differences in F1, the realizations of Spanish [i] and Czech [ɪ] also differ slightly in F2, but the differences, though statistically significant, are probably too small to be perceived by the human ear (Pols 1999) and, therefore, predictably less important in L2 Spanish production. To sum up, the main feature of Czech L2 Spanish [i] in the data, lower F1, is present only in two contexts: in the *t*-context and in the *p*-context. Two reasons for this asymmetry might be mentioned.

First, in these contexts the slightly different vowel quality is easier to spot for L2 learners and therefore it is more easily acquired (or at least, modified towards the target pronunciation). Besides, the combinations *tit* and *pip*, unlike, for example, *chich*/*jij*, represent quite frequent phonotactic combinations both in Czech and in Spanish, and so Czech L2 Spanish learners, having reflected on the difference, tend to exhibit adequate articulatory patterns.

Second, lexical choice might be important, especially in the items *título – tituly*, where the influence of the grapheme *í* comes into consideration, although the accent marker in Spanish, in Czech learners (with Czech distinguishing between short and long vowels using a diacritical mark) tends to be somewhat longer than the native Spanish speaker would pronounce it. It seems to be the case that Czech L2 Spanish learners would project their *í* (close and possibly longer than the "short" *i*) in the Spanish *-i-* combination. Nevertheless, whatever the cause for the change, the results indicate that, at least in these particular contexts, L2 Spanish [i] is pronounced differently from the Czech [ɪ].

3.2 Style

Similarly to the *context* results, with respect to speech style there appear to be highly compact data, with a certain degree of variation in the F1 dimension. It should be noted that, in contrast with the previous section, a higher level of variation is related not only to L2 Spanish realizations, manifested primarily by Spanish words in the list, but also to the Czech pronunciation of [i] in a coherent text, which was indeed higher than for this vowel in the Spanish text. This is illustrated by Table 5.

C$_{var}$ [%]	NSW	CZ-word	CZ-text	ES-word	ES-text
F1	6.5	5.0	7.9	9.6	6.6
F2	4.3	4.9	4.8	4.8	3.7

Table 5. *Values of the coefficient of variation of the first two formants of Czech and L2 Spanish [i] realized in various speech styles. NSW = nonsense word in Czech, CZ-word = Czech word in list; CZ-text = Czech word in a coherent text, ES-word = Spanish word in list; ES-text = Spanish word in a coherent text.*

Table 6 shows the actual formant values of the Spanish high front vowel with respect to the style, i.e., nonsense words in Czech, real words in Czech and Spanish word lists in a carrier sentence, and finally, in real words in coherent Czech and Spanish texts.

Style	F1	s.d.	F2	s.d.
	[ERB]			
NSW	9.1	0.6	23.1	1.0
CZ-word	9.1	0.5	22.8	1.1
CZ-text	9.0	0.7	22.5	1.1
ES-word	8.5	0.8	23.1	1.1
ES-text	8.5	0.6	23.5	0.9

Table 6. *Values of the first two formants of Czech and L2 Spanish [i] realized in different speech styles and their standard deviations.*

In both styles (word and text), highly significant differences between the Czech and Spanish tokens were found as far as F1 was concerned, as Table 7 shows. In the F2 dimension, however, the difference proved to be highly significant only in the *text* style, with $p < 0.001$ ($\alpha=0.01$), which can be seen in Table 7.

difference Cz-Es	*Word*	*Text*
Δ F1[ERB]	0.6	0.6
p-value	< 0.001	< 0.001
Δ F2[ERB]	0.3	1.0
p-value	> 0.05	< 0.001

Table 7. *Differences between Czech [ɪ] and L2 Spanish [i] in word style and text style are significant in F1 in both styles, while F2 is proved significant in the text style only.*

Nevertheless, as in the context variation, the difference of 1.0 ERB in F2, whose values fluctuate around 23.0 ERB, is likely to be considered unimportant in terms of perception of the vowel quality. The difference is visualized in the scatterplot (Figure 2, on the right), where the formant field of L2 Spanish [i] is only slightly shifted to the left, with the F2 values being somewhat higher, and yet still in the range of the Czech high front vowel. This might be due to the considerable variation in the Czech *text* style. In word style, Czech [ɪ] almost completely overlaps with L2 Spanish [i] in the F2 dimension.
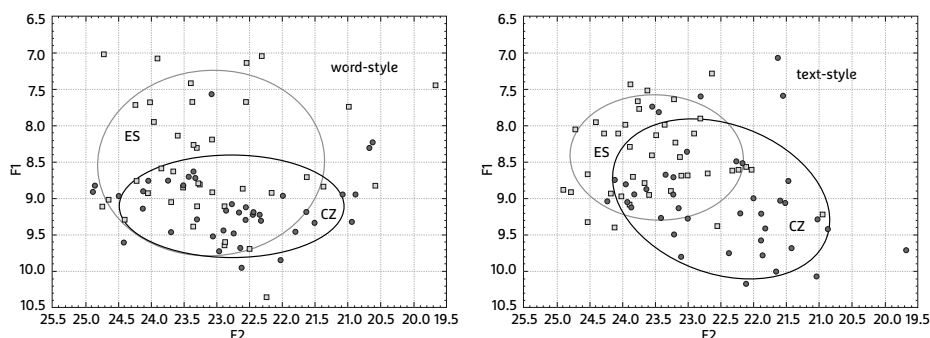

Figure 2. *The F1-F2 scatterplots of Czech and L2 Spanish i-realizations with respect to word style (on the left) and text style (on the right); the ellipses cover about 68% of cases (corresponding to one standard deviation from the mean value). It should be noted that there is a considerable overlap between Czech and L2 Spanish [ɪ]-[i] production. Surprisingly, the data show greater variation in L2 Spanish words in carrier sentences than in an L2 Spanish text.*

To sum up, the results for style variation are illustrated in Figure 2. Unlike in the previous section, the significance of lower F1 in L2 Spanish was proved in both styles, even acquiring the same values for *word* style and *text* style, i.e., the Czech speakers modified their L2 Spanish performance in the same way in order to achieve more Spanish-like pronunciation.

These findings could lead to the conclusion that a feature of more close realization, in the right direction towards the target pronunciation of the Spanish high front vowel, reflects at least some effort to create new, more Spanish-like articulatory habits. However, a comparison between native Spanish and Czech (monolingual) control groups would provide a clearer view.

4. Conclusion

The study indicates that L2 Spanish [i] is realized with a significantly lowered F1 (associated with the notion of open/close articulation) than its supposed Czech counterpart [ɪ], which suggests that Czech bilinguals modify their L2 Spanish pronunciation of the high front vowel so that a more close realization is achieved. However, the differences observed are rather small and it is native speakers' perception that will decide whether such modifications are perceptible and, possibly, without marks of foreignness. Additionally, studying the role of dialect in L2 Spanish vowels would provide a useful insight into the problem, as well as the role of vowel length in the perception and subsequently production of L2 Spanish vowels.

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Loanwords and Foreign Proper Names in Czech: A Phonologist's View

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Abstract: The objective of the present paper is to analyze phonological aspects of orthographically non-adapted loanwords and foreign proper names on a non-normative basis. A system of eight adaptation principles is put forward (1. phonological approximation; 2. spelling pronunciation; 3. original pronunciation; 4. analogy with the donor language; 5. analogy with the recipient language; 6. the influence of a third language; 7. the influence of universals; 8. unclearly motivated pronunciation). This system is then applied to a sample of Anglicisms taken from a recently published dictionary. We show that the most important principles are phonological approximation and, to a lesser degree, spelling pronunciation. The "secondary" principles (4–8) affect only a small number of items. Differences between British and American pronunciation are unproblematic for the system.

Keywords: phonology; pronunciation; loanwords; proper names; Czech

1. Introduction

Orthographically non-adapted loanwords and foreign proper names constitute a peripheral yet dynamic and fairly conspicuous area of the Czech lexicon. They are characterized by a number of specific features, including:

a) formal markedness (e.g., the presence of the peripheral phonemes /f/, /g/, /dʒ/, /oː/, /a͡u/ or /ɛ͡u/, unusual phonotactic patterns such as word-initial /ɛ/ or specific morphophonological patterns);[1]

b) a less transparent relationship between pronunciation and spelling, which contrasts with the phonological character of Czech spelling. It is, for instance, probable that some Czech speakers who watch the TV series *The Simpsons* are not aware that the name of the main character, *Homer*, pronounced [ˈɦo͡umr̩] in the Czech version of the show, is a reference to the Greek author, whose normal Czech pronunciation is [ˈɦomɛːr]);

c) intrinsic instability of the phonological form as a result of the lack of fixation by orthography or by other words from the same derivational family (Mathesius 1947, 99). In the case of foreign words, the number of attested pronunciations is usually higher than for Czech words; cf. the many attested pronunciation forms of the Gallicism *croissant*, as described by Říhová (2004);

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1 The IPA transcription of Czech is based on Dankovičová 1997. English is transcribed according to Roach 2000.

d) extrinsic instability of the phonological form, which may be subject to influences from socio-professional groups (academic bodies, media, business) with a varying degree of erudition or pragmatism (cf. the recent decision of the Hyundai Group to present their car brand as [ˈɦjondɛː] in the Czech media, despite the well-established form [ˈɦjundaj]; see Žemlička 2012);

e) sociolinguistic implications (e.g., prestige/stigmatization or socioprofessional stratification).

The phonetic and phonological characteristics of these lexical items are currently understudied in Czech linguistics. The last extensive survey of the pronunciation of foreign words was carried out in the 1960s and 1970s; its results were used as a basis for the 1978 *Výslovnost spisovné češtiny – Výslovnost slov přejatých* (Pronunciation of Standard Czech – Foreign Words). In recent lexicographic works, the pronunciation of new words is mostly based on the intuitions of the authors, almost all of whom are non-phoneticians. This does not mean, however, that these intuitions do not lead to a globally satisfactory result. Foreign proper names are also covered by some more recent sources (e.g., Kučera and Zeman 1998).

The objective of this paper is to analyze phonological aspects of orthographically non-adapted loanwords and foreign proper names on a non-normative basis, and to examine the adaptation processes in a sample of Anglicisms taken from a recently published dictionary.

Our analysis is partly inspired by the concepts proposed by Loanword Phonology (e.g., Calabrese and Wetzels 2009), which considers the adaptation process as a phonological *repair* of an *illegal input*. The purpose of the repair is to make the word more native-like (i.e., to bring its phonological properties in line with native phonology); however, cases of divergent repair (i.e., adaptation which is not explicable by Czech phonology) and unnecessary repair may be observed as well. In Calabrese and Wetzels (2009, 1), two scenarios of nativization are outlined: the *nativization-through-production* principle supposes that a speaker who knows the donor language will pronounce the new word in the recipient language by applying native phonological rules to it. According to the *nativization-through-perception* principle, on the other hand, a speaker who has no knowledge of the donor language utters the new word by imitating the original phonetic form. Surprisingly, the authors do not mention a third logical possibility: that speakers who neither know the donor language nor have overheard the phonetic form of the word base their pronunciation solely on the spelling. Furthermore, it should be noted that the nativization of a loanword is not an instantaneous and individual act, but a process which is socially anchored and in which other factors such as tradition or analogy also play a role.

2. Adaptation Principles

The scale of integration of lexical items can be viewed in the following terms (the object of our analysis being points d, e, and f):

a) Czech words (*město* "city," *Vladislav* "Czech male first name")
b) "unrecognizable" (i.e., highly integrated) loanwords (*muset* "must," *Petr* "Peter")
c) loanwords with Czech spelling (*tramvaj* "tram," *Žaneta* "Jeannette")
d) loanwords with double spelling (*jazz/džez*, *Kristina/Kristýna* "Christine")
e) loanwords that have retained their original spelling (*croissant*, *Edward*)
f) foreignisms (*cherchez la femme*)
g) code mixing

Eight different (but combinable) principles are observed in the phonological adaptation of loanwords.

1. **Phonological approximation.** This process, which is the most frequent and is presented as the default method in pronunciation manuals, denotes the substitution of non-native sounds with their nearest counterparts in Czech, together with the application of Czech prosodic, phonotactic, and morphological rules, e.g., *Windows* [ˈwɪndəʊz] → [ˈvɪndoʊs]. The basic rules of phonological approximation for British English phonemes (not mentioning most consonants for which the conversion is obvious, e.g., /m/ > /m/) can be summarized in the following way: /ɪ ʊ ɒ ʌ/ > /ɪ u o a/; /iː uː ɔː ɑː/ > /iː uː oː aː/; /e æ ə/ > /ɛ/ (three phonemes merging into one); /aɪ eɪ ɔɪ/ > /aj ɛj oj/; /aʊ əʊ/ > /au ou/; /ɪə ʊə eə ɜː/ > /iːr uːr ɛ(ː)r ɛ(ː)r/; the *r* grapheme is always pronounced as /r/, even in positions where it is elided in non-rhotic accents; /θ ð/ > /t d/ or /s z/; /w/ > /v/; /nj/ > /ɲ/. Cases in which phonological approximation is not "automatic" include vowel length before /r/ (*software* can be pronounced both [ˈsoftvɛr] and [ˈsoftvɛːr]), other cases of vowel length (*bypass* can be pronounced both [ˈbajpas] and [ˈbajpaːs]), potentially syllabic sonorants (*pixel* can be pronounced both [ˈpɪksl̩] and [ˈpɪksɛl]), and /θ ð/ (*Smith* can be pronounced both [ˈsmɪt] and [ˈsmɪs]).

2. **Spelling pronunciation.** According to this principle, Czech pronunciation rules are applied to the foreign spelling form (e.g., *Superman* [ˈsupɛrman], but *Batman* [ˈbɛtmɛn] and *Spiderman* [ˈspajdr̩mɛn], pronounced according to Principle 1, probably because they are more recent).

3. **Original pronunciation.** This kind of pronunciation, according to which the phonological and phonetic rules of the donor language are maintained, is sometimes used in citations (*Výslovnost spisovné češtiny* 1978, 30), in scientific communication (Hůrková 1995, 69), and informally: by youngsters talking about pop music, for instance. Technically, this option leads to code mixing, and, in inflected forms, to phonetic hybridization, as Czech phonemes must appear in the endings of inflected forms.

4. **Analogy with the donor language.** In this case, the adapted form is the result of the (often incorrect) application of a phonetic analogy from the source language (e.g., *Robert* [ˈroubr̩t], a widespread pronunciation variant, commonly heard in the media, may be considered a hypercorrect form of [ˈrobr̩t]).

5. **Analogy with the recipient language.** According to this principle, the phonological changes made to the word that has been adopted are motivated by analogy with Czech words, or, more generally, by analogy with sufficiently integrated words of any origin. This principle accounts for what is usually called *folk etymology*; for example, the word *protežovat* ("to favor" < French *protéger*) is often pronounced (and even spelled) as [ˈprocɛʒovat], under the influence of Czech words such as *vytěžovat* and *zatěžovat*, which share a number of semantic features. Likewise, the French specialty *salade niçoise* (named after the city of Nice), is often interpreted as "Nicosia" salad because of its complicated spelling; the situation regarding this form has become even more confusing since a supermarket chain in the Czech Republic started selling this very salad under the name *Nicosia s tuňákem* ("Nicosia with tuna").

6. **Influence of a third language.** Words may be affected by the phonology of a third language, either because they were adopted via this language (e.g., *lajtnant*, adopted through German *Leutnant* from the French *lieutenant*) or by analogy (e.g., *puzzle*, often pronounced as [ˈput͡slɛ] in Czech). This last form may have come about through analogy either with

German pronunciation rules or with the similar-sounding Czech word *puclík* ("chubby child"; Štěpánová 2013).

7. **Influence of universals.** An example is the word *peloton*, which is often pronounced as [ˈpɛlɛton] and sometimes spelled *peleton*. The presence of an [ɛ] in the second syllable can be explained by vowel harmony.

8. **Unclearly motivated pronunciation.** This last category, which is technically not a *principle*, includes cases for which there is no obvious explanation (e.g., *country* pronounced as [ˈkaːntrɪ]).

Principles 1–2 are of central importance in the system (*Výslovnost spisovné češtiny* 1978, 27), while Principle 3 is peculiar in that it is socially or individually conditioned, potentially gradual, and exists as an alternative to all the other principles listed above. Principles 4–8 may be considered as secondary, as their effects are usually local and they are problematic with respect to the norm, at least for recent words. Elements of the system that we have presented can be found in several sources (*Výslovnost spisovné češtiny* 1978; Kučera and Zeman 1998; Ološtiak et al. 2006); however, the advantage of our list is that it presents the principles in a structured, exhaustive, and non-normative way.

In many cases, foreign words exhibit more than one of the principles: 1 and 2 in *Charleston* [ˈt͡ʃaːrl̩ston], 1 and 4 in *Robert* pronounced as [ˈrou̯br̩t], and 1, 2, and 5 in *heavy metal* [ˈɦɛvɪmɛtal]. In this last case, *heavy* is adapted according to Principle 1, while the pronunciation of *metal* as [mɛtal], rather than [mɛtl̩], is motivated both by orthography and by other Czech words containing *metal* like *metalurgie* ("metallurgy") and *metalíza* ("metallic paint").

3. An investigation of Adaptation Processes in a Sample of Anglicisms

To the best of our knowledge, none of the available sources considers the relative importance of the aforementioned principles in the lexicon. We therefore decided to analyze a sample of orthographically non-adapted Anglicisms taken from a modern medium-sized dictionary of Czech (*Slovník současné češtiny* [Dictionary of Contemporary Czech] 2011). We first selected all the entries for which a phonetic transcription is given (the transcription indicates that the word is of foreign origin, since entries for Czech words are not provided with a phonetic transcription in most dictionaries); we excluded, however, entries where the only issue was the pronunciation of *di*, *ti*, and *ni* (pronounced [ɟɪ cɪ ɲɪ] in Czech words but [dɪ tɪ nɪ] in foreign words of Western origin), or the pronunciation of *-ismus* (pronounced as [ɪzmus]). Such cases are not informative for our study, as they cause almost no problems for Czech speakers. We also decided not to include orthographically adapted loanwords in our sample. In total, we analyzed 225 Anglicisms (24% of which had an alternative spelling and 19% of which were listed as having more than one pronunciation).

The phonetic transcription of the selected Anglicisms given in *Slovník současné češtiny* [Dictionary of Contemporary Czech] 2011, was then compared to the transcriptions of these words in five other comprehensive dictionaries (*Výslovnost spisovné češtiny – Výslovnost slov přejatých* [Pronunciation of Standard Czech – Pronunciation of Loanwords] 1978; *Slovník spisovné češtiny pro školu a veřejnost* [Dictionary of Standard Czech for Schools and the General Public] 2003; *Pravidla českého pravopisu* [Czech Spelling Rules] 2004; *Nová slova v češtině I/II.*

Slovník neologizmů I/II [New Words in Czech I/II. A Dictionary of Neologisms] 1998/2004; *Nový akademický slovník cizích slov* [New Academic Dictionary of Foreign Words] 2005).

3.1 Agreement among Sources

Figure 1 shows the agreement between the pronunciations listed in the Dictionary of Contemporary Czech and the five other sources. We can see from the graph that the agreement is relatively high (between 77% and 90%).

For 37 entries (16% of the sample) at least one of the dictionaries gives a pronunciation which is different from the Dictionary of Contemporary Czech. These cases can be structured in the following way (all transcriptions have been converted into the IPA):

a) concurrence of Principle 1 (phonological approximation) and Principle 2 (spelling pronunciation): *holding* [ˈɦo͡uldɪŋk/ˈɦoldɪŋk], *spam* [ˈspam/ˈspɛm];
b) concurrence of a short and a long vowel: *software* [ˈsoftvɛr/ˈsoftvɛːr], *bypass* [ˈbajpas/ˈbajpaːs];
c) concurrence of epenthetic [ɛ] and a syllabic consonant: *hacker* [ˈɦɛkr̩/ˈɦɛkɛr], *pixel* [ˈpɪksl̩/ˈpɪksɛl];
d) concurrence of a (quasi-)diphthong and a monophthong: *cornflakes* [ˈkornflɛjks/ˈkornflɛks], *catering* [ˈkɛjtɛrɪŋk/ˈkɛtɛrɪŋk].
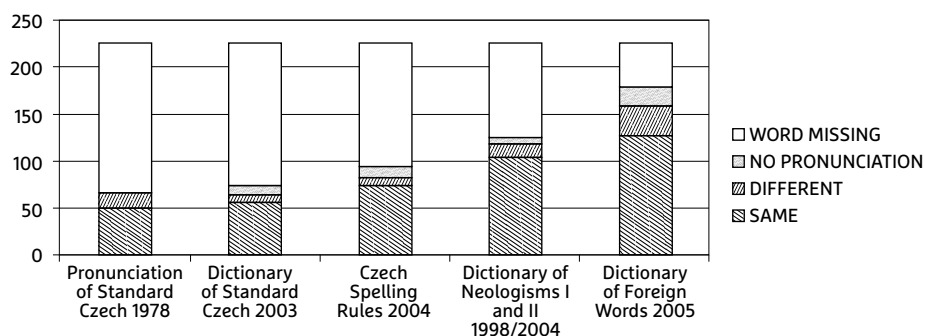

Figure 1. *Comparison of the pronunciation of words in the sample that was studied with their pronunciation listed in five other lexicographic sources. Explanation of the legend: "same" – the other source lists the same pronunciation(s) for the word in question; "different" – the other source lists (a) different pronunciation(s); "no pronunciation" – no pronunciation is listed in the other source; "word missing" – the word in question is not listed in the other source.*

3.2 Distribution of Adaptation Processes

The distribution of the primary adaptation processes (Principle 1 and Principle 2) in the Dictionary of Contemporary Czech (2011) is displayed in Figure 2. Phonological approximation is clearly the predominant principle, and accounts for 73% of the entries studied. In 10% of items, the word root is adapted by phonological approximation, while the prefix or suffix has a spelling-

based pronunciation. All the prefixes observed in this category are of Greek or Latin origin and exist in other Czech words (*superstar* [ˈsupɛrstaːr], *gigabyte* [ˈɡɪgabajt]); for suffixes, all the lexical items but one contained *-ing*, whose established phonetic form in Czech is [ɪŋk] (*roaming* [ˈro͡umɪŋk], *happening* [ˈɦɛpɛnɪŋk]). The adaptation of such prefixed or suffixed Anglicisms is thus not a single-step event, but a compositional process based on two different paradigms. The third group of words (5%) exhibits mixed treatment: phonological approximation and spelling pronunciation are applied within the same word (*rock-and-roll* [ˈrokɛnrol]). The fourth group (9%) includes words with two parallel pronunciation forms, one based on approximation and the other on spelling (*gangster* [ˈɡɛŋkstr̩/ˈɡaŋkstɛr]). Finally, in 3% of words we find a pronunciation which is fully based on spelling (*developer* [ˈdɛvɛlopɛr]). As expected, there are no instances of Principle 3 (original pronunciation) in the dictionary.
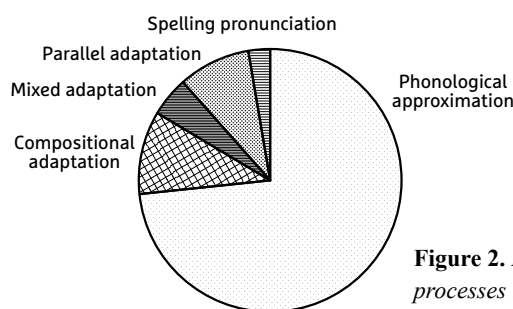

Figure 2. *Distribution of the primary adaptation processes in the words studied.*

For the secondary adaptation processes (Principles 4–8) we found the following 19 cases, which make up 8% of the sample:

a) Principle 4 (Analogy with the donor language: 4 items): *catering* [ˈkɛtɛrɪŋk] (by analogy with other English words in which *a* is pronounced as [æ], and possibly even with the word *cat*; a general tendency towards diphthong simplification seems to be a less plausible explanation), *cookie* [ˈkuːkiː] ("full" pronunciation of both vowels by analogy with other English words); *cornflakes* [ˈkornflɛjks, ˈkornflɛks] (cf. *catering*; additionally, we may hypothesize that there is an analogy with the Czech word *fleky* "a type of flat pasta"), *forfeiting* [ˈforfɛjtɪŋk] ("full" pronunciation not reflecting vowel reduction in the original form [ˈfɔːfɪtɪŋ]; NB this word is given in the Dictionary of Contemporary Czech (2011) with the wrong spelling *forfaiting*);

b) Principle 5 (Analogy with the recipient language: 4 items): *hamburger* [ˈɦamburgr̩] (analogy with the city of Hamburg, pronounced [ˈɦamburk] in Czech), *heavy metal* [ˈɦɛvɪmɛtal], *heavymetalový* [ˈɦɛvɪmɛtaloviː] (cf. above), *leasing* [ˈliːzɪŋk] (analogy with other foreign words in which intervocalic *-s-* is pronounced as [z]);

c) Principle 6 (Influence of a third language: 6 items): *demižon* [ˈdɛmɪʒon/ˈdɛmɪʒoːn] (an adapted word with variable length in the *-on* ending, typical of French loanwords such as *balkon* "balcony" or *bonbon* "sweet"), *manager* [ˈmanaʒɛr], *managerka* [ˈmanaʒɛrka], *managerský* [ˈmanaʒɛrskiː] (probably influenced by the French pronunciation; see Jílková, forthcoming), *management* [ˈmɛnɪdʒmɛnt, ˈmɛnɛʒmɛnt] (the first variant is based on

phonological approximation, whereas the second is a combination of English and French influences), *puzzle* [ˈpazl̩/ˈpuʦlɛ] (the first variant is based on phonological approximation, and the second one is inspired by German grapheme-phoneme conversion rules, although the standard German pronunciation of the term is [ˈpazl̩] or [ˈpasl̩]);

d) Principle 7 (Influence of universals: 4 items): *baseball* [ˈbɛjzbol], *baseballový* [ˈbɛjzbolovi:] (the shortening may be due to the presence of a double grapheme at the end, which implies a short vowel in many European languages, by a general tendency towards the unmarked term in a phonological contrast – see Maddieson 1984, or by analogy with other foreign words ending in -*ol*, such as *alkohol*), *grunge* [ˈgranʃ] (affricate simplification in a consonant cluster), *paintball* [ˈpɛjndbol] (cf. *baseball*);

e) Principle 8 (Unclearly motivated pronunciation: 1 item): *country* [ˈka:ntrɪ] (the lengthening cannot be explained by any analogy or a general tendency; the hypothesis that it is induced by the presence of a double vocalic grapheme is speculative).

3.3 Concurrence between British and American English

One of the questions that naturally arises in the study of Anglicisms in Czech is whether the approximated forms reflect British (RP) or American (General American) pronunciation in the event that they differ for a given lexical item. The following six categories were considered:

a) rhoticity: as we mentioned above, all approximated forms reflect the underlying /r/. This is probably the joint influence of spelling and rhotic accents of English;

b) alternation between [ɑː] and [æ]: we found only one item of this kind in our sample: *by-pass* [ˈbajpa:s], which is based on the British pronunciation form. In other recent words, pronunciation may vary: *grant* is pronounced uniformly as [ˈgrant], but *Hugh Grant* (despite his British origin) is often realized as [ˈgrɛnt]. The usual pronunciation of *breakdance* is [ˈbrɛjgdɛns];

c) alternation between [ɒ] and [ɑː]: out of the 34 items found in the sample (e.g., *box*, *copyright*, *laptop*), all are given with the [o] vowel, based on the British form. Only one item (*rock-and-roll*) is imaginable with the [a] vowel, reflecting the American pronunciation. Other cases of variability can be found marginally (e.g., the female name *Dolly* is usually pronounced as [ˈdolɪ], but in the 1997 version of *Hello Dolly*, the form [ˈdalɪ] can be heard);

d) the [əʊ/oʊ] alternation: all 15 approximated items contain [ou] (e.g., *notebook*, *show*). Any other alternative is hardly imaginable;

e) [j] deletion: out of the two items where [j] may elide in American English (*newton*, *tuning*), one is given with a pronunciation which is based on the British version ([ˈɲu:tn̩]), and the other with two alternatives ([ˈtju:nɪŋk/ˈtunɪŋk]); it is not easy to say whether the second one is motivated by American pronunciation or by spelling;

f) intervocalic [t] voicing: out of the six items where [t] may be voiced in American English (e.g., *heavy metal*, *party*), all are given with a [t]. Marginally, the voiced variant may appear, e.g., in *shut up!*, often pronounced as [ʃaˈdap].

On the whole, approximated forms are based on British pronunciation variants, with the notable exception of rhoticity, which is always maintained. Out of the six categories, it is only the [ɑː/æ] difference which is likely to introduce instability in the system of phonological approximation.

4. Conclusion

The phonology of orthographically non-adapted Anglicisms in Czech seems to be a rather stable system, with phonological approximation as the leading principle (with 73% of the sample that was studied conforming to this principle). As is evident from the items with double spelling (original and adapted), phonologically approximated forms are also the basis for spelling adaptation. Phoneme mapping is mostly straightforward, with some degree of variability for vowel length, sonorant syllabicity, and /θ ð/ conversion. The second principle according to its frequency of occurrence is spelling pronunciation, although it is rarely used alone: in most cases, it is used in combination with phonological approximation (compositional adaptation, mixed adaptation or parallel adaptation). Secondary adaptation principles (analogies, universals, and unclearly motivated pronunciation) concern only 8% of the sample. Aside from the alternation between [ɑː] and [æ], the concurrence between British and American forms does not seem to perturb the system.

All the aforementioned results should be interpreted with respect to the method by which they were obtained: we investigated the pronunciations given by a recent general dictionary of Czech rather than real usage. However, the comparison with five other sources gives us at least a rough idea about potential variability in pronunciation in real usage. Sixteen per cent of the items that were studied were treated differently by at least one of these five sources. Most of the discrepancies can be explained by the concurrence of phonological approximation and spelling pronunciation, as well as by the intrinsic instability of some approximation rules (especially in the case of vowel length).

Obtaining a complete picture of the subsystem of orthographically non-adapted Anglicisms in Czech would obviously require an investigation of real usage. A comparison with older Anglicisms, which have mostly adopted Czech spellings, may provide diachronic insights into loanword nativization. As for proper names of English origin, we may expect a higher degree of variability and a greater proportion of secondary adaptation principles.

The present analysis may serve as a basis for phonetic predictions about newly adopted Anglicisms; it may also find its application in lexicographic practice.

Funding Acknowledgement

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Résumé

The articles in this volume are based on papers and posters presented at the Olomouc Linguistics Colloquium (OLINCO) at Palacký University in the Czech Republic in June 2013. This conference especially welcomed papers that combined analyses of language structure with generalizations about language use.

The grammatical essays appearing here focus on the verb phrase and clausal structure, and have then been divided according to which of these latter two domains figures more prominently in any given paper. The first of these two sections, **Grammar of the Left Periphery and Scope Relations**, reflects the strong interest of the conference participants in properties (such as scope or intervention effects) of overt or covert categories at the left periphery of clauses: topicalized and WH constituents, and sentence-initial adverbials.

In the first paper, "*Yes-No* Questions, Subjects, Adverbs and the Left Periphery: New Evidence from Portuguese," Manuela Ambar proposes a syntactic account of Portuguese *yes-no* questions. Against the traditional view, the author argues that they do not have the structure of declaratives, but rather they parallel superficially different *wh*-questions. Consequently, intonation is not the exclusive licensing-device for Portuguese *yes-no* questions.

In "No Such Thing as 'Parameterized Structural Deficiency' in the Left Periphery," J.-Marc Authier and Liliane Haegeman challenge the appeal to parametric variation to account for the distribution of main clause phenomena (MCP). They show that PP preposing and infinitival TP preposing in French share the same syntactic properties and distribution of English movements treated as typical MCP.

In "Focus Fronting and Root Phenomena in Spanish and English," Victoria Camacho-Taboada and Ángel L. Jiménez-Fernández explore the different syntax of focus fronting and negative preposing in embedded contexts in English and Spanish. They propose that cross-linguistic differences can be accounted for by analyzing Spanish focus fronting as movement to spec-TP rather than to spec-CP, and that these differences reflect differences in how features are distributed to T and C.

In "Italian Polarity Fragments as Elliptical Structures," Emilio Servidio discusses a class of Italian sentence fragments in which a phrase is followed by the equivalent of either *yes* or *no*. The author argues that the discourse pragmatics of the fragments makes it clear that contrastive topicalization is involved, and that a range of syntactic evidence shows that the fragments are derived via clitic left dislocation of the topic plus deletion of a TP.

In the concluding paper in this section, "Word Order and Scope in Hungarian Finite Embedded Non-argument Clauses," Krisztina Szécsényi contrasts the scope properties of different types of finite adjunct clauses in Hungarian and (mainly) English. She discusses high and low scope readings in temporal clauses, quantifier scope interaction, and binding data. One conclusion is that high and low readings and dependent time interpretations are not results of the same mechanism.

Papers in the second, syntactic, section, **Structural Meanings of Verbs and Their Complements**, focus on the semantics (possibly null) of verbs and their grammatical modifiers. In "An Alternative Analysis of Marginal Modals," Dagmar Machová analyzes marginal modal elements in English from the perspective of their morphological, syntactic, and semantic properties. She argues that that the status of central modal verbs results from these three properties: polyfunctionality, the absence of agreement, and operator behavior, and that marginal modals are best analyzed in terms of how they depart from them.

In "Auxiliaries as Dummies: A Late Vocabulary Insertion Approach," Mark Newson and Krisztina Szécsényi argue for the position that the English non-modal auxiliaries are dummies used to realize functional content, claiming that dummies are uses of meaningful words in structural contexts where their root content is ignored.

In the paper "On the Inner Aspect of Predicates with Differentially Object Marked Internal Arguments: The Case of Romanian," Alina–Mihaela Tigău analyzes a differentially object marked internal argument as a stable and delimited entity, which modifies the internal temporal structure of an event by providing an internal boundary for it by inducing telicity.

The paper "In and out of Places, States, and Activities: Russian Verbal Prefixes and Scales" by Inna Tolskaya explains the polysemy of Russian verbal prefixes through their positions in the VP. The author shows that the meaning of a prefix is predictable on the basis of the event structure of the verb it attaches to, i.e., on the scale type provided by the verb.

In conclusion, Roland Wagner in his paper entitled "On the Cross-Linguistic Predictability of Functionally Equivalent Structures: Decausativization in French and German as a Test Case for Formal and Functional Grammars" evaluates the cross-linguistic predictive power of generative and functionalist theories with respect to one well-defined area of interest: causative alternation.

The volume's third section, entitled **Implicatures, Connotation, and Discourse**, contains papers dealing with the pragmatics of language use. In "Creativity and Innovation in Word Formation by Japanese Young People," Ivona Barešová and Halina Zawiszová demonstrate how contemporary young Japanese people creatively innovate in word formation so as to fulfil communicative needs. They explore compounding, blending, clipping, creation of alphabetisms, derivation, syllable inversion, and formation of neologisms based on the playful use of Chinese characters.

In "Logical and Pragmatic Meaning in the Interpretation of Connectives: Scalar Implicatures and 'Shallow' Processing," István Fekete, Mátyás Gerőcs, Anna Babarczy, and Balázs Surányi deal with the dispute between neo-Gricean approaches and the contextualist view on scalar implicatures. By performing a sentence-picture verification experiment, they are able to compare the processing of two connectives in Hungarian: *és* "and" and *vagy* "or."

In "Exhaustivity in Focus: Experimental Evidence from Hungarian," Mátyás Gerőcs, Anna Babarczy, and Balázs Surányi present the results of two experiments investigating the nature of exhaustivity of pre-verbal focus in Hungarian. They provide evidence that exhaustivity in pre-verbal focus is not entailed, unlike exhaustivity in clefts, with which it has previously been treated as on a par.

In her paper "Linguistic Strategies of Offensive and Defensive Argumentation," Marie Krappmann provides an analysis of the linguistic means of defensive and offensive argumentation in the dialogical form, and she focuses on identifying various linguistic realizations of offensive strategies and avoidance maneuvers.

In "The role of Information Structure in Czech Possessive Constructions," Jan Křivan deals with the functional properties of possessive constructions. He focuses on internal (adnominal) possession and external (affectedness) possession in Czech and argues that the emergence of specialized possessive constructions can be explained as a functional, speaker-oriented preference, based on different needs in terms of information structure.

The experiment-based paper "The Role of Partitive Construction in Generating Scalar Implicatures" by Mirjana Mirić and Boban Arsenijević is concerned with the facilitating effect of the

partitive construction for the availability of scalar implicatures in the interpretation of utterances with the Serbian quantifier *neki* "some." Serbian is one of only a few languages in which even adult speakers show a relatively low rate of deriving scalar implicatures.

Janet Randall, in "Tackling 'Legalese': How Linguistics Can Simplify Legal Language and Increase Access to Justice," presents the results of a project in which "jury instructions" were compared with their Plain English versions. These results suggest that although legal language is entrenched and reform is difficult, psycholinguistic research can help diagnose problems and suggest a course of action toward improving verdicts – and justice – overall.

In "Pragmatic Aspects of Comment Clauses in Courtroom Interaction," Magdalena Szczyrbak analyzes various realizations of selected comment clauses (or pragmatic markers) in courtroom discourse, based on transcripts from a high-profile libel case. Like the previous paper, this paper also provides insights into how pragmatic meanings are created in an institutional setting.

In conclusion, Kateřina Veselovská in her paper "On the Linguistic Structure of Evaluative Meaning in Czech" deals with the linguistic structure of evaluative meaning in Czech, exploring the ways in which evaluative meaning is expressed in Czech. In her paper, the author uses means from different layers of linguistic description, mainly morphology.

The fourth group of papers that emerged from an OLINCO Workshop bears the heading **Phonetics and Phonology**. In "Phonological Structure and Articulatory Phonetic Realization of Syllabic Liquids," Štefan Beňuš addresses two questions: how a phonetic consonant with a significant obstruction in the vocal tract can function phonologically as a vowel, and why liquids are cross-linguistically more marked syllable nuclei than vowels. In the paper, the author focuses on the differences between the two articulatory liquid gestures: consonantal tongue tip raising and vocalic tongue dorsum retraction.

In "Pre-Vocalic Glottalization vs Resyllabification in Regional Varieties of Czech (A Pilot Study)," Jakub Bortlík examines some of the factors which influence pre-vocalic glottalization in Czech with respect to its form and frequency of occurrence. The results suggest that examinations of glottalization should take into account different speech styles and they should not rest only on read speech.

In her paper entitled "The Spanish High Front Vowel in Czech Bilinguals," Štěpánka Čechová focuses on the production of the Spanish high front vowel [i] in advanced Czech learners of Spanish. The hypothesis that Czech speakers will pronounce this Spanish vowel in exactly the same way as the counterpart Czech vowel [ɪ] in the same context was tested on ten female L2 Spanish speakers recorded in laboratory conditions.

In the concluding paper, "Loanwords and Foreign Proper Names in Czech: A Phonologist's View," Tomáš Duběda, Martin Havlík, Lucie Jílková, and Veronika Štěpánová analyze phonological aspects of orthographically non-adapted loanwords and foreign proper names on a non-normative basis. The authors show that the most important principles are phonological approximation and, to a lesser degree, spelling pronunciation.

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