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## Preface

The Third Central European Conference in Linguistics for Postgraduate Students (CECIL'S 3) was the third installment of the CECIL'S conference series, initiated by the Faculty of Humanities of Pázmány Péter Catholic University, Piliscsaba, Hungary. The conference, held on 22–23 August 2013, encompassed the core fields of modern linguistics and sociolinguistics, with special focus on languages spoken in Central European countries, and their comparison with other languages. Conference participants presented a total of 38 papers (16 talks and 22 posters) over the course of the two beautifully sunny days, with keynote presentations by Hubert Haider (University of Salzburg) and Marcel den Dikken (City University of New York). The current volume contains 7 selected papers of those delivered at the conference.

Our special thanks go to the postgraduate students of the Faculty of Humanities of PPCU who gave their hands both before and after, and particularly during, the days of the conference. Anikó Grósz, Júlia Keresztes, Ágnes Kohlmann, Réka Köcsky, Lilla Pintér, Orsolya Tánczos and Diána Varga deserve special mention for making arrangements on site at our Piliscsaba campus, and managing our catering. Without their persistence and dedication the event could not possibly have become the success that it turned out to be. We are especially grateful to Lilla for taking such efficient care of accommodation and other practical matters both at the dormitory and at the conference venue.

We are also indebted to all of the anonymous reviewers who sorted through the abstracts we had received, narrowing the program down to the papers that were invited for presentation. We cannot adequately express our appreciation to the anonymous reviewers of the submitted manuscripts, who generously provided their constructive criticism and expert advice. A number of the papers in the volume owe a great deal to their helpful comments.

We would like to give special acknowledgment to our sponsor, TÁMOP project 4.2.2. BTK-NYDI-II.5.1. We are also grateful to Profilantrop Egyesület for their administrative support.

Balázs Surányi  
Gergő Turi  
(editors)

# The syntax of numerically quantified phrases in Polish and the theory of movement

Dominika Dziubała-Szrejbrowska

The subject matter presented in this article involves mechanisms of case distribution within nominal phrases containing cardinal numerals. The starting point for a discussion is homogeneous and heterogeneous syntax of numerals in Polish and the reanalysis of the categorial status of numeral lexemes, followed by the proposal utilizing the idea of case as a feature represented in the syntactic structure. As a consequence of the introduced model, constituents of the nominal phrase obtain case via movement to the relevant position within KP split into particular *Case Projections*, which accounts for the available case patterns preventing, at the same time, illicit structures<sup>1</sup>.

Keywords: *structural cases, oblique cases, Genitive of Quantification, numerals, movement*

## 1 Introduction

In the syntax of nominal phrases in Polish and in Slavic languages in general, a special attention has been given to phrases containing numerals. Their syntax, different depending on the value of the numeral, has been widely discussed in the literature resulting in a plethora of accounts in different models of grammars and frameworks. In this paper, the attempt has been made to approach the problematic structures from yet another point of view and present the analysis of numerals based on entirely different premises.<sup>2</sup>

The characteristic feature of numerically quantified phrases in Polish is that we observe a distinction into the so-called lower numerals (or paucals), i.e.  $<5$ , and higher numerals, i.e.  $\geq 5$ . This distinction is based on the fact, that lower numerals are congruent in case with a quantified noun and higher numerals induce Genitive on the accompanying noun. The requirement of higher numerals, however, applies only in the contexts of structural case assignment, i.e. the noun quantified by a higher numeral occurs in Genitive when the phrase appears in positions to which Nominative or Accusative are assigned. Interestingly, in the oblique case positions, the noun agrees in case with the numeral. These patterns of case distribution have led to numerous analyses which try to account for different case properties of numeral constructions via distinct structures for phrases with lower and higher numerals. In the proposed analysis the architecture of numerically quantified phrases is uniform for numerals  $<5$  and  $\geq 5$  which is due to the fact that numerals, irrespective of their value and resulting case patterns, are treated as one category, i.e. quantifiers. Moreover, the complexities of case distribution are resolved by proposing a novel account of case based on the idea of a KP split into particular cases which have become represented in the syntactic structure in a form of separate projections, e.g. Nominative Phrase, Accusative Phrase etc. The idea of syntactic

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<sup>2</sup> Material presented in this article is discussed in my PhD dissertation, i.e. in Dziubała-Szrejbrowska (2014).

representation of case has been proposed by Caha (2009, 2010). In this account, the syntactic representation of case is used to derive case patterns in phrases with numerals, i.e. homogeneous syntax of lower numerals, heterogeneous syntax of higher numerals, as well as to explain case congruency of numerals  $\geq 5$  in oblique case positions. Furthermore, some attention is given to phrases containing modifiers such as demonstratives and adjectives whose case may also differ depending on its position within the phrase, i.e. whether they are in a pre-numeral, or pre-nominal position, which is also conditioned on the mechanics of case distribution within the phrase.

The paper is divided as follows; in section 2 I present constructions in Polish with numerals and I briefly go through selected analyses discussing case assignment and architecture of numerically quantified phrases. In section 3 I elaborate on the adjectival and nominal status of numerals showing that despite their origin and similarities to nouns or adjectives they should be treated as a separate category. Finally, I introduce the account in which the split KP along with some movement operations account for case distribution within numerically quantified phrases (section 4). In section 5 I conclude the article.

## 2 Properties of phrases with numerals

Lower numerals in Polish agree in case with a modified noun when the quantified phrase occurs in structural case positions, e.g. (1a) and (1b), and when the phrase is found in oblique case positions, e.g. (1c). Moreover, subjects containing numerals  $< 5$  agree in gender and number with the verbal predicate, e.g. (1a).<sup>3</sup>

- (1) a. *Dwie panie poszły do sklepu.*  
two-FEM.NOM ladies-FEM.PL.NOM went-FEM.PL.PAST to shop  
'Two ladies went to the shop.'
- b. *Strażnicy zauważyli trzy nowe samochody.*  
Guards-VIR.NOM noticed-VIR.PAST [three new cars]-ACC  
'Guards noticed three new cars.'
- c. *Rozmawiałam dziś z czterema sąsiadami.*  
talked today with [four neighbors]-INST  
'I talked to four neighbors today.'

Higher numerals, on the other hand, when they are located in the positions to which Nominative or Accusative are assigned, e.g. (2a) and (2b) respectively, quantify the noun in Genitive:

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<sup>3</sup> List of abbreviations: ACC – Accusative, DAT – Dative, DIM – diminutive, FEM – feminine, GEN – Genitive, INST – Instrumental, NEUT – neuter, NOM – Nominative, NONVIR – nonvirile, i.e. gender in plural encompassing feminine, neuter and masculine impersonal, PAST – past, PL – plural, REF – reflexive, SG – singular, VIR – virile, i.e. gender in plural indicating human personal.

- (2) a. *Pięć koleżanek spotkało się*  
 five-FEM.NOM friends-FEM.PL.GEN met-3SG.NEUT.PAST REF  
*w kinie.*  
 in cinema  
 ‘Five friends met in the cinema.’
- b. *Policjanci skonfiskowali siedem pistoletów.*  
 Policemen-VIR.NOM confiscated-VIR.PAST seven-ACC guns-PL.GEN  
 ‘Policemen confiscated seven guns.’

Yet, when the phrase is located in the oblique case position, the numeral and the noun agree in case, e.g. (3).

- (3) *Maria podarowała sześciu przyjaciółkom*  
 Mary-FEM.SG.NOM gave-3SG.FEM.PAST [six friends]-FEM.PL.DAT  
*nowe bransoletki.*  
 [new bracelets]-FEM.PL.ACC  
 ‘Mary gave six friends new bracelets.’

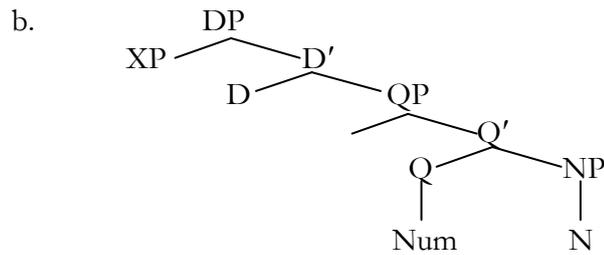
When it comes to subject-verb agreement, higher numerals in phrases placed in subject positions induce a default agreement, i.e. third person singular neuter form of a verb, e.g. (4).

- (4) *Pięć studentek zorganizowało*  
 five-FEM.NOM students-FEM.PL.GEN organized-3SG.NEUT.PAST  
*konferencje.*  
 conference  
 ‘Five students organized a conference.’

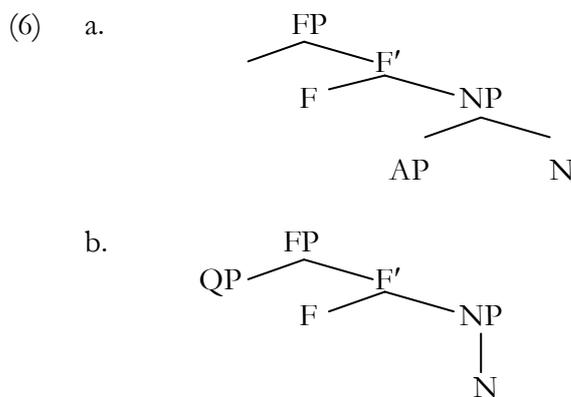
These case variations have resulted in the wide range of accounts within the generative framework. Within different approaches, we can distinguish between analyses in which it has been proposed that either *the noun* is the phrasal head (e.g. Babby 1987, Willim 1990, Franks 1995 for different languages; Strutyński 2005, Rappaport 2002), *the numeral* constitutes the core of the phrase (e.g. Pesetsky 1982, Saloni & Świdziński 1998, Przepiórkowski 1999, Bailyn 2003), or both *the noun* and *the numeral* are heads of the phrase (e.g. Tajsner 1990, Dziwirek 1990, Franks 1994, Bošković 2006). In some other accounts, properties of lower and higher numerals have been addressed via placing them in different positions in the structure. In Rutkowski (2002), for example, lower numerals are treated as adjectival modifiers and placed in the specifier position of NP, e.g. (5a), whereas numerals  $\geq 5$  are located in the head position of QP, e.g. (5b).

- (5) a.
- 
- ```

graph TD
  XP --- DP
  XP --- D_prime[D']
  DP --- D
  DP --- QP
  D_prime --- D
  D_prime --- QP
  QP --- Q
  QP --- O_prime[O']
  Q --- Num
  O_prime --- NP
  NP --- N
  
```



In Bošković (2006), the nominal phrase has been headed with a functional element, head F, taking NP as its complement. Lower numerals, as APs, have been located in the specifier position of NP, e.g. (6a), and higher numerals, as QPs, in the specifier of FP, e.g. (6b).



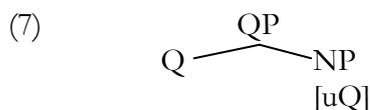
Such a placement of numerals is to ensure that numerals <5, as adjectival modifiers, share a case value with a modified noun, whereas higher ones occur with Genitive nouns. Although details of these two accounts differ, for instance in Rutkowski (2002) higher numeral as a Q head assigns Genitive to the noun, and in Bošković (2006) the source of Genitive is an F head provided that its specifier is occupied with QP (otherwise case is assigned from the outside of the projection as it is in the case of lower numerals), maintaining the distinction between numerals reflected in the architecture of a nominal phrase is a crucial aspect of each account.

Apart from establishing various structures for numerically quantified phrases or locations of numerals within the nominal projection, different mechanisms of case distribution have been considered. In Babby (1987), case has been assigned to the maximal projection of a noun which then percolates down to other elements of the phrase. In heterogeneous syntax, the case is assigned by the Quantifier which takes precedence over Nominative and Accusative, hence Genitive of Quantification in structural case positions. In positions to which oblique cases are assigned, the same Genitive is overridden by lexical cases hence we observe a congruency in case in phrases with higher numerals. Despite the fact, that Babby's analysis is based on the structure utilizing bar levels no longer employed in current generative accounts<sup>4</sup>, the idea of lexical cases superceding structural ones has been widely used, e.g. in Franks (1994, 1995), to explain discrepancies in syntax of higher numerals in structural and oblique case positions.

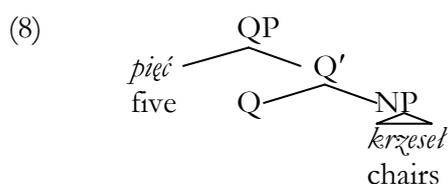
<sup>4</sup> Some other problematic aspects of his analysis for current generative framework include the recognition of D-structure and S-structure no longer valid in Minimalism. Apart from this, Babby (1987) does not discuss lower numerals.

Leaving aside GB theories of *case assignment* and moving to the minimalist framework in which case as a feature of a nominal head is checked by a functional head (T), or as in the latest versions of the Minimalist Program, the functional element being the probe searches for a proper constituent bearing case to *Agree* with, numerals and nouns are viewed as elements entering the derivation either with valued or unvalued case features depending on the context (e.g. Rappaport 2002, 2003). In structural case positions, nouns enter a derivation with an unvalued case feature, higher numerals, on the other hand, have a valued case feature. What is more, they are associated in the lexicon with Quantitative case which is spelled out on a noun as Genitive. In oblique case positions, so in positions in which constituents are selected for and required to bear a specific case determined by the lexical element, e.g. verb or preposition, nouns enter the derivation with a valued case feature. Consequently, its modifiers, e.g. higher numerals, must be introduced with unvalued case features. Lower numerals are also described as elements associated with a particular case in the lexicon, Accusative for Polish and Paucal for Russian, which is spelled out on noun via syncretism with a case of numeral, as Genitive for virile nouns in Polish or as Genitive singular in Russian.

Last but not least account explaining the mechanism of case distribution is based on Pesetsky and Torrego (2001) who take Nominative case to be uninterpretable Tense feature (uT) on nominals.<sup>5</sup> Bailyn (2004), following the idea of case as the uninterpretable reflex of functional categories, proposes that Genitive of Quantification is nothing else as the uninterpretable Q feature on N/D. Acquiring Genitive by a noun, then, proceeds via the configuration presented in (7).



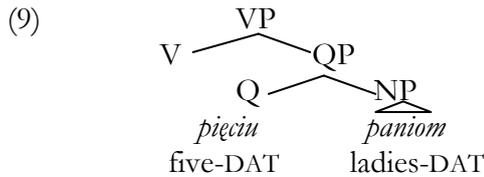
The noun becomes Genitive provided that the Q position is empty. The same proviso is necessary to obtain heterogeneous syntax so by placing the numeral in a position different than Q head, for instance, in specQP, e.g. (8).



When, however, the Q head is filled by a numeral which absorbs the case, homogeneous pattern obtains and both the numeral and the noun agree in case specified by the external element, e.g. (9).

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<sup>5</sup> Miechowicz-Mathiasen (2012) presents a profound analysis of higher numerals in Polish employing the idea of case as uT on D. Moreover, she provides a detailed account of the *Accusative Hypothesis* introducing the source of Accusative.



As it has been shown in selected analyses, case patterns in phrases with lower and higher numerals can be accounted for in varied ways. Instantiating distinct elements as heads of a nominal phrase, i.e. the noun, the numeral or both the noun and the numeral, proposing different sites in which lower and higher numerals are base-generated as well as diverse mechanisms of case assignment/checking constitute core issues in the accounts of numerically quantified phrases. Despite the abundance of ideas of how to explain peculiarities of syntax of numerals it is difficult to decide whether the source of variation in these phrases lies in the structure of nominals, division within numerals belonging to different categories or in mechanisms of case distribution different depending on the value of numerals. Taking these aspects into consideration, I investigate numerals looking for the account in which no reference is made to their adjectival or nominal properties and the nominal phrase maintains the same structure irrespective of the value of numerals. As a starting point in my revision of numeral syntax, I decided to reanalyze their status contesting a popular view that, due to their case properties, numerals should be juxtaposed either with adjectives (lower numerals) or with nouns (higher numerals) and, consequently, explain case distribution retaining the same structure for phrases with numerals congruent in case and requiring Genitive on the quantified noun. Then, building on Caha's (2009, 2010) novel approach to case, I pursue the idea of case being represented in the syntactic structure and heading its own projection, which together with some movement operations could deal not only with major syntactic matters involving quantifiers but also explain some collateral issues such as case of adjectives and demonstratives co-occurring in phrases with numerals.

### 3 On the categorial status of numerals

Lack of uniformity in the class of numerals regarding their features has given rise to the stance that numerals instead of forming a separate class are in fact elements belonging either to adjectives or to nouns. Such a view has been additionally strengthened with a combination of syntactic, morphological and semantic criteria which do not provide a conclusive answer to the status of numerals. When we look at their distribution, numerals are put together with other determiners which are located in a pre-nominal position, e.g. *te dwa ładne szczeniaki* (these two cute puppies) (Carnie 2006). Moreover, they can be modified with phrases which are also appropriate with other adjectives, e.g. *more than six* and *more than smart*, *almost two* and *almost attractive* (Hurford 1975). Furthermore, numerals <5 agree in case and gender with a noun, just like other adjectival modifiers, e.g. (10a), whereas numerals ≥5 appearing with Genitive nouns resemble other nouns taking Genitive complements, e.g. (10b):

- (10) a.    *dwie*                      *międzynarodowe*                      *aktorki*  
 two-FEM.NOM    international-FEM.PL.NOM    actresses-FEM.PL.NOM  
 'two international actresses'

- b. *pięć jajek* vs. *zebranie studentów*  
 five eggs-GEN meeting students-GEN  
 ‘five eggs’ ‘students’ meeting’

When, however, some other properties of numerals are emphasized, it appears that they should be distinguished from other parts of speech. Bearing in mind that only numerals, out of the whole group of nominal modifiers, induce plural number on quantified nouns<sup>6</sup>, and can form partitive constructions, contrary to adjectives, putting them along with adjectival modifiers does not seem to be justified. The nominal status of higher numerals, on the other hand, advocated on the basis of Genitive of Quantification and the hybrid nature of numeral lexemes such as *tysiąc* (thousand) and *milion* (million) which in contrast with other numerals, do have plural forms, e.g. *tysiąc* (thousand-SG)-*tysiące* (thousands-PL), *milion* (million-SG)-*miliony* (millions-PL), can be refuted with arguments that none of the nouns triggers plural on the nominal argument. Moreover, numerals already have their nominal counterparts, e.g. (11), which means that granting them nominal status would be highly redundant.

- (11) *Grając w kości wyrzucił dwie piątki i szósteczkę*  
 playing in dices threw two fives-PL and six-DIM  
 ‘Playing dices he threw two fives and six.’

The plural form of lexeme *piątka* (five), additionally modified by a numeral, as well as a diminutive of lexeme *szóstka* (six), i.e. *szósteczka* (six-DIM), prove that they are nominals and elements under discussion, i.e. numerals, should not be treated as such. Despite highlighting features that set numerals apart from other parts of speech, it should be mentioned that treating numerals on a par with adjectives and nouns can be partially justified when investigating their origin. Initially, i.e. in Proto-Slavonic, numerals <5 used to belong to adjectives and ≥5 to *i*-stemmed nouns which had both singular and plural forms (Siuciak 2008).<sup>7</sup> Yet, with time, they have undergone the process of numeralization, which has been signaled with the introduction of the *-u* ending, a characteristic feature of a numeral declination.<sup>8</sup> This process, however, has not been completed which can be concluded from lexemes *tysiąc* (thousand) and *milion* (million) which retained their nominal character.<sup>9,10</sup>

<sup>6</sup>Obviously, there are languages in which the presence of a numeral forces singular on a count noun as, for instance, in Hungarian, yet this property does not put numerals next to adjectives. Although numerals may modify singular nouns it is never the case that adjectives force plural on the modified noun. Thus, these two categories should not be compared.

<sup>7</sup>Actually, earlier, in Proto-Indo-European, higher numerals used to be undeclinable adjectives whereas lower numerals declined by cases and gender (Siuciak 2008).

<sup>8</sup>The emergence of the *-u* ending, the rise of the virile gender and formation of numerals as a separate category have been discussed in Miechowicz-Mathiasen & Dziubala-Szrejbrowska (2012).

<sup>9</sup>Numeral *sto* (hundred), used to be a noun and had a plural form *sta* (hundred-PL.NOM). Subsequently, it not only has become a numeral losing its plural form but also has undergone lexicalization in complex numerals, e.g. 300 used to be expressed with *trzy sta* (three hundreds) but it has become a compound *trzysta*. Following this pattern it is possible that phrases *trzy tysiące* (three thousands) will grow into one in the same manner as other compound numerals completing this way a numeral declination.

<sup>10</sup>The fact that lexemes such as *tysiąc* (thousand) or *milion* (million) are still in between the numeral and nominal status can be stated on the basis of patterns of subject-verb agreement. In

Analyzing various features of numerals together with their historical background, the conclusion can be drawn that these elements do possess traits which distinguish them from other parts of speech. Although some criteria, i.e. agreement in case with a modified noun and the Genitive of Quantification, suggest that they could be treated as adjectival and nominal elements, such a classification would be rather far-fetched and neglecting their distinguishing properties. Moreover, these debatable aspects of their syntax, case congruency and Genitive assignment, which usually serve the purpose of placing them along with other parts of speech, could be viewed as their idiosyncrasy. And this line of reasoning, i.e. a unified treatment of lower and higher numerals, I am pursuing in further analysis of constructions with expressions of quantity.

## 4 The analysis

### 4.1 Theoretical background

The essential part of this analysis of numeral constructions is the mechanism by means of which case is distributed within discussed phrases. The key feature of the account must be a solution which caters for homogeneous and heterogeneous syntax of numerals without amendments made to the architecture of the phrase. It seems that fulfilling this task requires a reexamination of case assignment mechanism employed by current generative theories. In consequence, I resort to the novel approach to case as introduced by Caha (2009, 2010) and try to derive problematic patterns building on the idea that case is no longer part of a feature matrix of lexical and functional elements but it is represented in a syntactic tree as a separate projection.

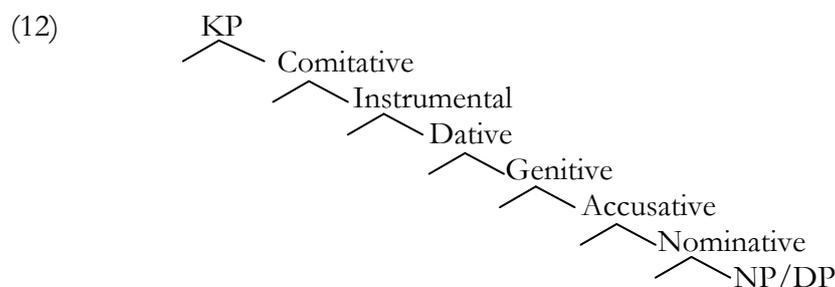
Caha's approach to case has been developed in accordance with the nanosyntactic view of grammar in which syntax operates not on lexical items but abstract features which build morphemes, words and larger structures. What follows, the building block on which syntax works is no longer morpheme but a feature which has become a terminal node. As a result the morphological component has ceased to be operative, hence redundant and eliminated. Basic syntactic operations, i.e. merge and move, have been triggered by the requirements of the lexicon, that is, to create structures that match those stored in the lexical component. Then, each syntactic structure is compared to the lexical one and spelled out. The selection of structures sent to the phonological component is controlled by some principles, e.g. *the Superset Principle* or *the Elsewhere Condition* which ensure that the structure constructed in syntax is contained in the structure stored in the lexicon and that the most accurate match is chosen. On the basis of the premises of nanosyntax, Caha (2009, 2010) provides the account of case marking

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example (1a), agreement is established between *tysiąc* and the verbal predicate *protestowały* indicating its nominal status, whereas in (1b), no such agreement appears and the verb assumes a default form, i.e. 3rd person singular neuter, typical of higher numerals.

- |     |    |                                                  |               |                     |                          |
|-----|----|--------------------------------------------------|---------------|---------------------|--------------------------|
| (i) | a. | <i>Tysiące</i>                                   | <i>ludzi</i>  | <i>protestowały</i> | <i>przeciwko wojnie.</i> |
|     |    | thousands-FEM.PL                                 | people-PL.GEN | protested-FEM.PL    | against war              |
|     |    | ‘Thousands of people protested against the war.’ |               |                     |                          |
|     | b. | <i>Tysiące</i>                                   | <i>ludzi</i>  | <i>protestowało</i> | <i>przeciwko wojnie.</i> |
|     |    | thousands-FEM.PL                                 | people-PL.GEN | protested-3SG.NEUT  | against war              |
|     |    | ‘Thousands of people protested against the war.’ |               |                     |                          |

and case syncretisms introducing the idea of KP split into cases and placed above the NP. The order of cases is established on the basis of recurring syncretisms in languages and the morphological makeup of cases, i.e. more morphologically complex cases contain those less composite. Consequently, Nominative as the unmarked case is placed the lowest in the hierarchy. According to the *Universal Case Contiguity* (Caha 2009: 49), case sequence as presented in (12) is the same across languages.<sup>11,12</sup>



The number of cases in a given language, however, is subject to variation. Yet, complying with *the Universal Case Contiguity* which also determines that only adjacent cases can be syncretic, the presence of a particular case immediately implies that every lower case is also present in a language, e.g. if a language features Instrumental, it means it also has Dative, Genitive, Accusative and Nominative. If the highest case in a language is Genitive, the other cases present in a language are Accusative and Nominative. The noun, being topped with a split KP, enters the derivation uninflected. Upon the trigger from the external selector, for instance, T selecting for Nominative, NP moves to the position above Nominative, i.e. to the position c-commanding a given case. C-command requirement, as discussed by Kayne (1994), is necessary for a linearization of the nominal stem and the case affix. If the element is selected by some other functional head, e.g. transitive v, NP moves to the position c-commanding Accusative which leads to the linearization of the noun and the Accusative suffix. Additionally, movement to obtain a particular case is restricted following Cinque (2005), i.e. movement must be leftward and the moving chunk must contain a nominal head.

My account of numeral constructions builds on Caha's insights regarding the nature of case yet I assume that every case feature is a terminal node projecting the phrase, i.e. Nominative Phrase, Accusative Phrase etc., whereas for Caha case decomposes into features which are terminals. Moreover, obtaining case by a given element is not subject to such strict linearization requirements as in Caha's work, i.e. in a current analysis case distribution is viewed as a less restrictive operation than movement of an uninflected noun to the position in which it is subsequently linearized with a case suffix as not only a noun moves to acquire case but all its declining modifiers. Such a relaxed approach ensures the presence of only one KP per a nominal phrase and not a

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<sup>11</sup> Caha's case hierarchy is based on the case sequence introduced by Blake (1994) which additionally allowed for other cases, i.e. Ergative, Locative and Ablative.

<sup>12</sup> Cases such as Locative, Prepositional and Partitive can be a part of a case sequence. Yet, their position may vary depending on a language. For a detailed account of case hierarchies in languages see Caha (2009, 2010).

separate one for every lexical projection.<sup>13</sup> Moreover, I take Polish nominal phrases to be DPs which means that KP is not a topmost layer but is sandwiched between a DP and NP.<sup>14</sup> Postulation of a DP for Polish has been argued, e.g. by Migdalski (2001, 2003) who has shown that DP is necessary as a place to check deictic and referential features of demonstratives, possessive pronouns or genitival adjectives.<sup>15</sup> Furthermore, different word orders of a demonstrative and a noun, e.g. *ta sąsiadka* (this neighbor) vs. *sąsiadka ta* (neighbor this), as well as orders in strings containing more modifiers, e.g. demonstratives and numerals as presented in (13a) and (13b), additionally support the view that a more elaborate structure of Polish nominals is required.

- (13) a. *sześć tych książek*  
 six these-PL.GEN books-PL.GEN  
 ‘six these books’  
 b. *tych sześć książek*  
 these-PL.GEN six books-PL.GEN  
 ‘these six books’

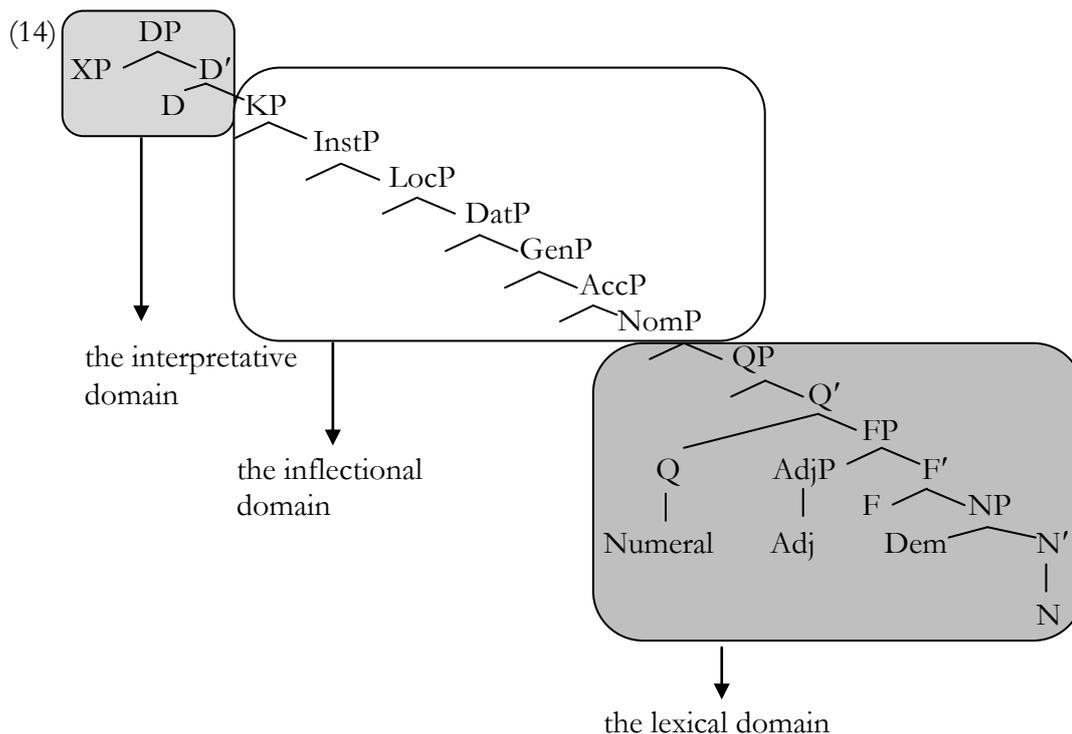
What follows, I claim that in the architecture of a nominal phrase projections are grouped within three domains. NP and projections hosting modifiers belong to the so-called *lexical domain* or *the domain of first merge* which is the place where lexical constituents are base-generated. The upper domain, i.e. *the inflectional domain*, is formed by a split KP which is the place where the noun and its modifiers can acquire case. Finally, DP constitutes *the interpretative domain*, i.e. a part of a structure to which elements move for interpretative reasons. The structure of a nominal phrase with the indication of each domain is demonstrated in (14).

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<sup>13</sup> Caha (2009, 2010) provides only the account of a bare noun being subject to case assigning processes and does not explain how his proposal would work with other modifiers, yet a separate KP for every element bearing case seems to be a natural consequence of his leading ideas.

<sup>14</sup> It is important to mention that Willim (2000) has postulated KP for Polish as a projection responsible for case checking. Willim (2000) also argues against a DP hypothesis for Polish claiming that due to the lack of phonological exponents in a head or specifier position of DP, presence of this projection is not justified. For some other arguments against DP in Polish see Willim (2000).

<sup>15</sup> Presence or absence of DP in languages without articles such as Polish has sparked a long and widespread debate. Due to space reasons I do not discuss arguments for and against the DP hypothesis. Instead, I refer the reader to Abney (1987), Longobardi (1994), Progovac (1998), Pereltsveig (2007) or Bašić (2007) advocating *DP hypothesis* as well as Corver (1992), Zlatić (1998), Willim (2000) and numerous works by Bošković (2005, 2008, 2009, 2012) and Bošković & Gajewski (2011) arguing against it.



In Polish, the inventory of cases include Instrumental, Locative, Dative, Genitive, Accusative and Nominative.<sup>16</sup> Particular cases as maximal projections are subsumed under KP which demarcates the inflectional domain. In the lexical domain, the noun and its modifiers are introduced into the derivation. The crucial point here is that modifiers are not nominal adjuncts but are placed in separate projections, i.e. numerals are located in the head of QP and adjectives in specifiers of FPs in a line of Cinque (1999) and Scott (2002). Demonstratives are placed close to the head noun, i.e. in specNP.<sup>17,18</sup> Having introduced some theoretical guidelines regarding case assignment and the basic structure of nominal phrases in Polish, I proceed to particular examples with numerals with the account of case agreement and Genitive of Quantification in numerically quantified phrases.

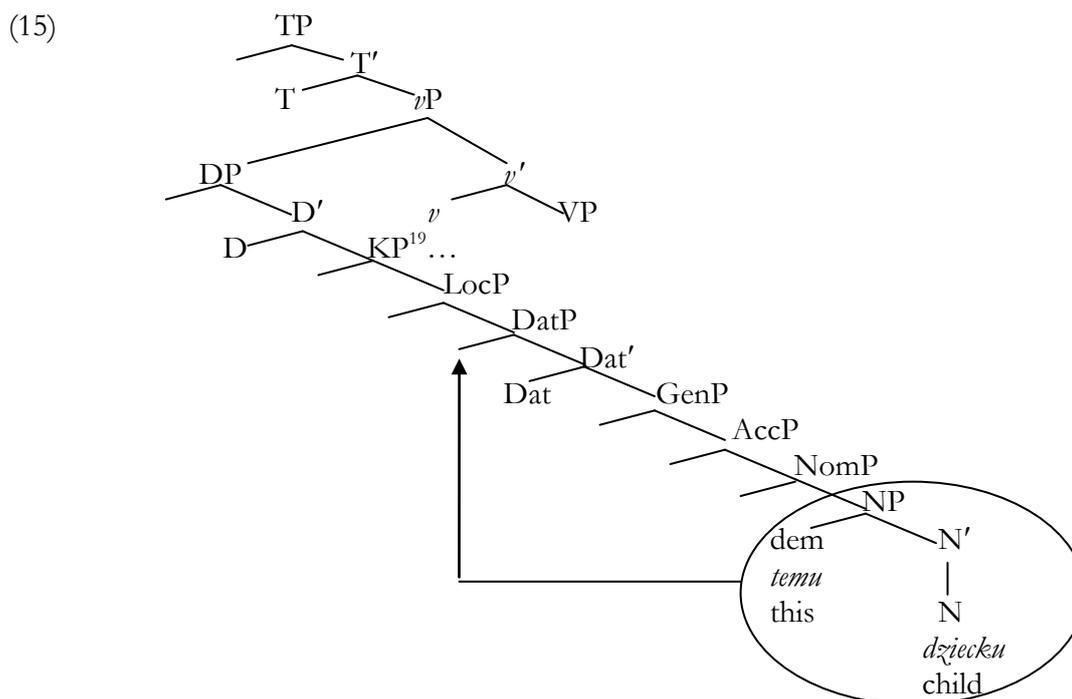
<sup>16</sup> Placement of Locative in Polish between Instrumental and Dative results from a Locative-Dative syncretism of nouns of different genders from selected declensional classes.

<sup>17</sup> The low position of demonstratives has been discussed, e.g. by Brugé (1996, 2002), Giusti (2002), Panagiotidis (2000) or Roberts (2011).

<sup>18</sup> Demonstratives are base-generated low in the structure, i.e. in the specifier of NP, yet they may move up to check some referential features in the higher domain. According to Migdalski (2001), demonstratives have two sets of features, i.e. [+/-referential] and [+deictic] which are checked in the specifier of DP. Thus, in a phrase *ci dwaj mężczyźni* (these two men), in which all elements bear the same case value, i.e. Nominative, a demonstrative being introduced in specNP, moves to the position within DP, which ensures the referential interpretation of the phrase. The other explanation for the movement of the demonstrative may be related to the reading of the phrase in the presence of a numeral. Leaving a demonstrative low when the quantifier is merged to the structure causes the partitive reading, i.e. *pięć tych dziewczyn* (five of these girls). Thus, to escape from the scope of the quantifier and to obtain a non-partitive reading, the demonstrative must move up.

## 4.2 Homogeneous and heterogeneous syntax of phrases with numerals

Considering previously introduced tenets of the analysis exploring the idea of a split KP and the fact that case as a feature becomes a head of its own projection, obtaining case by an element proceeds through the movement to a given specifier position within KP region. Upon the appearance of the external selector, e.g. T or v, requiring a nominal to bear case of particular value, the nominal phrase moves from its original position, i.e. from *the lexical domain*, to the specifier position of a given *Case Phrase* within KP, i.e. to *the inflectional domain*. The exemplary derivation of a Dative subject being initially merged in the specifier of vP is shown in (15).

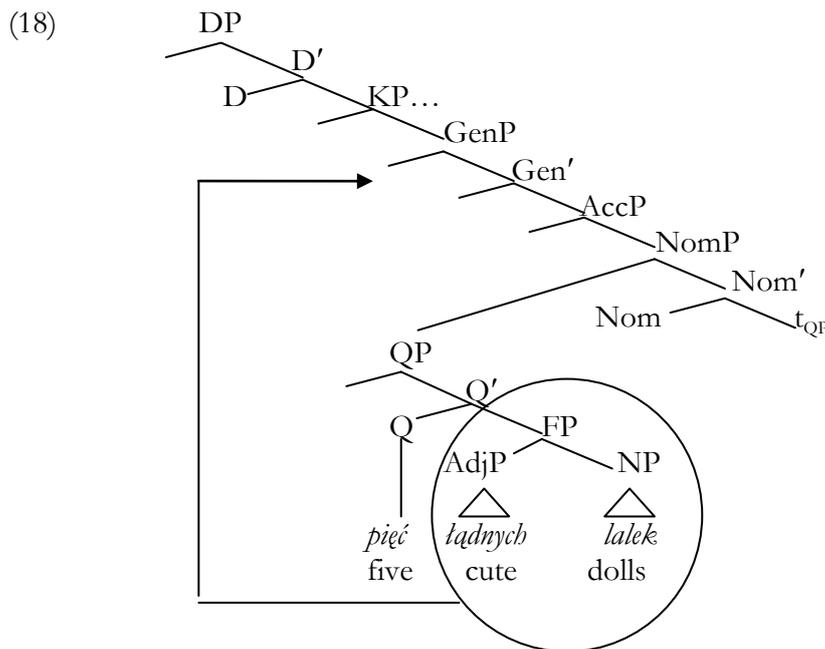


The NP is merged in a structure caseless and when the appropriate functional head is introduced in the derivation it moves to the position within KP to reach a required case. Exactly the same step, i.e. movement from *the lexical domain* to specifier of a selected *Case Projection*, occurs in phrases with lower numerals. Deriving a homogeneous case pattern in the phrase *dwie ładne lalki* (two cute dolls) proceeds through a movement of the QP to the specifier of a given *Case Projection*, in our example specAccP<sup>20</sup>.

<sup>19</sup> For clarity I do not provide all *Case Projections*. Also, specifiers are added only when movement is indicated.

<sup>20</sup> Phrase *dwie ładne lalki* (two cute dolls), in this particular example is Accusative, but it has the form syncretic with Nominative. The fact that it moves to specAccP and not specNomP is contingent only on the external selector, i.e. T requiring Nominative or v requiring Accusative.

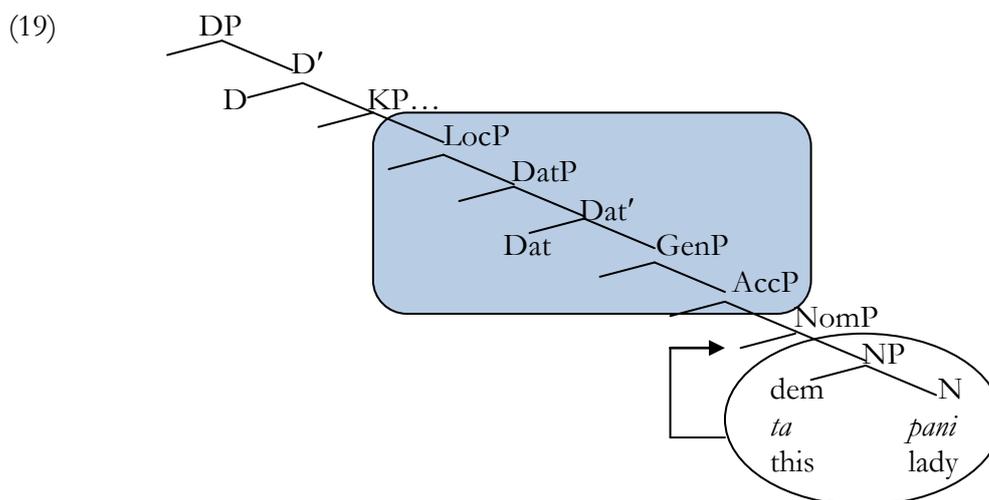




As the result of the movement in (18), the noun and the adjective end up with the expected Genitive. Yet, although all elements are settled with the appropriate case there are several issues that should be commented on before moving to the next section. The first pending question that arises is about the countercyclic derivation. Looking at the respective steps of a derivation, i.e. movement to specNomP and then movement to specGenP, it seems that operations are not cyclic as the requirement of a numeral regarding Genitive noun is fulfilled after the requirement of the external selector. Although this appears to be a very unwanted turn of events, after a more careful examination of this puzzle it may occur that only such an order of movements can lead to a successful derivation. Bearing in mind that movement is constrained as specified by Cinque (2005), i.e. it can be only leftward and the moving constituent must contain a nominal head, moving first the noun, more specifically a bare NP or NP topped with projections hosting modifiers sharing a case value with the noun, would immobilize the numeral and left caseless. In this scenario, not only one of the elements from the nominal domain would be without case but also selectional properties of the external head would not be met. Still, in both situations the derivation would fail. The other reason for presented steps might be that either the numeral as the category is a defective probe due to the inconsistency of lower and higher numerals in selecting for Genitive nouns, or the noun constitutes a defective goal which could mean that a constituent in order to participate in the probe-goal relation must be minimally KP, i.e. it must be necessarily composed of the inflectional domain. Otherwise, such a goal is inaccessible to the probe. Therefore, reaching specGenP by the noun is postponed until the external selector provides trigger for movement of the whole phrase from the lexical domain. In other words, movement of the noun to the position not primarily selected by the functional category being a legitimate probe, e.g. T or v, is parasitic on the first movement.<sup>21</sup> The other issue that should be addressed here is the fate of the remaining case shells which in Caha's account are spelled out either as a part of verbal morphology,

<sup>21</sup> Another explanation for a delayed movement of NP to specGenP might be the requirement to evacuate the lexical domain which would become hindered if the noun moved first. However, going in this direction requires more research.

as an additional morpheme on a verb or as a preposition.<sup>22</sup> As in Polish none of these options is observed, I propose a different solution to the remaining *Case Projections*, namely, after at least one *Case Projection* has been used the rest of the KP is no longer operative and becomes irrelevant for further computation. This step, however, refers only to *Case Projections* located above a phrase in the specifier of a given *Case Projection* as it prevents some other probes from reaching a goal which has already participated in a probe-goal relation, e.g.



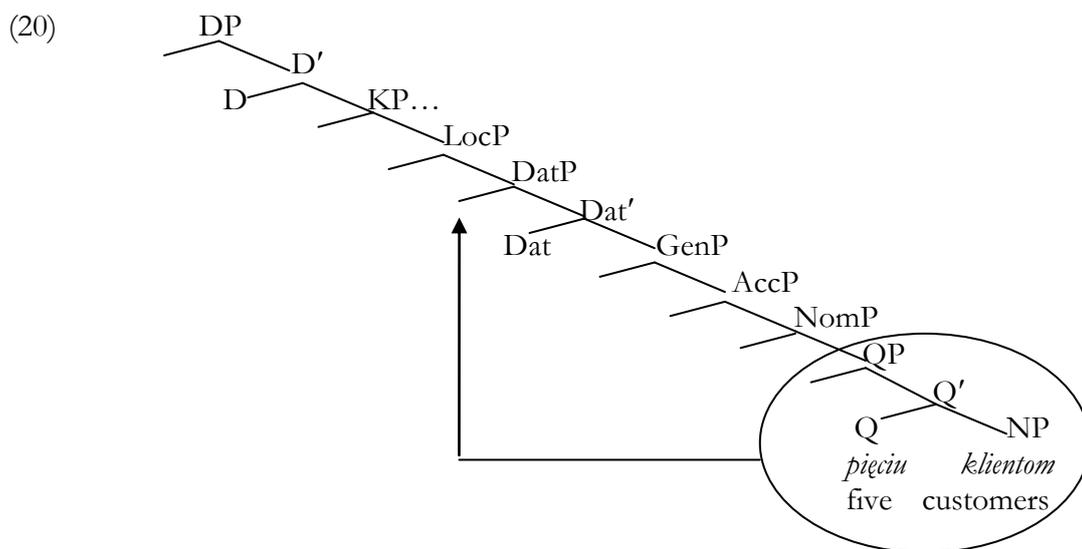
After all elements of the nominal phrase, i.e. the head noun and its modifiers, are settled with the appropriate case, irrespective of the fact whether it is accomplished with one or more rounds of movement within KP, other *Case Projections* become neglected. As the final remark it is pivotal to mention the word order created through the movements within KP. As no problem emerges in homogeneous cases as all constituents reach the same position within KP, heterogeneous syntax creates configuration in which the noun precedes the numeral which is not the expected order. As a way out from this situation it can be proposed that the word order belongs to the phonological component and thus can be ignored, or further movement of some constituents should be introduced. Opting for the latter solution, the numeral has to evacuate KP and move up restoring the coveted order. This movement, however, although at first sight violating Cinque's (2005) constraint prohibiting a solitary movement of elements without a nominal head, i.e. N, is in fact licit, as it proceeds from *the inflectional domain* to DP which is permissible.<sup>23</sup> Although the movement of the quantifier is not related to the information structure, it proceeds to regain scope over the quantified noun.

The final aspect of the numeral syntax that should be elaborated on, is the congruency of case between the higher numeral and the noun in oblique case positions. Remembering that numerals  $\geq 5$  bring about Genitive on a quantified noun the agreement in case in other contexts seems to be quite surprising. In the available accounts of numerals, this puzzling issue has been addressed by proposing that lexical cases override structural ones, thus in oblique case positions Genitive is superseded by one of the case imposed by the external head, which results in homogeneous syntax.

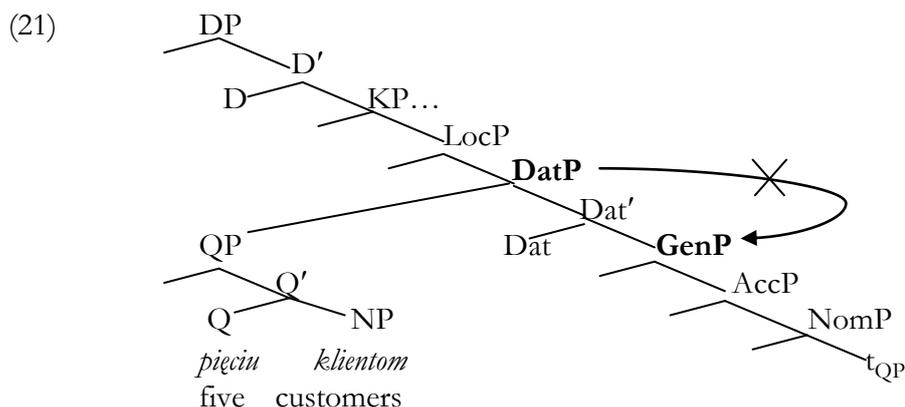
<sup>22</sup> For detailed examples from different languages see Caha (2009).

<sup>23</sup> Cinque (2005) allows for the movement of the chunk without a nominal head provided that it is a focus movement or any other movement caused by interpretative reasons.

Although at first sight it may seem that higher numerals to some extent reproduce case patterns of lower numerals in that they share a case value with the modified noun, after a closer examination of case distribution within the discussed approach it turns out that case congruency is simply a result of movement operations permitted by rules of grammar. In the example of a phrase selected by the element which subcategorizes for a Dative, Locative or Instrumental argument, the whole phrase, i.e. QP, moves to the case position dictated by the external selector, e.g. (20).



In this case, QP has moved to specDatP. The subsequent step, then, would be the excorporation of NP and its movement to the position in which it receives Genitive as determined by the numeral. This step, however, cannot be performed as the noun would have to move downward which is prohibited, e.g. (21)



Therefore, the noun has to stay in this position, i.e. specDatP, which leads to the congruency in case between the numeral and the noun.

### 4.3 Modifiers in numerically quantified phrases

The analysis of homogeneous and heterogeneous syntax of numerals has shown that the application of the elaborate but uniform architecture of nominals together with the

approach to case being now a part of the syntactic structure can be vital components in deriving case patterns in constructions with numerals. Yet presented examples illustrated only structures in which the primary goal was to account for cases of two major constituents, i.e. the numeral and the noun. In this section, attention is given to case of modifying elements, i.e. adjectives and demonstratives, added to the numeral-noun formation.

In principle three different options with adjectives are allowed, i.e. the one with the Genitive adjective preceding the noun, e.g. (22a), the one with the Genitive adjective preceding the numeral, e.g. (22b), or the one with the Nominative adjective in a pre-numeral position, e.g. (22c).

- (22) a. *Pięć            dobrych samochodów            podjechało*  
 five-NOM [good cars]-NONVIR.GEN    drove.up-3SG.NEUT.PAST  
*pod hotel.*  
 to hotel  
 ‘Five good cars drove up to the hotel.’
- b. *Dobrych                            pięć            samochodów*  
 good-NONVIR.GEN            five-NOM cars-NONVIR.GEN  
*podjechało                            pod hotel.*  
 drove.up-3SG.NEUT.PAST to hotel  
 ‘Good five cars drove up to the hotel.’
- c. *Dobre    pięć            samochodów            podjechało*  
 [good five]-NOM cars-NONVIR.GEN    drove.up-3SG.NEUT.PAST  
*pod hotel.*  
 to hotel  
 ‘At least five cars drove up to the hotel.’

Placement of the modifier as well as its case differ depending on whether it describes the noun or refers to the numeral. This differentiation is also reflected in the structure of a nominal phrase, namely in the base-generation position of the adjective. When the adjective precedes the noun and bears Genitive it means that it is merged above NP. Moreover, it moves together with the NP to specGenP (as already shown in example (17)). When, however, the Genitive adjective precedes the numeral which is Nominative or Accusative, as in (22b), the additional movement of the modifier is required. Since the derivation proceeds exactly as in the case of (22a), i.e. the adjective moves with the noun to acquire Genitive, in the remaining step of a derivation, the adjective must move out from the inflectional domain, probably to specDP, so that the right word order can be established. Yet, the mere linearization issue should not be the primary reason for displacement, and this is in fact what happens in (22b). As word order **Adj-GEN Num-NOM/ACC N-GEN** is a more marked option than **Num-NOM/ACC Adj-GEN N-GEN**, the adjective moves to a pre-numeral position for interpretative reasons.<sup>24</sup> In (22c), on the other hand, the adjective shares the case value with the numeral, which technically means that it should be merged close to the numeral, e.g. in specQP or in specFP placed above QP, so that it can reach the same case position as the numeral. Also, the interpretation of the phrase with a Nominative adjective preceding the numeral

<sup>24</sup> The difference in meaning between two orders is out of question, yet the exact position of the displaced adjective leaving the inflectional domain is yet to be determined as apart from DP the uppermost domain may have a more elaborate structure.

implies that the modifier describes the numeral rather than the noun. As *dobre* in (22c) does not mean of good quality but it relates to the number specifying that there are at least five items its position has to be different than when it indicates the property of the object, which is also mirrored in its case marking. The additional evidence for varied positions of adjectives come from examples in which the adjective is exclusively the modifier of a noun, e.g. (23a,b) and not of a numeral, e.g. (23c).

- |      |    |                               |                             |                                |
|------|----|-------------------------------|-----------------------------|--------------------------------|
| (23) | a. | <i>pięć</i><br>five-NOM       | <i>zielonych</i><br>[green] | <i>bananów</i><br>bananas]-GEN |
|      |    | .five green bananas'          |                             |                                |
|      | b. | <i>zielonych</i><br>green-GEN | <i>pięć</i><br>five-NOM     | <i>bananów</i><br>bananas-GEN  |
|      | c. | * <i>zielone</i><br>green-NOM | <i>pięć</i><br>five-NOM     | <i>bananów</i><br>bananas-GEN  |

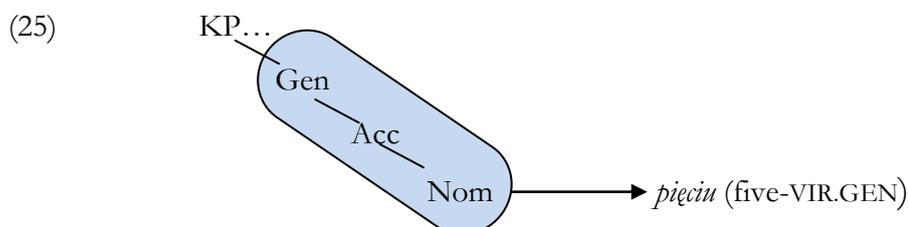
Similar variation is found in examples containing demonstratives. Here as well we observe three distinct patterns, i.e. structures in which the Genitive demonstrative precedes the Genitive noun, e.g. (24a) and (24d), the Genitive demonstrative precedes the numeral which is marked as Nominative or Accusative, e.g. (24b) and (24e), or the Nominative/Accusative demonstrative preceding the numeral with the same case value, e.g. (24c). The last case under discussion involves the Nominative form of a demonstrative preceding the numeral which is grammatical only when combined with non-virile form of a numeral and noun, e.g. (24c), whereas in virile, it renders the structure illicit, e.g. (24f).

- |      |    |                                 |                                 |                                      |
|------|----|---------------------------------|---------------------------------|--------------------------------------|
| (24) | a. | <i>pięć</i><br>five-FEM.NOM/ACC | <i>tych</i><br>these-FEM.GEN    | <i>dziewczyń</i><br>girls-FEM.PL.GEN |
|      | b. | <i>tych</i><br>these-FEM.GEN    | <i>pięć</i><br>five-FEM.NOM/ACC | <i>dziewczyń</i><br>girls-FEM.PL.GEN |
|      | c. | <i>te</i><br>these-FEM.NOM/ACC  | <i>pięć</i><br>five-FEM.NOM/ACC | <i>dziewczyń</i><br>girls-FEM.PL.GEN |
|      | d. | <i>pięciu</i><br>five-VIR.GEN   | <i>tych</i><br>these-VIR.GEN    | <i>mężczyźn</i><br>men-VIR.GEN       |
|      | e. | <i>tych</i><br>these-VIR.GEN    | <i>pięciu</i><br>five-VIR.GEN   | <i>mężczyźn</i><br>men-VIR.GEN       |
|      | f. | * <i>ci</i><br>these-VIR.NOM    | <i>pięciu</i><br>five-VIR.GEN   | <i>mężczyźn</i><br>men-VIR.GEN       |

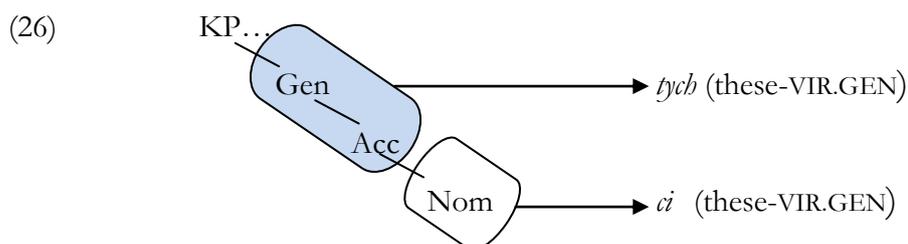
The final example, i.e. (24f), with the ill-formed virile demonstrative in Nominative frequently serves as an argument for *the Accusative Hypothesis* according to which numerals do not have Nominative form and occur in Accusative, which is also supposed to explain lack of subject verb agreement with subjects containing higher numerals.<sup>25</sup> Although *the Accusative Hypothesis* appears to account for the ungrammaticality of a Nominative virile demonstrative with higher numerals, I decided to explore the idea that the reason for the incompatibility of a Nominative virile demonstrative and a virile numeral lies on the part

<sup>25</sup> *The Accusative Hypothesis* has been argued for by, e.g. Franks (2002), Przepiórkowski (2004) or Miechowicz-Mathiasen (2012). Willim (2003), on the other hand, provides arguments against the validity of the hypothesis for Polish.

of the demonstrative. Admitting the possibility that whenever a demonstrative is base-generated close to the numeral, i.e. in specQP where it shares the case with quantifier, the source of ungrammaticality is found in the clash of forms of both constituents when they are moved to specNomP. The inadequacy of both elements results from the fact that the virile numeral has syncretic forms in Nominative, Accusative and Genitive with the proviso that syncretism spreads from Genitive to Nominative, e.g. (25).<sup>26</sup>



A demonstrative, on the other hand, is syncretic only in Genitive and Accusative, e.g. (26), which leads to the situation that when a phrase, QP moves to specNomP as dictated by the external selector, the numeral has indeed the Genitive form via syncretism with this case, whereas demonstrative has a Nominative which causes a mismatch of cases, hence ungrammaticality.



## 5 Conclusion

Syntax of numerically quantified phrases has given life to varied analyses which employed different means to explain how case is distributed in constructions with numerals. Proposals regarding the architecture of nominals, differentiated placement of lower and higher numerals and the most intricate mechanisms of case assignment have been those strategies used to address the puzzling issues. Despite the abundance of many appealing accounts of numerals, I have decided to look into the matter from a different perspective. As the first step I examined the status of numerals claiming that although they appear to share some common features with adjectives and nouns they indisputably form a separate category. Moreover, I proposed the structure of nominals in Polish composed of three domains with a DP as the uppermost layer. Then, I introduced some guiding principles of Caha's approach to case applying his idea of split KP to my analysis and proposing that acquiring case proceeds via movement to the specifier position of a chosen *Case Projection*. What follows, homogeneous syntax of lower numerals, Genitive of Quantification and case congruency of higher numerals in oblique case positions have

<sup>26</sup> Historically, Genitive-Accusative syncretism emerged to single out virile Nominative, yet subsequently this syncretism spread to Nominative which can be seen among higher virile numerals.

been the result of movement operations within the inflectional domain constituted by split KP. In the final part of the article, I drew attention to modifiers added to constructions with numerals, i.e. adjectives and demonstratives, whose meaning and case differ depending on their location in relation to other constituents of the nominal phrase. Importantly, I attempted to answer the question regarding the ungrammaticality of Nominative demonstrative accompanying the virile numeral. Putting aside the idea of the inherently Accusative numerals, I suggested that the illicit combinations arise due to the incomplete syncretism of cases within virile demonstrative, which causes a mismatch of forms with the Genitive numeral.

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# On the Distribution of Hungarian Resultative Expressions\*

Réka Jurth

This paper aims to investigate the distribution of two types of resultative expressions in Hungarian, the verbal particle and the nominal resultative. According to the pertinent literature, these two resultatives normally cannot co-occur in the same clause. On the basis of a corpus study I show that the co-occurrence of the verbal particle and the nominal resultative in the same construction is acceptable under certain circumstances. Finally, I sketch a possible analysis that captures the features of this doubly-marked resultative construction.

Keywords: *appositive adjunct, Hungarian, resultative, verbal particle*

## 1 Introduction

This paper examines the distribution of resultative expressions in Hungarian. Resultatives in English have been widely investigated by Carrier & Randall (1992), Simpson (1983) and Wechsler (2005), among others. Resultatives express a result state of the patient argument that arises as a consequence of the event denoted by the verb. In other words, resultative expressions appear in sentences that describe a change and the resultative marks the endpoint of the event denoted by the verb. There are two resultative strategies in Hungarian (see É. Kiss 2004, 2006, Komlósy 1992, 1994 and Bene 2005, among others). Resultatives may be expressed by nominal phrases (1a) in the sublative case (the suffix *-ra/-re*) or in the translative case (the suffix *-vá/-vé*),<sup>1</sup> or by verbal particles (1b). These two types of resultatives generally display complementary distribution; they do not seem to co-occur in the same clause (1c, d). The data and judgments in (1) are based on Komlósy (1992: 502, 512).

- (1) a. Péter **piros-ra** festette a kerítés-t.<sup>2</sup>  
Peter red-SUB painted the fence-ACC  
'Peter painted the fence red.'
- b. Péter **be**-festette a kerítés-t.  
Peter into-painted the fence-ACC  
'Peter painted the fence.'
- c. \*Péter **piros-ra be**-festette a kerítés-t.  
Peter red-SUB into-painted the fence-ACC  
'Peter painted the fence red.'

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\* The writing of this paper was supported by the University of Debrecen (grant number: RH/885/2013., 13.22). Throughout this paper the following abbreviations are used: 3: third person, ACC: accusative case, ALL: allative case, ILL: illative case, PL: plural, POSS: possessedness suffix, PRT: verbal particle, SG: singular, SUB: sublative case, TRANS: translative case, TERM: terminative case.

<sup>1</sup> On the choice between the sublative and translative marking of nominal resultatives, see Matushansky (2012).

<sup>2</sup> I highlight the nominal resultative and the verbal particle in the example sentences throughout the paper with boldface.

- d. \**Péter el-égette szén-né a hús-t.*  
 Peter away-burnt coal-TRANS the meat-ACC  
 ‘Peter charred the meat.’

The sentences in (1a) and (1b) are grammatical, since in (1a) only a sublative case-marked nominal resultative *pirosra* ‘red’ is present and in (1b) it is only a verbal particle *be* ‘into’ that occurs. However, in (1c) and in (1d) both types of resultative expressions are present that is why Komlósy (1992) takes these examples as unacceptable. While in (1c) the sublative case-marked nominal resultative *pirosra* ‘red’ occurs with the verbal particle *be* ‘into’, in (1d) the translative case-marked nominal resultative *szénné* ‘coal’ appears together with the verbal particle *el* ‘away’. According to Komlósy, two elements usually exclude each other from one structure if both of them are to occupy the same position, but one structural position can only be filled by one element at a time. Thus, if these two resultative expressions play the same role, they cannot co-occur. In this paper I aim to examine to what extent these judgments are valid for this construction.

É. Kiss (2006: 19) analyzes both nominal resultatives and resultative particles as resultative expressions denoting a resultant state.<sup>3</sup> She further argues that these two are secondary predicates making a statement about the internal argument of the verb. The only difference between the two is that the verbal particle may lack any descriptive content in itself and can function as a telicizing element. The nominal resultative *szőkére* ‘blond’ in (2a) not only marks the endpoint of the hair-dyeing event, it also describes the new state, i.e. a new hair color, that emerges as a result. The verbal particle *be* ‘into’ in (2b), on the other hand, only expresses the endpoint of the event but it does not say anything about the resulting new hair color.

- (2) a. *Éva szőké-re festette a haj-át.*  
 Eve blond-SUB dyed the hair-POSS.3SG-ACC  
 ‘Eve dyed her hair blond.’  
 b. *Éva be-festette a haj-át.*  
 Eve into-dyed the hair-POSS.3SG-ACC  
 ‘Eve dyed her hair.’

This paper focuses on the question whether the nominal resultative and the verbal particle can co-occur in the same clause. In the relevant literature the co-occurrence of these resultatives is considered to be unacceptable but I intend to show that they can actually appear together. Furthermore, I also provide an analysis of this doubly-marked resultative structure. The paper is structured in the following way. Section 2 reviews the judgments about the data found in the literature. Section 3 briefly summarizes the results of a corpus study. Section 4 investigates the relation between the verbal particle and the nominal resultative and argues for an appositive adjunct relation analysis. Section 5 sums up the main conclusions of this paper.

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<sup>3</sup> É. Kiss (2004, 2006) makes a distinction between three types of verbal particles: resultative, terminative and locative verbal particles. In her classification resultative verbal particles occur in sentences that describe a change of state in which these particles refer to the result state of the patient argument that emerged as a consequence of the change. Terminative verbal particles express the endpoint of the subject’s change of location and locative verbal particles mark the existence and spatial position of the subject. Throughout this paper, I follow É. Kiss’s definition of resultative verbal particles.

## 2 Judgments in the literature

The literature is not quite uniform in the judgments concerning the co-occurrence of resultative nominals and particles. Normally the nominal resultative and the verbal particle do not seem to be able to co-occur in the same clause. However, Komlósy (1992: 512) suggests that the doubly-marked resultative structure is allowed in non-neutral contexts. Furthermore, Hegedűs (2013: 128-131) points out that the co-occurrence of these two types of resultatives is only acceptable with directional verbal particles.

According to Komlósy (1992: 512) these two resultative expressions can co-occur only in non-neutral sentences. (I refer to this as *neutrality constraint* for short throughout the paper.) Komlósy argues that both the nominal resultative and the verbal particle are verbal modifiers forming one semantic unit with the verb. Verbal modifiers (VM) are situated in the immediately preverbal position. If two verbal modifiers are present in one sentence then only one of them can occupy the immediately preverbal position, the other VM has to find another position. In such a situation the sentence is ungrammatical with neutral intonation (3c, d). Therefore, two resultative expressions can only co-occur in non-neutral sentences (3a, b), that is, in sentences that contain focus. In this latter case, the resultative expression can be the focus or the contrastive topic of the sentence.

- (3) a. *János PIROS-RA festette be a kerítés-t.*<sup>4</sup>  
 John red-SUB painted into the fence-ACC  
 ‘John painted the fence RED.’
- b. *Piros-ra legutóbb JÁNOS festette be a kerítés-t.*  
 red-SUB last John painted into the fence-ACC  
 ‘It was John who painted the fence red the last time.’
- c. *\*János be-festette piros-ra a kerítés-t.*  
 John into-painted red-SUB the fence-ACC  
 ‘John painted the fence red.’
- d. *\*János be-festette a kerítés-t piros-ra.*  
 John into-painted the fence-ACC red-SUB  
 ‘John painted the fence red.’

So, for Komlósy the examples in (3c) and (3d) are ungrammatical with neutral intonation. In these sentences the verbal particle *be* ‘into’ occupies the immediately preverbal position and the nominal resultative *pirosra* ‘red’ is in the postverbal domain. However, (3a) and (3b) are grammatical since these sentences are non-neutral. In (3a) while the nominal resultative *pirosra* ‘red’ is in the immediately preverbal position and is the focus of the sentence, the verbal particle *be* ‘into’ is separated from the verb and appears on its immediate right. The verbal particle comes after the verb when an element is in focus before the verb (Komlósy 1992, 1994). In (3b) the focus of the sentence is *János* ‘John’, the nominal resultative appears in the preverbal domain as a contrastive topic and the verbal particle is again separated from the verb and occupies the immediately postverbal position of the verb.

Nevertheless, sentences of type (3d) are acceptable with neutral intonation for É. Kiss (2004: 23-24) and for Surányi and Hegedűs (2013), as in (4a) and (4b) respectively.

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<sup>4</sup> The focus is marked with capital letters in the example sentences throughout the paper.

- (4) a. *Éva ki-mosta a ruhá-t tisztá-ra.*  
 Eve out-washed the clothes-ACC clean-SUB  
 ‘Eve washed the clothes clean.’
- b. *A hörcsög szét-rágta a doboz-á-t darabok-ra.*  
 the hamster apart-chewed the box-POSS.3SG-ACC pieces-SUB  
 ‘The hamster chewed its box into pieces.’

In (4a) and (4b) the verbal particle *ki* ‘out’ and *szét* ‘apart’ appear in the immediately preverbal position and the nominal resultative *tisztára* ‘clean’ and *darabokra* ‘into pieces’ occur postverbally.

Hegedűs (2013: 128-131) suggests that doubly-marked resultative constructions are only acceptable with directional verbal particles. (I refer to this as *directional particle constraint* in the paper.) In her analysis the verbal particle occupies the p head position of the functional pP and selects an appropriate directional PP complement. She also argues that particles that lack descriptive spatial content, such as *meg*, cannot occur together with nominal resultatives. (I will elaborate on this in more detail in section 4.1.)

- (5) a. *Mari le-festette a fala-t kék-re.*  
 Mary down-painted the wall-ACC blue-SUB  
 ‘Mary painted the wall blue.’
- b. *\*János meg-verte Pál-t lapos-ra.*  
 John PRT-beat Paul-ACC flat-SUB  
 ‘John beat Paul up pulp.’

Whereas (5a) is grammatical since the directional verbal particle *le* ‘down’ occurs together with the nominal resultative *kékere* ‘blue’ selecting the nominal resultative as its directional PP complement, (5b) is ungrammatical as the verbal particle *meg* does not have a spatial meaning and that is why it cannot select the nominal resultative *laposra* ‘flat’ as its directional PP complement.

On the whole, according to the relevant literature the following conclusions can be made about the structure under investigation. As per the *neutrality constraint* is concerned, the co-occurrence of these resultatives is ungrammatical in sentences with neutral intonation. However, non-neutral contexts highly improve the acceptability of the structure. As maintained by the *directional particle constraint*, this construction is unacceptable with non-directional particles. Nonetheless, it is considered to be grammatical with directional particles. In Section 3, I examine to what extent these constraints are valid for the corpus data.

### 3 The corpus study

#### 3.1 Summary of the corpus study

I have collected data from the Hungarian National Corpus<sup>5</sup>. I searched for nominal resultatives that are often mentioned in the literature<sup>6</sup> and gathered those sentences in

<sup>5</sup> About the Hungarian National Corpus, see Váradi (2002).

<sup>6</sup> I included nominal resultatives in the corpus study that frequently occur in the literature (É. Kiss 2004, 2006, Komlósy 1992, 1994, Bene 2005), such as *darabokra* ‘into pieces’, *darabjaira* ‘into its

which the nominal co-occurred with a verbal particle. I took only finite examples into consideration. The main results of the corpus search are summed up in Table 1. The nominal resultatives are arranged on the basis of their frequency in a descending order. Table 1 shows that nominal resultatives occur together with particles with a frequency of cc. 6% on the average. This is a quite high frequency strongly suggesting that the doubly-marked resultative structure is an existing linguistic phenomenon.

| Nominal resultative                 | Total number of occurrences <sup>7</sup> | Number of co-occurrences with particles | Ratio  |
|-------------------------------------|------------------------------------------|-----------------------------------------|--------|
| <i>darabjaira</i> ‘into its pieces’ | 162                                      | 23                                      | 14,20% |
| <i>pirosra</i> ‘red’                | 500 <sup>8</sup>                         | 47                                      | 9,4%   |
| <i>darabokra</i> ‘into pieces’      | 500                                      | 40                                      | 8%     |
| <i>zöldre</i> ‘green’               | 310                                      | 17                                      | 5,48%  |
| <i>feketére</i> ‘black’             | 410                                      | 22                                      | 5,37%  |
| <i>bóssé</i> ‘hero’                 | 145                                      | 7                                       | 4,83%  |
| <i>szőkére</i> ‘blond’              | 57                                       | 2                                       | 3,51%  |
| <i>szárazra</i> ‘dry’               | 201                                      | 6                                       | 2,99%  |
| <i>laposra</i> ‘flat’               | 148                                      | 4                                       | 2,70%  |
| <i>szélesre</i> ‘wide’              | 288                                      | 7                                       | 2,43%  |
| <i>halálra</i> ‘to death’           | 500                                      | 0                                       | 0%     |
| total                               | 2933                                     | 175                                     | 5,97%  |

Table 1: Results of the corpus study

Table 1 shows that the three most frequent nominal resultatives that occurred in the corpus study are *darabjaira* ‘into its pieces’, *pirosra* ‘red’, and *darabokra* ‘into pieces’. While *darabjaira* ‘into its pieces’ and *darabokra* ‘into pieces’ usually appeared with the *szét+török* ‘apart+break’ particle+verb combination, *pirosra* ‘red’ mostly occurred together with *meg+sül* ‘PRT+roast’. However, the nominal phrase *halálra* ‘to death’ did not co-occur with a particle. It may be the result of the process of grammaticalization through which *halálra* ‘to death’ has lost its original lexical content and came to be a verbal particle. Another point is that the corpus study involved only one translative resultative, i.e. *bóssé* ‘hero’.

pieces’, *laposra* ‘flat’, *pirosra* ‘red’ and *szőkére* ‘blond’ and I also involved nominal resultatives that are quite similar to the ones mentioned in the literature, for example *feketére* ‘black’, *halálra* ‘to death’, *szárazra* ‘dry’, *szélesre* ‘wide’, *zöldre* ‘green’. From the translative case-marked resultatives I only searched for *bóssé* ‘hero’ which combines naturally with verbs such as *válík* ‘turn into’ and *változík* ‘change’ and can appear in a variety of contexts, like in fairy tales, myths, legends and everyday news as well.

<sup>7</sup> ‘Total number of occurrences’ is the number that indicates how many times the nominal resultative occurs in the Hungarian National Corpus. ‘Number of co-occurrences with particles’ is the number that indicates how many times the nominal resultative occurred together with a verbal particle in a finite resultative construction. The ‘Ratio’ column expresses the proportion of ‘Number of co-occurrences with particles’ and ‘Total number of occurrences’ (i.e. in what proportion the nominal resultative occurs together with a verbal particle).

<sup>8</sup> In the Hungarian National Corpus the number of search results is limited to 500 example sentences. That is why in the case of *pirosra* ‘red’, *darabokra* ‘into pieces’ and *halálra* ‘to death’ only part of the corpus data is included.

The examination of a larger number of resultatives with the translative case would contribute to a better understanding of the behavior of nominal resultatives.

### 3.2 Neutral and non-neutral contexts

Nominal resultatives and verbal particles co-occurred both in sentences with neutral intonation (6) and with non-neutral intonation (7). Thus, the corpus data do not verify Komlósy's (1992: 512) *neutrality constraint*. The corpus data are from a written corpus in which intonation is not annotated. Therefore, I made conclusions about the intonation patterns according to the word order of the sentences. In (6) the position of the resultatives shows that they appear in a neutral sentence; i.e. the particle occupies the immediately preverbal (the verbal modifier) position and the nominal resultative is situated postverbally. In (7) the nominal resultatives themselves are in focus. When the verbal particle follows the verb it means that another element is in focus before the verb.

- (6) a. ...*fertőzött* volt a *kút*, *ki*-*mertük* *száraz-ra*...  
 infected was the well out-baled dry-SUB  
 '...the well was infected, we baled it out dry...'
- b. ...*át-vált* a *lámpa* *piros-ra*...  
 over-turned the light red-SUB  
 '...the light turned red...'
- c. ...*ki-húzza* *zöld-re* a *szemöldök-é-t*...  
 out-lined green-SUB the eyebrow-POSS.3SG-ACC  
 '...she colored her eyebrow green...'
- (7) a. ...*majdnem feketé-re* *kente ki* a *szembéj-á-t*...  
 almost black-SUB color out the eyelid-POSS.3SG-ACC  
 '...she almost colored her eyelid black...'
- b. ...*apró darabok-ra* *esett szét* a *társadalom*...  
 tiny pieces-SUB fell apart the society  
 '...the society fell apart into tiny pieces...'
- c. ...a *szenvedély* *zöld-re* *vált át*...  
 the passion green-SUB turns over  
 '...the passion turns green...'

While in (6a, b, c) the verbal particles *ki* 'out' and *át* 'over' appear in the immediately preverbal position, the nominal resultatives *szárazra* 'dry', *pirosra* 'red' and *zöldre* 'green' are in the postverbal domain. In (7a, b, c) it is the nominal resultatives *feketére* 'black', *darabokra* 'into pieces' and *zöldre* 'green' that occur on the immediate left of the verb and the verbal particles *ki* 'out', *szét* 'apart' and *át* 'over' are separated from the verb appearing on its immediate right.

### 3.3 Directional and non-directional verbal particles

I have also listed the verbal particles with which the nominal resultatives occurred in the corpus study. The results are summarized in Table 2. The following verbal particles appeared in the corpus data: *át* 'over', *be* 'into', *egybe* 'to one', *el* 'away', *elő* 'fore', *fél* 'up', *ki* 'out', *le* 'down', *meg, össze* 'together/with', *széjjel* 'apart', *szét* 'apart', *újra* 're'. The particles are arranged according to their number of occurrence in a descending order.

| Verbal particle              | Number of co-occurrences with nominal resultatives <sup>9</sup> |
|------------------------------|-----------------------------------------------------------------|
| <i>szét</i> ‘apart’          | 56                                                              |
| <i>meg</i>                   | 35                                                              |
| <i>be</i> ‘into’             | 26                                                              |
| <i>át</i> ‘over’             | 17                                                              |
| <i>ki</i> ‘out’              | 17                                                              |
| <i>le</i> ‘down’             | 11                                                              |
| <i>össze</i> ‘together/with’ | 4                                                               |
| <i>fel</i> ‘up’              | 3                                                               |
| <i>újra</i> ‘re’             | 2                                                               |
| <i>egybe</i> ‘to one’        | 1                                                               |
| <i>el</i> ‘away’             | 1                                                               |
| <i>elő</i> ‘fore’            | 1                                                               |
| <i>széjjel</i> ‘apart’       | 1                                                               |

Table 2: Verbal particles occurring in the corpus examples

The three most frequent verbal particles that appeared in the corpus data are *szét* ‘apart’, *meg* and *be* ‘into’. As Table 2 shows nominal resultatives occurred with both directional (8) and non-directional (9) verbal particles. The non-directional particles involve *meg* and *újra* ‘re’. Therefore, the *directional particle constraint* does not seem to be a strong constraint on doubly-marked resultative structures. However, the presence of directional particles was more frequent.

- (8) a. ...*le*-festették a fala-t szép *zöld-re*...  
down-painted the wall-ACC nice green-SUB  
‘...they painted the wall green...’  
b. ...*szét*-tört *darabok-ra*...  
apart-broke pieces-SUB  
‘...broke apart into pieces...’
- (9) a. ...4-5 perc alatt szép *piros-ra meg*-sütjük.  
4-5 minute under nice red-SUB PRT-roast  
‘...we roast it red in 4-5 minutes.’  
b. ...*aki meg*-törölgette őket *száraz-ra*...  
who PRT-wiped them dry-SUB  
‘...who wiped them dry...’
- (10) \**János meg*-verte Pál-t *lapos-ra*.  
John PRT-beat Paul-ACC flat-SUB  
‘John beat Paul up pulp.’

While the sentences of (8) contain the directional particles *le* ‘down’ and *szét* ‘apart’, in (9) the non-directional *meg* is present. The data in (9) are very similar to the data in (5b), repeated here as (10). Still, while (9a) and (9b) are grammatical, (10) is not. In these cases

<sup>9</sup> ‘Number of co-occurrences with nominal resultatives’ shows how many times the verbal particle occurred with the nominal resultative.

the non-directional verbal particle *meg* co-occurs a sublative-case marked nominal resultative, i.e. *pirosra* ‘red’, *szárazra* ‘dry’ and *laposra* ‘flat’, respectively. In the corpus study the verbal particle *meg* appeared together with the resultatives *feketére* ‘black’, *pirosra* ‘red’, *szárazra* ‘dry’ and *zöldre* ‘green’ and the nominal resultative *laposra* ‘flat’ occurred together with the verbal particles *egybe* ‘to one’ (11a), *le* ‘down’ (11b) and *össze* ‘together’ (11c). It may be the case that there is some kind of an incompatibility between the nominal resultative *laposra* ‘flat’ and the verbal particle *meg* and this might be responsible for the ungrammaticality of (10).

- (11) a. *A Samu család sír-jai-t lapos-ra egybe-kapálták...*  
 the Samu family tomb-POSS.3PL-ACC flat-SUB to.one-hoed...  
 ‘They hoed the tombs of the Samu family flat...’
- b. ... *engedd le a kerek-et egy kicsit lapos-ra.*  
 ...let down the tire-ACC a bit flat-SUB  
 ‘...let down the tire flat a bit.’
- c. ...*elég lapos-ra össze-nyomódtunk már...*  
 ...enough flat-SUB together-have.been.pushed yet...  
 ‘...we have already been pushed flat enough...’

On the whole, the *neutrality constraint* and the *directional particle constraint* do not seem to hold for the corpus data. Yet, these factors do play a role to some extent as the frequency data show (e.g. directional particles emerged more often than non-directional ones). The next section discusses how the particle and the nominal resultative are related to each other in the syntax.

#### 4 The relation between the verbal particle and the nominal resultative

This section examines the relation between the verbal particle and the nominal resultative when they co-occur in the same clause. The relation between these two resultatives may be analyzed in two major ways; either as a head-complement relation (Hegedűs, 2013: 128-131) or as an appositive adjunct relation (Surányi & Hegedűs, 2013).

##### 4.1 Head-complement relation

Den Dikken (1995) discusses instances in which the verbal particle and a resultative AP co-occur in English (12).

- (12) *They painted the barn up red.*

He treats these cases as complex particle constructions. He argues that the particle is a preposition and the head of an independent small clause (PrtP) and it selects another small clause as its complement in sentences like (12). This structure is outlined in Figure 1.

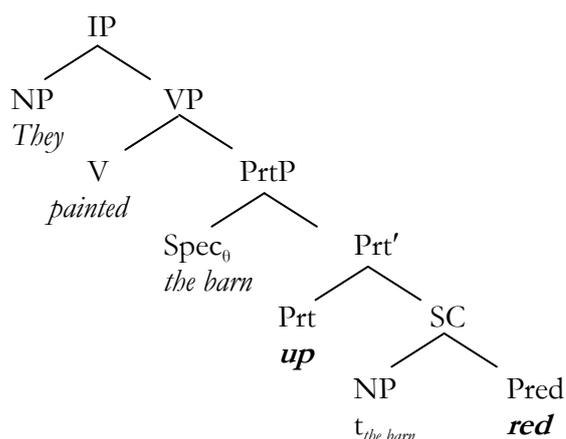


Figure 1

The particle *up* is the head of the PrtP (Particle Phrase) and it selects a small clause (SC) as its complement. The resultative predicate *red* is situated in this small clause. While *up* is analyzed as a Prt (particle), *red* is treated as a Pred (secondary predicate).

Hegedűs (2013: 128-131) investigates the co-occurrence of particles and nominal resultatives in Hungarian and suggests that these two resultatives occupy different positions when they simultaneously occur. She treats the nominal resultative as a directional PP that is selected by the directional verbal particle. In her analysis, the particle is situated in the p head position of pP, which is a functional projection of PP. (cf. Ramchand (2008: 137) for related data and discussion.)

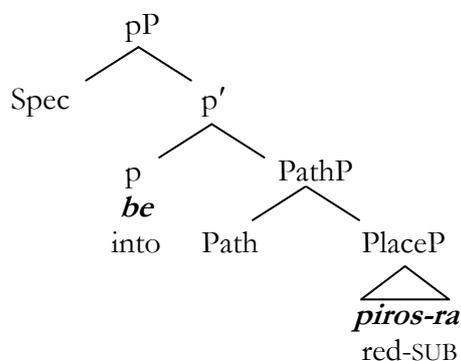


Figure 2

In both Den Dikken's and Hegedűs's analyses the verbal particle and the nominal resultative fill different syntactic positions when they co-occur: the verbal particle is the head selecting the nominal resultative as its complement. While in Den Dikken's approach the verbal particle is the head of the PrtP, in Hegedűs's analysis, it is the head of the pP. Den Dikken analyzes the nominal resultative as the Pred of a SC but for Hegedűs it is the PlaceP complement of a PathP. Hegedűs argues that since nominal resultatives are directional PPs and are selected by directional particles, non-directional particles (e.g. *meg*, which telecizes the event but does not have a spatial meaning) cannot appear in this construction. However, the corpus data show that non-directional particles can also occur in these structures (see example (9)). In Den Dikken's (1995) analysis the

Prt should also have some kind of lexical content in order to become a PP. Therefore, the head-complement analysis does not provide an explanation for all the data. In the upcoming section I argue for an appositive adjunct type of analysis based on further, positive evidence.

## 4.2 Appositive adjunct relation

Surányi (2009a, b) examines a very similar structure in Hungarian in which a locative particle and a lexical locative expression co-occur (13).

- (13) *Felment a második-ra/ a menny-be/ a tízedik-ig.*  
 up went the second-SUB/ the heaven-ILL/ the tenth-TERM  
 ‘He went up to the second floor/to the heaven/as high as the tenth floor.’

In (13) the locative particle *fel* ‘up’ appears together with the lexical locative expressions *másodikra* ‘to the second floor’, *mennybe* ‘to the heaven’, *tízedikig* ‘as high as the tenth floor’. For this type of construction Surányi (2009a, b) proposes that the verbal particle and the lexical locative expression form an appositive structure in which the lexical expression further specifies the locative particle. He also adds that there is an adjunction relationship between the two. He suggests that in the case of an appositive relation the verbal particle does not subcategorize for the form of the locative expression. As (13) shows the verbal particle *fel* ‘up’ can appear together with a sublative or an illative or a terminative case-marked lexical expression as well. The verbal particle *fel* ‘up’ in (13) is a directional particle in the sense of É. Kiss (2006).

Similarly, Surányi and Hegedűs (2013) propose an appositive adjunct relation for the doubly-marked resultative structure. They argue that the nominal resultative “can and must remain post-verbal if the VM slot is occupied by a resultative verbal particle” and it is a “base structure appositive adjunct to the resultative verbal particle”. While the verbal particle is raised to the specifier position of PredP, the nominal resultative is an appositive adjunct PP to the particle. That PredP is above VP and that VMs move to Spec,PredP is proposed by É. Kiss (2006, 2008).

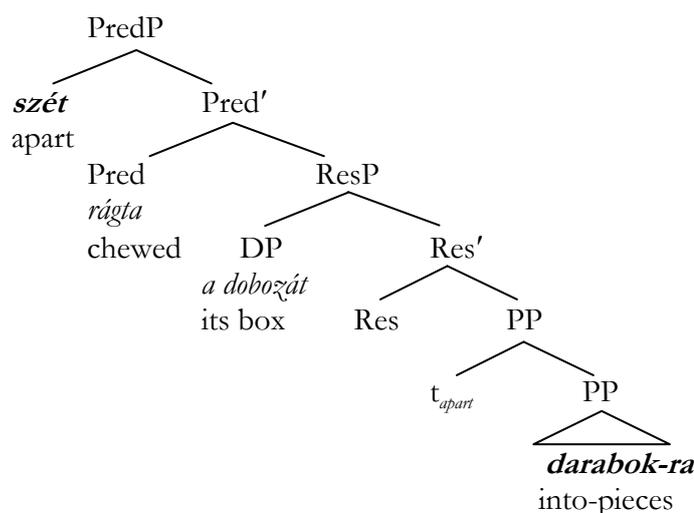


Figure 3

Surányi and Hegedűs (2013) also point out that the post-verbal resultative does not allow *wh*-subextraction from it when co-occurring with a particle which provides support for the nominal resultative being an adjunct (14a). Adjuncts do not allow material to be extracted out of them.

- (14) a. \**Kihez* *formáltad* *át* *Jánost* ~~*kihez*~~ *hasonló-vá?*  
 ↑  
 who.ALL formed over John.ACC who.ALL similar-TRANS  
 ‘Who did you transform John similar to?’
- b. *Kihez* *formáltad* ~~*kihez*~~ *hasonló-vá* *Jánost?*  
 ↑  
 who.ALL formed who.ALL similar-TRANS John.ACC  
 ‘Who did you transform John similar to?’

In the next section I also argue for an appositive adjunct relation for the structure under investigation, since it explains the data in the most suitable way.

### 4.3 Arguments for the appositive adjunct analysis

An argument in favor of the appositive relation may be that the verbal particle does not subcategorize for the form of the nominal resultative. The same particle may appear with a nominal resultative in the sublative case (15a) or in the translative case (15b).

- (15) a. ...*a feketebajú* *Magdiká-t* *át-festették* *szőké-re...*  
 the black-haired Magdika-ACC over-dyed blond-SUB  
 ‘...Magdika with the black hair has been dyed blond...’
- b. ...*akik lírai hős-sé* *változnak* *át...*  
 who lyric hero-TRANS turn over  
 ‘...who turn into a lyric hero...’

While in (14a) the verbal particle *át* ‘over’ occurs with the sublative resultative *szőkére* ‘blond’, in (14b) *át* ‘over’ appears together with the translative resultative *hőssé* ‘hero’. However, these two case markers cannot be used interchangeably. The particle may not subcategorize for the morphology of the nominal resultative alone but the verb might still be a determining factor.<sup>10</sup>

Even the same particle+verb combination may license both case markers. Whereas in (16a) *szétkalapáltam* ‘apart-hammered’ is present with the sublative resultative *laposra* ‘flat’, in (16b) it occurs with the translative resultative *tányérrá* ‘plate’.

- (16) a. *Szét-kalapáltam* *a vas-at* *lapos-ra.*  
 apart-hammered the metal-ACC flat-SUB  
 ‘I hammered the metal flat.’
- b. *Szét-kalapáltam* *a vas-at* *tányér-rá.*  
 apart-hammered the metal-ACC plate-TRANS  
 ‘I hammered the metal into a plate.’

<sup>10</sup> On the choice between the sublative and translative marking of nominal resultatives, see Matushansky (2012).

It might be the case that the properties of the result state that is described determine the choice on the case marker. The sentences in (16a) and (16b) describe two different events. Whereas in (16a) the metal-hammering event results in the metal being flat, in (16b) the metal ends up in a completely different shape, i.e. in the form of a plate. So, the nature of the result state may contribute to the choice between the two case-markers. The relation between the verbal particle, the verb and the nominal resultative is quite complex. However, it does not contradict the appositive relation analysis on the whole.

Furthermore, speakers used the comma after the combination of the particle and the verb and before the nominal resultative in some of the corpus examples (17). This may also suggest some kind of an appositive use.

- (17) ... *sárkánytorok-á-t*                      *újra-festették,*    *piros-ra...*  
 dragon.throat-POSS.3SG-ACC    re-painted            red-SUB  
 ‘... its dragon throat has been repainted, red...’

Nonetheless, this construction is not the same as the ones without a comma, yet it may be a question how these two usages are related to each other.

The data in which the verbal particle *meg* appears can also be analyzed as appositive constructions. However, in these cases the verbal particle refers to the result state without concrete lexical content. The nature of the result state is going to be specified by the nominal resultative.

Following Surányi and Hegedűs (2013) I suggest an appositive adjunct relation analysis for the doubly-marked resultative construction, in which case the nominal resultative is an appositive adjunct and it further specifies the verbal particle. The exact result state denoted by the particle becomes more specified by the nominal phrase. For this construction I assume the structure in Figure 4.

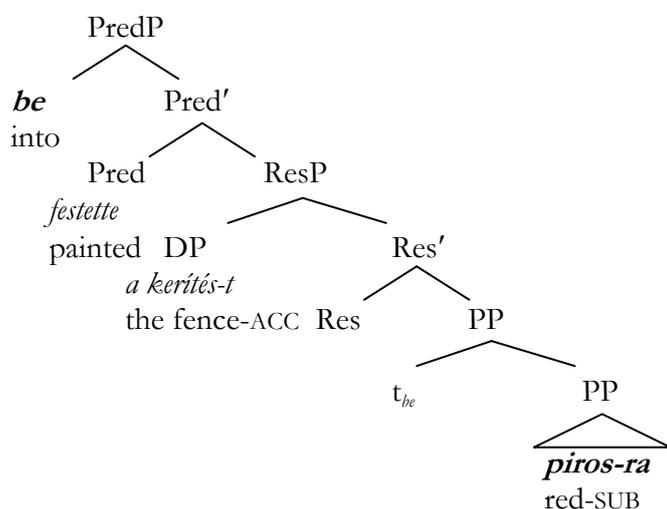


Figure 4

The analysis of PredP in Hungarian is based on É. Kiss (2006, 2008) and the ResP (result phrase) has been used by Ramchand (2008), among others.

## 5 Conclusion

My aim in this paper was to examine the issue whether the two resultative expressions in Hungarian i.e. the verbal particle and the nominal resultative are in complementary distribution or they are able to co-occur. The judgments in the literature are not uniform. While usually the co-occurrence of these resultatives is taken to be ungrammatical, it is acceptable in certain linguistic environments. Two constraints have been highlighted; the *neutrality constraint* and the *directional particle constraint*. As the corpus research showed, these requirements do not hold in their original sense. The verbal particle and the nominal resultative co-occurred in neutral contexts as well as in non-neutral contexts. Moreover, non-directional particles also appeared in such constructions. I have argued that the doubly-marked resultative structure may be analyzed as an appositive adjunct relation rather than a head-complement relation.

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# Gender agreement with conjoined subjects in Serbian

Zorica Puškar

This paper discusses agreement with conjoined NPs in Serbian with respect to gender features on the conjuncts and their position in relation to the verb. It shows that gender on conjuncts and their position are important factors determining the result of the process of agreement. It also gives evidence that with nouns with interpretable gender features, agreement takes into account both formal and semantic features of the NPs. On the other hand, with NPs with uninterpretable gender, Agree may or may not take into consideration semantic features, depending on the variation between speakers' grammars.

Keywords: *agreement, conjunct phrase, interpretable features, uninterpretable features*

## 1 Introduction

This paper discusses the topic of subject-verb agreement applied to the cases of agreement where the subject consists of two nouns joined by a coordinating conjunction. The paper presents evidence from Serbian on why it is necessary to observe the conjunction as a single element, and not conjuncts as separate entities involved in agreement.<sup>1</sup> Moreover, it demonstrates that the process of agreement takes into account both formal and semantic features on the conjuncts. Agreement is viewed in terms of the operation Agree (Chomsky 2000), which applies to the conjunction as a whole, and not to one of the separate conjuncts. The proposal given on how to account for the different agreement patterns that surface on the participle in Serbian rests on the work of Bošković (2009), where conjunct agreement is viewed as the result of feature probing, matching and valuing. The purpose of this process is valuation of unvalued features on the participle, and deletion of the uninterpretable ones. Interpretability of features concerns the possibility of establishing a correlation between formal and semantic features of the noun in question, and it is confirmed to be an important factor in agreement. Following Rappaport (2006), if  $\varphi$ -features on the noun are interpretable, those features are assigned in accordance with the semantic features of the referent. The evidence from Serbian shows that in this case, the formal features of the lexeme correspond to the semantic ones, which causes the participle's unvalued features to be valued as interpretable. In this case, they are not deleted in the process of agreement. Additionally, if formal features are not identical on both conjuncts, default agreement applies. If  $\varphi$ -features are uninterpretable, they exist only formally on a noun and do not relate to the features on the referent. In this case, two patterns are distinguished in conjunct agreement. If the speaker employs only formal agreement, agreement targets only formal features. In some cases, however, an agreement mismatch occurs, which is

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<sup>1</sup> The two noun phrases constituting the conjunction phrase will be marked as NP1 and NP2 with respect to their linear position within the phrase. The conjunction phrase is marked as BP (see Section 2). Other abbreviations include: M – *masculine gender*, F – *feminine gender*, N – *neuter gender*, SG – *singular number*, PL – *plural number*.

resolved by inserting default features. Gender features mostly follow the described pattern.

The following section of the paper defines and explains the notions of agreement, focusing on the agreement with conjoined NPs and the way in which they will be treated in the analysis. Section 3 provides an overview of syntactic accounts that have tried to capture this phenomenon. Section 4 presents the results of a survey conducted on conjunct agreement in Serbian, which are analysed in the following section. This section offers a proposal how to extend the existing theories in order to accommodate for the data found in Serbian.

## 2 Theoretical background

Agreement is a relationship between two elements that exhibit correlating morphology consistently whenever they co-occur (Lorimor 2007). One of the most basic definitions is proposed by Steele (1978), who views agreement as ‘systematic covariance between a semantic or formal property of one element, and a formal property of another’. These properties of elements are referred to as *features*, and they have *values* (e.g. number feature can be valued as singular, plural, dual, etc.). The element which initiates and determines the agreement is called agreement *controller*, or *trigger*, and the element whose form depends on agreement is called agreement *target* or *goal* (Corbett 1998).

According to Pesetsky and Torrego (2007) (among others), features on lexical items can be differentiated according to two types of criteria: valued/unvalued and interpretable/uninterpretable. Dealing with valuation first, they notice that it seems that certain lexical items come from the lexicon with features that have no value, and they receive a value for those features from valued instances of the same features on another lexical item with which they establish syntactic connection. Looking at the interpretable/uninterpretable dimension on features, Pesetsky and Torrego (2007) explain that it is the distinction concerning semantics, i.e. ‘whether or not a feature of a particular lexical item makes a semantic contribution to the interpretation of that item.’ The interplay and interdependency of these features are important in the process of agreement.

Conjoined subjects are the subjects which, as the name implies, join two NPs together to make a whole. An example of such constructions can be found in (1).

- (1) [Tom and George] have finished playing the game.

These subjects are specific in many ways, and their non-standard structure leads to non-standard behaviour. They are interesting primarily because of the fact that, instead of a single nominative noun interacting with the verb in the process of feature matching, valuing, and deletion, there are (at least) two nominative nouns requiring for the system to find a way to incorporate all of their features together in the process of agreement with the verb (Lorimor 2007). Cases of conjunct agreement can include different types. For the purpose of current discussion, a distinction will be made between first-conjunct agreement and last-conjunct agreement. First-conjunct agreement (FCA) appears when the subject conjunct phrase follows the verb, and the verb agrees with the first conjunct, as in (2a). Last-conjunct agreement (LCA) exists where the subject conjunct phrase precedes the verb, and the verb agrees with the last conjunct, as in (2b).

- (2) a. *Predstavu su gledali dečaci i devojčice.* (Serbian)  
 Play are watched-MPL boys-MPL and girls-FPL  
 ‘Boys and girls were watching the play.’
- b. *Deca i učiteljice su posmatrale priredbu.*  
 Children-NPL and teachers-FPL are watched-FPL play  
 ‘Children and teachers were watching the play.’

It is also important to point out that the conjuncts are not interpreted as two separate entities. Rather, they form a unit, incorporated within a higher element, a phrase termed Boolean Phrase (BP) (Munn 1999). By assumption, coordinating conjunctions (*and, or, but*) project their own phrase which hosts the conjuncts. This phrase, according to Marušič et al. (2007), computes its own number features, and thus, in Serbian, it is specified as plural, since two nouns of whatever number will give plural number on the whole conjunction.

### 3 Syntactic accounts

First attempts at explaining agreement were mostly descriptive. Agreement was seen as a relation between the *target* (the element that displays features that are the result of agreement) and *controller* (the element supplying the target with the missing features). There was no precise theory on how agreement happens, and it was considered to be just the reflection of the syntactic configuration established between the target and the controller. Chomsky (2000) introduced the core syntactic relation Agree, which is responsible for establishing agreement. Within Minimalist framework, agreement is not a reflection of other syntactic operations, but an operation in itself. Features on lexical items become the driving force of this operation. Movement depends on the need to check uninterpretable features. Thus, syntactic relation between a target and a controller is established as a result of the need to check uninterpretable features. Moreover, for agreement to happen, the elements do not have to be local, as unvalued features can be valued at a distance. The subsequent movement of a controller depends on whether the target projects a specifier and whether uninterpretable features have to be checked.

Drawing on Chomsky (2000), Bejar (2003) takes the AGR-head to be  $\nu$ , T or C head, all of which have unvalued person, number and gender features ( $\varphi$ -features). On the other hand, the elements that bear valued interpretable  $\varphi$ -features are N or D heads. The notion of interpretability is crucial in Chomsky’s theory. All uninterpretable features that exist in the structure must be deleted in order for the derivation to converge. Agree is the operation driven by the need to eliminate uninterpretable features. In the process of this operation, interpretable  $\varphi$ -features on NPs (or DPs), provide values for uninterpretable unvalued  $\varphi$ -features on the target head. Once they are valued, uninterpretable features can be eliminated. The whole process shows that the morphological marking shown on lexical items as a result of agreement is actually the result of syntactic operations.

For the discussion on conjunct agreement below, from the analysis of Chomsky (2000), it is important to point out that Agree is not a simple operation, but in fact, it goes on in three stages – Probe, Match, and Value. Probing is the starting point of Agree, at which the target (probe) starts searching for a goal having a valued feature compatible with the uninterpretable unvalued feature on the probe. Match examines if the object found in the domain of the probe is a possible goal, whether it contains the necessary

feature(s) and can establish the relation of agreement. Value is the final phase, during which the goal is provided with a value. In order for Match to succeed, it is necessary that the goal is within the c-command domain of the probe (to be within the structure contained by the goal's sister). The matching feature on the goal is the one that is closest to the probe. Apart from matching, movement is also the result of agreement. Movement happens if the probe contains an EPP feature. This requires the goal to move obligatorily to the Spec position of the probe.

An important point Bejar's (2003) thesis makes is that there are a few types of probe. A probe searching for  $\varphi$ -features can be (among others) a single  $\varphi$ -probe and a split  $\varphi$ -probe.<sup>2</sup> A single  $\varphi$ -probe probes for all  $\varphi$ -features together. A split  $\varphi$ -probe, however, probes for different features separately. An example may be found in Georgian, where person agreement is only controlled by the subject if the direct object fails to match, and number agreement is controlled by the direct object if the subject fails to match. Another notion important for the purposes of this discussion is default agreement. Default agreement is, in essence, an attempt to save the derivation if regular agreement fails for some reason. Thus, it is possible that in some cases agreement can fail, but the derivation still converges, as it is saved by inserting default agreement features.

A number of accounts tried to resolve the puzzle of agreement with conjoined NPs and all the specificities related to this particular type of agreement. Some explanations were offered in Bahloul and Herbert (1993), Munn (1999), Citko (2004), Doron (2000), Johannessen (1998), Aoun, Benmamoun, and Sportiche (1994, 1999), among others. These accounts try to capture conjunct agreement based on examples from English, Arabic, Hebrew, and a number of other languages. Some recent accounts have looked into conjunct agreement in Slavic languages. Namely, Marušič, Nevins and Saskida (2007) analyzed agreement with the last conjunct in Slovene, and Marušič, Nevins and Badecker (2012) examined grammars of conjunct agreement in an experimental study. Bošković (2009) unifies mechanisms of agreement with the first conjunct and agreement with the last conjunct, and in Bošković (2010), this account is extended to Russian.

Bošković (2009) presents an account based on the operation Agree that unifies mechanisms of first-conjunct agreement (FCA) and last-conjunct agreement (LCA), but also explains some issues related to Agree itself. The account of a unique mechanism of FCA and LCA starts from the general distinction between interpretable/uninterpretable and valued/unvalued features. Number and gender features on the participle, which is the probe, are uninterpretable and unvalued, whereas those features are valued on the goal, but there they can be interpretable and uninterpretable (e.g. gender feature on nouns in Serbian is valued, but it can be uninterpretable to semantics if the grammatical gender does not match the biological gender of the referent). Agreement between the probe and the goal is established in the process of the operation Agree. As illustrated previously, Agree goes on in three stages: Probe (where the probe is searching for features), Match (which determines whether the goal has the kind of category the probe seeks), and Value (the process of giving value to unvalued features). If the probe has an EPP feature, Value is also followed by pied-piping (choosing the XP to be moved and merged as the Spec of the probe).

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<sup>2</sup> Other types of  $\varphi$  that Bejar (2003) introduces are double- $\varphi$ , triple- $\varphi$ . For more information on these types of probes, see Bejar (2003).

Bošković (2009) applies this approach to both FCA and LCA. It is important to note that this account does not focus on full FCA or LCA with a single NP. This means that the participle does not target only one of the conjuncts independently for both number and gender ignoring the other one, but it targets BP for number and gender agreement, and the BP agrees as a whole. In Bošković (2009), this is illustrated by the examples of FCA and LCA failure given here in (3). The ungrammaticality of (3a) shows that the participle does not agree with the first conjunct in both number and gender, and (3b) confirms that the second conjunct cannot value the participle alone.<sup>3</sup>

- (3) a. \**Juče je uništena jedna varošica i sva sela/*  
 yesterday is destroyed-FSG one town-FSG and all villages-NPL  
*/jedno selo.* (Serbian)  
 one village-NSG  
 ‘One town and all villages/one village was destroyed yesterday.’
- b. \**Sva sela /Jedno selo i jedna varošica je*  
 all villages-NPL/one village-NPL and one town-FSG is  
*juče uništena.*  
 yesterday destroyed-FSG  
 ‘All villages/one village and one town was destroyed yesterday.’

Turning now to the agreement process, in the case of LCA, the subject with conjoined nouns moves in front of the participle, i.e. the participle has an EPP feature requiring the subject to merge as its Spec. For this reason, Agree will involve pied-piping, as well. During the operation Agree, the participle probes for gender and number features. As claimed in Bošković (2009) (drawing on Marušić et al. 2007), BP<sup>4</sup> is inherently plural. The probe thus matches the inherent plural feature on the BP, and it receives gender from the structurally higher first element. Thus, both BP and the first conjunct are valuators. The standard assumption is that valuators are those that determine pied piping. If an element provides features for the probe, the maximal projection of that element will undergo pied-piping. The issue of pied-piping arises at this point, since both BP and the first conjunct, as valuators, can be pied-piped (Serbian allows for the extraction of NP1 from a conjunction, see Stjepanović 1998). This leads to ambiguity and makes pied-piping impossible. The impossibility of pied-piping blocks the valuation of the necessary features. At this point, in order to prevent a crash, the computation has the option of applying the default gender, or resorting to Secondary Agree. This operation starts from the assumption that uninterpretable features must be deleted. They are deleted after valuation, since only valued features can be deleted. Still, valued uninterpretable features, such as gender on the goal<sup>5</sup>, are also deleted after Match.

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<sup>3</sup> Anticipating further discussion, let us just note here that some speakers of Serbian find the examples in (3) grammatical.

<sup>4</sup> BP is the notation for “Boolean phrase”. The term is taken from Munn (1993) to refer to the phrase projected by coordinating conjunctions (*and, or, but*) (see Section 2).

<sup>5</sup> Gender feature on nouns can be interpretable or uninterpretable, depending on whether gender on the noun corresponds to biological gender of the referent. In this sense, those nouns whose gender matches the biological gender on the referent bear interpretable gender feature, whereas nouns whose referent is inanimate bear uninterpretable gender feature. According to the account presented here, uninterpretable gender is deleted after Match, while interpretable gender cannot be deleted. This prediction is borne out according to the evidence from conjunct agreement in Serbian presented in the following section.

This would mean that the gender feature on the first conjunct is deleted after the first case of Match (after which Agree was unsuccessful due to the impossibility of pied-piping), which leaves the option for the BP to value the number feature (number on BP is interpretable, and thus is not deleted upon first Match), and the second conjunct to value the gender feature. This is what happens when the participle probes again for a second attempt of Agree. Since NP2 cannot be extracted out of a conjunction, and is thus not pied-pipeable, there is no choice, the whole BP undergoes movement to the Spec of the probe. On the other hand, in the cases of FCA, no movement of the conjuncts is required, hence no pied-piping, and nothing prevents NP1 from valuing the participle for gender.

Bošković (2009) provides a uniform non-language specific account incorporating conjunct agreement into an existing mechanism. However, there are some issues that require further attention as regards both number and gender agreement.

Concerning gender agreement, Bošković records some cases of FCA/LCA parallelism breakdown if the conjunct that does not determine the agreement is masculine. Namely, in that case, FCA is possible, but LCA is not, as demonstrated in (4) (example (34) in Bošković 2009).

- (4) a. *Juče su uništena sva sela i svi gradovi.*  
yesterday are destroyed-NPL all villages-NPL and all towns-MPL
- b. *Juče su uništeni sva sela i svi gradovi.*  
yesterday are destroyed-MPL all villages-NPL and all towns-MPL
- c. *\*Svi gradovi i sva sela su juče uništena.*  
all towns-MPL and all villages-NPL are yesterday destroyed-NPL
- d. *Svi gradovi i sva sela su juče uništeni.*  
all towns-MPL and all villages-NPL are yesterday destroyed-MPL  
‘All cities and all towns were destroyed yesterday.’

Within the account, this breakdown is explained by the fact that the masculine gender on the first conjunct in (4d) is also the default. Default values are ignored by semantics, thus if an element contains a default feature, LF interface can proceed with interpretation as if it were not there. Hence, if an element contains the default feature, it does not get deleted on that element in the process of Match, it is just treated as not being there. If the participle has its gender feature valued as masculine plural by a noun bearing that feature, it is the default at the same time, and for that reason the uninterpretable gender feature is not deleted on the participle. This leads to a problem, since a unique valuator for the probe cannot be determined, so the derivation should crash. The system still has the option to delete gender feature on the participle and replace it by default, and it is exactly what it does in (4d). The gender feature is thus deleted, and the only feature that remains on the participle is number, which is valued by the BP. Now the unique valuator exists, and the whole BP is moved.

Anticipating an overview of agreement patterns that speakers of Serbian employ in their active production, it can be noted that the problem with Bošković’s (2009) analysis is that, for some speakers, Secondary Agree seems to be possible, and LCA is possible in examples like (4c). An example is given in (5).

- (5) *Računari i mašine su upravljale fabrikom, te je dosta radnika otpušteno.*  
 Computers-MPL and machines-FPL are governed-FPL factory, so is a.lot.of workers fired  
 ‘Computers and machines governed the factory, so a lot of workers were fired.’

According to the previous account, this situation should be ruled out. This problem should be given an adequate solution.

Another problem concerning gender mismatches is the one where conjuncts involve feminine+feminine, or feminine+neuter combinations and the participle can take both feminine and default agreement under different circumstances. For example, as shown in (6) (example (36) in Bošković 2009), feminine gender on the first conjunct prevents LCA if the second conjunct is neuter. Default masculine agreement makes this sentence acceptable, as (6b) illustrates.

- (6) a. *\*Sve žene i sva deca su došla.*  
 all women-FPL and all children-NPL are came-NPL  
 b. *Sve žene i sva djeca su došli.*  
 all women-FPL and all children-NPL are came-MPL  
 ‘All women and all children came.’

Bošković (2009) explains this by positing that gender feature on the NP1 is interpretable, as *žene* (women) is also female biologically. The same logic is applied whenever gender on a noun matches the biological gender of the referent. As this feature is valued, it is not deleted after Match. Once again, we have a situation where it is not possible to determine a unique valuator for the probe (number is valued by the BP, and gender by NP1). The system then resorts to default agreement, deleting the gender feature on the participle, and replacing it with default. Marušić et al. (2012) add an interesting point to this issue. Based on the research they conducted on Slovene, they concluded that the claim that interpretable gender on the first conjunct blocks LCA is not borne out in Slovene, as they managed to find a significant percentage of LCA in the cases where FPL and NPL nouns were conjoined.

The problem of interpretable gender extends to some further instances of FCA/LCA parallelism breakdown. At first glance, nothing should be strange with conjuncts with uniform number and/or gender specification. Indeed, with masculine conjuncts there are no problems with agreement either when both conjuncts are plural, or when only one of them is plural, as demonstrated in (7) (example (44) in Bošković 2009).

- (7) a. *Juče su prodani svi magarci i svi psi.*  
 yesterday are sold-MPL all donkey-MPL and all dog-MPL  
 ‘All donkeys and all dogs were sold yesterday.’  
 b. *Svi magarci i svi psi su juče prodani.*  
 all donkey-MPL and all dog-MPL are yesterday sold-MPL  
 c. *Juče su prodani jedan magarac i svi psi.*  
 yesterday are sold-MPL one donkey-MSG and all dog-MPL  
 ‘One donkey and all dogs were sold yesterday.’  
 d. *Jedan magarac i svi psi su juče prodani.*  
 one donkey-MSG and all dog-MPL are yesterday sold-MPL

Neuter conjuncts behave differently. If both conjuncts are neuter plural, the participle agrees accordingly, yet if at least one of them is singular when they are preverbal, the derivation will crash. The situation found in practice is illustrated in (8) (example (45) in Bošković 2009). These examples are given for the purpose of comparison of neuter with masculine/feminine, while number issues are left aside.

- (8) a. *Jučē su prodana sva telad i sva pašćad.*  
 yesterday are sold-NPL all calf-NPL and all dog-NPL
- b. *Sva telad i sva pašćad su jučē prodana.*  
 All calf-NPL and all dog-NPL are yesterday sold-NPL
- c. *Jučē su prodana sva telad i jedno pašće.*  
 yesterday are sold-NPL all calf-NPL and one dog-NSG
- d. *\*Jučē su prodana jedno tele i sva pašćad.*  
 yesterday are sold-NPL one calf-NSG and all dog-NPL
- e. *\*Jučē su prodana jedno tele i jedno pašće.*  
 yesterday are sold-NPL one calf-NSG and one dog-NPL
- f. *\*Sva telad i jedno pašće su jučē prodana.*  
 all calf-NPL and one dog-NSG are yesterday sold-NPL
- g. *?Jedno tele i sva pašćad su jučē prodana.*<sup>6</sup>  
 one calf-NSG and all dogs-NPL are yesterday sold-NPL  
 ‘All calves and all dogs were sold yesterday.’

(Bošković 2009)

A problem arises with feminine nouns. Apparently, feminine nouns can trigger feminine agreement regardless of the number on the conjuncts. Sentences in (9) (example (46) in Bošković 2009) provide just some of the examples of this phenomenon.

- (9) a. *Jučē su prodane jedna krava i sve ovce.*  
 yesterday are sold-FPL one cow-FSG and all sheep-FPL  
 ‘One cow and all sheep were sold yesterday.’
- b. *Jedna krava i sve ovce su jučē prodane.*  
 one cow-FSG and all sheep-FSG are yesterday sold-FPL
- c. *Jedna krava i jedna ovca su jučē prodane.*  
 one cow-FSG and one sheep-FSG are yesterday sold-FPL

In Bošković (2009), this phenomenon is explained by the assumption that feminine gender is capable of percolating to the BP level. In this case, the whole agreement process happens at the BP level and the result is always the same, feminine plural agreement on the participle. What makes feminine, unlike neuter, capable of percolating to the BP, by stipulation, is the fact that it can be interpretable, as it is semantically grounded.

Some facts noted for Serbian can present a potential problem to this analysis. Namely, in Serbian, it can be the case that inanimate nouns trigger both feminine and default agreement, as shown in example (10) (taken from Stevanović 1979).

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<sup>6</sup> The acceptability of this example is left for future research in Bošković (2009).

- (10) a. *Tuga i žalost zavladali su u razrušenom gradu.*  
 Sadness-FSG and grief-FSGr uled-MPL are in destroyed city  
 ‘Sadness and grief started ruling in the destroyed city.’
- b. *Godine i starost dale su ovu noć.*  
 years-FPL and old-age-FPL gave-FPL are this night  
 ‘This night is the product of years and old age.’

It remains unclear what conditions feminine or default agreement in what circumstances, and what the potential restrictions can be. Based on the previous two examples, it can be assumed that the problem lies in the interpretability of features. Clearly, variation appears when gender feature appears on nouns which are not biologically specified for gender, demonstrating that formal and biological gender features do not always go hand in hand.

#### 4 Agreement patterns with conjoined subjects in Serbian

In order to get a clearer picture of how speakers of Serbian actually employ conjunct agreement, a survey was conducted. It was partially based on the experiments described in Marušić, Nevins and Badecker (2012), with some modifications. This section provides a brief description of the aims of the survey, the issues explored, and the methodology employed.

The aim of the research was to test how gender, number, animacy and position affect participle agreement with subject conjunct phrases. Considering all the data presented above, the aim was to see how speakers of Serbian employ conjunct agreement and how the given factors influence the process of agreement, with respect to the factors identified as relevant. Three basic issues are tackled:

- (11) *Issue 1:* FCA – LCA parallelism breakdown when one of the conjuncts is masculine  
*Issue 2:* Gender agreement mismatches when feminine and neuter nouns are conjoined  
*Issue 3:* Number mismatches

The exploration of Issue 1 is influenced by the account in Bošković (2009) presented in the previous section. There it was claimed that if the conjunct that does not determine the agreement is masculine, FCA can be found, but LCA is blocked and the participle will always take default agreement. The aim was to examine if there is a possibility of having feminine agreement and if so, under which circumstances this is available.

Issue 2 was also brought to attention by Bošković (2009). Apparently, if feminine and neuter nouns are conjoined, LCA is blocked, as opposed to FCA, which does not present a problem. This issue was tested to check which factors affect FCA-LCA parallelism breakdown. This breakdown was examined using combinations of feminine + neuter and neuter + feminine NPs, so as to test in which situations speakers of Serbian would employ feminine, neuter or default masculine agreement.

Finally, Issue 3 deals with number. It involves testing whether speakers of Serbian can employ singular agreement in language production and if so, whether it is agreement with the whole conjunct phrase (BP), or with only one conjunct. Additionally, the factors

possibly determining this choice are also tackled. The inspection if Issue 3 is not within the scope of this paper.

The research was conducted with 60 participants, all of whom were second-year university students. The participants were asked to do a production task. They were given sentences with missing suffixes for the participle, and (in the cases where number was the focus of testing) missing spots to be supplied with auxiliary verbs. Since both number and gender feature surface on the participle, all the test-examples were in past tense. The examples were modeled in the way presented in (12).

- (12) *Pas*            *i*        *mačka* \_\_ *preš* \_\_ *put*.  
 dog-MSG    and    cat-FSG \_\_    crossed\_road  
 ‘A dog and a cat crossed the road.’

In sum, 40 test-examples were presented to the participants. These examples attempted to tackle all of the 3 issues presented above. For Issue 1, a total of 8 test-examples was presented, with combinations of MSG+FSG, and MPL+FPL, involving 4 conditions: two sentences with preverbal conjuncts (both conjuncts animate or both conjuncts inanimate), and two sentences with postverbal conjuncts, with the same conditions. Further examples always involved 4 sentences for every combination of conjuncts, where two were preverbal (animate and inanimate) and two were postverbal (animate and inanimate). For Issue 2, there were 4 combinations of conjuncts, FPL+FPL, NPL+NPL, FPL+NPL, and NPL+FPL, with 4 sentences for each condition. Issue 3 was studied on the basis of 16 sentences involving combinations of feminine and neuter singular and plural. The order of the sentences was randomized, and in addition to these, there were 20 other sentences acting as fillers or distractors, having regular subjects with one NP.

#### 4.1 Issue 1: Conjunct agreement when one of the conjuncts is masculine

Recall that Bošković (2009) makes the observation that masculine gender on the first conjunct blocks LCA when the conjunct phrase is preverbal, whereas FCA is allowed. This breakdown in the parallelism between FCA and LCA was explained by the fact that masculine is the default gender. Default values are ignored by semantics, and the uninterpretable gender feature is not deleted on the participle after Match, causing the computation to resort to default agreement.

The aim of the survey was to test whether LCA is possible if the conjuncts are M+F, and if so, under which circumstances this happens. Eight test-examples were used, with 2 conditions:

- MSG+FSG (Table 1-2) (two sentences with preverbal conjuncts (one with animate nouns and the other one with inanimate nouns), and two sentences with postverbal conjuncts (one with animate nouns and the other one with inanimate nouns),
- MPL+FPL (Table 3) (two sentences with preverbal conjuncts (one with animate nouns and the other one with inanimate nouns), and two sentences with postverbal conjuncts (one with animate nouns and the other one with inanimate nouns),

The results of the first condition are given in Table 1 and Table 2.

| Number | Position     | Animacy   | Result    |       |
|--------|--------------|-----------|-----------|-------|
| plural | preverbally  | animate   | masculine | 100%  |
|        |              |           | feminine  | -     |
|        |              | inanimate | masculine | 98.3% |
|        |              |           | feminine  | -     |
|        | postverbally | animate   | masculine | 98.3% |
|        |              |           | feminine  | -     |
|        |              | inanimate | masculine | 75%   |
|        |              |           | feminine  | -     |

Table 1: Results for MSG+FSG

| Number   | Position     | Animacy   | Result    |       |
|----------|--------------|-----------|-----------|-------|
| singular | preverbally  | animate   | masculine | -     |
|          |              |           | feminine  | -     |
|          |              | inanimate | masculine | 1.7%  |
|          |              |           | feminine  | -     |
|          | postverbally | animate   | masculine | -     |
|          |              |           | feminine  | -     |
|          |              | inanimate | masculine | 21.7% |
|          |              |           | feminine  | 3.3%  |

Table 2: Results for MSG+FSG

As the results show, preverbally, there is no feminine agreement whatsoever. It looks as if the speaker does not register the fact that there is a feminine noun present. It is still unclear whether this agreement is masculine, i.e. agreement with the first element, or default agreement.

With postverbal conjunct phrases, there should be no problem with agreement, as it is expected that the verb will agree with the first conjunct. What deserves some attention here are the cases of singular agreement. In the cases where the conjoined nouns are inanimate, 21.7% of the conjuncts trigger MSG agreement. This result can be taken as an indication to rethink the standpoint that conjunct agreement is necessarily plural. Unfortunately, such issues are beyond the scope of this paper.

The second condition (MPL+FPL) examines the number and gender features the participle surfaces with when there are no number issues to intervene. Both conjuncts are plural, and their animacy and position are varied. Table 3 presents the results of the survey.

| Number | Position     | Animacy   | Result    |       |
|--------|--------------|-----------|-----------|-------|
| plural | preverbally  | animate   | masculine | 100%  |
|        |              |           | feminine  | -     |
|        |              | inanimate | masculine | 56.7% |
|        |              |           | feminine  | 43.3% |
|        | postverbally | animate   | masculine | 100%  |
|        |              |           | feminine  | -     |
|        |              | inanimate | masculine | 100%  |
|        |              |           | feminine  | -     |

Table 3: Results for MPL+FPL

No instances of singular agreement were found, as expected. Still, in preverbal contexts, all animate conjuncts triggered MPL agreement on the verb. An interesting point is that with inanimate conjuncts, when they occur preverbally, 56.7% of speakers used MPL agreement on the participle, and 43.7% used FPL agreement, thus resulting in LCA. This undoubtedly poses a problem to Bošković's (2009) account, where he claims that masculine on the first element prevents LCA. Still, the results show that LCA is still possible but on condition that the conjuncts are inanimate.

The results of the survey for the first condition within Issue 1 can fit into to the account in Bošković (2009), with some modifications. Looking at preverbal conjuncts first (Table 3 and 4), it can be observed that if two conjoined nouns with M+F gender combination are found in front of the participle, they trigger masculine agreement in almost all instances. The explanation offered for this situation is that M gender is the default at the same time, and default features are ignored by semantics. Thus, if an element bearing the default gender feature values the uninterpretable gender feature on the participle as M (default), the uninterpretable feature on the participle cannot be deleted, as it is ignored by semantics. The computation intervenes and saves the derivation by deleting the gender feature on the participle and inserting the default, as described in Bošković (2009) and presented in Section 5. According to the results of the survey, this happens regardless of the animacy specification of the noun, and thus regardless of the interpretability of the gender feature on the noun.

As Table 3 and Table 4 show, in postverbal environment, animate conjuncts produce the same result as their preverbal counterparts. Almost all participants use the default masculine agreement. Inanimate conjuncts trigger MPL agreement in the majority of instances, as well. A number of participants applied singular agreement, and by that they actually achieved full FCA for both features.

If M+F plural nouns are conjoined (Table 3), the results for animate conjuncts follow the scenario given above. Yet, the resulting agreement pattern for inanimate conjoined nouns is not predicted by Bošković's (2009) account. Roughly half of the participants find it grammatical to apply FPL agreement, and thus produce the unexpected LCA pattern. If we follow the account given above, this situation cannot receive an adequate explanation under the assumption that M on the first conjunct is the default. Still, if we assume that M gender is actually uninterpretable (as the referent of the noun is inanimate, and therefore not biologically masculine), the analysis can proceed according to the analysis of the basic FCA-LCA pattern presented in Bošković (2009). In that case, the participle receives number from the BP, and gender from NP1, in which case a unique valuator cannot be determined, which blocks pied-piping. Upon Secondary Agree, NP2 values the participle's uninterpretable gender feature as feminine, and the whole BP undergoes pied-piping, resulting in LCA. Under this assumption, it could be concluded that variability between speakers' grammars exists (which was also the conclusion of Marušič et al. (2012)). In the grammar of some speakers, M is marked as default on nouns, which makes it invisible to semantics. Other speakers have M gender characterized as interpretable or uninterpretable, depending on the animacy specification of the noun. This explanation still fails to determine reasons why some speakers would have their grammars differentiated in this way and what factors determine whether M feature would be characterized as either interpretable/uninterpretable or default. A more detailed account is necessary, and the one that would be able to include other agreement patterns, such as those that are under observation within the following issue.

## 4.2 Issue 2: Gender agreement when feminine and neuter nouns are conjoined

The part of the survey covering Issue 2 was concerned with conditions under which FCA, LCA or default agreement can be found with feminine and neuter conjuncts. As noted earlier, when conjoined, whether uniform or with mixed genders, feminine and neuter nouns can trigger either feminine, neuter or default agreement. Test examples for this issue were designed to check under which circumstances we get FCA, LCA or default agreement when feminine and neuter nouns are conjoined. Sixteen test-examples were used, covering 4 conditions:

- FPL+FPL (Table 4),
- NPL+NPL (Table 5),
- FPL+NPL (Table 6),
- NPL+FPL (Table 7).

For each of the conditions, speakers were given two sentences with preverbal conjuncts (one with animate nouns and the other one with inanimate nouns), and two sentences with postverbal conjuncts (one with animate nouns and the other one with inanimate nouns, as in Issue 1. Sentences with both feminine or both neuter conjuncts were used in order to test under which circumstances we can expect to have default agreement with uniform non-masculine conjuncts. The results of the survey for the first condition (FPL+FPL) are presented in Table 4.

| Number | Position     | Animacy   | Result    |       |
|--------|--------------|-----------|-----------|-------|
| plural | preverbally  | animate   | masculine | -     |
|        |              |           | feminine  | 100%  |
|        |              | inanimate | masculine | 11.7% |
|        |              |           | feminine  | 88.3% |
|        | postverbally | animate   | masculine | 10%   |
|        |              |           | feminine  | 90%   |
|        |              | inanimate | masculine | 32.2% |
|        |              |           | feminine  | 67.8% |

Table 4: Results for FPL+FPL

Feminine agreement is observed in most of the cases. Still, preverbally, animate conjuncts trigger FPL agreement in 100% of the cases. Inanimate conjuncts give different patterns preverbally. Namely, feminine agreement is still found in the majority of cases, whereas in 11.7% default MPL agreement is found on the participle. Postverbally, the situation is more varied. Animate conjuncts trigger FPL agreement in most cases, but there are still a number of cases (10%) where default MPL is found with animate conjuncts. It is different with inanimate conjuncts, where 67.8% of the subjects use FPL, as opposed to 32.2% of them who opt for the default MPL.

A similar situation is found when two neuter plural nouns are conjoined. The results still differ in certain factors. Table 5 gives an overview of the resulting agreement patterns.

| Number | Position     | Animacy   | Result    |        |
|--------|--------------|-----------|-----------|--------|
| plural | preverbally  | animate   | masculine | 50%    |
|        |              |           | feminine  | -      |
|        |              |           | neuter    | 50%    |
|        |              | inanimate | masculine | 10.3%  |
|        |              |           | feminine  | -      |
|        |              |           | neuter    | 89.66% |
|        | postverbally | animate   | masculine | 37.5%  |
|        |              |           | feminine  | -      |
|        |              |           | neuter    | 62.5%  |
|        |              | inanimate | masculine | 3.57%  |
|        |              |           | feminine  | -      |
|        |              |           | neuter    | 96.43% |

Table 5: Results for NPL+NPL

Preverbally, the situation is equal, 50% of participants employed default agreement, and the other half assigned the participle the suffix for NPL agreement. Inanimate conjuncts trigger NPL agreement in 89.66% of instances, whereas a small number of speakers still employ masculine plural.

A similar pattern is found postverbally. Here animate conjuncts are taken to agree in MPL in a smaller percent of instances (37.5%), while the amount of those that agree in NPL is larger than in preverbal cases (62.5%). The situation with inanimate conjuncts is even more clear-cut than with preverbal cases, as here almost all subjects use NPL agreement on the participle.

Turning now to instances of agreement with mixed gender conjuncts, the following two conditions deal with agreement patterns with the combinations of FPL+NPL, and NPL+FPL. The results of the first condition are presented in Table 6, whereas Table 7 outlines the results of the second condition.

| Number | Position     | Animacy   | Result    |        |
|--------|--------------|-----------|-----------|--------|
| plural | preverbally  | animate   | masculine | 66.7%  |
|        |              |           | feminine  | 28.3%  |
|        |              |           | neuter    | 5%     |
|        |              | inanimate | masculine | 38.3%  |
|        |              |           | feminine  | 1.7%   |
|        |              |           | neuter    | 60%    |
|        | postverbally | animate   | masculine | 18.3%  |
|        |              |           | feminine  | 81.7%  |
|        |              |           | neuter    | -      |
|        |              | inanimate | masculine | 26.9%  |
|        |              |           | feminine  | 67.31% |
|        |              |           | neuter    | 5.77%  |

Table 6: Results for FPL+NPL

When feminine and neuter conjuncts are combined in preverbal position, the results are again quite varied. MPL agreement prevails with animate nouns. LCA, NPL agreement, is found only in 5% of the cases. With inanimate nouns, the situation is drastically different. Namely, inanimate conjuncts trigger NPL agreement in 60% of the cases, MPL is found in 38.3%, and FPL agreement is negligible (only one instance).

Postverbally, both with animate and inanimate nouns FPL agreement prevails. Thus FCA is the most common pattern. It is followed by the default MPL agreement, which is slightly more common with inanimate conjuncts. If the pattern of gender on the conjuncts is reverse, slightly different agreement patterns can be found, as presented in Table 7.

| Number   | Position     | Animacy   | Result    |       |
|----------|--------------|-----------|-----------|-------|
| plural   | preverbally  | animate   | masculine | 98.3% |
|          |              |           | feminine  | 1.7%  |
|          |              |           | neuter    | -     |
|          |              | inanimate | masculine | 68.3% |
|          |              |           | feminine  | 26.7% |
|          |              |           | neuter    | 5%    |
|          | postverbally | animate   | masculine | 21.7% |
|          |              |           | feminine  | -     |
|          |              |           | neuter    | 78.3% |
|          |              | inanimate | masculine | 33.3% |
| feminine |              |           | -         |       |
| neuter   |              |           | 66.7%     |       |

Table 7: Results for NPL+FPL

Preverbally, the great majority of participants employed default masculine agreement with this combination of conjuncts, especially when animate nouns are conjoined. In 26.7%, however, LCA was found.

In the cases where conjuncts are postverbal, default agreement gives way to FCA. Namely, default MPL agreement is recorded in 21.7% with animate conjuncts, and 33.33% with inanimate. The rest is FCA, i.e. NPL agreement.

To sum up the results presented for Issue 2, a few observations can be made and a few patterns recorded. When it comes to same-gender conjuncts, feminine conjuncts trigger feminine agreement always if they are animate and preverbal. If they are inanimate and preverbal, they can trigger masculine agreement, too. Even though masculine agreement is recorded with animate postverbal conjuncts, most of the informants opted for masculine agreement when the conjuncts are postverbal and inanimate. Neuter conjuncts trigger both neuter and masculine if they are animate and preverbal, and mostly neuter if they are inanimate and preverbal. If postverbal, neuter agreement is the most frequent type of agreement according to the results of this research. Most of the informants opted for masculine agreement when the conjuncts are postverbal and animate, as opposed to feminine agreement in the previous condition.

With mixed animate preverbal conjuncts, masculine agreement prevails. With mixed inanimate preverbal conjuncts, masculine agreement prevails in the NPL+FPL combinations, but it does not do so with FPL+NPL, where LCA is dominant.

Postverbally, with mixed conjuncts FCA prevails, and the percentage is higher with animate conjuncts.<sup>7</sup>

## 5 The analysis

As the results for Issue 2 suggest, agreement is highly dependent on the animacy specification of the nouns. Animacy features should thus be properly incorporated in the system and their interdependency with gender features and the subsequent agreement patterns should receive adequate explanation. Rappaport (2006) proposes a way to explain how the interplay of formal and semantic features of a noun affects the agreement process. Both agreement and concord (agreement between a noun and its modifiers) are taken to be the result of feature sharing (based on Frampton and Gutmann (2000)). Slavic languages exhibit concord in  $\varphi$ -features, i.e. adjectives and determiners within the nominal phrase agree with the noun in person, gender and number, as illustrated in (13).

- (13) *Gledam                      zanimljivo                      emisiju.*  
 watch-PRES.1SG interesting-ACC.FSG show-ACC.FSG  
 ‘I’m watching an interesting show.’

It is assumed that the  $\varphi$ -features of the head noun are projected to the adjective, and that they are available on the adjective for spellout. The case feature is also available on both the noun and the adjective, and when one of the features is assigned a value, the other feature is automatically supplied with that value. It is thus enough for  $\nu$  to value only one of the case features, and it will be automatically distributed to the other one.

The feature sharing approach is applied to the cases of referential (semantic) and formal (grammatical) agreement. While formal agreement takes into account only the grammatical specification of a noun, semantic agreement goes beyond grammatical information and employs semantic information as well. Slavic languages exhibit both types of agreement, as (14) shows for Serbian.

- (14) a. *Školski      psiholog                      je održao      zanimljivo      predavanje.*  
 school-MSG psychologist-MSG is kept-MSG interesting lecture  
 b. *Školski      psiholog                      je održala      zanimljivo      predavanje.*  
 school-MSG psychologist-MSG is kept-FSG interesting lecture  
 ‘The school psychologist gave an interesting lecture.’

In (14a) formal agreement is employed, as the participle agrees in MSG form, the form corresponding to the formal gender feature on the noun. In (14b), however,

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<sup>7</sup> As pointed out by a reviewer, what is missing in the experiment, and consequently in the results, is the insight on the general status of the forms produced by the speakers. The question is whether the speakers who employ a particular agreement pattern would find other available patterns acceptable, or dispreferred or completely ungrammatical, and to what extent. Unfortunately, I am not able to address this issue at the moment, as grammaticality judgments of the agreement patterns were not a part of the survey, thus any comment on them would be a speculation on my side. I leave this issue for further research.

semantic agreement in gender can be found. The participle agrees in FSG (regardless of the fact that the noun is grammatically masculine) since the referent is a female person.<sup>8</sup>

Rappaport (2006) distinguishes between grammatical features (f-features), those that come within the lexical specification of a noun, and referential features (r-features), those that reflect semantic properties of the noun. Animacy is a formal feature, and it is highly predictable. F-animacy is not obligatorily inherently specified on nouns as a part of lexical information, and in case that a noun does not contain this specification, a value for animacy can be supplied based on the value of r-animacy via a redundancy rule. For instance, if a noun has referential animacy specified as [r-animacy: +], this entails that its formal animacy receives the specification [f-animacy: +]. This situation is illustrated in (15).

(15) *girl*: [r-animacy: +] → [f-animacy: +]

The noun *girl* has its r-animacy specified as [r-animacy: +], whereupon the redundancy rule supplies its f-animacy feature with the same value. R-features are not redundant in the system and the existence of r-values is justified, as they are a part of the meaning of a noun, and they can also help provide a value for f-animacy. Gender is another feature that is predictable on animate nouns from the meaning of the lexeme. It is connected to the biological gender of the referent, and supplied on the noun by a redundancy rule. For instance, if a noun is listed with a referential feature specification [r-animacy: +, sex: male], its formal features will be specified as [f-animacy: +, gender: masculine] via a redundancy rule. A problem arises in the cases where formal features are not determined by referential features. Such are the cases where a noun has formal gender specification without any “justification” from referential features, i.e. when gender specification is found on inanimate nouns. An important note on formal features is that they do not need to be licensed by referential features, but can be inherently specified within the lexical value of a lexeme. In this sense, an inanimate noun can be specified as grammatically masculine, feminine or neuter despite the fact that it does not have semantic justification for this. Serbian (as most other Slavic languages) assigns formal gender to nouns based on their morphology. Gender is assigned according to the morphemes the nouns end in. According to Rappaport (2006), Agree sees only formal features, therefore the lack of semantic features should not present a problem. Sometimes it may also happen that r-features predict a certain value for f-features, but f-features are already inherently specified, and this specification overrides the redundancy rule. This can, for example, be observed with animate nouns which are specified as having neuter gender, instead of masculine or feminine which is predicted to appear according to r-features. Rappaport (2006) further applies this approach to explain the difference between agreement and concord in Slavic languages.

Taking into account the proposal of Rappaport (2006) and the data from the research, an important connection between formal and semantic features may be established, attempting to explain their subsequent effects on agreement. A correlation between the theory of Rappaport (2006) and the account of Bošković (2009, 2011) can be established with respect to the treatment of features. What Bošković (2009, 2011)

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<sup>8</sup> The possibility of semantic agreement is available only if the speaker uses the noun *psiholog*, which is grammatically masculine, to refer to a female person. However, for speakers of Serbian, there is a possibility to use the politically correct term *psihološkinja*, which is grammatically feminine, and thus avoid the semantic agreement which may sound awkward to some speakers.

treats as interpretable features are those formal features that are supplied on the noun via redundancy rules and that correspond to r-features. Uninterpretable features are formal features supplied inherently on the noun, without semantic ground and the possibility of semantic interpretation.

Starting from the nouns with uniform gender specification, two patterns are observed when the combination of FPL+FPL nouns occurs preverbally. In the case where the functional features correspond to the semantic ones, speakers unanimously employ feminine agreement. Here formal features are supplied on nouns via redundancy rules (F [r-animacy: +, sex: female] → [f-animacy: +, gender: feminine]). If a noun denotes an animate female entity, the gender feature is supplied according to r-features, and is thus interpretable on the noun. According to Bošković (2009), if the feature of the probe is valued as interpretable, it is not deleted after Match. In this case, when Secondary Agree is initiated, the gender feature on NP2 matches the one already assigned to the participle, and agreement may proceed according to the regular LCA pattern.

On the other hand, if nouns are inanimate there is a possibility of having default masculine agreement apart from the regular and expected feminine. In this case, the F feature on the noun is specified inherently according to the lexical specification of the noun. Redundancy rules for gender assignment do not apply, as an inanimate noun does not have referential gender features. The resulting situation is that now a formal feature, which has the possibility of being interpretable, does not have semantic ground. This mismatch between formal and referential features leads to problems with agreement, resolved by inserting the default feature. For the speakers that treat the gender feature on the noun as uninterpretable and do not refer to r-features, agreement can proceed with the normal LCA pattern given in Bošković (2009). Yet, there are still a number of speakers who opt for default agreement. They apply default features precisely in the environment in which the formally assigned feminine feature is not provided by a redundancy rule, and thus has no referential feature to support it. At this point, it can be assumed that only those speakers that have a problem relating a formally assigned feature that is in principle interpretable to its corresponding referential feature may have a problem in assigning these features to the participle, and this problem is resolved by default agreement. The problem results from the absence of redundancy rules or their failure to apply and establish relation between formal and referential features.

Regarding agreement with postverbal conjuncts, a problem again arises in the case where a formal feature is assigned without semantic backup. When gender on the nouns is uninterpretable and assigned inherently, there is a problem in valuing the participle's unvalued gender feature. This again results in employing the default MPL agreement.

With neuter preverbal conjuncts, the situation is different. Neuter gender is always uninterpretable, as it does not exist biologically. Thus, the feature specification of an animate N noun may include [r-animacy: +, sex: female/male] → [f-animacy: +, gender: neuter]. The mismatch between grammatical and biological gender leads to the assignment of the default to the participle with half of the speakers, while the other half assigns neuter despite the conflicting features. It can again be concluded that those speakers who take into consideration the interplay between formal and semantic feature specification of the nouns have a problem assigning a purely formal feature to an animate entity. Those speakers resolve the problem by resorting to default. For those speakers that do not take semantic features into consideration, regular LCA applies. If, on the other hand, the nouns denote inanimate entities, there is no mismatch between f-features and r-features simply because there is no biological gender on the noun and the gender feature is supplied on the noun inherently and lexically. Therefore, if we take that regular

LCA is at play here, we may use it to explain how agreement functions on inanimate neuter nouns for both groups of speakers.

In postverbal position, the prevailing pattern of agreement is NPL, as predicted in Bošković (2009). However, as opposed to feminine, the majority of default agreement is actually found with animate neuter nouns. This goes in line with the data presented so far. The conflict that exists between formal and referential features and the failure of redundancy rules to apply forces default gender assignment.

Agreement with conjuncts with different gender follows the pattern proposed above. If nouns of different gender specification are conjoined, problems with agreement usually appear in the places where there is a mismatch between formal and referential features. Starting from the combination of FPL+NPL, with animate nouns the majority of speakers employ MPL agreement. The results of the survey fit into the account of Bošković (2009) with the modifications proposed here. As the gender feature on NP1 is interpretable, it is valued on the probe as such, and therefore not deleted after Match. When Secondary Agree is initiated after the inability to pied-pipe due to the impossibility of determining a unique valuator for all unvalued  $\varphi$ -features, the probe matches NP2, which does not have the corresponding gender feature, leading to a crash. The derivation is saved by inserting the default masculine gender. Yet, if the nouns denote inanimate referents, the majority agreement pattern is NPL, i.e. LCA. This is also expected in the system so far, as the gender feature on the first noun is uninterpretable. Agreement then proceeds according to the regular FCA pattern for the speakers that do not take into account r-features. For those speakers that do consider both formal and referential features, the lack of biological gender specification on the first conjunct triggers MPL agreement on the participle, and prevents LCA.

Postverbally, the majority of participants applied FCA. Still, a greater percentage of FPL appears where this gender feature is supplied on the basis of referential features. If the feminine gender feature is uninterpretable, supplied inherently, the percentage of default agreement increases. The mismatch between formal and semantic features is again the cause of this state of affairs. Feminine gender is a feature that can be semantically justified, but under these circumstances, it is not provided by redundancy rules, and it does not have support from r-features.

Combining NPL+FPL preverbally yields mostly masculine plural agreement with both animate and inanimate nouns. Starting from animate nouns, since neuter is always uninterpretable and supplied lexically, and in this case its r-gender does not correspond to the f-gender features, there is a mismatch leading to an inability to assign neuter to the participle. At this point, the derivation is saved by inserting the default masculine gender feature. On the other hand, if both nouns are inanimate, and the regular LCA pattern is supposed to apply, this should result in FPL agreement. Although for a number of speakers this pattern is functional, it is not found in a great number of instances. Instead, the majority of participants employ the default. This may again be due to a mismatch between formal and referential features. Feminine gender feature on the second conjunct is supplied lexically, without any matching referential features. When conjuncts are placed after the verb, FCA prevails. This goes in line with the data above.

The conclusions reached according to the results within Issue 2 can be extended to include Issue 1 as well. With animate MPL+FPL nouns agreement is always MPL. This is expected, as NP1 bears interpretable gender. Interpretable gender is not deleted upon first Match, and it prevents gender assignment upon Secondary Agree, which forces default feature assignment. On the other hand, agreement with inanimate preverbal nouns results in two patterns. If the speaker takes into consideration both r-features and

f-features, a problem will arise during agreement with NP1, which is formally masculine, but with no referential gender specification. The conflict is resolved by default feature assignment. For those speakers who employ only f-features, regular LCA applies, resulting in FPL agreement.

To sum up the data presented above, a general pattern can be established. Preverbal conjuncts with interpretable gender mostly trigger default agreement, unless NP2 bears the same gender feature as NP1. In this case, the gender feature on the probe corresponds to the one on the conjuncts. The reason for this is that interpretable features are not deleted after Match. During Secondary Agree, it is necessary for the gender on NP2 to match the one already assigned to the participle. If it does not do so, the system intervenes by the insertion of the default. When nouns with uninterpretable gender are looked into, two kinds of grammars can be distinguished among speakers. Some speakers do not associate formal to semantic features, while others take into consideration the semantic specification on the noun. For those speakers that consider only formal features, agreement targets f-features only, and agreement patterns correspond to those predicted in Bošković (2009). Those speakers that associate formal to semantic features experience problems with agreement in the cases where redundancy rules for feature assignment fail to apply. Agreement takes into account both f-features and r-features. Thus, if a feature is assigned formally, and does not correspond to the one that was supposed to be assigned by the redundancy rule, the noun will trigger default agreement on the probe. Conversely, if a feature that can be interpretable is assigned only formally, and the corresponding semantic feature does not exist (therefore no redundancy rule can apply), the probe can be assigned default gender.

## 6 Conclusion

The survey on conjunct agreement in Serbian recorded patterns that go in line with Bošković (2009, 2011), with some modifications concerning the interpretability of features. Namely, if both conjuncts bear interpretable features, the unvalued gender feature on the probe is valued as interpretable, and therefore not deleted after Match. When Secondary Agree is initiated, the gender feature on the second conjunct must match the gender feature already supplied on the participle. If the feature is identical, the participle surfaces with the form corresponding to both conjuncts (F or M). If the features on conjuncts are interpretable but with different specification, in the course of Secondary Agree, NP2 is supposed to match the gender feature already assigned to the participle by NP1 in Primary Agree. Since this does not happen, the derivation is saved by inserting the default.

When the account is extended to conjuncts with uninterpretable gender, two patterns with two groups of speakers can be distinguished. Some speakers do not associate formal to semantic features and do not need to apply redundancy rules. Other speakers search for semantic justification of formal features. For the former, agreement patterns with conjoined nouns with uninterpretable gender follow the account of Bošković (2009). The latter experience problems with agreement whenever a formal feature that can be interpretable does not have semantic ground, or when a formal feature is assigned inherently, despite the existing semantic feature, in which case redundancy rule fails to apply. In both cases, the derivation is saved by introducing default gender features.

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# On the V-Stranding VP Ellipsis Analysis of Missing Objects in Polish\*

Marta Ruda

Focusing on Polish, this paper discusses missing-object data in light of the analyses employing the mechanism of verb-stranding VP ellipsis. The two main empirical observations made with respect to the problem are that the availability of object drop in Polish is restricted in contexts licensing VP ellipsis cross-linguistically and that this contrasts with polarity-related contexts, where object drop is always acceptable in Polish. This suggests that verb-stranding VP ellipsis is rigidly constrained in Polish and is available only in the environments in which the polarity-related head  $\Sigma$  is focused. Furthermore, the results of the research imply that only a subset of the missing-object data in Polish is due to VP ellipsis and that missing-object structures both cross-linguistically and intralinguistically do not constitute a homogeneous group with respect to their derivation.

Keywords: *missing/null objects, polarity, verb-stranding VP ellipsis*

## 1 Introduction and theoretical problem

Missing or null objects are objects present in the semantic structure of a clause, but they are absent from its phonological realisation.<sup>1</sup> An example of a missing-object construction is provided in (1) from Polish:<sup>2</sup>

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<sup>1</sup> Even though the understood objects of verbs such as *read* or *eat* in sentences such as *The girl is reading/I have just eaten* fall under this informal definition, they will not be discussed in this paper, its main focus being on missing objects with antecedents present in the linguistic context.

<sup>2</sup> The following abbreviations are used in the glosses: l – l-participle form of the verb, INF – infinitive, PERF – perfective aspect, IMP – imperative, IMPERS – impersonal form, SE – verbal marker, NOM – nominative, ACC – accusative, GEN – genitive, DAT – dative, INSTR – instrumental, 1/2/3 – 1st/2nd/3rd person, SG – singular, PL – plural, F – feminine, M – masculine, AUX – auxiliary verb, ADJ – adjective, PRT – particle. Perfective and imperfective verb forms in Polish are unmarked in the glosses, as the feature of aspect does not have a bearing on the issues discussed here.

- (1) A: *Kupiles truskawki?*  
 buy-1.2SG.M strawberries-ACC  
 ‘Did you buy strawberries?’  
 B: *Kupilem* Ø.  
 buy-1.1SG.M  
 ‘I did.’

Several analytical options have been proposed in the literature to account for various types of missing-object constructions in different languages. For example, within the line of research assuming the projection of the object position in syntax, the object position has been taken to be occupied by *pro* (cf. (2); for proposals employing *pro* in analyses of some null-object types, cf., e.g., Cummins & Roberge 2005; Farkas 1987; Rizzi 1986) or by an NP/DP argument, elided at PF (cf. (3); cf., a.o., Duguine 2013; Oku 1998; Şener & Takahashi 2010):

- (2) A: *Kupiles truskawki?*  
 buy-1.2SG.M strawberries-ACC  
 B: *Kupilem pro.*  
 buy-1.1SG.M
- (3) A: *Kupiles truskawki?*  
 buy-1.2SG.M strawberries-ACC  
 B: *Kupilem* [NP *truskawki*].  
 buy-1.1SG.M strawberries-ACC

Moreover, missing-object structures can also be regarded as a consequence of VP ellipsis on condition that the deletion of VP follows the movement of the verb outside of VP, as illustrated in (4):

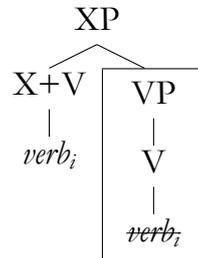
- (4) A: *Kupiles truskawki?*  
 buy-1.2SG.M strawberries-ACC  
 B: *Kupilem* [VP ~~*kupilem truskawki*~~].  
 buy-1.1SG.M buy-1.1SG.M strawberries-ACC

This type of VP ellipsis is referred to as verb-stranding VP ellipsis and has been discussed with reference to various languages, among others, in Cyrino & Lopes (2012), Cyrino & Matos (2002), Doron (1990), Goldberg (2005), Gribanova (2013a,b), Huang (1991), Lipták (2012, 2013), McCloskey (1991), and Otani & Whitman (1991). This mechanism is theoretically possible in the languages in which the verb can be assumed to move to higher functional heads in the extended verbal projection, as schematised in (5):<sup>3</sup>

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<sup>3</sup> The elided part of the representation is placed here in a box on tree diagrams.

- (5) [XP X + V<sub>verb<sub>i</sub></sub> [VP V<sub>verb<sub>i</sub></sub>]]



With the verb moved out of VP, the ellipsis of VP creates a configuration in which the only material originating within VP which is pronounced is the verb.

In discussions on object drop, the line of research employing verb-stranding VP ellipsis has been inspired by some similarities between missing-object constructions, in which the lexical verb is overt and VP ellipsis in English. For example, it has been suggested that the function performed by the repeated verb in the verb-stranding structure is similar to the function of *do*-support in English in that both mechanisms make the expression of tense/aspect/agreement possible in the elliptical clause (cf. the discussion of Chinese in Huang 1991, 64):

- (6) *John kanjian-le tade mama, Mary ye kanjian-le.*  
 John see-PERF his mother Mary also see-PERF  
 ‘John saw his mother, and Mary did, too.’

Furthermore, an issue that has received a significant amount of attention in the literature is the so-called strict/sloppy reading ambiguity effect, illustrated here in (7), quoted after Kim (1999, 255):

- (7) Peter likes his picture, and Joan does [VP e] too.  
 a. Joan likes her (= Joan’s) picture. (sloppy identity)  
 b. Joan likes his (= Peter’s) picture. (strict identity)

Pronominal dependencies in the elliptical clause in (7) can be resolved in two ways, with the understood possessive referring either to the subject of the elliptical clause or to the subject of the antecedent clause. The interpretational possibilities found in the verb-stranding construction (cf. (6)) have been noted in the literature to parallel those observed with the VP-ellipsis structure in English (cf. (7)) (at least in some languages). Treated as a diagnostic for VP ellipsis, the strict/sloppy reading ambiguity effect has been used both to argue in favour of the VP-ellipsis analysis of missing-object data in different languages (cf. Cyrino & Lopes 2012; Huang 1991; Otani & Whitman 1991) as well as against it (cf. Bailyn 2011; Hoji 1998). However, two factors seem to render using this effect as an argument for the VP-ellipsis analysis of the relevant data problematic. Firstly, some recent anal-

yses propose to derive the strict/sloppy reading ambiguity from NP/DP ellipsis rather than the ellipsis of the entire VP (cf., e.g., Duguine 2013; Şener & Takahashi 2010; cf. also Erteschik-Shir, Ibnbari & Taube 2013 for yet another proposal aiming at deriving the strict/sloppy reading ambiguity without VP ellipsis). Additionally, some studies observe that the strict/sloppy reading ambiguity is found outside the domain of ellipsis (cf. Runić 2013 and Tancredi 1992). This is why strict and sloppy readings will not be used here as evidence in support of a VP-ellipsis analysis of the relevant data.

Focusing on the possibility of deriving missing-object data from Polish via the application of verb-stranding VP ellipsis, the present paper discusses first the issue of verb movement and VP ellipsis with modals in this language, showing in section 2.1 and 2.2 that VP ellipsis stranding the lexical verb cannot straightforwardly be assumed to be blocked by independent features of the Polish grammar. This is followed by the discussion of missing objects in Polish in comparison with facts observed in verb-stranding VP ellipsis languages in section 2.3. Section 3 is then devoted specifically to missing objects in Polish in polarity-related contexts and section 4 briefly presents some constraints on verb-stranding ellipsis in Polish. Section 5 concludes the paper.

## **2 Preliminaries: verb movement and VP ellipsis in neutral contexts in Polish**

### **2.1 Verb movement**

As the movement of the verb out of VP is a prerequisite for verb-stranding VP ellipsis, whether (types of) object drop in a language can be analysed as resulting from VP ellipsis depends on the assumptions made with respect to verb movement in the language. Polish is a language with a fairly free word order driven by information structure, which seems to be one of the reasons why the literature on verb movement in Polish is inconclusive. In particular, that the verb does not move to I/T in Polish is assumed, for example, in Wiland (2009) and Witkoś (1998), whereas the opposite is argued for in Borsley & Rivero (1994) and Migdalski (2006). Determining whether the verb moves to higher verbal functional heads is problematic, as the standard tests for verb movement do not seem to yield convincing results suggesting that the verb must or cannot move to T in Polish. This is shown, among others, by the ordering patterns found with manner adverbs. As illustrated in (8), given appropriate discourse context, the verb can either follow or precede a manner adverb:

- (8) a. *Dziewczynka łagodnie pogłaskała kotka.*  
 little.girl-NOM gently stroke-1.3SG.F kitten-ACC  
 ‘A/the little girl stroked a/the kitten gently.’
- b. *Dziewczynka pogłaskała łagodnie kotka (, a pieska szorstko).*  
 little.girl-NOM stroke-1.3SG.F gently kitten-ACC and doggy-ACC  
 hard  
 ‘A/the little girl stroked a/the kitten gently (and a/the doggy hard).’

In sequences with an auxiliary, a verb, and a manner adverb, the adverb can be placed in all positions available:

- (9) a. *Dziewczynka będzie łagodnie głaskała kotka.*  
 little.girl-NOM will gently stroke-1.3SG.F kitten-ACC  
 ‘A/the little girl will stroke a/the kitten gently.’
- b. *Dziewczynka będzie głaskała łagodnie kotka (, a pieska szorstko).*  
 little.girl-NOM will stroke-1.3SG.F gently kitten-ACC and  
 doggy-ACC hard  
 ‘A/the little girl will stroke a/the kitten gently (and a/the doggy hard).’
- c. *Dziewczynka łagodnie będzie głaskała kotka (, a pieska szorstko).*  
 little.girl-NOM gently will stroke-1.3SG.F kitten-ACC and  
 doggy-ACC hard

Furthermore, floating a quantifier does not seem to provide a reliable diagnostic either, as the floated quantifier can precede the verb as well as follow it (in colloquial speech):

- (10) a. *Wszyscy politycy boją się dziennikarzy.*  
 all-NOM politicians-NOM be.afraid.of-3PL SE journalists-GEN  
 ‘All politicians are afraid of journalists.’
- b. *Politycy boją się wszyscy dziennikarzy.*  
 politicians-NOM be.afraid.of-3PL SE all-NOM journalists-GEN
- c. *Politycy się wszyscy boją dziennikarzy.*  
 politicians-NOM SE all-NOM be.afraid.of-3PL journalists-GEN

Similarly to what has been noted with respect to manner adverbs, the addition of an auxiliary verb to the structure does not constrain the placement possibilities of the verb with respect to the quantifier:

- (11) a. *Wszyscy politycy będą się bali dziennikarzy.*  
 all-NOM politicians-NOM will SE be.afraid.of-1.3PL  
 journalists-GEN  
 ‘All politicians will be afraid of journalists.’
- b. *Politycy będą się wszyscy bali dziennikarzy.*  
 politicians-NOM will SE all-NOM be.afraid.of-1.3PL  
 journalists-GEN
- c. *Politycy będą się bali dziennikarzy wszyscy.*  
 politicians-NOM will SE be.afraid.of-1.3PL all-NOM  
 journalists-GEN
- d. *Politycy się wszyscy będą bali dziennikarzy.*  
 politicians-NOM SE all-NOM will be.afraid.of-1.3PL  
 journalists-GEN

In principle, it could perhaps be speculated that only the basic, informationally-unmarked word orders should be taken into account in determining the position of the verb in syntax. In this case, with (8a) and (9a) being the neutral variants, the verb could be taken not to move beyond VP in Polish. However, this line of reasoning does not seem sufficiently convincing, as it is hard to provide evidence showing that verb displacement in the non-neutral variants is a post-syntactic rather than a syntactic operation.

Another point which needs to be taken into account when the possibility of analysing (some) missing-object facts in terms of VP ellipsis is considered is that verb movement only as high as the Asp head has been argued to be enough to license verb-stranding VP ellipsis (cf. Gribanova 2013a,b for Russian). Significantly, that the verb moves to Asp in Polish has been suggested in Witkoś (1998). Hence, even though verb movement to a higher functional head in Polish is a debatable issue, verb movement may still be available in the grammar of Polish and cannot safely be assumed to be a factor making verb-stranding VP ellipsis impossible.

## 2.2 VP ellipsis with modals

Apart from the lack of verb movement in a language, a factor disfavouring postulating verb-stranding VP ellipsis with respect to missing-object data in a language could be constituted by the finding that VP ellipsis is not found in the grammar of the language in other contexts. However, this is not what is observed for Polish,

which has VP ellipsis licensed by modal verbs:

- (12) A: *Mama powiedziała, że powinniśmy* [VP *odrobić*  
mom-NOM say-1.3SG.F that should-1PL do-INF  
*lekcje*].  
homework-ACC  
‘Mom said we should do the homework.’  
B: *Ale nie powiedziała, że musimy* [VP ~~*odrobić*~~—*lekcje*].  
but not say-1.3SG.F that must-1PL do-INF homework-ACC  
‘But she didn’t say we must.’
- (13) *Mama nie musi* [VP *zmienić pracy*], *ale chyba*  
mom-NOM not must-3SG change-INF job-GEN but probably  
*powinna* [VP ~~*zmienić*~~—*pracę*].  
should-3SG.F change-INF job-ACC  
‘Mom doesn’t have to change her job but she probably should.’
- (14) A: *Dawniej* [VP *polowano na jelenie*].  
formerly hunt-IMPERS on deer  
‘Formerly, people hunted deer.’  
B: *Teraź też można* [VP ~~*polować*~~—*na jelenie*].  
now also may-IMPERS hunt-INF on deer  
‘One may do it now as well.’

The above examples show that the grammar of Polish does not block VP ellipsis as such, as VPs following a modal can be elided, on condition that there is an appropriate antecedent for the elliptical VP in the linguistic context. These data again suggest that VP ellipsis cannot be dismissed out of hand as a mechanism suitable to derive null-object data in Polish. Accordingly, the goal here is to investigate different constructions with missing objects in Polish to see whether it is tenable to analyse any null-object data in this language in terms of verb-stranding VP ellipsis.

### 2.3 Missing objects in Polish in comparison with verb-stranding VP ellipsis languages

Considering missing-object data, it should be noted that Polish has object drop independent of VP ellipsis, as illustrated in (15)–(16):

- (15) [Context: Something falls, A and B notice this.]  
A: *Podniesiesz* Ø/ *to?*  
pick.up-2SG this-ACC  
‘Will you pick it up?’

- (16) A: *Co zrobimy z warzywami?*  
 what do-2PL with vegetables-INSTR  
 ‘What will we do with the vegetables?’  
 B: *Upieczemy Ø według nowego przepisu/ na patelni.*  
 roast-2PL according.to new recipe on pan  
 ‘We will roast them according to the new recipe/in a pan.’

On the assumption that VP ellipsis requires a linguistic antecedent, (15)–(16) cannot be taken to result from VP ellipsis. Hence, if VP ellipsis can be employed to derive some missing-object data in Polish, as is argued in section 3, this shows that a single language can make available various ways of generating sentences with missing objects.

One of the conclusions which can be drawn from investigating missing objects in Polish in contexts which seem to fulfil the general requirements for VP ellipsis to apply is that, in contrast to the verb-stranding VP ellipsis languages discussed in the literature, verb-stranding VP ellipsis is rigidly constrained in Polish, if possible at all. VP ellipsis has been observed to be acceptable not only in simple sentences, but also with various configurations of embedding. Accordingly, VP ellipsis is available when the ellipsis antecedent but not the target is embedded and, conversely, when the target but not the antecedent is embedded, and when both are embedded (cf. Goldberg 2005). None of the contexts licenses verb-stranding VP ellipsis/missing objects in Polish in its own right, as shown in (17)–(20), respectively:

- no embedding

- (17) A: *To lokaj otruł dziedziczkę fortuny.*  
 PRT butler-NOM poison-1.3SG.M heiress-ACC fortune-GEN  
 ‘It is the butler who poisoned the heiress to the fortune.’  
 B: *Nieprawda. To jej młodszy brat \*(ja) otruł.*  
 wrong PRT her-GEN younger brother-NOM her-ACC  
 poison-1.3SG.M  
 ‘Not true. It is her younger brother who did.’

- antecedent but not target embedded

- (18) A: *Columbo mówi, że to lokaj otrul*  
 Columbo-NOM say-3SG that PRT butler-NOM poison-1.3SG.M  
*dziedziczkę fortuny.*  
 heiress-ACC fortune-GEN  
 ‘Columbo says that it is the butler who poisoned the heiress to the fortune.’
- B: *Nieprawda. To jej młodszy brat \*(ja)*  
 wrong PRT her-GEN younger brother-NOM her-ACC  
*otrul.*  
 poison-1.3SG.M

- target but not antecedent embedded

- (19) A: *Lokaj znenawidził dziedziczkę fortuny.*  
 butler-NOM start.to.hate-1.3SG.M heiress-ACC fortune-GEN  
 ‘The butler started to hate the heiress to the fortune.’
- B: *Nieprawda. Myślę, że to jej młodszy brat*  
 wrong think-1SG that PRT her-GEN younger brother-NOM  
*\*(ja) znenawidził.*  
 her-ACC start.to.hate-1.3SG.M  
 ‘Not true. I think that it is her younger brother who did.’

- both target and antecedent embedded

- (20) A: *Columbo myśli, że to lokaj otrul*  
 Columbo-NOM think-3SG that PRT butler-NOM poison-1.3SG.M  
*dziedziczkę fortuny.*  
 heiress-ACC fortune-GEN  
 ‘Columbo thinks that it is the butler who poisoned the heiress to the fortune.’
- B: *Nieprawda. Na pewno uważa, że to jej młodszy*  
 wrong on sure think-3SG that PRT her-GEN younger  
*brat \*(ja) otrul.*  
 brother-NOM her-ACC poison-1.3SG.M  
 ‘Not true. He definitely thinks that it is her younger brother who did.’

Additionally, contexts in which VP ellipsis is forced in some languages could be considered as potentially able to license verb-stranding VP ellipsis in Polish as well. Such contexts are provided by configurations which favour ellipsis but in which other types of ellipsis in the verbal/clausal domain are blocked. Consider

stripping, that is cases in which the entire clause is deleted except for one argument (and a negation marker or an intensifier):

- (21) a. *Zapiszę się na kurs spadochronowy i mój brat też.*  
 enrol-1SG SE on course skydiving and my brother-NOM also  
 ‘I will enrol in a skydiving course and my brother too.’  
 b. *Zapisałam się na kurs spadochronowy, a mój brat nie.*  
 enrol-1.1SG.F SE on course skydiving and my brother-NOM not  
 ‘I have enrolled in a skydiving course but my brother hasn’t.’

Stripping has been observed to be ungrammatical in islands (cf., e.g., Cyrino & Matos 2002 for Portuguese) and this holds of Polish as well, as shown in (22):

- (22) a. \**Zapisałam się na kurs spadochronowy, bo mój brat też.*  
 enrol-1.1SG.F SE on course skydiving because my brother-NOM also  
 ‘I have enrolled in a skydiving course because my brother has.’  
 b. \**Zapiszę się na kurs spadochronowy, bo mój brat nie.*  
 enrol-1SG SE on course skydiving because my brother-NOM not  
 ‘I will enrol in a skydiving course because my brother won’t.’

On the other hand, VP ellipsis is insensitive to islands and as such can potentially be a strategy used in environments blocking stripping. This hypothesis has been argued for in relation to data from Brazilian Portuguese, exemplified in (23) (cf. Cyrino & Matos 2002, 4):

- (23) *A Ana não leva o computador para as aulas, porque os amigos também não levam.*  
 the Ana not brings the computer to the classes, because the friends too not bring  
 ‘Ana does not bring her computer to the classes because her friends do not either.’

The example in (23) has been argued to involve verb-stranding VP ellipsis in Cyrino & Matos (2002). Similar facts are not found in Polish. Even though stripping is ungrammatical in islands in Polish just as is the case in Brazilian Portuguese, verb-stranding VP ellipsis cannot be used to save structures for which stripping is blocked:

- (24) \**Anna opuścila ostatni wykład, bo jej znajomi też opuścili.*  
 Anna-NOM skip-1.3SG.F last lecture because her friends also  
 skip-1.3PL.M  
*Intended:* ‘Anna skipped the last lecture because her friends also did it.’

The Polish examples in (17)–(20) and (24) do not pattern with verb-stranding VP ellipsis data in other languages (e.g. Hebrew and Brazilian Portuguese as discussed in Goldberg 2005 and Cyrino & Matos 2002, respectively). Furthermore, these examples show that the acceptability of missing-object structures is constrained in Polish.<sup>4</sup> This observation suggests that analysing missing objects in run-of-the-mill declarative sentences as resulting from verb-stranding VP ellipsis is untenable for Polish, as it would require introducing a language-specific mechanism blocking VP ellipsis in sentences such as (17)–(20) and (24). However, there is a type of contexts in which verb-stranding VP ellipsis seems to be employed in Polish, namely cases of licensing of VP ellipsis by focused polarity.

### 3 Missing objects in Polish: polarity focus-related contexts

Missing-object structures are widely acceptable in Polish in contexts in which polarity is focused (for discussions of verb-stranding VP ellipsis in polarity-related contexts in Capeverdean cf. Costa, Martins & Pratas 2012; in Hungarian cf. Lipták 2012, 2013; in European Portuguese, Brazilian Portuguese, Spanish, Catalan, and Galician cf. Martins 2006, 2007, 2013).<sup>5</sup> Such contexts are constituted by replies to polar (*Yes/No*) questions, which in Polish are formed either by the bare verb or by the negative or the positive particle, optionally followed by the verb (yet, cf. section 4 for an additional comment), by verbal reactions to commands, by contexts in which an assertion is confirmed or reversed, and by sentences involving polar contrast:

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<sup>4</sup> Determining the precise mechanisms licensing genuine object drop in Polish and accounting for the difference between sentences such as (17)–(20) and (24), which are ungrammatical, and the grammatical (15)–(16) requires much further research and cannot be undertaken in the context of this paper. Some aspects of definite-object omission in Polish are discussed in Kowaluk (1999) and McShane (2000).

<sup>5</sup> The facts presented in this section and the analysis proposed are also discussed in Ruda (in press a).

- replies to polar questions

- (25) A: *Przeczytałaś umowę?*  
 read-1.2SG.F agreement-ACC  
 ‘Did you read the agreement?’  
 B: *Przeczytałam Ø. / Tak (, przeczytałam Ø).*  
 read-1.1SG.F yes read-1.1SG.F  
 ‘Yes, I did.’

- verbal reactions to commands

- (26) A: *Odbierz telefon.*  
 pick.up-IMP.2SG phone  
 ‘Pick up the phone.’  
 B: *Już odbieram Ø. / Nie odbiorę Ø.*  
 now pick.up-1SG not pick.up-1SG  
 ‘I’m just picking it up.’/‘I won’t pick it up.’

- confirming assertions

- (27) A: *Moja wnuczka chyba zda egzamin.*  
 my granddaughter-NOM probably pass-3SG exam-ACC  
 ‘My granddaughter will probably pass the exam.’  
 B: *Na pewno zda Ø. / Oczywiście, że zda Ø.*  
 on sure pass-3SG of.course that pass-3SG  
 ‘She will for sure.’/‘Of course she will.’

- (28) A: *Moja wnuczka chyba nie zda egzaminu.*  
 my granddaughter-NOM probably not pass-3SG exam-GEN  
 ‘My granddaughter probably won’t pass the exam.’  
 B: *Na pewno nie zda Ø. / Oczywiście, że nie zda Ø.*  
 on sure not pass-3SG of.course that not pass-3SG  
 ‘She won’t for sure.’/‘Of course she won’t.’

- reversing assertions

- (29) A: *Moja wnuczka chyba zda egzamin.*  
 my granddaughter-NOM probably pass-3SG exam-ACC  
 ‘My granddaughter will probably pass the exam.’  
 B: *Na pewno nie zda Ø. / Oczywiście, że nie zda Ø.*  
 on sure not pass-3SG of.course that not pass-3SG  
 ‘She won’t for sure.’/‘Of course she won’t.’

- (30) A: *Moja wnuczka chyba nie zda egzaminu.*  
 my granddaughter-NOM probably not pass-3SG exam-GEN  
 ‘My granddaughter probably won’t pass the exam.’  
 B: *Na pewno zda. / Oczywiście, że zda.*  
 on sure pass-3SG of.course that pass-3SG  
 ‘She will for sure.’/‘Of course she will.’

- polar contrast

- (31) a. *Sąsiedzi plotkują, że moja wnuczka nie obroniła pracy magisterskiej, ale obroniła.*  
 neighbours-NOM gossip-3PL that my granddaughter-NOM not defend-1.3SG.F thesis master’s but defend-1.3SG.F  
 ‘The/my neighbours gossip about my granddaughter not having defended her master’s thesis but she did.’  
 b. *Przechwalali się, że zdobędą Everest, ale nie zdobyli.*  
 boast-1.3PL.M SE that climb-3PL Everest but not climb-1.3PL.M  
 ‘They boasted that they would climb Everest but they didn’t.’

In addition to negating the full content of the preceding proposition, the polar-contrast structure can also be used to strip the proposition of a modal component, as shown in (32):

- (32) a. *Mogłam spisać testament, ale nie spisałam.*  
 could-1SG.F draw.up-INF will-ACC but not draw.up-1.1SG.F  
 ‘I could draw up my will but I didn’t.’  
 b. *Mogłam spisać testament i spisałam.*  
 could-1SG.F draw.up-INF will-ACC and draw.up-1.1SG.F  
 ‘I could draw up my will and I did.’

Whereas the first conjuncts in the structure exemplified in (32) involve modality, the second conjuncts do not comment on the proposition including modality but rather serve to assert that the event/state in the denotation of the VP over which modality scopes has taken/is taking/will take place or that it has/is/will not.

All the sentences in (25)–(32) involve missing-object structures. This raises the question why missing objects should be freely available in these environments but not in others compatible with VP ellipsis (cf. section 2.3). As the factor linking all the contexts presented above is the focusing of polarity, it seems natural to hypothesise that the derivation of the structures involves the movement of the verb outside of VP to a functional head introducing the polarity feature into the derivation, followed by VP ellipsis. This approach receives support from empirical facts accompanying the contexts discussed.

In languages which tolerate (genuine) object drop only with some object

types, the features of the object can be used as a diagnostic for verb-stranding VP ellipsis. This is the case, for example, in Hebrew, where only inanimate objects can be dropped (cf. Doron 1990; Goldberg 2005), in Hungarian, where definite objects can be dropped only in the singular (cf. Lipták 2012, 2013), or in Irish, where object drop is unavailable outside the contexts licensing VP ellipsis (cf. McCloskey 1991). Object drop in Polish presents a complex picture and determining which features of the object or the sentence block object drop in contexts which do not license VP ellipsis will be left here for future research. Other diagnostics will be employed to test whether the relevant structures are plausibly analysed as involving VP ellipsis.

The first piece of data suggesting that sentences involving the focusing of polarity are instances of verb-stranding VP ellipsis is provided by the interpretation of VP-internal material. In particular, VP adjuncts present in the ellipsis antecedent are interpreted also in the elliptical VP (this diagnostic requires caution, as some non-elliptical contexts may show a similar effect (cf. a comment attributed to István Kenesei in Lipták 2013)). In (33), the adverb is necessarily understood as part of the meaning of the elliptical VP in B's response:

- (33) A: *Spisatas' testament notarialnie?*  
draw.up-1.2SG.F will-ACC notarial-ADV  
'Did you draw up your will before a notary?'  
B: *Spisalam ~~testament~~—notarialnie.*  
draw.up-1.1SG.F will-ACC notarial-ADV  
'I did.'

Importantly, as shown in (34), when the structure is not elliptical and the object is pronounced in the answer, the answer is infelicitous as a confirmation of the proposition expressed in the question (a possible interpretation of such a structure in the given context is one in which the adverb is excluded from interpretation and the speaker signals that its meaning is negated):

- (34) A: *Spisatas' testament notarialnie?*  
draw.up-1.2SG.F will-ACC notarial-ADV  
'Did you draw up your will before a notary?'  
B: #*Spisalam go.*  
draw.up-1.1SG.F him-ACC  
'I draw up my will (but I didn't do it before a notary).'

What is more, only the deletion of the entire VP is possible (judgments in (36) are given for the interpretation of the answer as confirming the proposition in the question in (35)):

- (35) *Dzieci zjadły owoce po południu?*  
 children-NOM eat-1.3PL fruit-ACC after noon  
 ‘Did the children eat fruit in the afternoon?’
- (36) a. *Zjadły.*  
 eat-1.3PL  
 ‘They did.’
- b. #*Zjadły owoce.*  
 eat-1.3PL fruit-ACC  
 ‘They ate fruit.’
- c. #*Zjadły po południu.*  
 eat-1.3PL after noon  
 ‘They ate in the afternoon.’

The effect observed in (36) shows that the polarity-related elliptical structures do not result from the ellipsis of the separate constituents of VP. Rather, the entire VP has to be elided.

Similar facts are observed with more complex structures, such as double-object and resultative constructions (judgments given for the interpretation of the answers as confirming the proposition in the questions):

- (37) *Oddałeś swojemu bratu jego plecak?*  
 give.back-1.2SG.M self’s brother-DAT his backpack-ACC  
 ‘Did you give back your brother his backpack?’
- (38) a. *Oddałem.*  
 give.back-1.1SG.M  
 ‘I did.’
- b. #*Oddałem swojemu bratu.*  
 give.back-1.1SG.M self’s brother-DAT  
 ‘I gave (it) back to my brother.’
- c. #*Oddałem jego plecak.*  
 give.back-1.1SG.M his backpack-ACC  
 ‘I gave back his backpack.’
- (39) *Pomalowałaś dom na zielono?*  
 paint-1.2SG.F house-ACC on green  
 ‘Did you paint the house green?’
- (40) a. *Pomalowałam.*  
 paint-1.1SG.F  
 ‘I did.’
- b. #*Pomalowałam dom.*  
 paint-1.1SG.F house-ACC  
 ‘I painted the house.’

- c. #*Pomalowałam na zielono.*  
 paint-1.1SG.F on green  
 ‘I painted (it) green.’

Moreover, as shown in (41), the construction is possible under embedding:

- (41) A: *Prezydent podpisał tę ustawę?*  
 president-NOM sign-1.3SG.F this act-ACC  
 ‘Did the president sign this act?’  
 B: *Jej rzecznik powiedział, że podpisał.*  
 her spokesman-NOM say-1.3SG.M that sign-1.3SG.F  
 ‘Her spokesman said that she did.’

All the contexts in (33)–(41) are in line with the hypothesis that the elliptical structures in the polarity-related contexts are derived by the application of VP ellipsis. In accordance with this conclusion, the following section expands on the account suggested here.

### 3.1 The analysis

The analysis presented here will use examples with polar questions, assuming that the remaining polarity-related contexts are derived in a parallel manner:<sup>6</sup>

<sup>6</sup> Additional data of interest here include verb-doubling contexts:

- (i) [Emphatic affirmation]  
 A: *Nauczyciel nie odczyta twojego pisma.*  
 teacher-NOM not decipher-3SG your handwriting-GEN  
 ‘The teacher won’t decipher your handwriting.’  
 B: *Odczyta Ø, odczyta Ø.*  
 decipher-3SG decipher-3SG  
 ‘He definitely will.’
- (ii) [V(P) topicalisation]  
 A: *Wysłałaś to pismo?*  
 send-1.2SG.F this document-ACC  
 ‘Did you send the document?’  
 B: *Wysłać Ø, wysłałam Ø, ale czy dojdzie na czas, to nie mam pojęcia.*  
 send-INF send-1.1SG.F but if arrive-3SG on time PRT not have-1SG idea  
 ‘As for sending it, I did send it, but I don’t have a clue if it arrives on time.’

I assume that both contexts involve VP ellipsis licensed by  $\Sigma$  and that the verb-doubling effect results from the pronunciation of two copies of the verb (cf. Ruda in press b), made possible due to the fusion of V and C in (i) (cf. Martins 2006, 2007, 2013 and Nunes 2004 for related proposals), and the derivation involving two independent movement chains (i.e. the movement of

- (42) A: *Spisałś testament notarialnie?*  
draw.up-1.2SG.F will-ACC notarial-ADV  
‘Did you draw up your will before a notary?’  
B: *Spisałam ~~testament~~ notarialnie.*  
draw.up-1.1SG.F will-ACC notarial-ADV  
‘I did.’

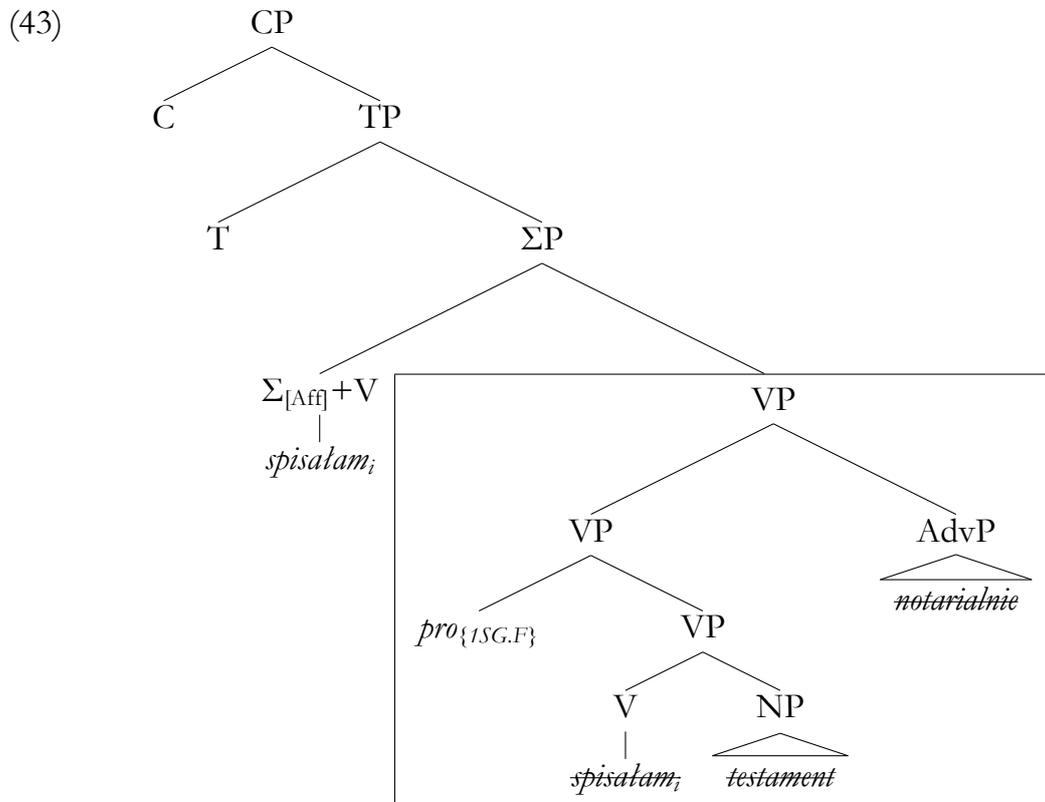
In such contexts, the polarity feature is focused and the proposition expressed in the question is the topic (cf. Lipták 2013 for Hungarian). In general, I assume that the structure of the clause can include the polarity feature, valued as [Aff(irmative)] or [Neg(ative)] and introduced in the  $\Sigma$  head (cf. Laka 1990). The value [Aff] is the unmarked value of  $\Sigma$  and  $\Sigma$  valued as [Aff] is present in the derivation only when polarity is focused (cf. Lipták 2012). In Polish,  $\Sigma$  can be taken to dominate VP (*v*P/AspP) and be dominated by TP (cf. the discussion of negation in Polish in Błaszczak, Jabłońska, Klimek-Jankowska & Migdalski forthcoming and Błaszczak 2001a,b quoted therein). In the contexts under discussion, the verb moves to  $\Sigma$ .<sup>7</sup> An example of the derivation of the polarity-related missing-object structure is provided in (43) (cf. (42)):

V to  $\Sigma$  and V topicalisation) in (ii) (cf. Bondaruk 2009, 2012 for an alternative view; for different analyses of similar constructions in other languages, cf. Abels 2001; Aboh & Dyakonova 2009; Cheng & Vicente 2013; Landau 2006; Trinh 2009; Vicente 2007).

<sup>7</sup> The sole presence of  $\Sigma$  in the clause is not sufficient to license VP ellipsis, as indicated by the negation data in (i):

- (i) A: *Myszę, że lokaj nie otrul dziedziczki fortuny.*  
think-1SG that butler-NOM not poison-1.3SG.M heiress-ACC fortune-GEN  
‘I think that the butler did not poison the heiress to the fortune.’  
B: *\*Młodszy brat też nie otrul.*  
younger brother-NOM also not poison-1.3SG.M  
*Intended:* ‘The younger brother didn’t do it either.’

Even though  $\Sigma$  is present in (i), ellipsis is not licensed. This can follow either on the assumption that the verb moves to  $\Sigma$  only when  $\Sigma$  is focused or that  $\Sigma$  licenses the ellipsis of VP only when focused. The motivation of verb movement is a topic for a separate study requiring the investigation of verb movement in a wider variety of contexts. The movement of the verb in the present context can tentatively be assumed to be triggered by a verbal feature on  $\Sigma$  (for some relevant discussion of verb movement, cf., e.g., Roberts 2010).



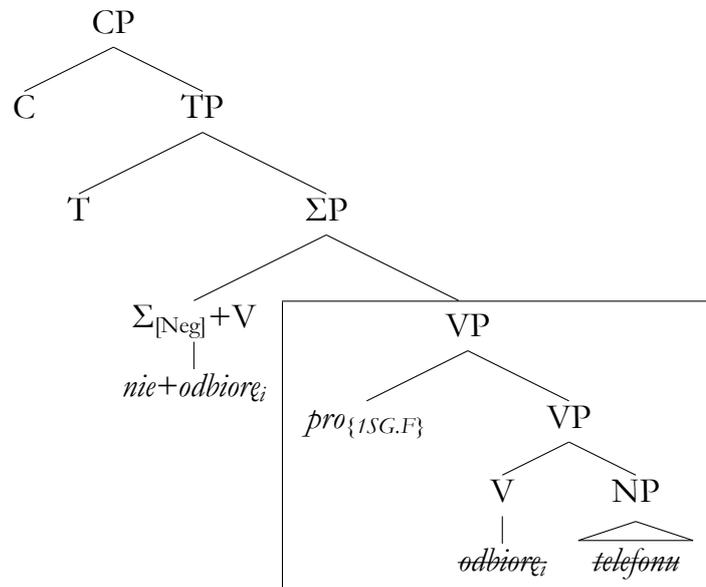
In this structure, the verb moves to  $\Sigma$ , which is followed by the deletion of the VP at the level of Phonetic Form.

The derivation of sentences involving negation proceeds in a parallel manner. The structure in (45) derives the pattern in (26), repeated here in (44):<sup>8</sup>

- (44) A: *Odbierz telefon.*  
 pick.up-IMP.2SG phone-ACC  
 'Pick up the phone.'  
 B: *Nie odbiorę telefonu.*  
 not pick.up-1SG phone-GEN  
 'I won't pick it up.'

<sup>8</sup> The genitive-Case marking in B's response is the so-called Genitive of Negation, an effect observed in Polish when the operator of sentential negation scopes over a nominal that surfaces in the accusative in positive-polarity contexts.

(45)



On the present assumptions, a negatively valued  $\Sigma$  can be equated with what is sometimes represented in the literature as the Neg head. The verb can be taken to incorporate with the negation marker generated in  $\Sigma$  (in violation of the mirror principle) or otherwise the verb enters the derivation in the negative form and the complex formed by the negation marker and the verb moves to  $\Sigma$ . The structure in (45) illustrates the former option, but it seems that adopting the other view would not have a bearing on the issues which are the focus of the present paper (for some related discussion on negation in Polish, cf., e.g., Błaszczak 2001a,b; Migdalski 2006; Wiland 2009).

#### 4 Constraints on verb-stranding ellipsis

Holmberg (2007) divides languages into two groups with respect to whether they allow a null subject in the second conjunct of sentences such as *They say that John doesn't speak French, but he does*. His A-group consists of the languages in which the subject can be null in the second conjunct in this context, whereas his B-group consists of the languages in which the subject has to be overt here. He provides the following generalisation, where YNQ stands for a *Yes/No* question:

- (46) In most A-languages a YNQ is standardly answered affirmatively by a special affirmative particle. In most B-languages a YNQ is standardly answered affirmatively by repeating the finite verb of the question (if the question contains a verb).

Holmberg (2007) notes in addition that several languages in both groups have both options, one of which is preferred. This is true of Polish, where answering with the particle is the preferred option when both of them are possible, as shown in (25), repeated here:<sup>9</sup>

- (47) A: *Przeczytałaś umowę?*  
 read-1.2SG.F agreement-ACC  
 ‘Did you read the agreement?’  
 B: *Przeczytałam Ø./ Tak* (, *przeczytałam Ø*).  
 read-1.1SG.F yes read-1.1SG.F  
 ‘Yes, I did.’

For A-languages, Holmberg (2007) suggests that the verb-stranding context is derived via VP ellipsis (in languages with V-to-I movement), coupled with a null subject or, alternatively, by postulating a null subject and a null object. For B-languages, he suggests a derivation by the movement of the finite verb to C, followed by the deletion of the IP (qua  $\Sigma$ P).

Polish is listed in Holmberg (2007) among B-languages and it is noted that this language constitutes an exception to the generalisation in (46), as a polar question is usually answered with a particle in Polish. However, the data support the opposite classification. As illustrated in (48)–(49), an overt pronominal subject in the second conjunct of the test sentences is unacceptable:

- (48) *Mówią, że Jani nie zna francuskiego, ale (#oni) zna.*  
 say-3PL that Jan-NOM not know-3SG French but he-NOM  
 know-3SG  
 ‘They say Jan does not know French, but he does.’  
 (49) *Mówią, że znam francuski i (#ja) znam.*  
 say-3PL that know-1SG French and I know-1SG  
 ‘They say I speak French and I do.’

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<sup>9</sup> Holmberg (2007) notes with respect to English that answering with a particle is not always possible. This is also true of Polish, as shown by the context constituted by contradicting a negative statement:

- (i) A: *Nie spisałaś testamentu?*  
 not draw.up-1.2SG.F will-GEN  
 ‘You didn’t draw up your will, did you?’  
 B: *#Tak./ Spisałam.*  
 yes draw.up-1.1SG.F  
 ‘I did.’

In this context, the finite verb is the only option yielding a coherent response.

This pattern is expected, as in Polish a pronominal subject in general can only be overt when stressed, an effect for which (48)–(49) do not provide a required information-structural context. Hence, the data in (48)–(49) suggest that Polish should be included in Holmberg’s A-group. As an A-language, Polish is not an exception to the generalisation in (46). Furthermore, in light of the discussion in the preceding sections, it seems that from the two derivational scenarios proposed by Holmberg (2007) for the relevant verb-stranding data in A-languages, the analysis employing VP ellipsis rather than object drop is more appropriate.

It has been observed that there are some cases of blocking the verb-stranding VP ellipsis strategy. In particular, when an adverbial or an argument is focused in the question in Polish, as shown in (50)–(51), the repetition of the finite verb cannot be used as an answer, as Holmberg (2007) also observes with respect to Finnish:

- (50) a. *Na pewno NOTARIALNIE spisałś testament?*  
on sure notarial-ADV draw.up-1.2SG.F will-ACC  
‘Was it really before a notary that you have drawn up your will?’
- b. *To na pewno TY spisałś ten testament?*  
PRT on sure you draw.up-1.2SG.F this will-ACC  
‘Was it really you who has drawn up this will?’
- c. *Na pewno WCZORAJ spisałś testament?*  
on sure yesterday draw.up-1.2SG.F will-ACC  
‘Was it really yesterday that you have drawn up your will?’
- (51) a. *#Spisałam.*  
draw.up-1.1SG.F
- b. *Tak.*  
yes  
‘Yes, it was.’

However, when the element focused in the question is also repeated in the answer, verb-stranding is available, as shown in (52) for the respective questions in (50):

- (52) a. *NOTARIALNIE spisałam.*  
notarial-ADV draw.up-1.1SG.F  
‘It was.’
- b. *JA spisałam.*  
I draw.up-1.1SG.F  
‘It was.’
- c. *WCZORAJ spisałam.*  
yesterday draw.up-1.1SG.F  
‘It was.’

The example in (52) seems to suggest that the effect found in (51) may be attributed to the information-structural requirement on the expression of the element focused in the question rather than a condition blocking VP ellipsis per se. In this case, the verb is not stressed and the focused element can be assumed to occupy the Spec, $\Sigma$  position, or to be positioned even higher than  $\Sigma$ P.

Another fact relevant to the discussion is that it has been noted in the literature (cf. Lipták 2012) that an answer to a polar question in Hungarian can consist of a verbal modifier, which does not need to be followed by the verb; in Slovenian a pronominal clitic can constitute an answer. In Polish, any element focused in the question can be given as an answer:

- VP adjunct

- (53) A: *SZYBKO upiekłaś ten tort?*  
 quickly bake-1.2SG.F this birthday.cake-ACC  
 ‘Did you bake the birthday cake QUICKLY?’  
 B: *Szybko./ Szybko upiekłam./ #Upiekłam.*  
 quickly quickly bake-1.1SG.F bake-1.1SG.F  
 ‘I did.’

- object NP

- (54) A: *TORT upiekłaś?*  
 birthday.cake-ACC bake-1.2SG.F  
 ‘Did you bake a BIRTHDAY CAKE?’  
 B: *Tort./ Tort upiekłam./ #Upiekłam.*  
 birthday.cake-ACC birthday.cake-ACC bake-1.1SG.F bake-1.1SG.F  
 ‘I did.’

- NP-internal modifier<sup>10</sup>

- (55) A: *DOBRY tort upiekłaś?*  
 good birthday.cake-ACC bake-1.2SG.F  
 ‘Did you bake a GOOD birthday cake?’

<sup>10</sup> I do not take a stand here on whether such examples involve the movement of the entire NP above  $\Sigma$  and a VP ellipsis combined with an NP ellipsis with an NP-internal remnant, whether it is only the modifier which moves above  $\Sigma$ , or whether both options are available. Note that Polish being a left-branch-extracting language (cf. (i)), the latter scenarios are not implausible:

- (i) *Dobry upiekłam tort.*  
 good bake-1.1SG.F birthday.cake-ACC  
 ‘I baked a good birthday cake.’

B: *Dobry./ Dobry (tort) upiekłam./ #Upiekłam.*  
 good good birthday.cake-ACC bake-1.1SG.F bake-1.1SG.F  
 ‘I did.’

An anonymous Reviewer informs me that similar facts are found in Hungarian, where an answer can also be constituted by any element focused in a polar question, with both the verb and the verbal particle being inappropriate in this context. This is illustrated in (56)–(57), provided by the Reviewer:

- VP adjunct

(56) A: *GYORSAN süttöted meg a tortát?*  
 quickly baked-2SG PRT the cake-ACC  
 ‘Did you bake the birthday cake QUICKLY?’  
 B: *Gyorsan./ #Meg./ #Süttöttem./ Gyorsan süttöttem./ Gyorsan süttöttem meg.*  
 quickly PRT baked-1SG quickly baked-1SG quickly  
 baked-1SG PRT  
 ‘I did.’

- object NP

(57) A: *TORTÁT süttöttél?*  
 cake-ACC baked-2SG  
 ‘Did you bake a CAKE?’  
 B: *Tortát./ Tortát süttöttem./ #Süttöttem.*  
 cake-ACC cake-ACC baked-1SG baked-1SG  
 ‘I did.’

## 5 Conclusions

The contexts presented in this paper speak against assuming the general availability of the verb-stranding VP ellipsis mechanism in the system of Polish, with the data suggesting that verb-stranding VP ellipsis is available in Polish in a very narrow set of polarity-related environments. This leads to the conclusion that missing-object constructions outside this context have to be analysed in terms of genuine object drop. From a more general point of view, the data from Polish suggest that missing-object constructions in a single language as well as across languages can be derived via the application of different operations and do not constitute a homogeneous phenomenon.

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# The comparison of /l/ and /r/ in Southern British English pronunciation<sup>1</sup>

Tünde Szalay

Abstract: This paper compares the effect of coda /r/ on the previous vowel, the loss of /r/, and its behaviour in a word-final position in the 18th and 19th centuries with the effect of [ɹ] on the previous vowel and L Vocalisation, and its behaviour in a word-final position in the 20th and the 21st centuries. The difference between the liquids lies in their treatment of lax vowels: lax vowels preceding a coda /r/ underwent lowering and compensatory lengthening with R Dropping, whereas Dark L is vocalised, creating a diphthong. The similarity is that both liquids trigger schwa-insertion and are dropped in coda position if they follow a tense vowel. Both processes originated in non-standard speech, and the effect of the liquids on the preceding vowel was accepted first, and their loss only became accepted later. Therefore in a given time period, different registers show different stages of these processes.

Keywords: *historical linguistics, L Vocalisation, rhoticity, Southern British English*

## 1 Introduction

This paper focuses on the distribution of the liquids /l/ and /r/ in Southern English, and examines their effect on the preceding vowel. The basis of the comparison is that both sounds are unstable in the coda, and can influence the preceding vowel, either by altering its quality or by triggering schwa-insertion. However, the changes happened in different periods: R Influence of the vowels and R Dropping were changes in progress in the late 18th and early 19th centuries, whereas L-Influence of the vowels and L-Vocalisation (and L Dropping) are changes in present-day Southern English. Therefore I examine the behaviour of /r/ in 18th and 19th century sources on standard and non-standard southern pronunciation, and that of /l/ in contemporary linguistic studies on Standard Southern English, non-standard London English, and Cambridge English to look for similarities in the processes through which coda /r/ was lost, and coda (and nucleus) /l/ is being lost.

I aim to prove that the main differences lie in the influence of the liquids on the preceding vowels. Firstly, /r/ influenced tense vowels even in the onset, whereas /l/ influences the preceding vowels only if it is in the rhyme. Secondly, R Influence distinguishes between tense and lax vowels: an /r/ following a tense vowel triggers Breaking (schwa-insertion), but an /r/ following a lax vowel causes Broadening (change in the vowel quality and lengthening). Dark L also treats tense and lax vowels differently: it triggers schwa-insertion if it follows a tense vowel, but there is no evidence of schwa-insertion after lax vowels or the appearance of long monophthongs. However, [ɹ] is vocalised after lax vowels, resulting in the diphthongisation of the short lax vowel,

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<sup>1</sup> I am grateful for an anonymous reviewer for his/her thorough comments which improved the quality of this paper.

therefore [ɹ] can alter the quality of both tense and lax vowels. Consequently, in the case of lax vowels, coda /r/ caused a change in their quality, was dropped and triggered compensatory lengthening, whereas coda [ɹ] is vocalised. In the case of tense vowels, both coda and onset /r/ triggered schwa-insertion and thus caused diphthongisation, but only coda /r/ was dropped, whereas only coda [ɹ] triggers schwa-insertion and diphthongisation and is dropped.

The similarity lies in the distribution of the liquids. As coda /r/ was being dropped in the 18th and 19th centuries, it gave rise to an intervocalic sandhi /r/, but there was a stage when both preconsonantal /r/, pre-vocal R Dropping, and Linking- and Intrusive R were present. Today the same can be said about the distribution of /l/: as the loss of coda /l/ increases, so does the loss of onset /l/ but to a much lesser extent (Kerswill 1990 and 1995), therefore Linking L arises, but Intrusive L is blocked by Intrusive R. Also, today the presence of vocalised /l/ is controlled by stylistic factors, just as R Dropping was in the 18th and 19th centuries.

Therefore section 2 compares the process of R Dropping and L Vocalisation, starting with their prerequisites in section 2.1, followed by an analysis whether they are cases of consonant dropping and compensatory lengthening or consonant vocalisation in section 2.3. Thirdly, their effect on the vowel inventory is presented, and lastly the difference between word-internal and word-final coda is examined in section 2.4 and 2.5. Section 3 presents the sociolinguistic perspective of the phenomena. Lastly, section 4 presents my conclusion.

## 2 Changes in progress

### 2.1 Prerequisites

Both phenomena have a prerequisite: namely before the time of R Dropping coda /r/ weakened to /ɹ/ (Cruttenden 2001, Lass 1999), and coda /l/ became dark before L Vocalisation. According to Cruttenden (2001) the weakening turned /r/ from an alveolar or post-alveolar trill to a post-alveolar approximant /ɹ/, and the trill was only used before vowels (Cruttenden 2001). Incidentally onset /r/ has also become /ɹ/ and is found as such in present day Standard Southern English, but it has to be noted that it happened in the coda first, and the approximant occurred before a consonant and word-finally. According to Lass (1999) the weakening of /r/ preceded its deletion, however, he questions that its manner of articulation was a trill, (although trilled allophones were present), so he does not describe the exact process of the weakening. Besides that, neither Cruttenden nor Lass mentions whether the rule was post-lexical, that is to say that there is no description of the quality of /r/ in connected speech, in word-final positions such as prevocally in *more apples* and preconsonantly in *more plums*.

If weakening is analysed as decomposition, and the loss of certain articulatory features, these articulatory features have to be dealt with, which is never easy for liquids. The English rhotic was articulated by the tip of the tongue that touched the upper teeth ridge (trill) before its weakening and now the tongue tip either touches the upper teeth ridge (tap) or approximates it (approximant) (Cruttenden 2001). To this primary place of articulation Lass (1999) adds two secondary places of articulation, namely a velar and a pharyngeal one that were present at the time of the weakening of coda /r/. It is interesting to note that if all the articulatory features are lost but the velar one, the

remaining sound is a back vowel, and indeed Lass (1999) does mention that /ə/ could be interpreted as an “allophone of /r/”. However, schwa is a central vowel, and 18th century sources such as Search (1773) and Nares (1792) describe that inserted schwa and the /r/ triggering schwa-insertion is present in the same words at the same time. That is to say *beer* was pronounced as /bi:ər/, and schwa and /r/ were not in complementary distribution.<sup>2</sup>

L Vocalisation is preceded by L Darkening, an allophonic change that affects /l/ preconsonantly and word-finally (Cruttenden 2001). Given the fact that L Darkening is a 20th century process, it is described more precisely and in more details. Therefore it is usually given that the rule is, or at least started as post-lexical. It is also known that /j/ patterns with the vowels, due to that /lj/ is a well formed onset, and L Darkening happens in the rhyme (Britain & Johnson 2007). Therefore syllabic [ɫ] that can be found in the nucleus is always dark in Southern British English. As opposed to word-final coda [ɫ], word-final syllabic [ɫ] does not seem to show alternation, and it is dark even if the next words begin with a consonant, as in *turtle tank* as well as when it begins with a vowel, as in *turtle aquarium*. Also syllabic [ɫ] is more prone to L Vocalisation than non-syllabic Dark L (Wells 1982).

In terms of its articulatory features L Darkening cannot, but L Vocalisation can be analysed as a loss of articulatory features, that is to say it can be analysed as decomposition. Clear L first became more complex, when the alveolar /l/ was velarised, that is to say it gained a secondary place of articulation. During L Vocalisation the primary articulatory gesture is lost, and the velar gesture is retained and inherited by the vowel, thus Vocalised L is realised as a back rounded vowel. It is interesting to note that in this case both liquids have a secondary place of articulation that is velar, and if all the others are lost it is a vowel that remains in both cases.

## 2.2 Vocalisation of liquids

When the liquids lose their consonantal place of articulation, they are vocalised. However, the extent to which they lose their articulatory features can differ, and the remaining vowel can retain some features of the liquid. The loss of /r/ is analysed as vocalisation by Kijak (2010) in terms of Element Theory and Strict CV phonology. He argues that vocalised /r/ is either realised as /ə/ or it was completely lost but triggered compensatory lengthening. He argues that /r/ spread from an Onset position to the preceding Nucleus position, and later lost all of its articulatory features and the preceding vowel could spread to its place, if the preceding vowel was short (or lax). Therefore the loss of /r/ caused compensatory lengthening for short and lax vowels. The qualitative change in the lax vowels, for example the lowering of the R-Influenced long /æ:/ as in *start*, to /ɑ:/ is explained by Lass (1999) as the lowering effect of the velar feature of /r/. According to Kijak (2010) when the preceding vowel was already long, (or tense) vocalised /r/ came to be realised as a schwa. The fact that schwa is the reflex of the historical /r/ shows that /r/ lost both of its articulatory features and nothing is retained by the vowel. The primary coronal articulatory feature was lost, and the consonant was vocalised, and the secondary velar articulatory feature was either lost,

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<sup>2</sup> The exact pronunciation of the vowel that I chose to transcribe as /i:/ can be argued to be long or short and tense or lax. However, what is important for the present purpose and that I aimed to show with the transcription is the presence of schwa and word-final /r/.

therefore the pronunciation of the vowel is the neutral, central schwa, not a back rounded vowel, or /r/ never had a velar place of articulation.

The first question that remains unanswered by Kijak's analysis is the well-known discrepancy between tense and lax vowels, namely that lax vowels are not altered by /r/ if it is in the onset, and they were lengthened, not diphthongised. Therefore there seems to be no evidence for such an intermediate stage in which /r/ is in the nucleus and the vowel is not lengthened, therefore there is no such a vowel that can be analysed as a vocalised /r/. Instead, the process can be analysed as a case of R Dropping and compensatory lengthening. The second problem is the source of schwa following a tense vowel in words in which the /r/ is in the onset, or in Kijak's terms the /r/ is not followed by an empty nucleus. For example, *hero* is pronounced as /'hɪərəʊ/ in conservative RP. The fact that Pre-R Breaking exists in a word without R Dropping, and that the schwa-insertion before a pronounced /r/ was the standard, and r-less pronunciation was marked as the non-standard in the 18<sup>th</sup> century suggests the existence of two phenomena: that of Pre-R Breaking and R Dropping, and not that of one, R Vocalisation. Moreover, if the process is treated as an insertion of a vowel and R Dropping, it is easy to explain that schwa was inserted as a default vowel, and it is not expected to be back or rounded as it would be, if the vowel were a vocalised /r/. Therefore I argue that first a schwa was inserted before an /r/, and later only coda /r/ was lost. Although this analysis maintains a difference between tense and lax vowels, it also explains the different behaviour of these vowels, and it treats /r/ in the same manner in both cases, namely as R Dropping.

As opposed to the well-established pronunciation of R Influenced vowels in RP, the exact pronunciation of vocalised [ɹ] is subject to uncertainties. According to Cruttenden (2001) it can be realised as [o], [ʊ], rarely unrounded [ɻ] or centralised [ö]. These sounds can all be interpreted as a Vocalised L, in which the original [ɹ] sound is decomposed to different extents, and the extent of decomposition seems to distinguish them from each other. In [o] and [ʊ] both the velar and the labial gestures of [ɹ] (Cruttenden 2001) are retained, thus the vowels are back and rounded. If the vowel loses the labial gesture, it becomes [ɻ]. The question of [ö] is interesting, as it does not lose the labial gesture, but it does not retain the velar gesture to such an extent as the rest of the reflexes. However, [ö] is only centralised, but not central, and it is distinct from a schwa, therefore the common feature of these realisations is that they are all back, as it seems that they inherited and retained backness from the velar liquid. These sounds can be analysed as vocalised [ɹ] when they follow a lax vowel, as no schwa-insertion has been reported between a lax vowel and [ɹ], but [ɹ] is often realised as a vowel. Thus the vowel and the liquid do not appear in the same word at the same time, for example *milk* is either pronounced as [mɪɹk] or [mɪok] but not as \*[mɪoɹk].

Interestingly, just as in the case of a /ər/ sequence, as in *hero*, the presence of an inserted vowel or a diphthong and a liquid in the same word at the same time can also be noted, for example in *feel* [fi:əɹ]. Schwa-insertion is found after /i:, eɪ, aɪ, ɔɪ/ (Cruttenden 2001) and /i:, eɪ, əʊ, u:/ (Krämer 2008). These can be generalised as the tense vowels of English. Therefore in this case it is not possible to talk about L Vocalisation, but about Pre-L Breaking, and about L Dropping in the case of non-standard speech. The present state of words such as *feel* with a diphthong and a word-final liquid seems to be parallel to the standard pronunciation of the words ending in /r/ in the 18<sup>th</sup> and 19<sup>th</sup> centuries. Schwa-insertion with the preservation of the liquids was and is accepted in standard

speech. 18<sup>th</sup> and 19<sup>th</sup> century sources treated Pre-R Breaking as an optional, but accepted process, whereas they treated R Dropping as non-standard. Pre-L Breaking is treated as an optional but standard process, and L Dropping as a sociolinguistic variable by Wells (1982, 1990) and Kerswill (1990, 1995). Therefore it seems that in the case of tense vowels Pre-Liquid Breaking operates in the standard variety and an additional Liquid Dropping operates in the non-standard variety, whereas in the case of lax vowels there is a straightforward case of Liquid Vocalisation as there is no evidence for schwa-insertion.<sup>3</sup>

### 2.3 Effect on the Preceding Vowel

The behaviour of the vocalised liquids does not only interact with the preceding vowel when they show different patterns based on the tenseness or laxness of the preceding vowels, but the liquids also modify the preceding vowels. In the case of the lax vowels only /r/ had an effect on the quality of the vowels, as the lax vowels became lower due to its presence and long, due to the loss of /r/ that triggered compensatory lengthening. In contrast, L Vocalisation leads to diphthongisation of formerly short vowels, as in *kill* /kɪə/, therefore the result is also a long vowel, but a diphthong, not a monophthong, and it seems that at present some features of Dark L, namely its backness is retained, as opposed to R Dropping, where nothing was retained.

Tense vowels, however, underwent laxing in both cases. The laxing effect of Pre-R Breaking can be exemplified by the fact that the pronunciation of *fear* is /fiə/ and not \*/fi:ə/ or \*/fiə/. The same holds for Pre-L Breaking, as *feel* is reported to be pronounced in non-standard speech as [fiə] or [fiɻ] and not as \*[fi:ə] and \*[fiə] or \*[fi:ɻ] and \*[fiɻ] (Data comes from Wells 1982, Kerswill 1990 and 1995). This is better analysed as a laxing process, and not as lowering, because lax vowels are not lowered when they become the first vowel of the diphthong, but are left unaffected by L Vocalisation.

The fact that lax vowels are not affected by L Vocalisation but were affected by R Dropping leads to an important difference between R Influence and L Influence on the vowel-inventory: whereas R Influence has led to splits, L Influence leads to splits and mergers. In the case of R Influence, both lax and tense vowels were split, resulting in an R Influenced and a plain variant, and as the motivating environment was lost, and the allophonic difference became phonemic, the original two phonemes became four, as it can be seen in Table 1, exemplified by lax /ɪ/ and tense /i:/.

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<sup>3</sup> Gick (2002) analyses both the case of /r/ and /l/ in American English as a straightforward case of Vocalisation instead of a series of two changes, namely Pre-Liquid Breaking and Liquid Dropping. However, I maintain that a different analysis of tense and lax vowels might be argued for on the basis of my current material. However, more research is needed, especially in the case of Pre-L Breaking where it is possible to carry out acoustic and articulatory experiments.

|                           |                           |                     |                             |                      |
|---------------------------|---------------------------|---------------------|-----------------------------|----------------------|
| <b>Before R Influence</b> | /ɪ/<br><i>stick, stir</i> |                     | /i:/<br><i>steam, steer</i> |                      |
| <b>After R Influence</b>  | /ɪ/<br><i>stick</i>       | /ɜ:/<br><i>stir</i> | /i:/<br><i>steam</i>        | /iə/<br><i>steer</i> |

Table 1: R Influence

In case of L Influence, tense and lax vowels were split into L Influenced and plain vowels in the non-standard variety, however, the realisations of the L Influenced lax vowels and tense vowels are the same, because lax vowels are not affected by L Vocalisation, but tense vowels become lax due to L Influence. The result is a three way opposition between *fit*, *feel/fill* and *feet* in non-standard London English, created by a split and a merger, as it can be seen in Table 2, exemplified by lax /ɪ/ and tense /i:/. (The data comes from Wells 1982.)

|                           |                         |                           |                           |  |
|---------------------------|-------------------------|---------------------------|---------------------------|--|
| <b>Before L Influence</b> | /ɪ/<br><i>fit, fill</i> |                           | /i:/<br><i>feel, feet</i> |  |
| <b>After L influence</b>  | /ɪ/<br><i>fit</i>       | /iə/<br><i>fill, feel</i> | /i:/<br><i>feet</i>       |  |

Table 2: L Influence

Yet another important difference between the forms shown in Table 1 and Table 2 is that R Influence and R Dropping happened in the 19th century, and its results are phonemes of Standard British English, and the plain vowels are not recoverable.<sup>4</sup> Therefore *start* is always pronounced as /stɑ:t/, and there is no variation between /stɑ:t/ and \*/stɑ:ɾt/ or \*/stɑ:t/ in Southern British English, be it standard or non-standard. Although word-final /r/ appears as a linking phenomenon, as in *starry* /'stɑ:ɾɪ/, the vowel still remains long and low. Therefore R Influence is a historical process whose effect is always seen in the words that historically contained an /r/ in the relevant position, however, it is not active in today's Southern British English. Although loanwords are influenced by Breaking or Broadening and R-Dropping, these rules do not lead to positional variations in the vowel quality, and the first two operates at a lexical level only. This cannot be said of L Influence, as it is a change in progress in contemporary Southern British English. The resulting vowels appear to be allophonic as they tend to show variation and complementary distribution, as the vowels of *feel* [fiə] and *feeling* [fi:liŋ] differ due to the fact that only Dark L can be vocalised, and Dark L is an allophone of Clear L. Although vocalisation in a prevocalic environment has been reported (Kerswill 1990, 1995), for the time being L Influence can be called post-lexical in the non-standard accents of English covered here.

<sup>4</sup>Some of them are already being lost due to the smoothing of diphthongs and triphthongs to monophthongs (Upton 2008).

## 2.4 Recoverable and Non-recoverable Loss of the Liquids

Liquids have a tendency to be dropped in a coda position, however, they seem to show a difference in a word-internal coda and a word-final coda position. The case of the word-internal coda is the more straightforward of the two. In this position at first social variation is shown, as a vocalised liquid is treated as a marker of non-standard speech, and later it becomes accepted.

As opposed to word-internal codas, word-final coda [ɫ] does not only show a stylistic variation but also positional variation. That is to say that /l/ tends to be vocalised in the utterance *call Susan* but not in the utterance *call Andy*. Although the number of Clear L exceeds the number of Dark or Vocalised L in the prevocalic position, the fact that Dark and Vocalised L appears in a position where Clear L is expected should not be overlooked. It shows that these words end in an underlying /l/ for some speakers, but end in an underlying vowel for others. On the one hand this can be analysed by giving a different domain for L Darkening. In this case, the domain for L Darkening has become the word instead of the utterance for those who use word-final Dark L prevocalically. This might be the result of analogy during which preconsonantal and prepausal word-final Dark L has influenced the prevocalic sound. It has to be added that this can not only hold for word-final Dark L, but also for word-final Vocalised L too. This shows that L Darkening and Vocalisation are not post-lexical rules, and Dark or Vocalised L may have been phonemicised for some speakers.

On the other hand, Vocalised L with or without Linking L, may be interpreted as the reanalysis of the liquid as a vowel. Example for such pronunciation are *bull in* with a [w] and *peel it* as [pɪəlɪʔ] (Kerswill 1995). This might be taken as a counter-argument for the analysis provided by Gick (2002). Gick (2002) argues that a merger of the vocalised liquid with another vowel of the vowel inventory (usually a merger with schwa for /r/ and a merger with /ɔ:/ for Vocalised L) is a necessary prerequisite for the reanalysis of the liquid as a vowel. As Gick (2002:171) put it, reanalysis is when “either both the liquid and the vowel is reinterpreted [...] as vowel-final or both can be reinterpreted as /r/- or /l/-final.” Thus reanalysis is necessary for the complete loss of prevocalic liquids. However, vocalised /l/ has not been merged with any vowel, but the liquid has been reinterpreted as a vowel for certain speakers. Prevocalic L Vocalisation might be interpreted as a sign of inter- and intraspeaker variation that is typical for a change in progress and it can be paralleled to the development of non-rhoticity in New Zealand English. Word-final prevocalic R Dropping was observed in this variety by Hay and Sudbury (2005) together with word-final preconsonantal R Dropping, however, the rate of R Dropping was smaller in the prevocalic position than in the preconsonantal position and thus New Zealand English emerged as non-rhotic variety with Linking R and Intrusive R. This seems to be true for L Vocalisation as well: word-final L Vocalisation increases both before consonants and vowels, however, the rate of vocalisation is higher preconsonantly than prevocalically (Kerswill 1990, and 1995). Therefore a variety with a Linking L might develop.

## 2.5 Linking and Intrusion

Linking- and Intrusive Liquids appear word-finally if the given word ends in a non-high vowel, and the next word begins with a vowel. They occur only in such dialects in which preconsonantal liquids are dropped, as Liquid Dropping and Vocalisation are necessary

prerequisites for Linking and Intrusion. The two phenomena are treated differently from a diachronic viewpoint, as two consecutive steps of a diachronic process. The first step is Linking, when a word that used to end in a liquid in every position loses the liquid before a pause or a consonant, and only retains it prevocally. The second step is Intrusion, when other words that end in the same vowel as the words that historically ended in a liquid are reanalysed as words ending in a vowel and a linking liquid sequence.

In the case of Southern English Linking- and Intrusive R, the distinction is only valid from the viewpoint of a diachronic description, because from a synchronic viewpoint the environments for Linking and Intrusive R are the same. They both appear at the end of morphemes ending in a non-high vowel if the next morpheme begins in a vowel. The explanations given for the two phenomena sometimes treat them differently, for example McCarthy (1991) maintains that R Deletion that historically preceded R Insertion is responsible for the R-less pronunciation of *tuner was* and R Insertion is responsible for the pronunciation of *tuna is* with an /r/. Other analyses, such as Harris (1994) give a uniform explanation for *tuna* and *tuner*, arguing that the /r/ is the result of a floating element, and Kijak (2010) in his Strict CV account explains both as spreading, and Balogné Bérces (2009) as hiatus filling. A uniform analysis is preferred from a synchronic viewpoint because the two phenomena occur in the same environment, and two different rules are preferred from a diachronic viewpoint, because the two processes followed each other in a linear manner.

The phenomenon that is absent from the development of /l/ but present in the development of /r/ is the intrusive liquid. According to Gick (2002), both the reanalysis of word-final vowels as liquids and the generalisation of this rule are necessary for an intrusive consonant to develop, and /r/ has undergone this process, whereas /l/ has not. Moreover, according to Gick (2002), the merger of the vocalised liquid with another vowel is also necessary for the reanalysis of word-final vowels as liquids, and as I have pointed out, L Vocalisation and L Dropping seems to have stopped before this point in the process. Furthermore it has not only failed to fulfil the prerequisites, but also there are no such word-final vowels to which a hypothetical Intrusive L could be generalised. The result of L Vocalisation and also that of Pre-L Breaking and L Dropping is a non-high back vowel, therefore Intrusive L could be generalised to other such vowels. However, the words ending in non-high vowels already show Intrusive R in Southern English. It also has to be noted that the fact that words ending in Vocalised L in most of the cases end in a Linking L or in a vowel, however sporadic Intrusive R was also reported by Uffmann (2008). This shows that Vocalised L can be reanalysed as a vowel, without merging it with other vowels.

### 3 Standard and Non-Standard Pronunciation

Analysis of the data and consideration of sociolinguistic and stylistic variation show that, as with every change in progress, there were and there are variations existing side by side, as the changes originated from non-standard varieties and gradually became part of standard speech. The influence of the liquids on the preceding vowels was accepted quickly as part of Standard Southern British English both in the 17<sup>th</sup> and 18<sup>th</sup> centuries, and in the present-day too. Thus Pre-R Breaking was described and accepted by 18<sup>th</sup> century orthoepist such as Walker (1791) and Nares (1792), and Pre-L Breaking is marked as an optional process by the Longman Pronouncing Dictionary (Wells 1990).

However, the loss of /r/ was accepted more slowly, just like the loss of /l/ both due to L Vocalisation and L Dropping. As Walker (1791) complained that “the r is entirely sunk” in London and Westley (1829) condemned R-less pronunciation as vulgar. Despite their opinion, R-Dropping spread from London, and Standard Southern British English, as well as the majority of dialects of Southern English became non-rhotic as well (Altendorf, Watt 2008). The same is true for the loss of /l/ at present, as vocalisation of /l/ is reported from the non-standard speech of the London area (Wells 1982), and of the East Anglian region (Kerswill 1990, 1995). However, today it seems to appear in standard speech, for example Wells (1982) first classified it as “non-RP,” but he revised this statement in 1984, and in 2000 he advised teachers of English as a foreign language to accept vocalised L for Dark L. Although it gains acceptance, there is still considerable sociolectal variation, as word-internal coda /l/ can be clear in hypercorrect speech, dark in standard speech and vocalised.

Word finally, both Linking and Intrusive Liquids depend on the loss of the coda liquids. However, this does not prevent sociolectal variation, and it seems that Intrusive R was already present as an optional rule for certain speakers in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries, whereas other speakers did not even have exceptionless R Dropping at that time. It also seems that non-prevocalic /r/, word-final R Dropping before a consonant and before a vowel, Linking R, and Intrusive R were present at the same time in different registers. Therefore there were speakers who did not distinguish *bear Andy* and *bear Susan* either due to the R-ful or to the R-less pronunciation of both phrases and there were speakers for whom the first phrase contained an /r/ but the second did not. Also, there were speakers who did not distinguish between *letter is* and *coma is* either because both were R-less or R-ful, and there were speakers for whom only the phrase *letter is* contained an /r/.

The current development of /l/ again runs parallel to the historical process of R Dropping and Linking R. At present, L Darkening is an exceptionless process for most speakers, whereas L Vocalisation and L Dropping are not. Therefore the same phenomena, namely preconsonantal [ɫ], Vocalised L before a consonant in the same morpheme, word-final Vocalised L before a consonant or a vowel, and Linking L exist at the same time. The exact pronunciation of /l/ varies both within speakers and in the speech of one speaker based on stylistic and sociolinguistic factors. That is to say that there are speakers for whom there is no Linking L, as word-final /l/ is not vocalised or dropped, and therefore there is no difference between *kill Susan* and *kill Andy* with respect to the presence of the liquid. There are speakers who may vocalise preconsonantly, and for whom there is a difference between *kill Susan* and *kill Andy*. Lastly, there are speakers for whom there may not be a difference between these two phrases due to prevocalic L Vocalisation.

#### 4 Conclusion

I conclude that the steps in the loss of the coda liquids serve as a prerequisite for the next one, and thus they follow each other, but the steps happen at the same time in different varieties of the language and there is a considerable inter- and intra-speaker variation. In terms of the chronological ordering, vowels were altered first, however, lax vowels were only lowered by coda /r/, but not by [ɫ]. Secondly, the liquids were lost in the coda position, and a linking liquid developed word-finally which was only generalised

to an intrusive liquid in the case of /r/. The steps are summarised in Table 3.

|                     | /r/                                   | [ɹ]                                                |
|---------------------|---------------------------------------|----------------------------------------------------|
| <b>Lax vowels</b>   | Lowering<br>R Dropping<br>Lengthening | L Vocalisation<br>resulting in<br>diphthongisation |
| <b>Tense vowels</b> | Schwa-insertion<br>Liquid Dropping    |                                                    |
| <b>Liquids</b>      | Linking<br>Intrusion                  | Linking                                            |

Table 3: Order of the steps

As the table shows one of the differences lies in the behaviour of liquids when they follow a lax vowel: in this position coda /r/ was dropped, and there the vowel underwent compensatory lengthening, whereas coda [ɹ] is vocalised and realised as a vowel. Therefore the main difference is that coda /r/ is always dropped, whereas coda [ɹ] is either vocalised (if it follows a lax vowel) or it is dropped (if it follows a tense vowel). The sequence of a tense vowel and a liquid behaves in the same manner regardless whether that the liquid is an /r/ or an [ɹ]. In terms of the distribution of the liquids the difference lies in that there is a non-historical Intrusive R in phrases such as *draw a picture* and words such as *drawing*, but there is no Intrusive L in Southern British English.

In terms of social variation, the change in the pronunciation of lax vowels before a coda /r/ and schwa-insertion after tense vowels became part of the standard speech first. The changes concerning the distribution of the liquids was accepted more slowly. Thus the loss of coda /r/ and /l/ were accepted later than their effect on the preceding vowel, and Intrusive R was accepted last. The discrepancies between standard and non-standard pronunciation of /r/ and R-Influenced Vowels in the 18<sup>th</sup> and 19<sup>th</sup> centuries are summarised in Table 4a. The discrepancies between standard and non-standard pronunciation with respect to Pre-L Breaking and L Vocalisation in the 20<sup>th</sup> century are summarised in Table 4b.

|                     | <b>Standard</b>         | <b>Non-standard</b>                   |
|---------------------|-------------------------|---------------------------------------|
|                     | /r/                     | /r/                                   |
| <b>Lax vowels</b>   | Lowering<br>Lengthening | Lowering<br>Lengthening<br>R Dropping |
| <b>Tense vowels</b> | Schwa-insertion         | Schwa-insertion<br>R Dropping         |
| <b>/r/</b>          | –                       | Dropping<br>Linking<br>Intrusion      |

Table 4a: Sociolectal variation of /r/, 17<sup>th</sup> and 18<sup>th</sup> century

|              | Standard        | Non-standard                                 |
|--------------|-----------------|----------------------------------------------|
| Lax vowels   | –               | L Vocalisation resulting in diphthongisation |
| Tense vowels | Schwa-insertion | Schwa-insertion<br>L Dropping                |
| /l/          | –               | Vocalisation or Dropping;<br>Linking         |

Table 4b: Sociolectal variation of /l/, present-day

As Table 4a and 4b show one of the differences between /r/ and [ɹ] can be found when they follow a lax vowel. The change in the quality and quantity of a lax vowel if it is followed by a coda /r/ was accepted early on in the 18<sup>th</sup> and 19<sup>th</sup> centuries, but as lax vowels are not affected by a coda [ɹ], but followed by a vocalised coda [ɹ], they become part of the standard speech more slowly. This is due to the fact that the main difference between standard and non-standard speech lies in the distribution of liquids, and the only difference between the liquids is that coda /r/ is always dropped, whereas coda /l/ can be vocalised or dropped. This difference aside, the steps of the loss of /r/ run parallel to the loss of /l/.

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# The role of Theory of Mind, age, and reception of grammar in metaphor and irony comprehension of preschool children\*

Márta Szücs

The aim of the present study is to investigate whether comprehension of metaphors requires first-order theory of mind ability and whether irony requires second-order theory of mind ability, as well as to investigate the role of the age of children and their reception of grammar in metaphor and irony comprehension.

The participants of the experiment were seventy-one typically developing preschool children. The children were allocated into three groups on the basis of their theory of mind level and their age. The children's comprehension of metaphor and irony was tested with a multiple-choice task. To assess grammar comprehension, the Test for Reception of Grammar was used.

The findings suggest that metaphor understanding can precede first-order ToM ability while second-order ToM ability is not sufficient to ensure better irony comprehension. However, the age of children influences their performance. Furthermore, the correlation between metaphor comprehension and the reception of grammar is found to be statistically significant, but irony comprehension does not correlate with the reception of grammar.

Keywords: *irony, metaphor, comprehension, children, theory of mind, relevance theory*

## 1 Introduction

The main goal of inferential pragmatics is to explain how the hearer can recognise the speaker's meaning on the basis of the evidence provided. According to the standard pragmatic view (Grice 1975), an essential feature of the human communication is the expression and recognition of intentions. The Relevance Theory (Sperber & Wilson 1995, Wilson–Sperber 2005) shares Grice's claim that utterances raise expectations of relevance, however, their aim is to provide an explanation of the comprehension process in cognitively realistic term. Therefore, Relevance Theory was used both as a pragmatic framework and as the starting point in the present investigations because it has not only got theoretical assumptions regarding nonliteral language comprehension, but it also has psychological value assuming the role of mind-reading in human communication.

According to relevance theoretical approach (Sperber & Wilson 1995), the identification of explicit contents is as inferential and guided by the Communicative Principle of Relevance, as the recovery of implicatures. Comprehension is an on-line process constructing a hypothesis about the speaker's meaning that satisfies the presumption of relevance and involves an inference process embedded within the overall process of constructing a hypothesis about the speaker's intended meaning. This overall task can be broken down into the following subtasks which should not be sequentially

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ordered, but each of them involves a non-demonstrative inference in parallel: a hypothesis about explicatures, a hypothesis about intended contextual assumptions (implicated premisses) and a hypothesis about intended contextual implications (implicated conclusions). In this sense the comprehension process of each utterance (explicatures and nonliteral language forms) is treated in the same way, that is, following a path of least effort in computing the optimal cognitive effect, the hearer should take the decoded meaning and enrich it at the explicit and implicit level until the resulting interpretation meets his/her expectation of relevance (Wilson–Sperber 2005).

On the other hand, Relevance Theory argues against the more general assumption – in rhetorics and Grice’s framework (1975) – that metaphor and irony should be given parallel treatments, that is, irony, like metaphor, is an overt violation of the maxim of truthfulness.

The interpretation of every utterance (explicature or implicature) involves a complex, multi-level mental state attribution (the attribution of mental states to others) which is called the Theory of Mind. Depending on what kind of metarepresentational or theory of mind level is required to be understood, these nonliteral language forms are treated differently.

According to Relevance Theory, metaphor and loose talk are alternative routes to achieving optimal relevance, and the propositional form of a metaphorical utterance is a more or less loose interpretation of the speaker’s thought. The explicit content of metaphors (as loose talk) is indeterminate to some degree, which is linked to the relative strength of implicatures. A proposition may be strongly implicated (its recovery is essential in order to arrive at an interpretation) or weakly implicated (its recovery helps with the construction of an interpretation, but is not itself essential because the utterance suggests a range of similar possible implicatures). Metaphorical utterances convey an array of weak implicatures, e.g. “John has a square mind” weakly implicates that John is rigid in his thinking, does not easily change his mind.

On the other hand, ironic utterances quote or refer to an attributed thought and express the speaker’s attitude towards this thought. Therefore, ironical utterances are echoic and express indirectly dissociative – wry, skeptical, mocking – or humorous attitudes towards the attributed utterance or thought (1).

- (1) What a skinny cat! (said in a funny way about a really fat cat)

To understand an ironical expression, the hearer has to recognise not only the basic proposition expressed, but also the fact that it is being attributively used, as well as the attitude that the speaker intends to convey. Therefore, irony comprehension involves a higher order metarepresentational ability, while metaphor comprehension requires only first-order metarepresentational ability, namely the Theory of Mind (Wilson & Sperber 2005).

The notion of Theory of Mind (ToM) refers to an appreciation of others’ mental states – such as beliefs, thoughts, feelings, knowledge and wishes – that enables us to explain and predict others’ behaviour. Premack and Woodruff (1978) were the first to use the term of Theory of Mind to refer to the child’s ability to attribute thoughts, feelings, ideas and intentions to other people.

Perner and Wimmer (1985) have described two types of beliefs that play a crucial role in children’s understanding of social interactions: first-order beliefs that refer to what children think about real events (2) and second-order beliefs that pertain to what children think about other people’s thoughts (3).

- (2) Peti thinks that Mari is angry.
- (3) Peti thinks that Mari thinks that he is angry with her.

The predictions about the degree of Theory of Mind necessary for understanding metaphor and irony are confirmed in adolescents with autism and in normally developing children by Happé (1993). These findings show that autistic subjects who pass first-order false belief tests comprehend metaphor, but fail to understand ironic utterances. However, children who pass second-order false belief tests tend to comprehend irony as well. Moreover, the performance of a small sample of normally developing young children shows that only second-order ToM passers (who pass both of first-order and second-order false belief tests) understand irony while both groups (first-order ToM passers and second-order ToM passers) are at the ceiling on metaphor comprehension. The conclusions are that Theory of Mind performance is a very good predictor of metaphor and irony comprehension.

Concerning these findings, some facts and recent evidence may question this simplified picture about the role of Theory of Mind in metaphor and irony comprehension in typically developing children.

The sample size of normally developing children in Happé's study (1993) was not really demonstrative, because the sample size was relatively small: in the second-order group there were only 5 children.

On the other hand, Tager-Flusberg (2000) shows there is a different developmental relationship between ToM and pragmatic competence among individuals with autism, more specifically, the connection between ToM and pragmatic skills is not so close in children developing typically as in individuals with autism.

Third, Nippold (1998) mentions that the age factor could also play a role in these findings. Children typically pass first-order false belief tasks at around the age of 4 but metaphor understanding increases throughout adolescence, that is why the age of the autistic adolescent participants might have influenced, more precisely, positively distorted the results.

In the developmental literature Winner (1997) states that metaphor and irony differ not only in their primary functions and structures, but the competences that are used to understand them are different. Understanding metaphor is primarily a logical-analytic task, in which the hearer should recognise the linguistic elements being linked. However, understanding irony is essentially a social-analytic task, in which the hearer tries to recognise the speaker's beliefs and attitudes.

According to Vosniadou (1986, 1987), metaphor comprehension is conceptualised as a continuous process which starts at early ages and develops gradually, constrained primarily by limitations in children's conceptual knowledge, linguistic skill, and information processing ability. She identifies some of the critical variables that might have effects on metaphor comprehension, supported by some empirical evidence. (1) The linguistic form of the metaphorical statement affects metaphor understanding, for instance, the riddles ("What is like a scar but marks the sky?") were found the easiest of all the forms to explicate (Winner, Engel, and Gardner 1980). (2) The content of the metaphorical statement is another important determiner of comprehension, as Billow's findings (1975) show, young children find metaphors based on perceptual similarity ("The cloud is a sponge") easier to understand than metaphors based on abstract and complex relations ("My head is an apple without any core"). (3) The appropriate and more

predictable linguistic and pragmatic context, in which the metaphorical statement occurs, can facilitate the comprehension of metaphor (Vosniadou et al. 1984). (4) The difficulty of the comprehension task is a factor which can influence the outcome, therefore our perception of children's metaphoric comprehension level. Paraphrase and explication are more difficult than the multiple-choice tasks, children who failed on the paraphrase measure often succeeded on the multiple-choice test, as Winner (1997: 46) demonstrated. To sum up, however, it is not exactly clear how these factors interact with each other and with the age of the children (Vosniadou 1987).

Norbury's (2005) study investigated the role of both Theory of Mind and language ability in metaphor understanding in children with communication impairments. Her results provide evidence that the possession of first-order Theory of Mind skills is not sufficient to ensure adequate metaphor comprehension, but language ability in general and semantic skills specifically are more important for metaphor comprehension.

In connection with irony, Sullivan et al. (1995) examined the relationship between the ability to attribute second-order mental states and the ability to discriminate lies from ironic jokes in typically developing children. The results provide evidence that second-order mental state attribution (Person 1 does not know what Person 2 knows) precedes the ability to distinguish lies from jokes. Furthermore, Sullivan et al. (2003) compared adolescents with Williams syndrome to age-matched individuals with Prader-Willi syndrome, using the task designed by Sullivan et al. (1995). Their results showed that almost none of the participants in any of the groups, even those who were able to conceptualise second-order knowledge states, were able to correctly classify the ironic jokes, and judged them to be lies instead. Their conclusion was that the ability to conceptualise the second-order knowledge state of the speaker is necessary but not sufficient to distinguish ironic jokes from lies. The participants in both studies made the same kind of error, that is, they systematically called all the ironic jokes lies.

Similar results are shown in Szücs's (2011) data, according to which typically developing schoolchildren are able to understand the intended meaning of ironic utterances, however, they can often not recognise the speaker's ironic attitude or they misunderstand it; in fact in most cases they think that the speaker intends to deceive them. On the other hand, these results raised the issue whether preschool children are able to recognise the ironic meaning and attitude of the ironic utterances, and if they can, at what age.

Because of the arising questions and uncertainties regarding these nonliteral language forms, the specific aims of the present study were three-fold.

One goal of the present study was to test the original prediction (Happé 1993) that the comprehension of metaphors requires first-order ToM ability and irony requires second-order theory of mind ability in typically developing children. The sample size of the typically developing participants in her study, the different developmental patterns of typically and atypically developing children's comprehension, the inconsistent results of the recent studies (Norbury 2005, Sullivan et al. 1995, 2003), and the lack of Hungarian data (except Schnell's (2007) findings, where the connection between ToM and comprehension of similes and metaphorical expressions was investigated, but the latter ones were idiomatic expressions in reality) indicated the first developmental investigation to examine systematically whether typically developing children who pass first- and second-order ToM tasks would have better understanding of metaphor and irony.

The second goal of the study was to investigate the role of the age of the children in their metaphor and irony comprehension. As Vosniadou (1987) demonstrated that metaphor comprehension starts during the preschool years and develops gradually to

encompass more complex metaphorical inputs, which can be influenced among other factors by the syntactic-semantic type of the metaphorical expression (Nippold et al. 1984). As she concluded that children (aged 7 and 9) had greater difficulty in comprehension of proportional metaphors than in predicative ones, but the psychological metaphors were not more difficult to understand in comparison to the perceptual ones. Therefore, this developmental investigation aimed to determine the comprehension level of certain predicative metaphors during preschool years. In the case of irony, earlier studies provided counterfactual evidence of the approximate age when children begin to understand irony. As Cresure (2007) shows, the estimated range is from the ages of 6 year (Winner-Leekam 1991) to 12 years (Capelli et al. 1990). Some recent findings indicate that 5 or 6 year-old children are able to recognise at least some of the components of ironic speech acts (Creusere 1997, Dews et al. 1996), but others show that even schoolchildren have difficulties with distinguishing irony from lies (Sullivan et al. 1995, 2003, Szücs 2011). Therefore, the present study was designed to investigate whether preschool children can comprehend ironic meaning and detect ironic attitude beyond the ironic utterances compared their performance with those of the control adult group.

The third goal of the study was to investigate how close the connection between the reception of grammar and the comprehension of metaphor and irony is. As discussed previously, Norbury (2005) provided evidence that semantic skills are important for metaphor comprehension. However, the correlation between the grammar reception level of children either in their metaphor or in their irony comprehension has not been shed light on so far.

## 2 Method

### 2.1 Participants

Seventy-one typically developing Hungarian preschool children (aged between 4 and 7) participated in the experiment.

To test the role of theory of mind ability in metaphor and irony comprehension, children were tested on two first-order and two second-order false belief tests. On the basis of their test results, they were allocated into three different groups as follows (Table 1):

| ToM group   | noToM    | 1stToM  | 2ndToM    |
|-------------|----------|---------|-----------|
| Number      | 29       | 22      | 20        |
| Age (mean)  | 5;2      | 5;11    | 5;11      |
| Age (range) | 4;2-6;11 | 4;0-7;2 | 4;10-6;11 |

Table 1: Number and age (mean and range) of children in each ToM group

The noToM group included children, who failed both 1st order tasks, the 1stToM group included children, who passed both of the first-order tasks but failed whatever second-order tasks, and finally, the 2ndToM group included children, who passed both first-order and second-order ToM tasks.

To investigate the role of age, children were allocated also into three groups based on their ages and, additionally, there was a control group of adults (Table 2).

|                    | 4-year-olds | 5-year-olds | 6 and 7-year-olds | Control |
|--------------------|-------------|-------------|-------------------|---------|
| <b>Number</b>      | 17          | 27          | 27                | 14      |
| <b>Age (mean)</b>  | 4;7         | 5;6         | 6;6               | 21      |
| <b>Age (range)</b> | 4;0 – 4;11  | 5;0 – 5;11  | 6;0 – 7;2         | 15–25   |

Table 2: Number and age (mean and range; /years;month/) of the children and the control group

## 2.2 Materials

### 2.2.1 The metaphor and irony comprehension test (Szücs 2014)

The metaphor and irony comprehension test material of the present study was similar to Happé’s test (1993), in which children were read five stories, and after listening to the stories and the metaphorical and ironic utterances they were provided only two choices embedded in question forms:

David is helping his mother make a cake. She leaves him to add the eggs to the flour and sugar. But silly David doesn’t break eggs first – he just puts them in the bowl, shells and all! What a silly thing to do! When mother comes back and sees what David has done, she says:

Metaphorical expression: *Your head is made out of wood!*

Question: *What does David’s mother mean? Does she mean David is clever or silly?*

Just then father comes in. He sees what David has done and he says:

Ironic expression: *What a clever boy you are, David!*

Question: *What does David’s father mean? Does he mean David is clever or silly?* (Happé 1993: 119)

As it can be seen, the word ‘silly’, which is the correct answer in both cases, appears twice in the story explicitly. In addition, there are only two possible answers, and the metaphorical answer possibilities are not the literal and the metaphorical ones, but the metaphorical one and its opposite. These factors, namely a less explicit story content as well as the number and type of possible answers, motivated the modification in the test material of the present study in order to reduce the effortlessness of the test and the possibility of providing correct answers by chance.

As a result, the present test consisted of five short stories, each one illustrated with four pictures to reduce overloading the memory capacity. Each story had both a metaphorical and an ironic ending. The metaphorical utterances were various regarding their frequency: three of them were quasi perceptual-predicative metaphors in non-existing word forms in Hungarian, and further two were psychological-predicative familiar, but rarely used, metaphorical expressions. The ironic utterances were not frozen phrases and were also never or rarely used. The frequency and occurrence of these metaphorical and ironic utterances was checked in the Hungarian National Corpus (Váradi 2002).

After listening to a story, the participating children were asked what the story characters meant by their metaphorical and ironic utterances. They were not required to

answer own their own but they had to choose an answer from a multiple-choice task which contained the correct metaphorical/ironic answer, as well as a literal one, and an irrelevant but plausible one.

The children were tested individually in a quiet room.

*An example of the test:*

*Story:* Katie was helping her mother make cookies. After kneading the dough they put it in the oven, and went out to the garden to play. Unfortunately, the cookies stayed in the oven for too long, and were burnt.

The mother said:

- Metaphorical utterance: *These became stone cookies.*
- Test question: *Why did the mother say that? What were the cookies like?*
- Possible answers:
  - the cookies were made of stone (literal answer)
  - the cookies were hard (metaphorical answer)
  - the cookies were sweet (irrelevant answer)

*Story* (continued): Later the father came home, saw the cookies and said:

- Ironic utterance: *What soft cookies!*
- Test question: *Why did the father say that?*
- Possible answers:
  - He thinks that the cookies are soft (literal answer)
  - He wants to deceive the mother (irrelevant answer)
  - He expresses in a funny way that the cookies are hard (ironic answer)

### 2.2.2 False belief tests

The most established method of assessing the Theory of Mind is the false belief test.

*First-order false belief tests*

The first-order false belief tests establish whether a child can attribute a false belief to a story character or to another person. To make the correct prediction, the child must be able to look beyond or inhibit his/her own knowledge of reality and appreciate the false belief of the other person instead.

In this experiment two well-known tests were used:

- the Sally and Anne test (Baron-Cohen et al.1985, 1986), which is based on the transference paradigm, and
- the Smarties test (Hogrefe, Wimmer & Perner, 1986), which is based on the false content paradigm.

Performing both first-order false belief tests successfully was required to be allocated into 1stToM group.

*Second-order false belief tests*

The second-order false belief tests are more complex and require a child to attribute a story character a false belief about another person's belief.

To reduce the effects of test complexity, two simpler, shorter and more comprehensible tests were used, such as: the Birthday test (Herold 2005) and the Robot test (Coull, Leekam and Bennett, 2006), which are based on the transference paradigm. Both of them were illustrated with pictures to support the understanding of the story

content. Performing both first-order and both second-order false belief tests successfully was required to be allocated into 2ndToM group.

### 2.2.3 The Test for Reception of Grammar

The standardised TROG test (Bishop 1983, adapted by Lukács–Rózsa 2012) is an individually administered, multiple-choice test designed to assess grammar comprehension of Hungarian grammatical contrasts marked by inflection, function words, word order etc.

It is appropriate for children aged 4 to 13 years and a very good tool, because no expressive speech is required, thus the participants' performance is not influenced by their verbal skills.

The original English test consists of 80 items (in 20 blocks of 4 items), but the standardised Hungarian version includes only 18 blocks (with 72 items), because structures measured reception of passive and gender are irrelevant in Hungarian. Each block assesses the child's comprehension of a specific type of grammatical contrast (e.g. nouns, verbs, negative, singular/plural, and relative clause, etc.). In each item the subject is required to select from an array of pictures and point to the one that corresponds to a word order or grammatical construction spoken by the tester. A block is passed only if the child responds correctly to all 4 items. The scores were counted according to the number of blocks successfully processed.

## 2.3 Results

### 2.3.1 Results: The role of ToM in metaphor comprehension

Our initial hypothesis, based on Happé's (1993) prediction was that the percentage of the 1stToM group's correct answers would be significantly higher than those of the noToM group.

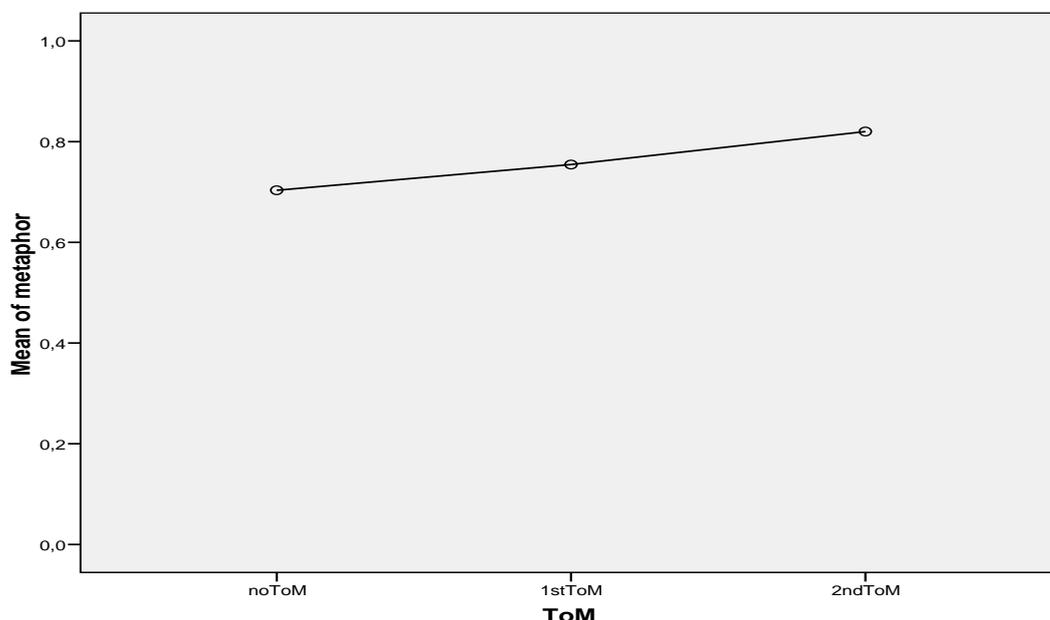


Figure 1: The proportion of correct answers of metaphor in each ToM group

The results can be seen graphically depicted in Figure 1. The percentage of the correct responses was relatively high in both ToM groups. In addition, the noToM (70%) and the

1st ToM (75%) groups were close to each other. A bit higher percentage is found only in the 2ndToM group (82%).

As data was not normally distributed, the non-parametric Kruskal-Wallis Test was used to compare the difference among the groups. The analysis showed no difference among the metaphor results of the ToM groups ( $X^2=3.562$ ;  $p=0.168$ ).

### 2.3.2 Results: The role of ToM in irony comprehension

The original hypothesis was that the proportion of the 2ndToM group' answers would be significantly higher than those of the 1stToM group.

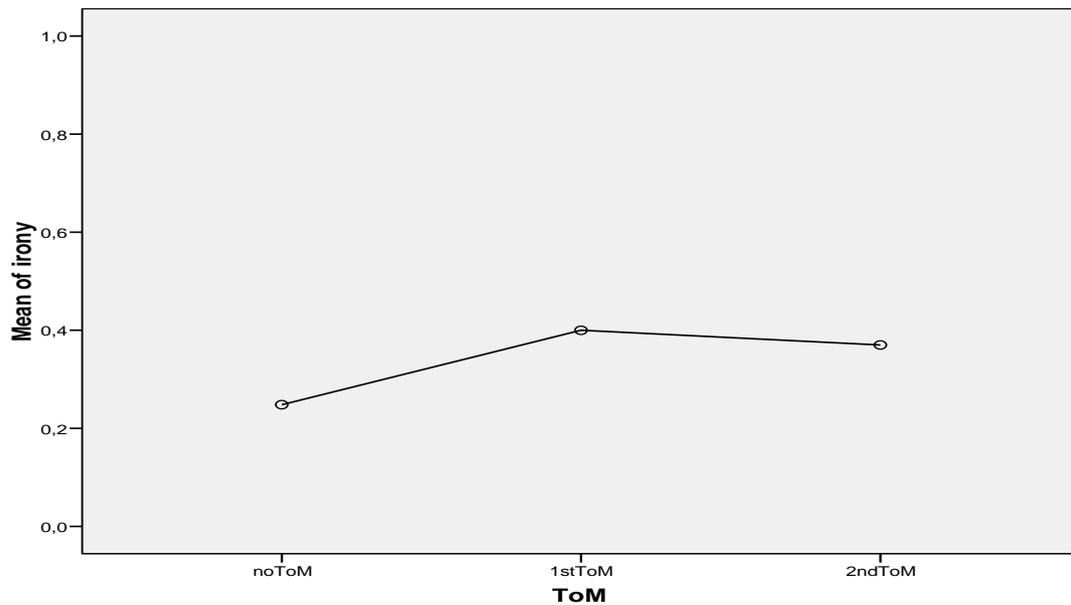


Figure 2: The proportion of correct answers of irony in each ToM group

The results can be seen graphically depicted in Figure 2. The percentage of the correct responses was much lower in each ToM group than in the case of metaphor comprehension (and in Happé's study). The scores were similar in the 1stToM (40%) and the 2ndToM (37%) groups.

As in the case of metaphors, the non-parametric Kruskal-Wallis Test was used to compare the difference among the groups. The analysis showed no difference among the irony results of the ToM groups ( $X^2=2.21$ ;  $p=0.331$ ).

Because of the low level of the performances, One-Sample Test was run to compare whether the results of each group are below chance level. The analysis showed that the mean percentages are significantly below chance level in each group (noToM:  $t(28)=-1.96$ ;  $p=0.06$ ; 1stToM:  $t(21)=0.899$ ;  $p=0.379$ ; 2ndToM:  $t(19)=0.51$ ;  $p=0.616$ ).

## The analysis of the incorrect answers in the case of irony

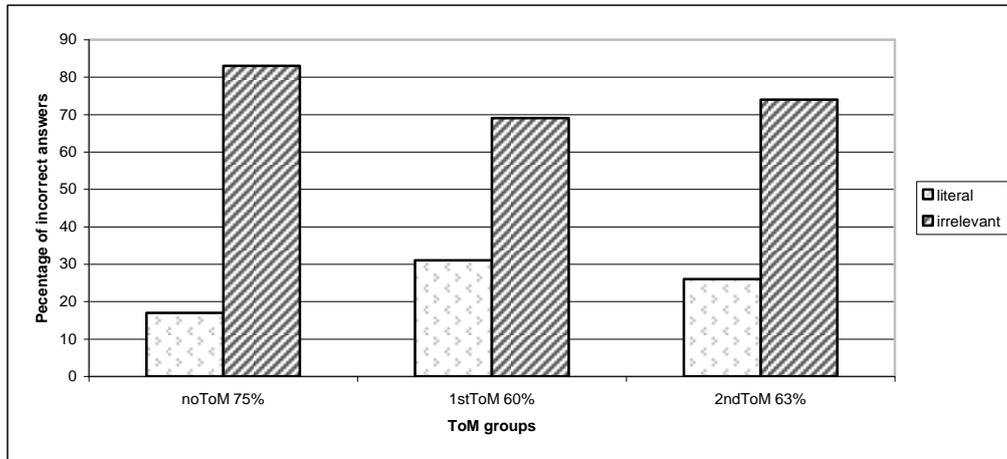


Figure 3: Percentage of the literal and the irrelevant answers in each ToM group (with the total number of incorrect answers)

The incorrect answers are more frequent in the case of irony than in the case of metaphor (noToM: 75%, 1<sup>st</sup>ToM: 60%, 2ndToM: 63%).

As shown in Figure 3., the irrelevant (deceiving) answers are the most dominant error types: if the total number of incorrect answers is 100%, the percentages of irrelevant answers are 83% in the noToM group, 69% in the 1stToM group and 74% in the 2ndToM group.

To analyse the difference among the groups regarding their irrelevant answers, the non-parametric Kruskal-Wallis Test was used. The analysis showed no difference among the deceiving answers of the ToM groups ( $X^2=1.294$ ;  $p=0.524$ ).

### 2.3.3 Results: The role of age in metaphor and irony comprehension

The descriptive statistical results can be seen in Table 3.

|                     | 4-year-olds | 5-year-olds | 6 and 7-year-olds | Control |
|---------------------|-------------|-------------|-------------------|---------|
| <b>Metaphor (%)</b> | 61          | 76          | 83                | 100     |
| <b>Irony (%)</b>    | 33          | 25          | 41                | 100     |

Table 3: The percentage of correct answers in the case of metaphor and irony in each age group

There is an increasing tendency in the case of metaphor comprehension. However, the irony performance of the children in each group is really close to each other and there is a large gap between the performance of the control group and all three children groups.

To analyse data statistically, the non-parametric Kruskal-Wallis Test was used to compare the difference among the age-groups. The analysis showed significant difference among either the metaphor ( $X^2=28.723$ ;  $p<0.001$ ) or the irony results ( $X^2=35.549$ ;  $p<0.001$ ) of all age-groups.

Because of the low level of the irony performances (except of the control group), One-Sample Test was run to compare whether the results of each group are under chance level. The analysis showed that the mean percentages are significantly under chance level

in each age-group (4-year-olds:  $t(16)=-0.009$ ;  $p=0.993$ ; 5-year-olds:  $t(26)=-1.324$ ;  $p=0.197$ ; 6-7-year-olds:  $t(26)=1.184$ ;  $p=0.247$ ).

A more detailed comparison of age-groups designed with the post hoc test of the Oneway ANOVA (Table 4) shows which groups are significantly different from the others regarding metaphor and irony. To control the developmental process, only the contrast between neighbour groups was taken into account (e.g. 4-year-olds' performance was compared only with that of the 5-year-olds').

| Age-groups        | Metaphor |     |         | Irony |     |         |
|-------------------|----------|-----|---------|-------|-----|---------|
|                   | 5        | 6-7 | Control | 5     | 6-7 | Control |
| 4-year-olds       | *        | -   | -       | ns    | -   | -       |
| 5-year-olds       |          | ns  | -       |       | *   | -       |
| 6 and 7-year-olds |          |     | **      |       |     | **      |

Table 4: Metaphor and irony comprehension according to age groups (ns: no significance, \*:  $p<0.05$ , \*\*:  $p<0.01$  significance, -: not relevant)

Regarding metaphor comprehension, there is a step by step development. The five-year-olds' performance is significantly better than that of the four-year-olds. However, the six- and seven-year-old children's performance does not differ significantly from the performance of the 5-year-olds, but it differs from the adult control group's performance.

These findings suggest that there can be once a great leap in metaphor comprehension between the ages of four and five, and also further major ones later during the school years.

In the case of irony comprehension, there is an unexpected result, namely the percentage of four-years-olds is higher than those of five year-olds, but this difference is not statistically significant. On the other hand, the difference between the performance of five-year-olds and 6–7 year-olds seems to be significant, but the comprehension of all groups is also under chance level in reality. In contrast, there is a sharp rise between the chance levelled performance of 6 and 7 years old children (41%) and that of the control group (100%), which is significantly better than the former one. These results indicate that irony comprehension begin to improve after the preschool years.

#### 2.3.4 Results: The role of grammar reception

In order to examine the connection between the reception of grammar and the comprehension of metaphor and irony, the correlation between the right blocks of TROG test and the percentage of the correct answers of metaphor and irony was calculated with Pearson Correlation statistic probe.

The correlation between metaphor comprehension and the reception of grammar was found statistically significant ( $r_{\text{metaphor}}=0.350$ ;  $p=0.003$ ). However, irony comprehension did not correlate with the reception of grammar ( $r_{\text{irony}}=-0.131$ ;  $p=0.277$ ). These finding suggest that the relation to grammar reception is different in the case of the two nonliteral forms.

### 3 Discussion

Concerning the role of the Theory of Mind, we predicted that the comprehension of metaphors requires first-order ToM ability and irony requires second-order theory of mind ability in typically developing children.

However, these predictions were not confirmed. In the case of metaphor, the 1stToM group was not more successful in metaphor comprehension than the noToM group, as the difference between the two groups was not significant. In addition, both groups had a relatively high performance in metaphor understanding.

The results of the present study are only partially consistent with Norbury's (2005) findings. Both results showed that the noToM and the 1st ToM groups do not differ significantly from each other at all. The difference between the two results is that children with communication impairments had deficits with metaphor comprehension regardless of their theory of mind level in Norbury's (2005) study. Therefore, she concluded that the first-order ToM is not sufficient for understanding metaphors in the case of atypically developing children. In contrast, in the present study the children developing typically did not have difficulties with metaphor comprehension, because the noToM group already had nearly as high scores as the 1stToM group in the metaphor test. Therefore, the present study suggests that metaphor comprehension can precede 1st order ToM in children developing typically. The different types of inconsistency led to the conclusion that the relationship between metaphor comprehension and the first-order Theory of Mind level is at least less robust (as Wilson concluded 2013: 44) or might not be seen (in line Langdon et al. 2002).

In the case of irony, the 2ndToM group had similar scores to the 1stToM group on the irony comprehension test, the difference between the two groups was not significant. It should be noted, that the ironic scores in the present study were much lower than those in the case of metaphor comprehension or those in Happé's (1993) irony test.

One possible explanation for this result can be that children had to understand not only the ironic meaning but the ironic attitude as a whole in the present study. As discussed by Szücs (2011), schoolchildren are able to understand that the intended meaning is not relevant in the context or in the situation but they cannot recognise the speaker's ironic attitude behind the utterance, and mostly they do not understand or misunderstand the ironic utterances. That is why they could have difficulties with recognising the ironic meaning and attitude as a whole; their responses were nearly at a chance level. The percentage of incorrect answers is much higher in the case of irony as in the case of metaphor in each ToM group.

The present findings are consistent with other earlier findings (Sullivan et al. 1995, 2003, Winner 1997) concerning the error pattern. The findings reported here also suggest that typically developing children, who are able to detect that the sentence meaning of the ironic utterance is not relevant in the context, tend to misunderstand the intention of the speaker and to choose systematically deceiving answers instead of ironic answers. Children confront a discrepancy between the reality and the recognition of the falsehood when they hear an ironic expression. Resolving this discrepancy, they try to attribute an intention to the speaker, which can be plausible and familiar for them. As they do not have any experience about the ironic use of language at these ages, they judge the ironic utterances as ones containing some kind of falsehood, such as a lie. Therefore, our conclusion is that the main problem of preschool children is the absence of metapragmatic awareness about ironic use of language (Szücs & Babarczy 2014), which may improve at the beginning of the school years.

Regarding the theory of mind necessary to irony comprehension, our findings are in keeping with Sullivan and her colleagues' results (1995). They concluded that the second-order mental state knowledge precedes the ability to distinguish between lies and ironic jokes by some years in children developing normally. Present findings also suggest that the second-order ToM ability alone is not sufficient to ensure better irony comprehension.

In summary, contrary to the expectations, the relationship between the theory of mind level and the comprehension of the two nonliteral language forms may not be so close in typically developing children.

In the second analysis, the role of the age was reported, which was motivated by the question whether the role of age would be more or less important than the role of Theory of Mind.

Although the four-year-olds' performance was relatively high, the five-year-olds were significantly better in metaphor comprehension. However, their performance was similar to 6 and 7 years olds', whose understanding was significantly lower than the control group's. These findings showed a constant, step by step increase in metaphor comprehension in these ages.

On the other hand, the irony comprehension of the children in each group was much lower than the control group's. Although there was a significant difference between the five-year-olds and the six- and seven-year-olds, the percentage of the latter ones' correct answers was only around 40%, also below chance level.

These findings suggest that the development of irony comprehension just begins at around the age of 6 and 7, but generally the children at this age have difficulty distinguishing ironic utterances from deception yet, so their performances are at a chance level. Therefore, we can conclude that the sensitivity to irony may increase in school years.

To sum up, the most important finding here might be that the role of the age seems to be more important than the role of the Theory of Mind, because the difference among groups was significant only in the former condition. That means, that the ages of typically developing children can predict their metaphor and irony comprehension level rather than their Theory of Mind level.

In the third part of the study, the correlation between reception of grammar and comprehension of the two nonliteral forms was investigated. Our hypothesis was that the reception of grammar, which is involved in general language abilities of children, would influence their metaphor and irony comprehension as well.

The present findings partially confirmed our hypothesis. Metaphor comprehension significantly and moderately correlated with the grammar understanding. Therefore, the level of children's grammar reception seems to have a role in metaphor understanding, that means, better grammar knowledge can be followed by better metaphor skills. This result is in line with Norbury's (2005) findings which provided evidence that semantic skills particularly and also the language ability in general are important factors for metaphor comprehension. Moreover, these findings are consistent indirectly with Vosniadou's (1987) approach, which takes into account the linguistic form of the metaphoric expression as a variable affecting children's metaphor comprehension. Her approach was supported by Nippold and her colleagues' findings (1984), which showed that the syntactic complexity of the metaphor influenced the comprehension level of the children; the proportional metaphors were more demanding than the predicative ones for children. These findings also implied that the greater complexity of any kind of structure can be a difficulty for children, whose language knowledge is not completely developed

yet at these ages, that is to say, their better syntactic and also general grammar skills can evoke their metaphor understanding.

However, the present findings can show only the correlation between the two phenomena, the role of any inter-participant variables, namely mental age, IQ or other social-cognitive factors, which might have affected this correlation beyond grammar reception, was not taken into account.

On the other hand, the relatively strong connection outlined between metaphor understanding and grammar reception might be the case only the investigated (predicative) subset of metaphors, not taken into consideration either other syntactic groups (proportional) or other aspects (familiarity) of the metaphors, which might be a limitation of the present results.

In contrast with metaphors, irony comprehension did not correlate with reception of grammar, which suggests that grammar understanding cannot be a determining factor in irony comprehension, that is, better grammar knowledge cannot predict a better comprehension level of irony in these ages. As developmental studies on irony comprehension explored its other aspects, such as the role of contextual information, memory, theory of mind, intonation and facial expression (Creusere 2007), while at the same time the role of children's language abilities have not been observed, this result neither contradicts nor supports earlier empirical findings. However, it can support Winner's (1997) theoretical statement that irony comprehension is a social-analytic task, in which the recognition of the speaker's belief is essential to the correct interpretation, because children have difficulties not with the understanding of the sentence meaning, which depends on language comprehension, but with the recognition of ironic attitude.

#### **4 Conclusion**

The present findings reported here have shown a loose connection between theory of mind level and metaphor and irony comprehension in typically developing children. Metaphor understanding can precede first-order ToM ability and second-order ToM ability is not sufficient to ensure better irony comprehension. Therefore, these results have not provided evidence in support of Happé's original claims.

However, the age of children can be a better predictor of their performance in metaphor and irony comprehension. There is a sharp rise at the age of five in metaphor comprehension, but irony comprehension begins only approximately one or two years later.

The reception of grammar has been found closely related to metaphor comprehension, but irony comprehension has not correlated with it, either.

These findings suggest that the comprehension of the two phenomena may require different cognitive and language abilities: metaphor comprehension may rather be connected to language abilities, whereas irony comprehension, as it is a more difficult task to interpret in a correct way, may require other pragmatic or metapragmatic skills. However, it would be interesting and fruitful to explore the implications of the present findings for a greater subset of metaphorical and ironic expressions.

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## Appendix

### *Metaphorical expressions*

- (1) Hun. kőszütemény Eng. stone cookies
- (2) Hun. jégcsap az orrod Eng. your nose is an icicle
- (3) Hun. hordóhasú macska Eng. barrel-bellied cat
- (4) Hun. Peti, te egy igazi oroszlán vagy! Eng. Peti, you are a real lion!
- (5) Hun. Te jó ég, ez a szoba egy disznóól! Eng. Oh dear, this room is a pigsty!

### *Ironic expressions*

- (1) Hun. Nahát, ez aztán a puha sütemény! Eng. Vow, what soft cookies!
- (2) Hun. Na, biztosan nem fázik ez a gyerek! Eng. This child surely does not feel cold! (he seems to be cold)
- (3) Hun. Na, ez aztán a sovány macska! Eng. What a skinny cat!
- (4) Hun. Te aztán nagyon aranyos vagy! Eng. You are really nice!
- (5) Hun. Na, ez aztán a rendes szoba! Eng. What a tidy room!

# On English Topicalization and Left-Dislocation from an Information-Structural Perspective

Péter Szűcs

The aim of this paper is to investigate the Information-Structural (IS) properties of two English constructions featuring constituents in a non-canonical, left-peripheral position: Topicalization (TOP) and Left-Dislocation (LD). Pulling several research threads together from generative and functional linguistics, it will be argued that seeing these as simple topic-marking devices is a too simplistic approach: in reality, LD marks a subtype of (non-contrastive) topics, Thematic Shifters, while TOP is used for contrastive IS categories: Contrastive Topics (C-TOPIC) and Contrastive Focus (C-FOCUS).

Keywords: *topicalization, left-dislocation, information-structure, English*

## 1 Introduction

Languages commonly use a variety of methods to express the information-structural (IS) features of a sentence. Besides intonation and certain morphemes (like the Japanese topic marker *wa*), word order variation is one of the prime tools for such procedures. This is even true for English, a so-called “configurational language”, which is commonly assumed to have a relatively fixed word-order.

In this paper, I will investigate the information-structural properties of two English structures which utilize word-order variation for such purposes. (1a) and (1b) provide examples for the constructions.

- (1) a. Tom, I like.  
b. Tom, I like him.

The common name in the literature for the configuration in (1a) is “Topicalization” (abbreviated as TOP henceforth), while (1b) is most commonly called “Left-Dislocation” (abbreviated as LD). Both feature an argument in a non-canonical, left-peripheral position.<sup>1</sup> The obvious difference between the two is that while in TOP, the canonical position of the fronted constituent is empty (or, from a transformationalist viewpoint, occupied by a trace), in LD, it is filled with a coreferential resumptive pronoun.

Both of these constructions are commonly regarded as topic-marking devices (e.g. in Lambrecht 1994 and Dalrymple 2001: 391).<sup>2</sup> Despite the intuitive appeal of this

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<sup>1</sup> Following Birner & Ward (1998), the discussion of TOP and LD should be limited to lexically subcategorized elements. Adjuncts can also occur in the left-peripheral position, but their function is more like frame-setting and they occur much more freely than one would expect from topicalized or left-dislocated elements. E.g. (ia) can be discourse initial, unlike (ib) with a genuine TOP.

- (i) a. In New York, there’s always something to do. (felicitous discourse-initially)  
b. #In a basket, I put your clothes. (infelicitous discourse-initially)

<sup>2</sup> The name of TOP, given by Ross (1967), is an unmistakable sign for this.

characterization, not everybody has shared these ideas. There are several functionalist researchers who have called these assumptions into question. For instance, Prince (1999) writes the following about TOP:

A glance at the literature over the past thirty years shows that this assumption has been maintained by syntacticians as well as by functionalists, although it has never been proven or even, to my knowledge, seriously investigated.

Prince argued in several papers (Prince 1981, 1998, 1999) that rather than being simple topic-marking devices, both TOP and LD may actually have several functions, and marking a topic is crucially *not* one of them. In this paper, I argue that Price's claims are partially correct. The claim that TOP and LD simply mark topics cannot be maintained (especially for TOP), but a more fine-grained view of IS-notions can capture the generalizations about these constructions. Such a view has been emerging in the generative research tradition, so a possible convergence between generativists and functionalists is possible.

Before discussing the details about TOP and LD, it is essential to clarify the basic concepts of information structure, topic and focus. I will do so in the next section.

## 2 Basic concepts of Information Structure

### 2.1 Topic

According to the widely accepted generalization “the topic of a sentence is the thing the proposition expressed by the sentence is about” (Lambrecht 1994: 118).<sup>3</sup> From this basic tenet, various constraints follow which delimit what can serve as a topic expression. It is commonly accepted that topics must be at least referential, otherwise they could not serve as targets for a proposition. According to Gundel & Fretheim (2004), this has to do with the definiteness or presupposition effect that topics have. They cite a Japanese example. In (2a) the subject is followed by the nominative marker *ga* and it can be interpreted as either definite or indefinite. In (2b), by contrast, the subject is followed by the topic marker *wa* and it can be interpreted only as definite (and it can also have a generic meaning).

- (2) a. *Neko ga kingyo o ijit-te...* (Japanese)  
 cat NOM goldfish OBJ play-and  
 “The cat/A cat is playing with the/a goldfish and...”
- b. *Neko wa kingyo o ijit-te...*  
 cat TOP goldfish OBJ play-and  
 “The cat/\*A cat is playing with the/a goldfish and...”

An English example for the presupposition effects of topics can be illustrated with the “lie-test” (Erteschik-Shir & Lappin 1979, cited by Lambrecht 1994:52). Consider (3):

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<sup>3</sup> Note that this definition does not include “discourse topics”, as its scope is limited to the sentence-level.

- (3) a. John is my friend.  
 b. My friend is John.

(3a) is assumed to be about *John*, so *John* is the topic. Imagine someone challenges the claim in (3a) by saying “That’s not true!” This would be understood as claiming “John is NOT your friend,” but the existence of John would still be taken for granted. Since it is presupposed, it is outside of the scope of sentence negation. In fact, the denial could be felicitously complemented with “you don’t have any friends,” which indicates that only the existence of topic (*John*) is presupposed, the content of the comment is not. Conversely, uttering “That’s not true!” in response to (3b) where the topic is *my friend*, would still presuppose that I have a friend (just not *John*).<sup>4</sup>

It is evident that the claim that a sentence is “about” a topic is vague in itself. In principle, one can argue that sentence (3a) is not just about John, but also about the speaker, or the speaker’s friends. To remedy this problem, various tests have been proposed in the literature to identify topics. Prince (1999), citing Gundel (1974/1985) and Reinhart (1981), lists 3 tests that could be used for this purpose:

- (i) *The “as for X”-test:*  
 Can the sentence be plausibly paraphrased with an initial “as for X”-phrase, where X is the supposed topic expression?
- (ii) *The “what about X”-test:*  
 Can the sentence plausibly answer a “what about X”-question, where X is the supposed topic expression?
- (iii) *The “say about X that...”-test:*  
 Could the sentence be plausibly reported about using an initial “Y said about X that...”-phrase, where X is the supposed topic expression?

If we use these tests on (3a), we can verify that *John* is indeed the topic of the sentence (and not e.g. the speaker’s friends). Note that the test-results would be the exact opposite in the case if (3b).

- (4) a. As for John, he is not my friend.  
 a'. #As for my friend, John is not him.  
 b. A: “What about John?”  
 B: “John is not my friend.”  
 b'. #A: “What about your friend?”  
 B: “John is not my friend.”  
 c. He said about John that John is not his friend.  
 c'. #He said about his friend John is not him.

It has also been suggested that the entity that is denoted by the topic expression should be accessible in the discourse universe. Gundel (1985) calls this the “familiarity condition” on topics. Lambrecht (1994: 159) offers a striking example. (5) is a beginning of a telephone conversation, where someone had dialed the wrong number.

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<sup>4</sup> Note that the test even works if we replace *John* with a definite expression like *the king of France*. Of course one could say to (3a) “That’s not true, because the king of France doesn’t even exist!”, but that would be an explicit modification of the presupposition.

- (5) A: Is Alice there?  
 B: a. #Alice isn't here.  
 b. There is no Alice here.

Even though *Alice* is a referential, definite expression, and is clearly discourse old by the time B replies, the reply in (5a) is undoubtedly strange. The problem in B's first reply is that *Alice* is not properly established in the universe of the discourse, since B doesn't know what *Alice* could A refer to. The way to circumvent this problem is to remove *Alice* from the position where she is interpreted as a topic, as in B's second reply.

There are also other tendencies which have been noted in connection with topics. One of these is that topics tend to be animate entities. Many languages are like English in this respect in that there's no direct syntactic correlate for this, but the interested reader is referred to Dalrymple & Nikolaeva (2011, chapter 1 and references therein) for an outline of the correlation between animacy and topichood in the context of object-marking in a number of languages.

Another tendency is related to the intuition that topics are somehow centers of attention in a discourse. This, combined with the accessibility constraint mentioned earlier, is formalized by Centering Theory (Walker, Joshi and Prince 1998), which says that if anything is referred to with a pronoun in the subsequent discourse, it should be the backward looking center of a sentence. This is, informally speaking, the element that links the sentence to the previous discourse, which roughly corresponds to the notion of topic in Centering Theory.<sup>5</sup> The idea is that since topics are established in the discourse, active in the interlocutors' minds, they can easily be referred to with pronouns.

It has been recognized that a single term "topic" is inadequate to cover all the uses of topics. According to Frascarelli (2007), at least three subtypes should be distinguished: Continuing Topics, Shifting Topics, and Contrastive Topics. According to Frascarelli, each of these has specific characteristics (intonational pattern and syntactic behavior) in Italian.

Continuing Topics, which are always linked to the discourse, refer back to some already established entities. Shifting Topics can be "newly introduced, newly changed or newly returned to" (Frascarelli 2007). They either introduce completely new topics to the discourse, or they introduce a subtopic. These kinds of topics are also referred to as "Thematic Shifters" by Erteschik-Shir (2007). Gazdik (2012) mentions that in Hungarian, continuing topics contrast with thematic shifters in that only the latter can be overtly realized (Hungarian is a pro-drop language). So because the topic is unchanged from the previous sentence, the subject pronouns are anomalous in (6a). By contrast in (6b), the subject is subtopic of a previously introduced discourse topic.

- (6) a. *Tamás szeret olvasni.* (#Ő) *intelligens, szorgalmas és sokra fogja vinni.*  
 Thomas likes read.INF he intelligent hard-working and much  
 aux.3SG reach.INF  
 'John likes reading. He is intelligent, hard-working and he will achieve a lot.'
- b. *Mesélek a barátaimról, Tamásról, Péterről*  
 tell.1SG the my friends.POSS1PL.DEL Thomas.DEL Peter.DEL

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<sup>5</sup> Centering Theory offers another candidate for topichood, the Preferred Center, the most prominent newly introduced entity. For details, see Prince (1999).

és Katiról. Tamás egy régi barátom, Pétert az  
 and Kate.DEL Thomas an old friend.POSS.1SG Péter.ACC the  
 egyetemről ismerem, Marival pedig együtt dolgozunk.  
 university.DEL know.1sg Mary.INSTR and together work.1PL  
 ‘I’ll tell you about my friends, John, Paul and Mary. John is an old friend  
 of mine from school, Paul, I know him from college, and Mary, I work  
 together with her.’

Example (6b) also shows that topics are not always discourse-old, since the proper names themselves had not been mentioned before. As subtopics, they are accommodated from the discourse, from a general “question under discussion”.<sup>6</sup>

Contrastive Topics contrast the topic entity to other entities in the discourse, like in (7):

- (7) Tom<sub>C-TOPIC</sub> ate the beans.

Contrastive Topics are associated with a specific intonational contour and an interpretation that evokes that there is more to say, only a partial information has been given. It means that the sentence implies that there are additional people who ate other food items (e.g. Mary ate the meat, Joe ate the cake, etc.), or other people did something else to the beans (e.g. Mary saved them for further use). For more on Contrastive Topics, see Büring (1999, 2003).

## 2.2 Focus

Focus is usually regarded as the part of the sentence that contains new information. According to Gazdik (2011: 152), this is “related to the assumption that that focused constituents are the ones that answer constituent questions.” She rejects this on the basis of an example like (8), where the focused constituent in B’s reply is clearly not a new discourse entity, as it was already mentioned in the question.<sup>7</sup>

- (8) A: Who did you invite, Tom or Mary?  
 B: I invited TOM<sub>FOCUS</sub>

However, Gundel & Fretheim (2004) point out that it is important to distinguish between two kinds of given-new dichotomies: referential and relational. Although the

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<sup>6</sup> An anonymous reviewer notes that in a framework like Prince (1998), the names in (6b) could be considered Contrastive Topics, as they are members of a set, introduced by the previous sentence. I think set-membership itself is not a sufficient condition to be recognized as contrastive. I follow Titov’s (2013) definition of contrastiveness which says that that the contrastive entity itself activates other entities in the discourse (see section 2.2) In (6b), it is the context, not the topic-entities themselves indicates other discourse referents. A genuine CT like (6) evokes alternatives in the hearer without any explicit context.

<sup>7</sup> Although the overall intonational phonology of sentence (8) might not differ from that of a natural, broad focus sentence, it is fairly uncontroversial in the literature that the object phrase *Tom* is an information structural focus. In Lambrecht’s (1994) system, it would be focus, since it is the part of the proposition where the assertion (the one that I invited = Tom) differs from the presupposition (I invited someone). Krifka (2008) also mentions that one of the basic functions of focus is to serve as a congruent answer to a question.

denotation of *Tom* is referentially given, in the sense that it is already present in the discourse, its relation to the predicate is new. In other words, what is new is that *Tom* can instantiate the variable in the evoked proposition *I invited X*.<sup>8</sup>

There are also subtypes of focus. The two main ones are Contrastive Focus and Information Focus. Both represent new information, but a Contrastive Focus also indicates that there are alternative candidates for the focus value. According to Titov (2013), for a focus to qualify as contrastive, “the set of alternatives must become active in the discourse at the point the sentence containing the contrastive element is uttered. No sooner and no later.” In this sense, B’s answer in (8) does not contain a contrastive focus, since the alternatives are already evoked in the question. The following exchange possibly contains a Contrastive Focus in B’s response.

- (9) A: Who did you invite?  
 B: It was TOM<sub>C-FOCUS</sub> who I invited.

Under the most natural interpretation, B’s response entails that there were several other people whom B could have invited, but B chose *Tom*.

Focus is always highlighted in linguistic expressions in some way. English normally relies on prosody, so the focused element is accented. Hungarian, beside the prosodic means, also uses syntactic highlighting, placing the focused element into preverbal position, which may result in the well-known focus-induced inversion of particles, see (10).

- (10) a. *Tom*<sub>TOPIC</sub> *el-ment* *a* *koncertre*.  
 Tom away-went the concert.TO  
 “Tom went to the concert.”  
 b. *Tom*<sub>FOCUS</sub> *ment el* *a* *koncertre*.  
 Tom went away the concert.TO  
 “TOM went to concert.”

The general problem with defining topic and focus is that both of them are multifaceted phenomena, with syntactic, semantic and pragmatic repercussions. It has been noted by several researchers (Gundel & Fretheim 2004, Prince 1999) that consistency concerning them is seriously lacking in the linguistic literature. It is a significant task for linguistic research to reconcile the different views and approaches. What I have provided in this section is far from satisfactory in general, but it should be satisfactory enough for our current purposes, namely the closer examination of the Information-Structural properties of TOP and LD. I shall carry this out in the next sections.

### 3 Topicalization

Below I repeat sentence (1a) as (11), which serves as our example for TOP. An object is fronted from its canonical position, leaving a “gap” behind.

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<sup>8</sup> Even though Tom was mentioned as a possible candidate for the value of X, in the answer it is made an actual value of X. So its relation has changed, making it a new piece of information.

(11) Tom, I like.

The very first thing that we should note about sentence (11) is that the fronted constituent may actually have two distinct functions: it can be interpreted as a “topic-like” entity (we will return to this soon), or as some kind of focus. This was first noted by Prince (1981). The obvious question is this: what kind of focus is involved here?

Choi (1997), referring to Ward (1988), asserts that the fronted phrase actually refers to two discourse elements: one, a set or a scale, and two, a specification of a value or an element in that set or scale. In this example this would mean that the sentence evokes a set of people that I may like and picks *Tom* as a member of that set.

If this is correct, then the sentence meets the criteria for contractiveness defined by Titov (2013), mentioned earlier: the set of alternatives becomes active in the discourse at the point the sentence containing the contrastive element is uttered. When TOP is used this way, the sentence has only one pitch accent, an H\* tone (which Jackendoff 1972 calls A-accent) on the fronted constituent.

In the other use of TOP, the sentence has two accents. On the initial expression, it has an L+H\* tone. This is called B-accent by Jackendoff (1972), and there’s also an accent on the verb or the subject. This alone indicates that what we are dealing with in this use is not a simple topic either.

Further doubt on the topichood of the initial element is cast by Prince’s (1999) observations. She cites the following naturally occurring data, containing a topicalized phrase:

(12) Thanks to all who answered my note about asking about gloves. I didn’t look at this bb for several days and was astounded that there were 11 answers. *Some I missed, darn.*

Prince (1999) points out that the topicalized phrase fails on all three topichood-tests we have mentioned earlier:

- (13) a. Thanks to all who answered my note about asking about gloves. I didn’t look at this bb for several days and was astounded that there were 11 answers. *#As for some, I missed them, darn.*
- b. A: Thanks to all who answered my note about asking about gloves. I didn’t look at this bb for several days and was astounded that there were 11 answers.  
B: *#What about some?*  
A: *Some I missed, darn.*
- c. She thanked everyone who answered her note about gloves. She said she didn't look at this bb for several days and was astounded that there were 11 answers. *#She said about some that she missed them.*

The problem that underlies the intuition that these sentences fail the tests is that the noun phrase *some* is not definite. As Gundel & Fretheim (2004) note that indefinites are not generally used to refer to familiar entities, thus they fail the familiarity condition, discussed in section 2.1. To put it differently, one may assert that in (13a-c), the word *some* fails to provide an adequate referent about which the sentence could predicate something. The fact that in (12), the “topicalization” is felicitous nevertheless strongly suggests that the fronted constituent is not a topic.

Moreover, it was established that topics should at least be referential. Considering this, it is striking that there are several grammatical elements that may be topicalized, but would not count as referential under any basic understanding of the concept: verbs ((14a) and (14b)), adjectives (14c) and propositions (14d). If topicalization was about (referential) topics, all these examples would be predicted to be unacceptable.

- (14) a. Surrender, we never will.  
 b. To win, we at least tried.  
 c. Happy, Tom will never be.  
 d. That Tom was a movie star, we would never have guessed.

Finally, we should mention that Prince (1999) notes that in the corpus of Gregory Ward, which is a collection of naturally occurring Object-Subject-Verb structures, not one case can be found where the topicalized phrase is a 3<sup>rd</sup> person pronoun (she picks 3<sup>rd</sup> person pronouns because that is where one may choose between a lexical NP and a pronoun). As was discussed, according to Centering Theory, if anything is referred to with a pronoun in a sentence, it should be the backward looking center, which is one of Centering Theory's candidates for the notion of topic. The fact that such elements are seldom topicalized raises further skepticism about the fact that TOP is a topic-marking device.

Of course none of these arguments is a clincher. One may debate that the topichood-tests are reliable enough (Gundel & Fretheim 2004 note that pragmatic tests are not deterministic, so they cannot be used as foolproof methods for identifying topics), or one does not have to subscribe to Centering Theory. However, the arguments enumerated in this section all point to the same direction: Topicalization is not about topics. What then is it about?

We have already established that TOP may mark a Contrastive Focus in one of its uses. I would like to argue that the other use of TOP marks Contrastive Topics (C-TOPIC), giving us the generalization that TOP is a marker of contrastive Information Structural categories. For the example in (14) it means that the topicalized phrase implies that there are other answers which the speaker did not miss, so contrast is evoked. This indeed seems to be a plausible interpretation.

The claim that TOPs mark C-TOPICS also sheds some light on the question of why it can be used with nonreferential expressions, demonstrated in (14). For reasons that are not clear to me at this point, the restrictions on what can qualify as a Contrastive Topic are lighter than on regular topics. The reasons for this should be subject to further investigation.<sup>9</sup> Nevertheless, the fact remains. For instance, Gécseg (2001) notes that in Hungarian (similarly to 14b-c), infinitives and adjectives can serve as C-TOPICS, unlike regular topics (the same fact holds for focus as well):

- (15) a. *Úszni*<sub>C-TOPIC</sub> *tudok.* (Hungarian)

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<sup>9</sup> An anonymous reviewer raises the possibility that this is “because fronting is not associated with the notion of ‘contrastive topic’ but with contrastiveness in general and so restrictions on topics don’t always hold of fronted elements as they are not always topics.” I think this view would be inadequate for several reasons. First, fronting itself is not necessarily contrastive, as we will see in the case of Left-Dislocation. Second, contrastive topics occur elsewhere as well and they are subject to the same looser categorical restrictions there (e.g. *Tom will never be happy*<sub>C-TOPIC</sub>, *but at least will have money*).

- swim.INF      can.1SG  
 “To swim, I’m able to.” (as opposed to e.g., to ski)
- b. *Szépnek*<sub>C-TOPIC</sub>      *szép*      *a*      *húgod.*  
 pretty.DAT      pretty      the      sister.POSS.2SG  
 “Pretty, your sister in fact is.” (but she may not be clever)

Having a constituent in a non-canonical position that might have two discourse functions is not unique to English. The Hungarian construction exemplified in (16) shows similar Information-Structural behavior.

- (16) *Tomit      mondtam,      hogy láttam.*      (Hungarian)  
 Tomi.acc      said.1SG      that      saw.1PL  
 ‘Tom, I said that I saw.’

Whatever syntactic analysis of these structures we subscribe to (for two different views, see Gervain 2002 and Szűcs 2014), from an information-structural perspective it is clear that the initial constituent *Tom* could be either C-FOCUS or C-TOPIC. Just like in English, the two interpretations correspond to different intonational patterns. However, the parallel is not perfect, as in Hungarian, the two interpretations would also lead to syntactic differences. Since in Hungarian, only the focus has to be adjacent to the verb, in the case of the C-TOPIC-interpretation, a verbal modifier can intervene between the fronted constituent and the verb, see (17).

- (17) *Tomit      meg-mondtam,      hogy láttam.*      (Hungarian)  
 Tomi.acc      PERF-said.1SG      that      saw.1PL  
 ‘Tom, I did say that I saw.’

#### 4 Left-Dislocation

Superficially, LD differs from TOP only in that it contains a resumptive pronoun in the canonical position of the initial phrase. Our example for it was (1b), which is repeated here as (18).

- (18) *Tom, I like him.*

Prince (1998) claims that there are 3 basic functions for LD:

- (i) island-amnesty,
- (ii) simplifying discourse processing,
- (iii) signaling a “poset-inference.”

In the first use, it is actually applied as covert topicalization. The speaker would like to use TOP, but faces a syntactic obstacle, e.g. an island, and thus is forced to put a resumptive pronoun in the canonical position of the initial element. One such example is shown in (19).<sup>10</sup>

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<sup>10</sup> While in some languages, the distribution of gaps and resumptive pronouns is more complex, it is fairly uncontroversial in the literature that English uses resumptive pronouns for a very

- (19) Tom, the story about \*(him) was funny.

As such uses are clearly forced by core syntax and have nothing to do with Information Structure, I exclude them from the scope of this paper.

The second function of LD is “simplifying discourse processing.” According to Prince (1998) this means that by using LD, people remove discourse-new entities from positions that are dispreferred for them. Prince’s (1998) example for this is the following segment:

- (20) My sister got stabbed. She died. Two of my sisters were living together on 18<sup>th</sup> Street. They had gone to bed, and this man, their girlfriend’s husband, came in. He started fussing with my sister and she started to scream. *The landlady, she went up*, and he laid her out. So sister went to get a wash cloth to put on her, he stabbed her in the back.

According to Prince (1998), *the landlady* in its original position would be a subject and subjects are generally dispreferred as discourse-new entities.<sup>11</sup> One can also approach this from the perspective of Lambrecht’s (1994: 185) “Principle of the separation of reference and role”: do not introduce a referent and talk about it in the same clause. This militates against viewing the left-dislocated element as simple topics, as it was discussed in section 4.2, that topics are preferably discourse-established entities.

The third use of LD according to Prince (1998) is to trigger an inference on the part of the hearer that the entity represented by the initial NP stands in a salient partially-ordered set relation to some entity or entities already evoked in the discourse-model. Partially ordered sets, “posets” are “defined by a partial ordering R on some set of entities, e, such that, for all e-1, e-2, and e-3 that are elements of e, R is either reflexive, transitive, and antisymmetric or, alternatively, irreflexive, transitive, and asymmetric” (Prince 1998). In essence, this means that the left-dislocated entity has some set relation with other elements.

Prince (1998) sees these functions as separate entities. However, subsequent research suggests that there may be a way to have a unified view of functions 2 and 3 (as was stated, the first function is set aside in this paper).

Gregory & Michaelis (2001) have conducted a corpus study on TOP and LD. They suggest that the overarching function of LD is that of “topic promotion”, that is, to bring entities into the discourse. They have compared all the LD tokens with all the TOP tokens and have found 3 factors that back this claim up.

First, they examined the givenness of LDs, compared to TOPs. They used Gundel, Hedberg & Zacharski’s (1993) cognitive statuses to determine the referential givenness of an element in the discourse. These are (from the lowest to the highest givenness): type

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restricted set of purposes. Their main function is to neutralize island-violations like the one in (19), and possibly they can be inserted in some sentences for parsing purposes, for instance see (iib) from Falk (2002).

- (ii) a. This is the girl that John likes (\*her).  
b. This is the girl that Peter said that John thinks that yesterday his mother had given some cakes to ?(her).

For more discussion on resumption see Aoun (2001), Falk (2002) and Gervain (2004).

<sup>11</sup> There is a traditionally assumed connection between subjecthood and topichood, see Lambrecht 1994, chapter 4.2.

identifiable, referentially uniquely identifiable, familiar, activated, in focus. In (18) there is an example for each status (examples 21a to 21e are from Gundel, Hedberg & Zacharski 1993).

- (21) a. *Type identifiable:*  
I couldn't sleep last night. *A dog* (next door) kept me awake.
- b. *Referential:*  
I couldn't sleep last night. *This dog* (next door) kept me awake.
- c. *Uniquely identifiable:*  
I couldn't sleep last night. *The dog* (next door) kept me awake.
- d. *Familiar:*  
I couldn't sleep last night. *That dog* (next door) kept me awake.
- e. *Activated:*  
I couldn't sleep last night. *That* kept me awake.
- f. *In focus:*  
I couldn't sleep last night because of your dog. *It* kept barking.

The authors found that LD has relatively low givenness in the discourse, the most typical givenness status being uniquely identifiable. According to Gregory and Michaelis (2001), this is expected if LD is a topic-promotion device, since “uniquely identifiable status alone represents the intersection of discourse-new and hearer-old statuses,” entities that can be identified by the hearer (a condition for topics, see example (5)), but are not in the current discourse yet. TOPs on the other hand had higher activation status, which is expected if they are contrasted to some discourse elements, as was established in the previous section.

Gregory & Michaelis's (2001) second target for investigation was the anaphoricity of left-dislocated and topicalized entities. They categorized tokens according to the type of the anaphoric link that the fronted element had to the discourse (from highest to lowest): directly mentioned, the entity is member of a set that has been mentioned, none. They found that LDs tended to have low anaphoricity, which is expected if their role is topic promotion.

Gregory & Michaelis (2001)'s final factor was topic persistence. They measured to what extent the fronted elements in LD and TOP tend to remain topics of the subsequent discourse. They found that LD has a high topic persistence, as opposed to TOP. This is in line with what we have discussed in connection with these structures: LD is a topic promoter, so one expects that the entity introduced by it is going to be talked about. We do not have such expectations for contrasted elements introduced by TOP.

What do these results of functionalist research mean from a generative perspective? I think considering all these it stands to reason to say that left-dislocated elements correspond to the discourse function Frascarelli (2007) and Erteschik-Shir (2007) refer to as “shifting topic” or “thematic shifter”. This means that LD could be regarded as a topic-marking device, but what we have here is a subtype of topics. It either introduces a completely new topic (Prince's 1999 first function), or a subtopic of an existing discourse topic (Prince's 1999 second function). That LD can be used to introduce a brand-new topic is evident from the fact that it is conceivable that someone, looking for a particular Tom, enters a room and utters the following sentence, containing an LD:

- (22) Tom, where is he?

The same could hardly be conceivable with TOP (as C-TOPIC and C-FOCUS are always related to the discourse and cannot be uttered out of the blue), though syntactic factors may also interfere in this particular example.

That LD is related to topics gets further support from two facts. First, recall that we discussed in section 3 that the fact TOP is grammatical with nonreferential entities supports the claim that it's not a topic-marking device. On the other hand, such entities make LD seriously degraded:

- (23) a. ???Surrender, we will never do so.  
b. ???Happy, Tom will never be like that.  
c. ???That Tom was a movie star, we would have never guessed that.

Second, a corpus study by Snider & Zaenen (2006) found that there is a positive correlation between LD and animacy. This is expected if LD is a device for marking a kind of topics, Thematic Shifters, as it was noted in section 2, there is a general tendency for topics to denote animate entities.

## 5 Conclusions

I have argued in this paper that the general idea that Topicalization and Left-Dislocation are topic marking devices is too simplistic. I aimed to look into functionalist linguistic research regarding these constructions and I tried to create a synthesis with the concepts of generative research. In my view, TOP is a marker of contrastive IS categories, Contrastive Topic and Contrastive Focus, whereas LD corresponds to thematic shifters. The following passage, from Prince (1998) is a nice illustration of these statements:

- (24) She had an idea for a project. She's going to use three groups of mice. *One, she'll feed them mouse chow*, just the regular stuff they make for mice. *Another she'll feed them veggies. And the third she'll feed junk food.*

In this passage, two LDs are followed by a TOP. The LDs represent subtopics of the groups of mice, introduced in the second sentence. They are part of a set, but not contrasted. What is contrasted is the third group of mice. This is quite obvious from the setting, the experiment, the aim of which most probably is to evaluate the effects of junk food. So what I claim is that although both TOP and LD may indicate that the denotatum of the fronted constituent is an element of a set, it is only TOP that actually evokes a contrast with other members of the set.

Chafe (1976) already suggested that TOP is necessarily contrastive. He defined "contrast" as assertion on the part of the speaker that one of "a limited number of candidates" is "correct". Birner & Ward (1998) criticizes this view on the basis of examples like (25):

- (25) The only time the guy isn't considered a failure is when he resigns and announces his new job. That's the tipoff, "John Smith resigned, future plans unknown" means he was fired. "John Smith resigned to accept the position of president of X company" – then you know he resigned. *This little nuance you recognize immediately when you're in corporate life.*

They claim that “it seems unlikely that the speaker is asserting that one little nuance is the ‘correct selection’ from some set of little nuances.” I think Chafe (1976) was right in his claim that TOP is contrastive, but he gave a wrong definition of contrastiveness. What counts is not whether the number of candidates is limited or not, or whether there is a “correct” selection, but the fact that the topicalized constituent does evoke the presence of a set of salient alternative members, as in Titov’s (2013) definition of contrast. I think that this is intuitively true even for (25). It does evoke the inference that there are other nuances in corporate life that one could talk about. Left-dislocated entities may be set-members, but the other members of the set are not salient in relation to the left-dislocated element. This is particularly clear in example (22) (*Tom, where is he?*), which has zero implication suggesting that the speaker might also look for other people. What is important is the newly introduced topic (*Tom*), set-membership is non-existent in this case.

These notions (Contrastive Topic, Contrastive Focus, Thematic shifter) are recognized categories in generative research, so this attempt is a favorable move in the goal of bringing different research traditions closer to each other.

The formalization of these suggestions is subject to further research. This is not an easy task. One direction one could take is to regard “contrast” as a primitive IS notion that characterizes both C-FOCUS and C-TOPIC, but not Thematic Shifters or Information Foci (see e.g. Vermeulen 2009). Another intriguing possibility is Titov’s (2013) recent suggestion that C-FOCUS and C-TOPIC are not separate IS categories, but one category in different configurations. A third option could be to try to define IS notions in terms of discourse-linkedness or prominence (e.g. Gazdik 2011).

Because of the several linguistic levels involved, I think models with multiple levels of representation like Lexical Functional Grammar would fare the best in formalizing these phenomena. In this model of grammar, there have already been some advances in the formal representation of Information Structure (see King & Zaenen 2004 and Gazdik 2011), phonology (Mycock and Lowe 2013) and discourse structure (Gazdik 2011).

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