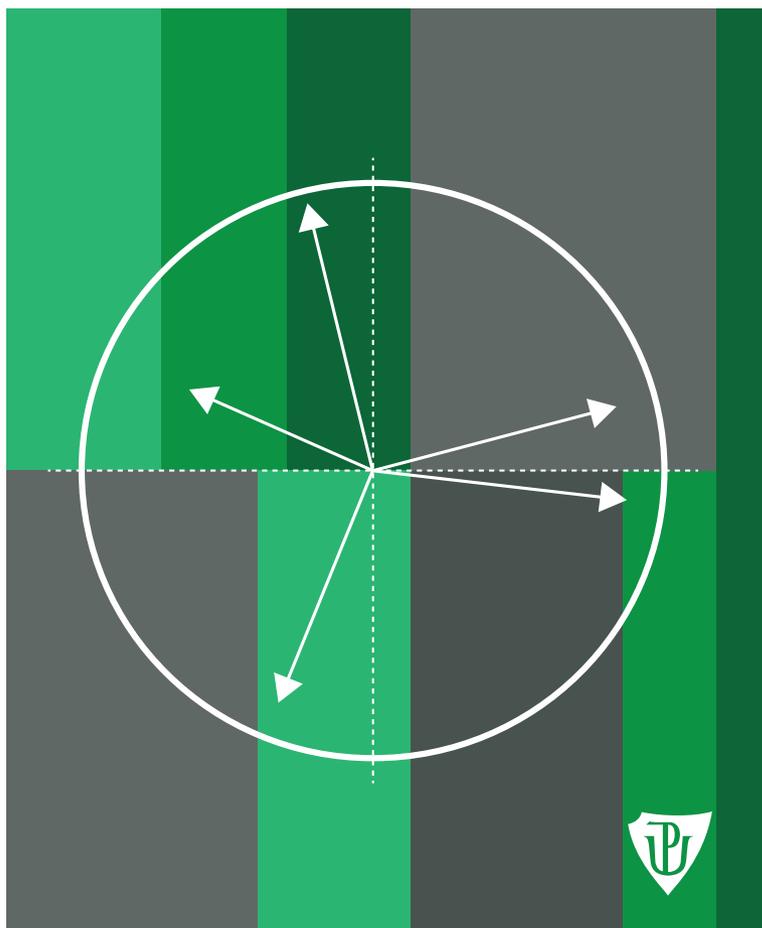


Edited by
Joseph Emonds, Markéta Janebová, and Ludmila Veselovská

Language Use and Linguistic Structure

Proceedings of the Olomouc Linguistics Colloquium 2018

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Alphabetical List of Authors

Vahram Atayan

Heidelberg University
Heidelberg, Germany

Anita Bagi

University of Szeged
Szeged, Hungary

Benedetta Baldi

University of Florence
Florence, Italy

Michaela Čakányová

Palacký University
Olomouc, Czech Republic

Anna Cardinaletti

Ca' Foscari University of Venice
Venice, Italy

Yi-ming Marc Chou

National Tsing Hua University
Hsinchu, Taiwan

Tamás Csontos

John von Neumann University
Kecskemét, Hungary

Mojmír Dočekal

Masaryk University
Brno, Czech Republic

Joseph E. Emonds

Palacký University
Olomouc, Czech Republic

Bettina Fetzter

Heidelberg University
Heidelberg, Germany

Volker Gast

Friedrich Schiller University
Jena, Germany

Giuliana Giusti

Ca' Foscari University of Venice
Venice, Italy

Ildikó Hoffmann

University of Szeged
Szeged, Hungary

Anders Holmberg

Newcastle University
Newcastle upon Tyne, UK

Karolina Janacsek

Eötvös Lóránd University
Budapest, Hungary

Eszter Kárpáti

University of Pécs
Pécs, Hungary

Marie Krappmann

Palacký University
Olomouc, Czech Republic

Chang Liu

Université Paris VIII/UMR 7023 CNRS
Paris, France

Markéta Malá

Charles University in Prague
Prague, Czech Republic

Janusz Malak

University of Opole
Opole, Poland

M. Rita Manzini

University of Florence
Florence, Italy

Mark Newson

Eötvös Loránd University
Budapest, Hungary

Taisuke Nishigauchi

Kobe Shoin Women's University
Kobe, Japan

Tomáš Novotný

Charles University in Prague
Prague, Czech Republic

Ana Ojea

University of Oviedo
Asturias, Spain

Iveta Šafratová

Masaryk University
Brno, Czech Republic

Leonardo M. Savoia

University of Florence
Florence, Italy

Denisa Šebestová

Charles University in Prague
Prague, Czech Republic

Krisztina Szécsényi

Eötvös Loránd University
Budapest, Hungary

Tibor Szécsényi

University of Szeged
Szeged, Hungary

István Szendi

University of Szeged
Szeged, Hungary

Anna Szeteli

University of Pécs
Pécs, Hungary

Marta Tagliani

University of Verona
Verona, Italy

Lujza Beatrix Tóth

University of Szeged
Szeged, Hungary

Guido Vanden Wyngaerd

KU Leuven
Brussels, Belgium

Qi Wang

Newcastle University
Newcastle upon Tyne, UK

Anne Weber

Heidelberg University
Heidelberg, Germany

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We would also like to express our immense gratitude to all the reviewers who devotedly participated in the process of accepting and reviewing the papers for the conference and later another round of the peer-reviewing process for the proceedings. Special thanks are also due to Markéta Ziková, for the overall review of the proceedings.

Joseph Emonds, Markéta Janebová, and Ludmila Veselovská

Introduction

The articles in this volume are based on papers and posters presented at the Olomouc Linguistics Conference (OLINCO) at Palacký University in the Czech Republic in June 2018. This conference welcomed papers that combined analyses of language structure with generalizations about language use. The essays here represent, we think, the best of the conference contributions. All these papers have been doubly reviewed, with one reviewer always external to Palacký University, and revised on the basis of these reviews. The sections in the Table of Contents have been determined by their subject matter rather than by a priori “areas.” What follows is the briefest of synopses of each of the papers, grouped into the areas reflected in the Table of Contents.

Part I. Micro-syntax: The Structure and Interpretation of Verb Phrases

In the opening paper, **Michaela Čakányová** focuses on exceptional cases of English *to*-infinitives that express Realis Mood. While the majority of English full infinitives appear to report Irrealis states of affairs such as wishes, hypothetical conditions or orders, this default interpretation can be overridden under specific conditions that involve complement selection by a small number of predicates with an inherent lexical Assertion feature. Realis infinitives never occur as adjuncts or main clauses.

In his contribution, **Tamás Csontos** proposes that not only transitive but also intransitive verbs (with an external argument) can undergo passivization in English, just as in German or Dutch. While passives obligatorily involve subject demotion, the author claims that object promotion is not essential in English. *At night there will be dancing* realizes an intransitive passive. Thus, *-ing* here has the same properties as the passive *-ed/-en* in transitive passives; only their distributions differ.

Chang Liu argues for a non-uniform syntactic analysis of two subtypes of Existential Constructions in Mandarin Chinese. Based on their differences and similarities in terms of syntactic structures and semantic interpretation, it is argued that one is structurally two-ways ambiguous between a PredP structure and a cleft structure, whereas the other only has a cleft structure.

Mark Newson's paper argues that the accusative case assigned to the subject of the *acc-ing* gerund is the unmarked case of the DP domain, assuming Baker's Dependent Case Theory framework. The *acc-ing* gerund is mainly clausal in its internal structure, but has the status of a DP that untypically contains no NP. This is what allows the unmarked case to emerge, since in the presence of an NP a dependent genitive case would be assigned in the Specifier of a DP.

The contribution by **Krisztina Szécsényi and Tibor Szécsényi** discusses a specific pattern of Hungarian object agreement (*-lak* agreement) and argues that it is not restricted to transitive verbs but to accusative environments in a broader sense. Based on parallels with reflexives, it argues for a pragmatic basis for it, resulting in participant-oriented

relational agreement (PORA). The analysis is derived via the permissive constructions of Hungarian showing parallels with passive infinitives cross-linguistically.

Marta Tagliani investigates how Italian-speaking children acquire the logical concept of Double Negation. Children between 3;10-8;2 were tested both in comprehension and production of double negation sentences. The data provide evidence of an initial negative concord interpretation of all multiple negative structures, probably due to children's limited working memory. Italian children then master the Law of Double Negation by age 7;3.

In this section's final paper, **Guido Vanden Wyngaerd** investigates three instances of locative-directional (LOC/DIR) alternation: traditional adverbs like *here* and *there*, locative prepositions in combination with motion verbs, and locative Ps which become directional if the complement of P moves. They all behave distributionally like either locative or directional PPs. Their features stand in a containment relationship, i.e. directions contain locations. Their distributions can be explained as an application of the Superset Principle.

Part II. Micro-syntax: Word-Internal Morphosyntax in Nominal Projections

The joint paper by **Anna Cardinaletti and Giuliana Giusti** addresses the parametric variation found in possessive systems of different Italian dialects. Lexical variation occurs in the possessive forms available (clitics, weak and strong possessive pronouns) and the different properties of kinship terms and common nouns. The tripartite division of pronouns of Cardinaletti and Starke (1999) is extended to possessives and to the different lexical properties of kinship terms and common nouns.

Joseph Emonds investigates where English Sibilant Plurals come from. Very early in Middle English, orthographic *-(e)s* replaces the Old English default "weak" plural *-(e)n*. This essay first shows that *-(e)s* must be *lexically specified* as +Voice and is not due to assimilation. It then argues this voiced *-z* comes from the genealogical ancestor of Middle English, Proto-Scandinavian, whose most prominent plural is *-z* (Haugen 1982). The later Scandinavian change of *-z* to *-r* failed to establish itself in the Anglicized Norse of England, due to sociolinguistic factors.

The contribution by **Anders Holmberg and Qi Wang** deals with roots, categorizers and reduplication in Xining Chinese. In Xining Chinese free nouns are always reduplicated, as an obligatory rule with no semantic effect, while bound nouns are optionally reduplicated in some contexts. The authors argue that the reduplication is derived by copying of the phonological features of the a-categorial root by a null categorizer. This analysis is shown, with extensive data, to correctly predict every occurrence of reduplication in this language.

In the final paper of this section, **Leonardo Savoia, Benedetta Baldi and M. Rita Manzini** address the asymmetric occurrence of sigmatic, nasal and *-i* plural inflections in the DP and in the sentence in some Rhaeto-Romance and North-Lombard varieties of Italian. The authors argue that these asymmetries are (i) restricted to the feminine *-a*

because of the mass/plural properties of Romance *-a*; and (ii) connected to the referential properties of the lexical elements and to the phasal organization of the sentence, which distinguishes phasal heads from their complement.

Part III. Macro-syntax: Structure and Interpretation of Discourse Markers and Projections

Based on discourse binding facts in Formosan languages, the paper by **Yi-ming Marc Chou** proposes that the typological distinctions regarding language-particular sensitivity to Voice for A'-extraction of external arguments can be attributed to the parameter setting of a [TOP] feature on DPs. This conclusion is supported by data from relevant constructions, like unselective-binding, successive-cyclic DP movement, and A' dependency.

The contribution by **Mojmír Dočekal and Iveta Šafratová** reports results of an experiment designed to map the semantic and pragmatic properties of a Czech strong negative polarity item *ani* “not even” and of a positive polarity scalar particle *i* “even”. The results of the experiment support the scope approaches to “*even*-type” of expressions in natural languages, and suggest arguments against the ambiguity approaches to *even*.

The paper by **Eszter Kárpáti, Anita Bagi, István Szendi, Lujza Beatrix Tóth, Karolina Janacsek, and Ildikó Hoffmann** aims to demonstrate that the occurrences of recursion in narrative and dialogue discourse of a person with schizoaffective disorder, both at the syntactic and pragmatic levels, reflect known deficits of linguistic functions in an acute phase. The case study describes language usage in an acute relapse. The appearances of recursive structures were examined in spontaneous speech tasks and in an interview.

In his contribution, **Taisuke Nishigauchi** claims that the concealed question, as well as the specificational sentence, derives from what he calls the Functional Noun Phrase. The head FuncN denotes a relation between two arguments; the outer argument delimits the semantic domain (range) of FuncN, and the inner argument exhaustively specifies the semantic domain of FuncN delimited by the outer argument. The paper explores some intricate issues related to movement to Spec(FocP).

Janusz Malak focuses on parameters as variants of principles within the Principles and Parameters approach and word order typology. Word orders are believed to be modified variants of one basic word order, which appears to be at odds with the minimalist assumption that PF passively reflects the results of all the derivational operations obtaining within narrow syntax, and it also seems too deterministic in light of data coming from different languages. The author postulates that the stringent minimalist theorising should be loosened by transferring part of the derivational labour from narrow syntax to PF.

Ana Ojea discusses the grammatical phenomenon of *Locative Inversion* and explains the differences between English and Spanish in this construction in terms of a Discourse Intentional feature [DI], which is valued by a locative phrase. This feature is an EPP feature in Spanish but not in English. She also approaches the conflict between

computational economy and interface economy in context-sensitive sentences, as well as empirical consequences that follow from this.

This section closes with a contribution by **Anna Szeteli**, who, like several other authors in this volume, presents the findings of experimental research. She focused on the functions of a Hungarian discourse marker *hát*, specific to spontaneous speech. The marker can only be adequately interpreted in discourse contexts. So it was embedded in a read-out experiment and was analyzed by Praat. The pragmatic/semantic properties of the marker were defined in a representationalist dynamic in a pragmatic/semantic framework called *ReALIS (Reciprocal And Lifelong Interpretation System)*.

Part IV. Empirical Approaches to Contrastive Linguistics and Translation Studies

The first three contributions in this section are contrastive studies of German and other languages. In the first paper, **Bettina Fetzer and Anne Weber** focus on complex hyphenated words in English and German, analysing 100 examples for each language extracted from different corpora and comparing their respective characteristics. In a further step, they discuss such structures in terms of a specific challenge for translators, all whilst taking into consideration French and Italian as additional target languages.

In their contribution, **Volker Gast and Vahram Atayan** provide a contrastive analysis of adverbials of immediate posteriority in French and German, specifically *tout de suite*, *immédiatement*, *gleich*, and *sofort*. They show that by carrying out multi-variate analyses of richly annotated data, it is not only possible to determine the distribution of the individual adverbials under investigation but also to compare systems of encoding immediate posteriority and understand the underlying semantic ecologies, e.g. in terms of markedness relations.

In her paper, **Marie Krappmann** uses a comparative approach in order to focus on two linguistic argumentation signals: the causal connector *zumal* and the phrase *da ja* in German and their counterparts in Czech. The analysis is based on two assumptions: first, the linguistic construction of arguments has an essential impact on their identification and potential (Anscombe 1983; Ducrot 1993; Atayan 2006); second, the argumentation structures are one of the parameters of equivalence in translation (Atayan 2007).

The section concludes with two contrastive studies of English and Czech. The contrastive corpus-based study by **Tomáš Novotný and Markéta Malá** investigates English and Czech general extenders (e.g. *or something (like that) / nebo něco (takovýho)*, and *stuff (like that) / a tak(ový věci)*) from both formal and functional perspective, offering an overview of the largely unexplored Czech structures. A close qualitative analysis of some of the collected general extenders reveals that English and Czech GEs have a similar functional load.

Denisa Šebestová and Markéta Malá explore the expression of time in English and Czech children's fiction using data-driven methods based on n-gram extraction. While n-grams proved to be a useful starting point in cross-linguistic analysis, highlighting typological characteristics of the languages, the study suggests that more flexible units may be needed for exploring the means of expressing time. The authors propose relying on patterns which are based on partly lemmatised frequent n-grams and admit some variation.

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

Joseph Emonds and Markéta Janebová

**Part I. Micro-syntax:
The Structure and Interpretation
of Verb Phrases**

English Marked Infinitive Expressing Realis Mood

Michaela Čakányová

Palacký University, Olomouc, Czech Republic

michaela.cakanyova@upol.cz

Abstract: In the majority of cases, the English infinitive expresses “Irrealis”. A formal implementation of this general pattern is worked out in Wurmbrand (2012) and certain aspects are further analyzed in Čakányová and Emonds (2017). However, some English infinitives are clearly “Realis”. These exceptions to the rule include complementation of several categories of verbs and adjectives that have some distinct features. What all these categories seem to share is the way they get selected as complements of closed classes of elements. Also, the governing verbs or adjectives are –Agent. They are all truly exceptional to the vast number of irrealis infinitival uses. The paper argues that in the case of some verbs, they have a feature that requires the complement to be realis and this Ass(ertion) feature of the selecting category head, similar to Zubizarreta’s (2001) Assertion operator present in finite factive complements, overrides the irrealis feature of the infinitive.

Keywords: realis; irrealis; infinitive; perception verbs; selection

1. Introduction

The English infinitive generally serves as an “Irrealis” marker, i.e. as something expressing “possible future” (Stowel 1982), “vague futurity” (Wierzbicka 1988), “potentiality” (Quirk 1985), “possible movement leading to the actualization” (Duffley 2006), or “targeted alternative” (Egan 2008). It may even serve as an alternative to other irrealis moods, namely the imperative and the conditional mood in special constructions and contexts. Other typical usages of the English infinitive include subjects or topics, complements of certain verbs and adjectives and they also form adjuncts (the infinitive of purpose and of result). In clear majority, the infinitive expresses some unrealized event, i.e. irrealis.

There are, however, a few exceptions, when the infinitive appears in constructions that are undoubtedly “Realis”. First, we are going to go over all the possible occurrences of the English infinitives and their irrealis meaning. Then, we are going to contrast these with the realis interpretations. We will try to shed some light on these particular examples and explain the syntactic and semantic reasons for these marginal cases.

2. Infinitive as Irrealis Mood

2.1 Infinitive Used as Imperative and Conditional Mood

There is some similarity between the imperative and infinitive that makes these two moods comparable; neither of them typically expresses the subject overtly. Zwicky (1988, 438) even uses the term “bare imperative” instead of the imperative “because they lack visible subjects – have an ‘understood you’ subject”. In English, the subject is understood as second person singular or plural.

We can often rephrase an imperative phrase using an infinitival phrase.

- (1) (a) Use this twice a day.
- (b) (This is) To be used twice a day.

A comparison of the imperative with the infinitive appears already in Jespersen (2006, 472), who noticed their similarity: “As the imperative is formally identical with the infinitive, it may by the actual speech instinct be felt as such”. This claim is supported also by the fact that embedded imperatives become infinitives (cf. Emonds 2000).

- (2) (a) Go to school!
- (b) My mother told me *to go to school*.

There are, of course, formal differences between these two moods. The imperative as opposed to infinitive uses *do* support for example when negated or for an emphasis. From the above it is clear that the imperative and infinitive in English express hypothetical action, something that should or will be, i.e. irrealis mood.

Infinitives can further appear as a part of a conditional sentence; that is as the part where the conditions are stated. The conditional clause is grammatical as long as the infinitive is the topic of the main clause.¹ They take the position of the

1 According to Emonds (2015) the infinitival subjects (topics) are possible only as CPs (“verbal clauses”) and never as DPs; they are actually in a topicalized, pre-subject position. Haiman (1978) interestingly introduced conditional (*if*) clauses themselves as also topics in the sense of topic-comment or old-new information or, as he calls it, a “framework” for the discourse. And since the infinitival clauses can take the place of conditional clauses in English, they are most likely topics as well.

subordinate clause either as a real future (3), or unreal present (4) condition or as unreal past condition (5).

- (3) To tell him will result in a disaster.
- (4) Not to tell him would be wrong.
- (5) To have warned him would have been less cruel.

In English, the infinitive can be used for conditional clauses because it does not refer to any specific event or action anchored in time. It expresses only a potential (conditional) reality.

2.2 Infinitive in Main Clauses

Even though infinitives are typically subordinate clauses, there are instances where they can be categorized as main clauses because there is no other (finite) predicate present. This category includes indirect directives or titular use of *why* plus *to*-infinitive, exclamatory or optative clauses and infinitival interrogatives.

2.2.1 Indirect Directives

In the case of what we propose to call indirect directives, there is typically *wh*- plus negation present and the sentence can be interpreted using the word *should* which is typical for advice.

- (6) (a) Why not go to the beach?
- (b) Why not do it?
- (c) Why do it?

Example (6a) and (6b) can be rephrased as *We/I/You should go to the beach / do it*. Example (6c) can be also best rephrased using the word *should*; however, there is then no negation and the meaning is not a directive but is still a question: *Why should anybody do it?* This is a softer way of saying: *Don't do it*. It is an alternative to a direct directive with imperative (also irrealis) mood.

2.2.2 Optative Infinitives

Optative infinitival clauses express some kind of wish or longing.

- (7) (a) Oh, to be in Paris again.
- (b) Oh, to be rich.
- (c) Not to worry.

They can be rephrased by using the optative verb *wish*. The example (7a) would be *I wish I were in Paris* and *I want to be rich*. In case of the exclamatory idiom (7c) it is rarely found with a verb other than *worry*, and it can be rephrased by using the verb *should* or the imperative: *You shouldn't worry / Don't worry*. Both cases are irrealis as they do not express facts but rather hypothetical situations.

2.2.3 Polar Echo Constructions

Polar echo constructions (Huddleston and Pullum 2002, 1187) express a wonderment or disbelief over something that is supposedly going to happen. These small clauses are considerably accompanied by a rising intonation and frequently followed by an adjective expressing a further disbelief.

- (8) (a) Peter pass the test? Impossible.
(b) *Peter have passed the test?

In case of example (8a), the alternative full version is *It is not likely that Peter passes the test*. This means that for the speaker the proposition is irrealis. They cannot appear with past infinitive (8b) relating to something that has already taken place as this would conflict with their irrealis feature of pointing towards the future.

The infinitive in main clauses in each of the above subsections expresses irrealis mood through a directive, wish, and disbelief respectively.

2.3 Infinitives as Subjects

As a verb phrase an infinitival clause can be in the function of a subject just like a finite clause. The subjecthood typically entails pre-verbal position and “default agreement” with the verb. The infinitive can precede the predicate (9).

- (9) To err is human.

- (10) It is human to err.

Because of the information structure, the infinitive (focus) is often extraposed, and the subject position is filled by the expletive dummy subject *it* (10) (Rosenbaum 1974). As a subject, the infinitive frequently co-occurs with other irrealis modality markers. “The situation described in the infinitival is often merely potential rather than actualized, and this is reflected in the frequent occurrence of the infinitival in construction with *would be*, where the corresponding non-mandative finite has *if*, not *that*” (Huddleston and Pullum 2002, 1254)

The infinitive as (topicalized) subject seems to always express a non-realization either with or without conditional coloring.

2.4 Infinitives as Adjuncts

The infinitive can have a function of an adjunct expressing various things like purpose or it can replace a relative clause. In these cases, it quite clearly preserves its inherent irrealis feature.

2.4.1 *Infinitive of Purpose*

The infinitive of purpose is always a *to*-infinitive because adjuncts must be maximal projections, i.e. a vP in the sense of Emonds (2000, 13), and it seems to be the particle *to* that is responsible for the futurity (irrealis) reading. The subject of the main clause is typically the agent of the non-finite clause and the clause can be rephrased using the phrase *in order to*. It would be an example of an adjunct or a “higher” purpose clause.

(11) John_i did it PRO_i to see what happens.

But the subject of the infinitive of purpose can be co-referential with the object of the matrix clause (12). In this example it is a lower purpose clause and the infinitive can even have an overt subject introduced by the preposition *for* (13).

(12) We gave John_i a number PRO_i to call Mary at.

(13) Jim bought a book for *Jane* to read to the children.

With the infinitives of purpose, it is clear that there is a pointing towards some future desired or planned goal or purpose. That is why we cannot use the perfect infinitive in such a construction but only the present infinitive.

- (14) (a) *John skipped the last question to *have finished* the test in time.
 (b) *Mary confessed to the crime to *have avoided* the capital punishment.

So, the infinitive here expresses futurity or modality, it seems that futurity is one of the basic properties of the *to*-infinitive.

2.4.2 *Infinitival Relatives*

An adjunct infinitival clause can replace a defining relative clause. There are two basic types of infinitival relative clauses because “integrated relatives may have infinitival form, with or without a relative phrase” (Huddleston and Pullum 2002, 1067). The former type has to comply with two conditions, firstly the relative phrase must consist of a preposition followed by an NP and secondly there can be no subject expressed.

(15) She is the ideal person *in* whom _ to confide.

- (16) The best place *from* which _ to set out on the journey is Aberdeen.
(Huddleston and Pullum 2002, 1067)

The second type are “non wh-relatives”, which are infinitival relatives without a relative phrase, and these form a wider group that allows variations of structures, especially with the ordinal numbers and superlatives. The subject of infinitival relatives can have a general arbitrary reference, or in case of infinitival relatives they also allow overt subjects introduced by the subordinator *for* (18).

- (17) The first to finish will get a cake.
(18) The dilemma for you to consider is going abroad or staying here.

It is the case of both types of infinitival relatives that the role of the infinitive is the same as of a modal, *can*, *should* or of the auxiliary for future tense *will*, i.e. irrealis. All the above examples can be paraphrased using these modals or auxiliaries.

- (19) She is the ideal person in whom you *can* confide.
(20) The best place from which you *should* set out on the journey is Aberdeen.
(21) The first who *will* finish, will get a cake.
(22) The dilemma that you *should* consider is going abroad or staying here.

These data support our claim that the usage of the infinitival relative is regularly and predictably irrealis.

2.5 Infinitives as Complements

Infinitives serve as complements to heads of phrases, mainly verbs and adjectives. If the infinitive serves as a complement, then the infinitival marker *to* expresses its modal reading.

2.5.1 Verbs

Intransitive verbs taking the infinitive as their complement can be divided into four groups: verbs of desire (*want* and *like*) (23), verbs of effort (*try* and *attempt*) (24), verbs of probability (*seem* and *tend*) (25), and aspectual verbs (*begin*) (26) (Biber and Quirk 2012, 705).

- (23) I want/intend/desire to go home.

(24) Jane tried/attempted to study English.

(25) Jim seems/tends to be oversensitive.

(26) John started/began to cook the dinner.

All of these usages of infinitives as complements express something which is only about to happen or is not certain, and thus express a certain feature of futurity or put more generally, irrealis modality.

2.5.2 Indirect Questions

The distribution of interrogative finite and non-finite clauses is similar to other types of clauses. Both finite and infinitival complements of interrogatives are to be found in similar environments.

(27) (a) We don't know *whether* to leave.

(b) We don't know *whether* we should leave.

(28) (a) He decided *what* to eat.

(b) He decided *what* he would eat.

Interrogative infinitival phrases can be paraphrased with finite clauses with a modal element in them and thus the infinitive fulfills the role of the modal auxiliary by expressing a level of uncertainty and futurity, namely they are always irrealis.

2.5.3 Adjectives

Infinitival complementation of most adjectives needs the irrealis feature of the infinitive to persist. This group involves for example the ADJ *scared* which is not factive. This is the reason why the adjective *scared* does not enter any factive contexts not even with gerund, where the meaning is hypothetical. It is not even possible to use past infinitive as a complement of this adjective.

(29) (a) I am scared of travelling in Africa.

(b) *I was too scared to have stayed in Africa.

There are at least two types of infinitival complements of ADJ. According to Rosenbaum (1974, 189) there is a distinction between a prepositional noun phrase (30) and a verb phrase (31) complement adjectives.

(30) I am scared of leaving home.

(31) We are *likely* to leave the country.

This distinction is explicable through the means of syntactic properties of these two types of adjectives. Some adjectives have the ability to raise the agent of the infinitive into the position of the subject of the matrix clause (31). These raising to subject adjectives are few in number, and regarding factivity they do not express any and therefore the infinitival complement retains its irrealis feature. The other, subject control, adjectives (30) are typically non-factive but in some marginal cases they can be also factive (see 3.3).

3. Infinitives with Realis Meaning

We have seen many different uses of infinitival clauses where the *to*-infinitive has an inherent irrealis feature and is thus incompatible with a factive meaning. The sheer volume of the subsections in section (2) points to the fact that the irrealis mood is a default feature of the *to*-infinitive.

Now, we are going to have a look at the very few exceptions to the rule among adjectival and verbal complementation. The common denominator is that all these instances are examples of selection. Other than with selected complements, the adjunct infinitive of result also proves to express certain realis meaning.

3.1 Completion Verbs

There are certain verbs that have the inherent realis feature that overrides the infinitival irrealis in their complement. These verbs, that we decided to call “completion verbs”, are very few in number, which indicates that they are closed class elements. An illustration is the phrasal verb *turn out* and the verb *happen* used in the meaning: *I happen to know him*.

These verbs do not have an agent; their subject is typically not theta marked by the matrix predicate. These verbs belong to the category of raising to subject verbs where the subject of the matrix clause is theta marked by the infinitival VP; the subject is the agent of the infinitive. Just like regular raising to subject verbs, the completion verbs can also appear in idiomatic expressions (32), their matrix negation results in the same reading as the negation of the subordinate clause (33) and when the infinitive is passivized, there is no change of meaning (34).

(32) The cat turns out to be out of the bag.

(33) John doesn't turn out to be nice. = John turns out not to be nice.

(34) John turns out to know Jim. = Jim turns out to be known by John.

For this reason, these verbs, just like regular raising to subject verbs, are more typically complemented with stative verbs (35), even though some active verbal complements are also allowed (36).

- (35) (a) John turns out to be quite nice.
 (b) Jim happens to know you.

(36) Jim happens to sing amazingly well.

It is much more natural for these verbs to have a dummy subject *it* when they are complemented with activity verbs. It is also required to use the complementizer *that* in this case because it introduces a factive (realis) complement.

- (37) (a) ?Jim turns out to cook well.
 (b) It turns out that Jim cooks well.

Zubizarreta (2001, 201) notices that the difference between the factive and non-factive predicates is as follows:

It is likely that factive predicates, which presuppose the truth of their propositional complement, contain an Ass(ertion) operator in its CP. This operator is lexicalized by the complementizer, which explains why it must be obligatorily present
 Complements of propositional attitude verbs lack an Ass operator, therefore, their complementizer may be absent in some languages.

In case of regular raising to subject verbs, the complementizer is not obligatory because the infinitival complement expresses irrealis (38).

- (38) (a) Jim seems to cook well.
 (b) It seems (that) Jim cooks well.

Completion verbs have some feature that requires their complement to be realis, possibly by causing the Ass(ertion) feature of the finite category head to override the irrealis feature of the infinitive. The key point here is that with complements and infinitives in general, when the infinitive gets to LF, it gets interpreted as -Realis expressing future pointing, conditional or other non-factive meaning. There is no I position filled with any time specification. In the case of turn out and happen the infinitive is Realis in LF because the verbal feature is by stipulation imposed on the complement.

In general, we propose that the only means to override the irrealis of the infinitive is via the selection of the matrix verb that is a member of a closed class, -Agent and has the inherent Assertion finite feature.

3.2 Verbs of Perception and Causation

The category of lexical verbs requiring bare infinitival complementation include some apparently transitive verbs of causation (39a) and perception (39b-c). Their list is limited, and they all belong to the closed class of grammatical verbs. These verbs show a pattern similar to ECM verbs, in that they also contain a DP in the accusative case that is the agent of the bare infinitive and which stands between the verb and the bare infinitive: VP+DP+Bare Inf.²

- (39) (a) Jane let *him* help her.
(b) I saw *him* cross the street.
(c) Peter heard *Jane* cry in bed.

Although perception verbs are not typical ECM verbs, they have some key properties in common with other verbs in this category and that is why they are frequently labelled as such. One of their key features which seems to talk for the ECM analyses is that their subjects are non-agentive. Another prototypical feature of ECM construction is demonstrated in examples below. In (40) and (41), we can ask about the complement of the verb which includes the case marked infinitival subject (agent). In case of (42), it is not possible.

- (40) (a) I expect Jim to believe me.
(b) What did you expect?
(c) Jim to believe me. / *Jim.
- (41) (a) I saw Jim leave.
(b) What did you see?
(c) Jim leave. / *Jim.
- (42) (a) I persuaded Jim to believe me.
(b) What did you persuade *(Jim to do)?
(c) To believe me.

2 Verbs of perception are very similar to typical ECM verbs like *judge*, *imagine* or *know* in that the latter verbs also “express something like perception by intellect (inner sight)” (Macháček 1965, 43).

The same as with ECM verbs, here the Spec VP of the infinitive is also case marked by the matrix verb across a phrasal boundary VP, as shown by the reflexive pronouns that require the antecedent to be present within the same clause (43).

(43) I helped/saw [him shave himself / *myself].

Bare infinitives do not appear in control constructions and as a result they do not have their own independent tense (Wurmbrand 2012). The infinitive always takes the same tense as the matrix clause, anything else results in an ungrammatical sentence.

- (44) (a) *Today Jim saw her cry yesterday evening.
 (b) *Last week Jim let her leave next month.
 (c) *Two days ago, Jim could leave tomorrow.

Negation can be placed on the first MOD/AUX, and then the sentential negation results in different reading than the constituent (phrasal) negation with verbs of causation, cognition and perception.

- (45) (a) Peter did not make her cry. ≠ Peter made her not cry.
 (b) Jim did not see her sleep. ≠ Jim saw her not sleep.
 (c) Mark did not watch her win. ≠ Mark watched her not win.

Under passive voice, ECM constructions maintain the same meaning as in the active voice (46a). The verbs requiring bare infinitive complementation also maintain the same meaning under passivization (46b–c). However, it is only possible to passivize a main clause complemented by a bare infinitive as a main clause complemented by a *to*-infinitive. The *to* is inserted into a passive voice sentence because if there are two VPs, there either has to be an overt case between them (ACC) or the infinitival *to*. The *to* is omitted if it is possible to get the +Realis reading as with the verb of perception and causatives.³

- (46) (a) Jim expected Tom to call him. = Tom was expected *to* call Jim.
 (b) Jim made Tom call Harry. = Tom was made *to* call Harry.
 (c) I saw her sneeze. = She was seen *to* sneeze.

³ According to Sheehan (2018) the causatives and verbs of perception do not actually passivize at all. Their passive voice counterpart should not have the infinitival marker *to*. The reason for their inability to passivize is according to Sheehan connected to the phase theory because the A-movement does not have access to phase-edge escape hatches (I or little *v* related projections).

ECM verbs can have expletive embedded subjects either *there* or *it* and still remain grammatical (47a–b).

- (47) (a) Jim expected there to be an open bar.
(b) Jim expected it to be easy to pass the test.

Verbs of causation actually denote two distinct kinds of meaning, for example the verb *make* can mean to cause something to happen as in (48a) or to force somebody to do something as in (48b). In both cases the meaning is realis. The structure is V+V and expresses a single event.

- (48) (a) The sun made her freckles come out.
(b) Jill made Jim clean his room.

The verb *have* in its ditransitive use can mean something like allow to happen in case of (49a) and arrange for something that is happening (49b). Again, in both cases there is a realis reading of the embedded clause.

- (49) (a) I have my plants grow in a greenhouse.
(b) I have Paul come twice a week.

The verbs of perception and causative verbs (in their force meaning) seem to behave in syntactically the same way as ECM verbs, except that the latter require the *to*-infinitive complementation. Causatives and perception verbs require the *to*-infinitive only when passivized and verbs of perception also with the insertion of the dummy object (47). ECM verb complements have an independent temporal reference usually through aspectual markers, perfective *have* or progressive *be* + *-ing*. With verbs of perception and causation the tense of the matrix and subordinate clause is always simultaneous. Semantically perception verbs express facts that were witnessed by the main clause subjects which are experiencers. Causative verbs entail the activity which is in bare infinitive and they are agentive. Both of these groups of verbs have no need for irrealis feature because they are themselves realis and need only the base form of the verb, the bare VP. It is one of our premises that it is the infinitival marker *to* which carries the irrealis feature. If the infinitival marker is not there, the irrealis feature of the infinitive is lost and it depends on the selecting verb whether the overall reading is going to be realis or irrealis.

3.3 Adjectives

When talking about adjectival complementation we can distinguish several kinds. There are adjectives that allow the irrealis of the infinitival complement, as we have seen in 2.5.3. Yet, there are also adjectives (limited in number) that are inherently

factive and their factivity feature overrides the irrealis of the infinitive. This latter type of adjectives (an example is the adjective *proud*) can easily pass all four factivity tests (Kiparsky and Kiparsky 1970):

- (50) (a) I am proud that he is my father.
 (b) I am not proud that he is my father.
 (c) Am I proud that he is my father?
 (d) I seem to be proud that he is my father.

Factivity is typically associated with finite complements as it is the case in (50). This type of adjectives is, however, also capable of having an infinitival complement with factivity meaning:

- (51) (a) I am proud to be his son.
 (b) I am not proud to be his son.
 (c) Am I proud to be his son?
 (d) I seem to be proud to be his son.

There is, however, one condition with this type of adjectives. They are factive only when they are complemented by stative verb complements. With activity verbs, the factivity feature is cancelled and the sentence is more likely to involve the future pointing (52a). However, if the verb is stative (52b) it will simply express the status quo.

- (52) (a) John is proud to go to Africa in June.
 (b) John is proud to be in Africa now.

The special property of the infinitive complementing these adjectives is best seen when the same adjectives are complemented by the gerund of the same verbs because in this case there is an implication of the event actually taking place. So, there is a condition imposed by the main predicate on the complement. In case of (53a) the journey is at least prearranged.

- (53) (a) John is proud of going to Africa.
 (b) John is proud of being in Africa.

The particle *to* in the complementation of factive adjectives serves a similar purpose as finite complementizer *that*. These adjectives like the completion verbs form 3.1 seem to have the Assertive feature that overrides the irrealis of the infinitive when it is selected.

These adjectives, being factive, can be also invariably complemented by finite clauses, same as factive verbs.

(54) Jim is happy that he has us.

(55) I am proud that I am your daughter.

(56) *Jim is likely that he is my brother.

Any future pointing of the infinitive is most clearly cancelled with the past infinitive. It seems that the perfective aspect somehow anchors the infinitival event in time and ensures the realis reading. With this exceptional class of adjectives perfective aspect cancels the modality feature of the infinitive.

(57) John is proud to have gone to Africa in June.

(58) John is happy to have lived on the farm.

The infinitival complementation of adjectives is of various kinds and in most cases, it is irrealis. With a few adjectives just described, the resulting reading is factive because the irrealis feature of the complement is overridden by the factivity feature of the adjective. If the infinitive is changed into past infinitive through perfective AUX *have* any modal or future reading is lost fully, and the whole construction expresses a factive meaning of a realized event.

3.4 Infinitives of Result

Finally, there is a type of infinitive that expresses a result without intention; it is not desired nor known to the experiencer. It thus expresses only a temporal relation. Typically, the word *only* is associated with this type of infinitival usage.

(59) Peter awoke (only) to find that the fire had gone out.

(60) She bought a carton of milk only to realize she had already bought one.

It is obvious that the timeline of the infinitival phrase follows whatever happened in the main clause, that there is a temporal subsequence. The main verb of the finite clause is typically in the past tense and the infinitive of result always describes an event that happened afterwards. Both actions happened in the past and so the infinitive of result describes a resulting, that is realis, situation. If the main verb was in present tense the realis implication would be lost and the sentence would sound strange.

(61) (a) ?She opens / is opening the box to find a mysterious letter inside.

(b) She opened the box to find a mysterious letter inside.

The temporal order is crucial for the infinitive of result. The use of the perfect infinitive which would reverse this temporal order is, therefore, not acceptable.

- (62) (a) *Peter awoke to have found that the fire had gone out.
 (b) *She bought a carton of milk only to have realized she had already bought one.

This type of infinitive cannot be paraphrased using the expression *in order to*. Also, as opposed to the higher infinitive of purpose it is not possible to front the infinitive of result. This inability of the infinitive to be fronted also preserves the temporal order of the clauses.

- (63) (a) Robin arrived home to find a letter waiting for her in her mailbox.
 (b) *To find a letter waiting for her, Robin arrived home.

This last distinction suggests that the infinitive of purpose is more like an independent clause than the infinitive of result which is also an adjunct, but due the non-volitional and almost non-agentive aspect the infinitive of result is less likely to be an independent phrase. The realis is unexpected here and the explanation for it seems to dwell in pragmatic reasons. We do not claim to explain this exception to the general irrealis claim about infinitives.

4. Conclusions

We have seen that infinitives serve a similar purpose, as irrealis or subjunctive mood. Even though they are non-finite clauses meaning they do not show agreement with person, number or tense, their syntactic position is very similar to clauses with modals. Infinitives are irrealis as main clauses, in the position of subject or topic, as adjuncts and as most complements.

There are, however, some cases when the irrealis feature of infinitives can be cancelled. In most of these cases the infinitives are selected complements of some special verbs and adjectives limited in number forming a well-identifiable class that have an inherent Assertive feature that can override the infinitival irrealis or it is the case of the adjunct infinitive of result. It can be summarized that the English infinitive can express realis under very specific conditions, namely when it appears as a complement selected by a closed class item, that is –Agent or in case of some Raising to subject verbs that do not have any agent. The complementing verbs is typically a stative verb. It is the infinitival marker *to* that carries the –Realis feature, which means that bare infinitives are not irrealis (they are mood neutral). The infinitival *to* can become realis in LF and behave like the finite COMP *that* if selected by a factivity adjective or verb. Realis infinitival complements can be typically reformulated as finite realis *that* complements.

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Intransitive Passives in English

Tamás Csontos

John von Neumann University, Kecskemét, Hungary

csontos.tamas@pk.uni-neumann.hu

Abstract: In the present paper I propose that not only transitive but also intransitive verbs (with an external argument) can undergo passivization in English, just like in German or Dutch. While passive constructions obligatorily involve subject demotion, my claim is that object promotion is not an essential process in English passive constructions either. I claim that the *there + BE + V-ing* construction is the realization of the English intransitive passives. First of all, I argue that this construction can take a passive *by*-phrase. Secondly, *-ing* has the same properties as the passive morpheme in transitive passives, i.e., *-ed/-en*, only their distribution is different.

Keywords: intransitive passives; *by*-phrase; passive morpheme

1. Introduction

1.1 Agent-Demotion and Object-Promotion in Transitive Passives

It is generally argued that passivization in English involves two processes: agent-demotion, and object-promotion, cf. (1a) and (1b):

- (1) (a) John kissed Sue yesterday.
(b) Sue was kissed yesterday.

The agent argument can be reintroduced. In this case, a *by*-phrase is required:

- (2) Sue was kissed by John yesterday.

Note that this still counts as external argument demotion as the *by*-phrase has the properties of an adjunct rather than an argument. Thus, the external argument is demoted to an adjunct status.

In order to account for the first property of the passive construction, I claim—along with Baker, Johnson, and Roberts (1989)—that the passive morpheme is an argument which is the bearer of the agent role. It is similar to a clitic with PRO-like properties. Consequently, the passive morpheme is responsible for the fact that there is an implicit external argument present in passive sentences—compare (3a) and (3b):

- (3) (a) The ship sank.
(b) The ship was sunk.

As discussed by Jaeggli (1986), the presence of agentivity in passive constructions is supported by the fact that they allow purpose clauses:

- (4) The price was decreased to help the poor.

Now let us put the second process, i.e., object promotion, under scrutiny. It is often claimed that English passives require the promotion of an object; therefore, (agentive) intransitive verbs cannot be passivized because they lack an object/internal argument. However, as verbs with clausal complements demonstrate, this assumption may not be correct:

- (5) It was believed that he had bought the flat in the centre.

Den Dikken (pers. comm.) casts doubt on this analysis saying that there are analyses according to which sentences like (5) do involve object promotion, with the pleonastic *it* as the deep object and the clause as a satellite. This argument, however, can be easily countered with verbs that behave just like *believe* in (5):

- (6) (a) It was hoped by everyone that the president would not resign.
(b) It was thought that Bill would marry Kate.

These verbs cannot take a pleonastic deep object:

- (7) (a) *I didn't hope it that the president would resign.
(b) *I didn't think it that Bill would marry Kate.

Therefore, the conclusion is that object promotion does not necessarily play an inevitable role in English passive constructions either.

1.2 Passive *By*-phrases

As mentioned previously, the external argument can optionally be reintroduced by a *by*-phrase in a passive construction. This *by*-phrase is identical to the external argument of the passivized verb:

- (8) (a) Bill was kissed by Mary.
 (b) The parcel was sent by Bob.
 (c) The e-mail was received by Susan.
 (d) The dog is feared by all the cats in our neighbourhood.

The *by*-phrases in (8) are restricted by the semantic selection properties of the given predicate. If the verb requires an agent external argument, the *by*-phrase will be interpreted as an agent, e.g., (8a), and if the verb requires a source, a goal or an experiencer, the *by*-phrase will be interpreted as a source (8b), a goal (8c) and an experiencer (8d), respectively.

This type of *by*-phrase is restricted to passive verbs and never occurs with active verbs, as noted by Grimshaw (1990) as well, “since it must be licensed by a suppressed argument” (135). The following is clearly not a counterexample to this claim.

- (9) Kevin was standing by the window.

This *by*-phrase has different properties to passive *by*-phrases: it is an adverb of place and has nothing to do with the subject of *stand*.

Secondly, the *by*-phrases in (10) do not have the same roles and function as the ones in (8) although they resemble *by*-phrases in passive environments.

- (10) (a) Jason did it by himself.
 (b) The ball rolled down the hill by itself.

For instance, *by himself* and *by itself* can be replaced by *on his own* and *on its own*, respectively without producing any change in meaning. This, however, is not possible in passive sentences:

- (11) Adam was killed by himself. \neq Adam was killed on his own.

Finally, a further counterargument may be the presence of the *by*-phrases in (12), as these constructions seem to lack any passive morphology:

- (12) (a) This book is by Chomsky.
 (b) This book by Chomsky.

Note, however, that these examples represent a special case. Grimshaw (1990) also remarks that these constructions can only be about “authorship” and can be interpreted in a restricted way: *this book is written by Chomsky* and *this book written by Chomsky*. Other interpretations such as *this book was opened/burnt/closed by Chomsky* are ruled out. Consequently, these constructions may rather be regarded as hidden passive and thus cannot be considered as real counterexamples.

To summarize, the *by*-phrase in passive sentences realizes the external argument, other *by*-phrases do not. Secondly, in passives the external argument is only realized by a *by*-phrase. The overall conclusion is that there is a one-to-one relationship between the passive *by*-phrase and the passive construction.

1.3 Requirements for Passivization in English

It is generally assumed that there are two requirements for passivization in English. First, the verb must have an external argument,¹ cf. (13a) and (13b):

- (13) (a) John was hit yesterday.
(b) *John was died yesterday.

Secondly, the verb must be transitive, cf. (14a) and (14b):

- (14) (a) The letter will be sent tomorrow.
(b) *It will be danced tomorrow.

The first condition is a cross-linguistic requirement, which is not surprising under the assumption that the passive morpheme takes over the role of the external argument and consequently it is semantically incompatible with verbs that do not take external arguments.

On the other hand, the second requirement seems to be problematic, as there are many languages in which intransitive verbs can undergo passivization as long as they are agentive in nature. The following examples are from German (15a), Dutch (15b), Icelandic (15d), Latin (15e) and Turkish (15g).

- (15) (a) Es wurde gestern getanzt.
it became yesterday danced
“There was dancing yesterday.”

1 This term is used in the sense of Grimshaw (1990). External arguments are prominent in both the thematic and the aspectual dimension.

- (b) Er wordt door de jongens **gefloten**.
 there becomes by the boys whistled
 “There is whistling by the boys.”
- (c) Mij haar werd **gewassen**.
 my hair became washed
 “My hair was washed.”
- (d) *pađ var dansađ í stofunni.*²
 there was danced in the living room
 “There was dancing in the living room.”
- (e) **Salta-tur**.
 dance-PASS.3.SG.
 “There is dancing.”
- (f) **Audi-tur**.
 hear-PASS.3.SG.
 “He/she is heard.”
- (g) Burada **çalış-ıl-ır**.
 here work-PASS-PRES
 “People work here.”
- (h) Pencere **aç-ıl-dı**.
 window open-PASS-PAST
 “The window was opened.”

Note also that in these languages the same passive element is used both in transitive and intransitive passives, compare (15b) and (15c), (15e) and (15f), and (15g) and (15h), for instance.

In the next section, I argue that English is not different from these languages with respect to the second condition, i.e., a verb must have an internal argument to be able to undergo passivization.

² This example was borrowed from Sells (2005).

2. Intransitive Passives in English

2.1 *By*-phrases and the Passive Morpheme

In this section I argue that English does not actually differ from other languages with regard to the set of verbs allowing passivization. Of course, sentences with pleonastic *it* (cf. German) and the transitive passive morpheme, i.e., *-en/-ed*, are ungrammatical:

(16) *It was danced in the room.

Although this option is ruled out, this does not necessarily mean that it is impossible in English to express something similar in meaning to the German *es wurde gestern getanzt*. The question arises if English were to have an intransitive passive, which structure would it be? The closest construction which exists in English, at least something which means the same, is the *there + BE + V-ing* construction. For instance, take the following example into consideration:

(17) There was dancing in the room.

The next step is to demonstrate that (17) is indeed a passive construction. The first argument is that it can take a passive *by*-phrase, as illustrated below. Recall that it was argued above that there is a one-to-one relationship between the presence of a *by*-phrase and passive sentences.

(18) There was dancing by the guests in the room.

The assumption that *by the guests* is a passive *by*-phrase is supported by the fact that *dance* requires an agent and the *by*-phrase is interpreted as an agent as well. Actually, those kinds of verbs which appear in these *there + BE + V-ing* constructions are all agentive and the accompanying *by*-phrases are all understood as agents.

Secondly, English patterns with Icelandic and Dutch in terms of the presence of the pleonastic element and the construction in these languages can be considered as the “missing link” between more obvious passive constructions and the English one.

Thirdly, the fact that intransitive passives also license purpose clauses, see (19), indicates that they contain an implicit external argument:

(19) There was dancing to celebrate you and your wife.

Now the implicit external argument, i.e., the passive morpheme, has to be identified as well. There are only two options: the pleonastic *there* and the morpheme *-ing*. It is highly unlikely that the pleonastic element is the right candidate for two independent reasons. First of all, passive elements tend to be attached to verbs cross-linguistically,

cf. the examples in (14). Secondly, as demonstrated above, there are at least two languages (Dutch and Icelandic) in which the equivalent of *there* and the passive morpheme co-occur in intransitive passive constructions, so it is unlikely that the pleonastic subject realizes the passive element.

Based on the observations above, it can be concluded that *-ing* is the realization of the passive morpheme. Note, however, that *-ing* is incompatible with transitive verbs, which is illustrated by the examples in (20):

- (20) (a) *There was drinking by a lot of people.
 (b) *There was writing by our new secretary.

This also means that *-ing* and *-ed/-en* are in complementary distribution, which also supports the assumption that (17) is a passive construction. I will return to the distribution of these morphemes soon.

The next question is whether there is independent evidence in favour of our assumption that *-ing* is a passive morpheme indeed. First, consider the following “standard” sentences:

- (21) (a) The car needs repairing.
 (b) The car wants fixing.

In these examples, the element in the subject position, i.e., *the car*, is interpreted as the object of *repairing* and the object of this verb is missing. Clearly, this is characteristic of passive constructions. Also, it is suggestive that these examples can be paraphrased as (22a) and (22b), respectively:

- (22) (a) The car needs to be repaired.
 (b) The car wants to be fixed.

In addition, there are varieties of English which can provide further support for the passive nature of *-ing*. According to Murray and Simon (2002), the traditional passive morpheme is used in constructions like in (23a) and (23b) instead of *-ing* in some English dialects, e.g., Scots English and dialects in Western Pennsylvania, Northern West Virginia, etc:

- (23) (a) The car needs repaired.
 (b) The car wants fixed.

Edelstein (2014) adds that as regular passives, these constructions are also compatible with *by*-phrases:

- (24) (a) The car needs washed, not necessarily by you, but by someone before noon.
 (b) The baby wants cuddled by her mother.

Another argument supporting the passive-like status of (21a) and (21b) is the fact that they can license a purpose clause, which indicates the presence of an implicit external argument. This is demonstrated in (25):

- (25) (a) The car needs washing in order to make it more presentable.
 (b) The car wants fixing in order to make it more sellable.

The question which needs to be answered is why it is the *-ing* that is used under certain conditions and why it is the *-ed/-en* which realizes the passive element in other environments. It seems likely that this distinction is dependent on the presence or absence of an internal argument. When it is present, we get the standard passive *-ed/-en*, while when it is missing, we get the intransitive passive *-ing*.

Note that this claim can be challenged by the examples in (21), as it seems that there is an internal argument, i.e., *the car*, present. The way out of this dilemma is to follow Hoeksema's (1994) analysis of the modal verb *need*. According to him, *need* forms a complex predicate with the verb following it. The structure of (26), for instance, is demonstrated in (27):

- (26) The FBI need fear nobody.

- (27) [_S [_{NP} the FBI] [_{VP} [_V [_V need] [_V fear]]] [_{NP} nobody]]] (Hoeksema 1994, 155)

This analysis helps us to maintain the proposal that the morpheme *-ing* is used when a main verb lacks an internal argument. Under this assumption, the lower argument, e.g., *nobody* in (26), is analyzed as the argument of the complex predicate made up of *need* and *fear* and not as the argument of the lower predicate. Therefore, *fear* does not have an internal argument and, consequently, neither does *repair* in (23a). In the other varieties of English, I claim that no complex predicate is formed and thus *this car* in (23a) behaves as the internal argument of the lower predicate, which accounts for the appearance of the *-ed* morpheme.

Note also that the meaning of *want* in (21b) has nothing to do with volition. Actually, *want* in this case resembles *need* or *require* from a semantic point of view. I assume that this shared semantic property may be responsible for their similar behaviour in (21a) and (21b).

2.2 The Category of *V-ing*

Lastly, let us take a closer look at the category of *V-ing* in the *there . . . -ing* construction. I repeat the relevant example below:

(28) There was dancing by the guests yesterday.

Is *dancing* verbal or nominal? My claim is that it is verbal, so it does not pose a problem for the traditional view that the passive morpheme is an inflectional element, which does not alter the grammatical category of the verbs it attaches to. A possible objection to this proposal is that *dancing* can be modified with a determiner or an adjective:

(29) There was some frantic dancing by the guests yesterday.

However, to claim that (28) represents a verbal passive is not to deny that it may also represent a nominal construction simultaneously. In other words, (28) is structurally ambiguous: when there is no determiner, it may or may not be nominal.

Syntactic theories such as Distributed Morphology and Syntax First Alignment (Newson 2010) assume late vocabulary insertion. In these models there are no nouns and verbs in the input, only categoryless roots which take on nominal or verbal characteristics depending on the environments which they are inserted into. Therefore, under these assumptions, the root *dance* in (29) gets nominal properties just because it is inserted into a nominal context, i.e., after a determiner. This also means that the *-ing* does not categorize the root.

It is generally assumed that *there* introduces nominals, e.g., *There are a lot of children in the park*, which may challenge the proposal that *dancing* in (29), for instance, is verbal. Note, however, that the following examples which are similar to the *there + BE + V-ing* constructions in this respect obviously contain verbal elements, which indicates that they are not incompatible with *there*.

- (30) (a) There have been innocent kids murdered in the war.
 (b) (= Innocent kids have been murdered in the war.)
- (31) (a) There were a lot of villages attacked during the conflict.
 (b) (= A lot of villages were attacked during the conflict.)
- (32) (a) There will be many houses destroyed by shell fire.
 (b) (= Many houses will be destroyed by shell fire.)

A counterargument to this claim may be that these sentences are actually some sort of cleft constructions, with the apparent subject of the clause in the cleft position followed by a relative clause:

(33) There have been kids (who were) murdered in the war.

To counter this argument, we have to take into consideration the fact that the meaning of the construction with the relative pronoun is different from the one without. Compare (34a) and (34b):

- (34) (a) What was appalling was that there were kids murdered in the war.
(b) What was appalling was that there were kids who were murdered in the war.

(34a) states that what was appalling is the fact that there were kids murdered in the war, while (34b) states that what was appalling is that there were kids. Obviously, the latter is an existential construction whereas the former is not.

In addition, note that the set of verbs that can be used in the *there + BE + V-ing* construction without a determiner is more restricted than the ones where a determiner is present:

- (35) (a) *There was writing by the secretary.
(b) There was some writing of letters by the secretary.
- (36) (a) *There was selling by the shop assistant.
(b) There was some selling of goods by the shop assistant.

We can account for this observation by saying that the examples in (b) are structurally different from the ones in (a): *some writing of letters* and *some selling of goods* represent *-ing* of gerund, which has the most nominal characteristics among the four types of gerund. In other words, they can be regarded as nominals. So it is not surprising that they can appear more freely in this kind of construction than verbs with the passive *-ing*, which can be used only with intransitive verbs, hence the ungrammaticality of (35a) and (36a). The examples in (b) pattern with nominals like *the book by Chomsky*, see above. Presumably, they also contain a hidden *done*, which is responsible for the appearance of the *by*-phrase. Furthermore, only in NPs can this kind of hidden verb appear. The fact that it is present invisibly in (35b) but not in (35a) demonstrates that the former is nominal, while the latter is not.

3. Conclusion

It can be concluded that intransitive verbs can undergo passivization not only in German, Dutch or Icelandic (and many other languages) but also in English. English patterns with Dutch/Icelandic as far as the choice of the pleonastic subject is concerned. The difference between English and these languages is that English uses two different passive morphemes: *-ed/-en* when the verb has an internal argument and *-ing* when the verb lacks an internal argument, whereas the other languages make use of the same morpheme for both transitive and intransitive passives. Based on the arguments above,

it can be concluded that *-ing* is an inflectional element and the *there + BE + V-ing* intransitive passive construction does have verbal characteristics.

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Existential Constructions in Mandarin Chinese: A Non-Uniform Analysis

Chang Liu

Université Paris VIII/UMR 7023 CNRS, Paris, France

changliu1120@gmail.com

Abstract: Existential Constructions of the type “there be XP_{pivot} YP_{coda} ” in Mandarin Chinese are claimed to be structurally similar to their English counterpart. However, Li (1996) and Liu (2011, 2013) observe that not only can the coda be predicated of the pivot, but also the pivot nominal can be interpreted as the object of the predicate inside the coda. Do these two subtypes have a uniform syntactic structure? Based on their differences and similarities in terms of syntactic structures and semantic interpretation, we argue for a non-uniform analysis of these two subtypes, namely, the former is structurally two-way ambiguous between a PredP structure and a cleft structure, whereas the latter only has a cleft structure.

Keywords: Existential Constructions; A-bar dependencies; predication; cleft structures

1. Introduction

This paper investigates the syntax of Existential Constructions (henceforth ECs) with the copula *you* in Mandarin Chinese.¹ As illustrated in (1), the sentence consists of a locative subject, a copula *you*, an indefinite pivot, and a coda. Coda is defined as “any constituent that follows the pivot NP and is external to it” (Francez 2007, 19). In (1),

1 Huang (1987) classifies four types of ECs in Mandarin Chinese, of which the focus of this paper is his Type I.

the pivot *yi-ge nūhai* “one-CL girl” is interpreted as the subject of the predicate inside the coda, i.e., *canjia-guo* “participate-EXP”.

- (1) (wo ban-shang) you [yi-ge nūhai]_{pivot} [canjia-guo
my class-in COP one-CLF girl participate-EXP
gechang bisai]_{coda}
singing competition
“(In my class) there is a girl who has participated the singing competition.”²

Nevertheless, Li (1996) and Liu (2011, 2013) have observed another subtype, where the pivot is interpreted as the object of the predicate inside the coda, as shown in (2). We therefore call this subtype *ECs with object-gap (OG) coda*, if we assume that there is a gap in object position³. Consequently, we dub the previously mentioned subtype *ECs with subject-gap (SG) coda*, assuming a gap in the subject position inside the coda, as illustrated in (3).⁴

- (2) you [yi-ge ren]_{pivot} [Zhangsan bu renshi t_i]_{coda}
COP one-CLF person Zhangsan NEG know
“There is a person_i who Zhangsan does not know t_i.”
- (3) you [yi-ge ren]_{pivot} [t_i bu renshi Zhangsan]_{coda}
COP one-CLF person NEG know Zhangsan
“There is a person_i who does not know Zhangsan.”

Li (1996) and Liu (2011, 2013) argue for a uniform syntactic structure for these two subtypes. However, we observe that ECs with SG coda and those with OG coda are not only different in terms of their syntactic structures but also different in terms of semantic interpretation. Therefore, we argue for a non-uniform analysis of these two subtypes of ECs.

The remainder of the paper is organised as follows. In Section 2, we show the different syntactic properties associated to these two subtypes of ECs, as well as

2 The abbreviations in this paper are glossed as follows: COP: copula; CLF: classifier; DE: the structural particle placed between an NP and its determiner; EXP: experiential aspect; NEG: negative element; PROG: progressive aspect; SFP: Sentence Final Particle.

3 Here, *gap* is a cover term for empty category.

4 For the sake of exposition, the examples such as (2) and (3) are translated with *that* or *who*. However, two points are to be clarified: first, there is no morphological counterparts of *that* or *who* in the Chinese data; second, the occurrence of *that* or *who* in the translation does not mean that the data at issue are to be analysed as relative clauses or pseudo-relatives.

- (6) *you [yi-ge nanhai_i] \emptyset you [san-ge nühai_j]
 COP one-CLF boy and COP three-CLF girl
 [t_{i+j} zai ting yinyue]
 PROG listen to music
 (“There is a boy and three girls who are listening to music.”)
- (7) *you [yi-ge nanhai_i] \emptyset you [san-ge nühai_j]
 COP one-CLF boy and COP three-CLF girl
 [Zhang laoshi hen xihuang t_{i+j}]
 Zhang teacher very like
 (“There is a boy and three girls that Prof. Zhang likes.”)

People may ask whether overt coordinators may render the sentences grammatical, given that Chinese has different types of coordinators (Zhang 2008). As illustrated in (8) and (9), the nominal coordinators *he/gen* “and” can coordinate two DPs, while the clausal coordinator *erqie* “and” can coordinate two IPs (Li and Huang 2009).

- (8) Zhangsan he/gen/*erqie Lisi dou hen congming
 Zhangsan and Lisi all very smart
 “Zhangsan and Lisi are both smart.”
- (9) Zhangsan hen congming *he/*gen/erqie Lisi ye hen congming
 Zhangsan very smart and Lisi also very smart
 “Zhangsan is smart and Lisi is also smart.”

Li and Huang (2009, 452, [44], [45])

However, the occurrence of overt coordinators cannot make (6') and (7') acceptable either.

- (6') *[you yi-ge nanhai_i] he/gen/erqie [you
 COP one-CLF boy and COP
 san-ge nühai_j] [t_{i+j} zai ting yinyue]
 three-CLF girl PROG listen to music
 (“There is a boy and three girls who are listening to music.”)
- (7') *[you yi-ge nanhai_i] he/gen/erqie [you
 COP one-CLF boy and COP
 san-ge nühai_j] [Zhang laoshi hen xihuang t_{i+j}]
 three-CLF girl Zhang teacher very like
 (“There is a boy and three girls that Prof. Zhang likes.”)

Furthermore, when we substitute the overt coordinators for the covert coordinator in (4) and (5), neither of them is judged grammatical, as shown in (4') and (5').

- (4') *you [yi-ge nanhai_i] [t_i zai kanshu] he/gen/erqie
 COP one-CLF boy PROG read and
 [san-ge nühai_j] [t_j zai ting yinyue]
 three-CLF girl PROG listen to music
 (“There is a boy who is reading a book and three girls who are listening to music.”)

- (5') *you [yi-ge xuesheng_i] [Zhang laoshi hen xihuang t_i]
 COP one-CLF student Zhang teacher very like
 he/gen/erqie [san-ge xuesheng_j] [Li laoshi hen xihuang t_j]
 and three-CLF student Li teacher very like
 (“There is a student who Prof. Zhang likes and three students who Prof. Li likes.”)

In this subsection, we have shown that the pivot-coda string makes up a constituent given the successful coordination by covert coordinator. However, the copula *you* and the pivot nominal do not form a constituent.

2.2 Modal Auxiliary Placement

Deontic modal auxiliaries such as *bixu* “must” and *keyi* “can” precede VPs. However, as shown in (11), they do not precede sentence subjects.

- (10) Zhangsan bixu/keyi zhaogu Lisi
 Zhangsan must/can take care of Lisi
 “Zhangsan must/can take care of Lisi.”
- (11) *bixu/keyi Zhangsan zhaogu Lisi
 must/can Zhangsan take care of Lisi

When they precede the copula *you* in the ECs with SG coda, the sentence is well-formed, as shown in (12); by contrast, when they precede the copula *you* in ECs with OG codas in (13), the sentence is ill-formed.

- (12) bixu/keyi you [yi-ge xiaozhang_i] [t_i mingtian
 must/can COP one-CLF principle tomorrow
 jiejian xin xuesheng daibiao]
 receive new student representative
 “There must/can be a case that a principle receives the new student representatives tomorrow.”

- (13) *bixu/keyi you [yi-ge xuesheng daibiao_i]
 must/can COP one-CLF student representative
 [Zhang xiaozhang mingtian jiejian t_i]
 Zhang principle tomorrow receive
 (“There must/can be a case that there is a student representative that Principle Zhang receives tomorrow.”)

We can see that the modal auxiliary placement sets ECs with OG coda apart from those with SG coda.

2.3 The Pivot-Coda String Is Clause-Like

In root context, pivot nominals must be indefinite, exhibiting the Definiteness Effect like English *there*-sentences (Milsark 1974; Li 1996), as shown in (14) and (15).

- (14) you [yi-ge ren_i/*Lisi_i] [t_i bu renshi Zhangsan]
 COP one-CLF person/Lisi NEG know Zhangsan
 “There is a person/*Lisi who does not know Zhangsan.”

- (15) you [yi-ge ren_i/*Lisi_i] [Zhangsan bu renshi t_i]
 COP one-CLF person/Lisi Zhangsan NEG know
 “There is a person/*Lisi who Zhangsan does not know t_i.”

If we substitute a definite demonstrative phrase for the indefinite pivot, the pivot-coda string can occur independently in root context. In (16) which is derived from (14), *na-ge xuesheng* “that-CLF student” is the subject of the clause, while in (17) which is derived from (15), *na-ge xuesheng* “that-CLF student” occupies a topic position of the clause. We therefore can observe that pivot-coda string is clause-like, that is, it is like an IP in ECs with SG coda in (16) and a CP in ECs with OG coda in (17).

- (16) na-ge xuesheng [bu renshi Zhangsan]
 that-CLF student NEG know Zhangsan
 “That student does not know Zhangsan.”

- (17) na-ge xuesheng_i, [Zhangsan bu renshi t_i]
 that-CLF student Zhangsan NEG know
 “That student_i, Zhangsan does not know t_i.”

The reason of calling the string being clause-like is because the copula *you* is obligatorily present when the pivot is a non-bare indefinite noun phrase; in other words, without *you*, the sentences in (18) and (19) are incomplete and ungrammatical. It is well-known in

the literature that non-bare indefinite noun phrases in Chinese do not occur in subject or topic position (cf. Li and Thompson 1981; Shyu 1995; Tsai 1994).⁵ Therefore, the addition of the copula *you* avoids violating the prohibition against non-bare indefinites in subject and topic positions.

(18) *[yi-ge ren]_i_{pivot} [t_i bu renshi Zhangsan]_{coda}
 one-CLF person NEG know Zhangsan
 (“[There is] a person does not know Zhangsan.”)

(19) *[yi-ge ren]_i_{pivot} [Zhangsan bu renshi t_i]_{coda}
 one-CLF person Zhangsan NEG know
 (“[There is] a person_i Zhangsan does not know t_i.”)

In this subsection, we have seen that the pivot-coda string is like a clause in both ECs with SG coda and ECs with OG coda.

2.4 A-bar Dependencies

The two subtypes at issue also have another similarity in that both structures involve A-bar dependencies established between the pivot and the gap inside the coda. This is evidenced by Reconstruction Effects (cf. 2.4.1), the licensing of Parasitic Gaps (PG) (cf. 2.4.2) and Weak Crossover (WCO) Effects (cf. 2.4.3).

2.4.1 Reconstruction Effects

Reconstruction Effects for Binding Conditions can be easily illustrated for ECs with OG coda. Liu (2011, 2013) notes that the anaphor *ta-ziji* “himself” can be bound by the pivot nominal in (20). According to Huang and Tang (1991), the anaphor *taziji* “himself” must be locally bound, obeying the Binding Principle A. Thus, if the pivot nominal can be reconstructed back to the gap position, the anaphor can be successfully bound by the subject *Zhangsan* in the Binding Domain; otherwise, the sentence is left unexplained, given that the pivot *c*-commands the coda on the surface in (20).

(20) you [yi-ben ta-ziji_i de shu]_j [Zhangsan_i
 COP one-CLF himself DE book Zhangsan
 bu xiang kan t_j]
 NEG want read
 “There is a book of himself_i that Zhangsan_i doesn’t want to read.”

Liu 2013, 164, (64)

5 For some exceptions, we refer readers to Li (1998), Tsai (2001).

In addition, Reconstruction Effects can also be observed in (21). If the R-expression *Zhangsan* can be reconstructed back to the object gap position, and can be bound by the c-commanding pronoun *ta* “he”, the sentence results in ill-formedness, due to the violation of the Binding Principle C.

- (21) *you [yi-zhang Zhangsan_i de zhaopian]_j [ta_i bu xiang kan ta_j]
 cop one-CLF Zhangsan de photo he neg want see
 (“There is a picture of Zhangsan_i’s that he_i does not want to see.”)

Regarding ECs with SG coda, (22) shows that the anaphor *ta-ziji* “himself” must be bound by the pivot, whereas the pronoun *ta* “him” must not be bound by the pivot. It implies that the pivot must be in the Binding Domain of the anaphor and the pronoun, cf. the Binding Principles A and B.

- (22) you [yi-ge laoshi_i] [t_i hen chongbai ta-ziji/*ta_i]
 COP one-CLF teacher very admire himself/him
 “There is a teacher_i who admires himself_i/*him_i.”

Example (23) shows that the R-expression *Zhangsan* in the coda cannot be bound by the pivot, because it must be free everywhere, cf. the Binding Principle C.

- (23) *you [yi-ge laoshi_i] [t_i hen chongbai Zhangsan_i]
 COP one-CLF teacher very) admire Zhangsan
 (“There is a teacher_i who admires Zhangsan_i.”)

2.4.2 Parasitic Gaps

A parasitic gap is licensed by an A-bar trace that does not c-command it (Engdahl 1983; see Ting and Huang 2008 for Chinese). In (24) and (25), a parasitic gap, marked as *pg*, occurs in the temporal adjunct *zai . . . zhiqian* “before . . .”. The acceptability of both sentences shows that the gaps before *jiu likai* “already leave” in (24) and after *jianguo* “encounter” in (25) are occupied by A-bar traces. In other words, the licensing of parasitic gaps signals that there is an A-bar chain established between the pivot nominal and the gap resulting from movement.

- (24) you [yi-ge laoshi_i] [[zai Zhang xiaozhan huijian pg,
 COP one-CLF teacher Zhang principle meet
 zhiqian] t_i jiu likai le]
 before already leave SFP
 “There is a teacher_i who, before Principle Zhang met *pg*, t_i already left”

- (25) you [yi-ge laoshi] [Zhang xiaozhang [zai huijian pg,
 COP one-CLF teacher Zhang principle at meet
 zhiqian] jiu jianguo t_i le]
 before already encounter sfp
 “There is a teacher_i that Principle Zhang, before meeting pg_i (officially), has encountered t_i.”

2.4.3 Weak Crossover (WCO) Effects

A-bar movement can be further diagnosed by Weak Crossover (WCO) Effects in ECs with OG coda. WCO effects are found in a construction like (26), where an operator binds both a pronoun and a variable, neither of which c-commands each other. It can be illustrated in (27), in which, when the left-dislocated topic binds a pronoun *ta* “his” and a variable after *xihuang* “like”, with neither of which c-commanding each other, the sentence thus induces WCO.

- (26) *OP_i [. . . pron_i . . .] variable_i
- (27) *na-ge xiaohai_i, ta_i mama bu xihuang t_i
 that-CLF child his mother NEG like
 (“*As for that child_i, his_i mother doesn’t like t_i.”) Pan 2016, 61, (63a)

As shown in (28), ECs with OG coda exhibit WCO effects just like (27). When the pronoun *ta* “his” and the gap after *chong’ai* “adore” are interpreted as being bound by *yi-ge xiaohai* “a child”, the sentence is ill-formed due to WCO.⁶

6 The anonymous reviewer reported that (27) and (28) sounded fine to her/him and to the two Taiwanese informants that s/he consulted. We would like to clarify three issues: first, there may be some variation regarding the grammatical judgement of these two sentences among Mandarin speakers from different dialectal regions, given that the informants consulted and the author of this paper are from northern China. Second, we would like to emphasise that (27) and (28) would be acceptable if the pronoun *ta* “his” and the trace in the object position are interpreted with disjoint references. However, this will not be a genuine case of WCO, which gives rise to ungrammaticality. Third, Zhang (2002) argued that topicalisation shows island effects only in the episodic eventuality contexts (specific eventualities), not in stable state context, such as individual-level predicates, habitual eventualities, etc. This point has also been made explicitly in Pan (2016). In addition, Pan (forthcoming, chap. 4) argues that in a context with a non-episodic eventuality predicate, the object of the predicate can be realised by an implicit *pro*, rather than a gap in case of movement. Zhang’s observation and Pan’s *pro*-analysis seem to account for the non-WCO-effect reported by the reviewer: in (27) and (28), since the predicate *xihuan* “like” is a non-episodic eventuality predicate, the empty category in the object position is in fact a *pro*, but not a gap; the topic is therefore base-generated in

- (28) *you yi-ge xiaohai_i ta_i mama feichang chong'ai t_i
 COP one-CLF child his mother very much adore
 (“*There is a child_i that his_i mother adores t_i very much.”)

Contrary to the ECs with OG coda, the ECs with SG coda do not show any WCO effects as demonstrated by (29).

- (29) you [yi-ge nanhai_i] [zai ta_i mama shangban
 COP one-CLF boy at his mother go to work
 zhihou] kaishi xie zuoye]
 after start write homework
 “There is a boy_i who, after his_i mother went to work, started to do homework.”

In (29), an adjunct intervenes between the subject and the predicate. In fact, there are two possible base-positions for subject in Chinese, either before the adjunct or follows it (cf. Huang 1989). If the subject originates in a position lower than the adjunct, as shown in (29’), the WCO effects will be expected since its movement must cross the pronoun *ta* “his” inside the adjunct. However, the grammaticality of (29) shows that this cannot be the case.

- (29’)you [yi-ge nanhai_i] [zai ta_i mama shangban
 COP one-CLF boy at his mother go to work
 zhihou] t_i kaishi xie zuoye]
 after start write homework

The only possibility is that the subject originates in a position higher than the adjunct, as shown in (29’), in which the movement of the subject does not cross the pronoun *ta* “his” inside the adjunct.

- (29’’)you [yi-ge nanhai_i] [t_i [zai ta_i mama shangban zhihou]
 COP one-CLF boy at his mother go to work after
 kaishi xie zuoye]
 start write homework
 “There is a boy_i who, t_i after his_i mother went to work, started to do homework.”

the left-periphery, co-indexed with the *pro* in object position; as a result, there is no movement ever taking place which would induce the WCO effect. However, given the judgement reported in this paper, there is indeed a movement giving rise to the WCO effect, which would be left unexplained under a non-movement *pro*-analysis proposed by Pan (forthcoming, chap. 4). Again, we do admit that there is a grammatical judgement variation among speakers regarding non-episodic predicates.

In (29''), the trace left by the movement of the subject can bind the pronoun *ta* ‘his’ inside the adjunct, obeying Constraint on Bound Variable Construal à la Reinhart (1983). According to this constraint, the pronoun receives a bound variable reading only if it is bound by the trace left by a quantifier after QR. Therefore, (29'') also involves an A-bar dependency established between the subject and the gap. The fact that (29) does not demonstrate any crossover effects is due to no crossing the co-indexed pronoun.

3. An Analysis

We have observed in Section 2 that first, ECs with SG coda and ECs with OG coda must be differentiated because they do not pattern alike as far as constituency and modal auxiliary placement are concerned; second, they share syntactic properties such as the clause-like status of the pivot-coda sequence and the existence of an A-bar dependency established between the pivot nominal and the gap inside the coda. In this section, we argue that ECs with SG coda are structurally two-way ambiguous between a PredP structure (cf. 3.1) and a cleft structure (cf. 3.3), whereas ECs with OG only have a cleft structure (in 3.2).

3.1 ECs with SG Coda

As for ECs with SG coda, we propose that the copula *you* embed a PredP structure which is made up by the pivot and the coda, as shown in (30). Following Bowers (1993) and Del Gobbo’s (2014) analysis of Type VI ECs in Mandarin Chinese, we assume a Pred^o which introduces a pivot in SpecPred and takes a coda as its complement. Regarding the structure of coda, we analyse it as a CP: given reconstruction (cf. 2.4.1) and pronominal binding (cf. 2.4.3), there is clearly an A-bar dependency established between an operator and a gap in subject position. Thus, we assume that an operator undergoes A-bar movement to SpecCP, leaving a trace in SpecIP. Since we assume that pivot is merged in SpecPred, the operator is therefore co-indexed with the pivot nominal via predication.⁷

⁷ The anonymous reviewer asked whether we should observe the WCO effect in (29) if we adopt the structure in (30), given that in (29) there is an adjunct between the pivot and the coda containing a pronoun co-indexed with the pivot nominal. In Section 2.4.3, we have shown that the grammaticality in (29) is due to that fact that the extraction site is located above the *after*-adjunct, as shown in (29''). Thus, the structure in (29') which gives rise to the WCO effect is ruled out because of the absence of such effect. By adopting the structure in (30), we assume that the Operator movement is initiated at SpecIP, and the *after*-adjunct in (29) is lower than I^o. As a result, no WCO effect is detected. We thank the reviewer for helping us to clarify this point.

(31) you [yi-ge ren_i] [Zhangsan bu renshi t_i]
 cop one-CLF person Zhangsan NEG know
 “There is a person_i who Zhangsan does not know t_i.”

(32) na-ge xuesheng_i, [Zhangsan bu renshi t_i]
 that-CLF student Zhangsan NEG know
 “That student_i, Zhangsan does not know t_i.”

However, the ECs at issue do not behave in the same way as topicalisation with respect to different types of predicates. In (33), it appears that when the coda has a predicate encoding episodic eventuality (specific eventuality), the sentence is ill-formed, in contrast with the well-formed (31) in which the coda has a non-episodic (individual level) predicate *renshi* “know” instead. However, the extractions of a topic in (32) and (34) do not discriminate different type of predicates (Zhang 2002; Pan 2014).

(33) *you [yi-tiao gou_i] [wo zai gouyuan-li zhaodao t_i le]
 COP one-CLF dog I at park-in find sfp
 (“There is a dog that I found in the park.”)

(34) [ni-de gou_i] wo zai gouyuan-li zhaodao t_i le
 you-DE dog I at park-in find sfp
 “Your dog, I found (it) in the park.” Pan 2014, (46a)

In fact, ECs with OG coda pattern with (ex-situ) cleft-focus in showing “Episodic Eventuality Constraint” (cf. Zhang 2002; Pan 2014). (35) illustrates an ex-situ cleft focus structure where the focused element *nide taidu* “you attitude” is fronted and preceded by the copula *shi*, which is glossed as “be” (cf. Paul and Whitman 2008). Pan (2014) has observed that an extracted focus is hardly acceptable in sentences encoding episodic eventualities with action verbs such as *zhao* “look for” in (36), whereas an extracted focus is fully acceptable in sentences encoding non-episodic eventualities such as *xihuan* “like” in (35). Thus, given the contrast between (31) and (33), we see that ECs with OG coda must obey “Episodic Eventuality Constraint” as well.

(35) shi [ni-de taidu_i] [tamen bu xihuan t_i]
 be you-DE attitude they NEG like
 “It is your attitude that they don’t like.” Pan 2014, (49)

(36) *shi [ni-de gou_i] wo zai gouyuan-li zhaodao t_i le
 COP you-DE dog I at park-in find sfp
 (“It was your dog that I found in the park.”) Pan 2014, (46b)

Two questions arise from this analysis. The first question is about how the A-bar dependency observed between the pivot in SpecFoc and the object gap in (41) is syntactically derived. If the pivot undergoes movement to the landing position, it involves a noncyclic movement under the standard analysis of movement (Chomsky 1993). However, this problem can be overcome if we assume Sideward Movement à la Nunes (1995, 2001), which is permitted under the Copy + Merge theory of movement. In this theory, Move is not a primitive operation of the computational system; rather, it is the mere reflex of the interaction among the independent operations Copy, Merge, Form Chain, and Chain Reduction. Take our ECs at issue in (41), at a certain point in the derivation, we have two unconnected phrase structures in (42), which have been independently assembled. The phrase *yi-ge ren* ‘‘a person’’ is then copied and merges with the copula *you* in L, yielding M in (43b); finally K and M in (43) merge, yielding the structure in (44).

(41) you [yi-ge ren_i] [Zhangsan bu renshi t_i]
 COP one-CLF person Zhangsan NEG know
 ‘‘There is a person_i who Zhangsan does not know t_i.’’

(42) K= [Zhangsan bu renshi [yi-ge ren_i]]
 Zhangsan NEG know one-CLF person
 L= you
 COP

(43) K= [Zhangsan bu renshi [yi-ge ren_i]]
 Zhangsan NEG know one-CLF person
 M= [you [yi-ge ren_i]]
 COP one-CLF person

(44) [_{FocP} [· · · [_{vp} [_{VP} [V° you] [yi-ge person_i]]]]] [_{Foc'} [Foc°∅]
 COP one-CLF person
 [_{ip} Zhangsan bu renshi t_i]]
 Zhangsan NEG know
 ‘‘There is a person who Zhangsan does not know.’’

The second question is why we can analyse the *you* + pivot sequence as a focus. In fact, it has been widely argued that ECs introduce focal referents (denoted by pivots) that have not been mentioned in the discourse context (Abbott 1993; Francez 2007). Abbott (1993, 41) claims that the main function of existentials is ‘‘to draw the addressee’s attention to the existence and/or location of the entity or entities denoted by the focus NP’’. Erteschik-Shir (2007) argues that ECs are all-focus sentences predicated of a stage topic, which is defined as ‘‘the spatio-temporal parameters of the sentence (here-and-now of the

4. Summary

The paper examines the syntactic structures of two subtypes of Existential Constructions (ECs) with the existential copula *you* in Mandarin Chinese, namely, ECs with subject-gap (SG) coda and ECs with object-gap (OG) coda. We have shown that they must be differentiated because they do not pattern alike as far as constituency and modal auxiliary placement are concerned. However, they share syntactic properties such as the clause-like status of the pivot-coda sequence and the existence of an A-bar dependency established between the pivot nominal and the gap inside the coda. Based on these observations, we argue that ECs with SG coda are structurally two-way ambiguous between a PredP structure (cf. Bowers 1993; Del Gobbo 2014) and a cleft structure à la Pan (2017, forthcoming), whereas ECs with OG coda only have a cleft structure.

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Unmarked Accusative in Non-Finite Domains: The English *acc-ing* Gerund

Mark Newson

Eötvös Loránd University, Budapest, Hungary

newson.mark@btk.elte.hu

Abstract: This paper analyses the accusative subject of the *acc-ing* gerund as an instance of an unmarked case assigned under the principles of Dependent Case Theory (Baker 2015). The analysis assumes that the *acc-ing* gerund is mainly clausal in its internal structure, but counts as a DP domain for case assignment purposes (Abney 1987; Pires 2006). Other DP structures contain an NP which normally prevents unmarked case being assigned to the subject/possessor, but this is not true for the *acc-ing* gerund. I defend the claims that accusative can be an unmarked case and that genitive is a dependent case and investigate some apparently problematic structures for my analysis.

Keywords: *acc-ing* gerund; Dependent Case Theory; accusative

1. Introduction: The English *acc-ing* Gerund

The English *acc-ing* gerund, exemplified in (1), has been the subject of much investigation (for example, Horn 1975; Schacter 1976; Reuland 1983; Abney 1987; Pires 2006):

(1) [Him washing the dishes] surprised everyone.

Researchers' opinions vary on basic issues such as its category (clause or DP) and the source of the accusative case on its subject. Certainly it is the least nominal of all the English gerunds, having many internal properties similar to a clause. At the same time, its external distribution is more like a DP (see Abney [1987] for a thorough discussion of the properties of the construction).

From a standard Case theory position, whether couched in terms of case assignment or case feature checking, there are two possibilities for the source of the accusative case: the assigning/checking head is either internal or external to the gerund.¹ The former possibility, adopted by Abney (1987) for example, tends to lead to rather *ad hoc* suggestions as there is no obvious element in the gerund which stands in a one to one relationship with the accusative case. The *-ing* morpheme appears in all gerunds, which may have genitive or even no subjects and if we propose an abstract accusative assigning head, as Abney does, its only justification is the accusative case itself.

The proposal that there is an external head responsible for the accusative assumes a similar analysis as proposed for ECM constructions. Yet the *acc-ing* gerund is very different from ECM clauses. It never appears as the complement of an ECM verb (Pires 2006), which should be an ideal position for it:

- (2) (a) I expect [him to wash the dishes].
(b) *I expect [him washing the dishes].

Moreover, the *acc-ing* gerund can appear in subject position which ECM clauses cannot:

- (3) (a) [Him washing the dishes] was unexpected.
(b) *[Him to wash the dishes] was unexpected.

If the ungrammaticality of (3b) is due to the unavailability of accusative case for the subject of the ECM clause, it is a puzzle why the *acc-ing* gerund is grammatical here. Moreover, if there is an external case assigner/checker, we would expect the case assigned to differ depending on which position the gerund appears in. However, the accusative case of the subject stubbornly remains accusative whether the gerund itself is in subject or object position:

- (4) (a) I remember [him washing the dishes].
(b) [Him/*he washing the dishes] was uncharacteristic.

In this paper, I will provide an analysis of the *acc-ing* gerund from a different theoretical stand point; one which does not assume that case is assigned by a head. For this reason, this analysis does not face the same problems as does standard Case theory in

1 Reuland (1983) proposes a hybrid theory in which case is assigned to the gerund from an outside source and the head of the construction, the *-ing* morpheme, transmits the case to its specifier. Alongside the assumption of the dubious mechanism of case transmission, the account suffers from some of the problems outlined here for the assumption of internal and external case assigners.

trying to discover where the case assigning head is. This turns out to be a positive move and the result is consequently less problematic. In the next section I will discuss this analysis, starting with an introduction to Dependent Case theory (DCT: Baker 2015), on which it is based.

2. The Analysis

2.1 Dependent Case Theory

Based on earlier work by Marantz (1991), Baker (2015) develops a theory of case assignment which relies on the relationship between DPs rather than one between a DP and a case assigning head. The theory relies on the distinctions between transitive and intransitive contexts: the presence of two DP arguments, one c-commanding the other, in the former and only one DP in the latter. Only in transitive contexts can a special *dependent* case be assigned to one or the other of the two DPs. The other DP and the DP of the intransitive context will be assigned unmarked case. The theory allows us to easily capture the difference between nominative–accusative and ergative–absolute case systems.² Suppose the c-commanded DP in a transitive clause (the object) is assigned dependent case. In this case the subjects of the transitive and intransitive clauses will get unmarked case:

$$(5) \begin{array}{c} \text{DP}_{\text{UNM}} \quad \text{VP} \quad \text{DP}_{\text{DEP}} \\ \text{DP}_{\text{UNM}} \quad \text{V} \end{array}$$

As the two subjects get the same case and the object gets a different one, this is clearly a nominative–accusative system. Now suppose the higher of the two DPs in the transitive clause gets the dependent case. The other two DPs will get the unmarked case:

$$(6) \begin{array}{c} \text{DP}_{\text{DEP}} \quad \text{V} \quad \text{DP}_{\text{UNM}} \\ \text{DP}_{\text{UNM}} \quad \text{V} \end{array}$$

Here the subject of the transitive is distinguished from the object and the subject of the intransitive. This is an ergative–absolute system.

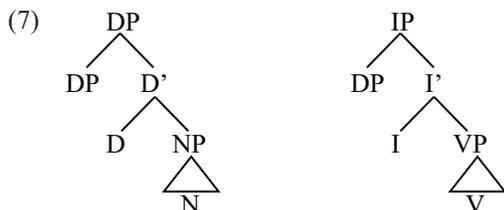
To confine the application of the rules of case assignment to a local part of the structure, Baker introduces the notion of a domain, which he suggests might be equated to phases (CP, DP, etc.). The two DPs, whose presence defines the conditions of the assignment of dependent case, must be within the same domain. Thus

² Baker's (2015) theory also accounts for the tripartite case system, in which both the subject and the object of a transitive structure are assigned different dependent cases, and the neutral system, in which no dependent case is assigned. I will not detail this aspect of Baker's theory however as it is irrelevant to the current paper.

the situation in which the presence of an object in a lower clause has an effect on the case assigned to the subject of a higher clause is prevented. In addition, domains have another function. Different domains may have different dependent and unmarked cases defined for them. For example, while the unmarked case inside the clause might be nominative, a different case, perhaps genitive (but see later), might be selected for the DP domain.

A question arises which is of relevance to the present paper concerning the domain status of VP. As a spell out domain it stands to be a case domain and Baker claims that it is. However, languages appear to differ in terms of whether VP always behaves like a domain. In some languages only those NPs which move out of the VP interact with the subject to determine case and those which do not behave as though they are in separate domains. Other languages allow interaction between all NPs that originate inside the VP and the subject, regardless of whether there is any reason to believe that they move out of the VP or not. To accommodate this difference, Baker claims that while VPs are always spell out domains, there is a distinction between those whose internal content can be considered when evaluating the case assignment in the clause (a *soft* phase boundary) and those whose internal contents are inaccessible at the clausal level (a *hard* phase boundary). English qualifies as having a soft VP.

Baker also distinguishes between phrases which can be assigned case, *case receivers*, and phrases whose presence determines the conditions under which dependent case can be assigned, *case competitors*. The DP is clearly both a case receiver and a case competitor. APs, on the other hand, may bear case but their presence never affects which case is assigned. Therefore they are case receivers but not case competitors. Baker claims that NPs are the opposite to adjectives, i.e., something that cannot bear case but whose presence affects which case can be assigned. This is motivated by the possibility of ergative possessors. Ergative case, as we discussed, is a dependent case assigned to the higher of the two case competitors. But the possessor is often the only DP to be found within the DP domain. How can it therefore be assigned a dependent case? Its configuration looks similar to an intransitive context in which only unmarked case can be assigned:

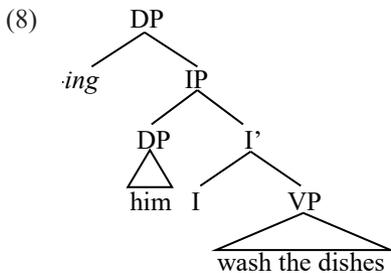


Baker suggests that it is the NP that counts as the other case competitor in the domain, thus allowing dependent case to be assigned to the possessor.

Having introduced the relevant notions of DCT, we can now move on to consider the structural facts concerning the *acc-ing* gerund which inform how case is assigned within it.

2.2 The Structural Analysis of the *acc-ing* Gerund

As mentioned previously, there is disagreement about the category of the *acc-ing* gerund. Its clausal properties suggest that it should be analyzed as a clause but its distribution suggests that it should be a DP. Abney (1987) attempted to capture both of these aspects of the construction by proposing that it is a clause which becomes nominalized only at its highest structural level:

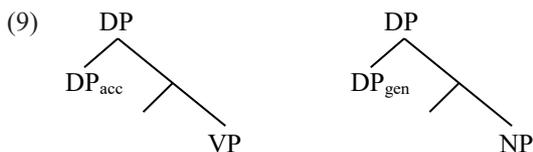


Pires (2006) offers an alternative analysis in which the gerund is an IP whose head (*-ing*) requires case and so its distribution is the same as a DP. To my mind, this is tantamount to claiming that the construction does have DP properties at its top most level and so there is not much difference between the two analyses apart from the nominalising mechanism itself: for Abney the *-ing* morpheme does this in the same way that category changing morphemes generally do and for Pires *-ing* is a head which transmits its properties to the phrase. This difference is immaterial for my purpose. The only thing I require is that the *acc-ing* gerund count as a DP domain. Whether this is because it is a DP categorially or because it has DP properties which determine its distribution is not significant.

2.3 The Analysis

If the *acc-ing* gerund counts as a DP domain, then it is a DP domain with an unusual property: it does not contain an NP. DPs headed by determiners contain NPs as this is the only complement determiners select for, in the same way that inflections select for VPs and complementisers select for IPs. This might be stated in terms of Grimshaw's (1991) notion of an extended projection: determiners F-select NP and so DP is the extended projection of NP.

On the assumption that NP is a case competitor, this means that the *acc-ing* gerund has an internal structure approximating an intransitive context whereas all other DPs have a transitive-like structure, containing two case competitors:



We can use this distinction to our advantage in offering an explanation of why the *acc-ing* gerund has a different case on its specifier: accusative case must be unmarked in the DP domain and hence is assigned to the subject when there is no other case competitor. As a consequence we must accept that genitive case is a dependent case, assigned in the presence of another case competitor.

It might be wondered why, if *acc-ing* gerunds have more of a clausal structure, the appearance of an object in the VP does not affect the case assigned to the subject. This turns out to be support for the assumption that accusative is the unmarked case in the DP domain, as in a dominantly nominative–accusative system which English adopts, the unmarked case is assigned to the subject regardless of whether or not an object is present. It is the subject’s presence that determines that the object will be assigned accusative case, which in the gerund it is.³

From this perspective it is the genitive case, as a dependent case, that needs explanation as English does not assign dependent case to the higher case competitors in other domains. To account for this, I claim that as the NP is not a case receiver, it cannot be assigned dependent case. Therefore whenever an NP is present it defines the conditions for the assignment of dependent case, being a case competitor, but this must be assigned to the other competitor, i.e., the possessor.

I will quickly summarize the main points of this analysis before moving on to defend it:

- The English *acc-ing* gerund is a DP domain which lacks an internal NP.
- In the DP domain, genitive is the dependent case and accusative is the unmarked case.
- In the DP domain, the dependent case is assigned to the c-commanding case competitor.

³ How the object of the *poss-ing* gerund gets its case is another issue. Baker (2015) claims that NP is a domain, and so the possessor and the object of the verb are not able to interact. However, I assume that the structure of this gerund contains a full vP inside the NP which is where the subject originates. Thus the object of the verb gets its accusative from being c-commanded by the trace of the subject within the NP. The *-ing* of gerund does not contain a vP and hence the subject/possessor originates outside of the NP and is unable to licence accusative case on the object.

3. In Defence of the Analysis

3.1 Genitive as a Dependent Case

Baker (2015), following Marantz (1991), specifically argues against genitive being taken as a dependent case. He argues that genitive must be the unmarked case in the DP domain because some languages display double genitive constructions:

- (10) (a) *yuubokumiN no toshi no hakai* (Japanese)
 nomad GEN city GEN destruction
 “the nomad’s destruction of the city”
- (b) *John-ooṭa Mary-ooṭa padam* (Tamil)
 John-GEN Mary-GEN picture
 “John’s picture of Mary”

His argument is that if one of these DPs were to receive a dependent case, the other would necessarily be in a different (unmarked) case. The only way to have two identical cases in one domain is for them to both be unmarked.

This argument seems to ignore the possibility that two dependent cases can be assigned within a single domain. The result is a tripartite case system. Although in the tripartite case system the two dependent cases differ, there is nothing in the theory that suggests that a dependent case assigned to the higher DP and the one assigned to the lower one must be realized by distinct forms.

Moreover, Baker (2015) himself argues that NP is an obligatory domain to account for why dependent case is never assigned within it. Therefore in (10), the two DPs are in different domains and so do not interact with each other. As argued above, NP cannot be assigned dependent case and therefore the higher genitive DP in these constructions must be dependent, as it is in English. The special property of the small number of languages which display this construction is that they also select genitive as the unmarked case of the NP. Thus these examples provide us with evidence of other languages which select the same case to be dependent and unmarked in different domains.

Considering the facts of the English *acc-ing* construction, we are in fact forced to accept that genitive cannot be unmarked. If accusative is unmarked, then obviously genitive cannot be unmarked as well. Suppose then that the accusative is not unmarked. It is therefore dependent. But what is it dependent on? There is no other case competitor within the *acc-ing* gerund as this contains no NP. Suppose we are wrong about this and there is an NP. Therefore accusative is the dependent case assigned to the subject of a DP in the presence of an NP. But if this is true there would never be any genitive subjects of DP, they would all be accusative. The only set of assumptions under which we get accusative subjects of *acc-ing* gerunds and genitive subjects of all other

DPs is: (i) the *acc-ing* gerund contains no NP; (ii) accusative is unmarked, assigned to the single case competitor in the DP domain and (iii) genitive is the dependent case, assigned to the higher case competitor in the domain.

Finally, note that there is no internal contradiction within the theory in assuming that genitive case is dependent. As was pointed out above, some languages have ergative possessors. If ergative is a dependent case, as it is usually assumed to be, then clearly it is possible to assign dependent case to the possessor. The only difference between those languages with ergative possessors and those with genitive ones is that the former have the same dependent case for both clausal and DP domains whereas the latter have different ones. As both dependent and unmarked cases can be defined independently within different domains, the situation in which there is one dependent case for the clause and another dependent case for the DP is perfectly possible.

3.2 Unmarked Accusative

The second contentious claim made in the analysis presented in Section 2.3 is that in the DP domain accusative is unmarked. This is contentious for two reasons. First accusative is normally seen as the dependent case in the nominative–accusative system and secondly accusative definitely is a dependent case in English clauses. There are two questions that need addressing therefore:

- Can accusative ever be unmarked?
- Can one case be both dependent and unmarked in a single language?

The first question, when taken in isolation, turns out not to mean very much. One could point to the fact that nominative case, which is normally seen as the unmarked case supreme, can in some languages be the marked form. For example, the Ethiopian language Oromo (Owens 1985, quoted in Baker 2015, 90), displays this case pattern:

- (11) (a) Sárée-n adii-n ní' iyyi-f-i.
 dog-MNOM white-MNOM FOC bark-F-IMPF
 “The white dog is barking.”
- (b) Húrrée-n arká d’olki-t-i.
 fog-MNOM sight.ABS prevent-F-IMPF
 “Fog reduces visibility.”

Baker analyses this as involving the assignment of dependent case to the case competitor which is NOT c-commanded by another, a property which subjects in both transitive and intransitive contexts share. The question is: is this the same case as nominative? In the sense that it is the case shared by subjects, then the answer is yes. But in the sense that

nominative is the unmarked case assigned in a nominative–accusative system then, no, it is not nominative. The issue comes down to the rather uninteresting question of how we name cases. A different, but similar, issue arises from the analysis proposed in the present paper. Are the two instances of the object of a transitive clause and the subject of the *acc-ing* gerund the same case? If cases are defined by the conditions of their assignment, then they are not the same case. On the other hand if we define accusative in terms of the form that is used to realize them, then given that the same form is used, then they are the same case. Again, it comes down to the issue of how we name cases.

Once one sees the issue in these terms, the second question posed above can be stated in a different way:

- Do we ever realise two different cases with the same form?

Case syncretism is an extremely common phenomenon and as such the claim that English makes use of the accusative pronouns to realize the dependent case assigned to the object of the clause and the unmarked case assigned to the subject of the *acc-ing* gerund turns out to be not at all contentious. The same can be said of those languages with double genitive constructions: one form is used to realize the dependent case assigned in the DP domain and the unmarked case in the NP.

4. Potential Problems

4.1 Nominative Possessors

The claim made previously that the possessor of the DP can only be assigned unmarked case in the absence of the NP is challenged by the appearance in some languages of nominative possessors. Typically these are not instances of marked nominatives and so we can assume that they have an unmarked case assigned to them. Hungarian offers such a case:

- (12) (a) János kalap-ja
 John-NOM hat-3sing.
 “John’s hat”
- (b) a(z) én) kalap-om
 the I-NOM hat-1sing.
- (c) a(z) ő) kalap-ja
 the he-NOM hat-3sing.
- (d) a (mi) kalap-unk
 the we-NOM hat-1pl.

Not only is the full nominal unmarked for case, but also there are distinct forms for pronouns, when overt, which are the same as those which appear as subjects of the finite clause. But these are normal DPs containing an NP. So how can the possessor be assigned an unmarked case?

While DCT offers a different system of case assignment to the standard theory, Baker (2015) does not claim that it completely replaces standard case theory. In particular, he notes, there is much to be said for the assumption that nominative case and finite inflection are linked in the way that standard case theory claims. It may be a point of parametric variation as to whether a language has a head assigned nominative or a nominative assigned under the principles of DCT. Therefore, it is possible that nominative case on possessors is not a result of an unmarked case assigned because dependent case is assigned to the NP, but of the assignment by an agreement head. This is particularly relevant for Hungarian as, as can be seen in (12), the DP does contain an agreement morpheme associated with the possessor.

With the possibility that nominative case can be assigned by an agreement head, we will have to revise our claim for what cases can be assigned to the possessor within the DP domain. Specifically it is predicted that there can only be an unmarked possessor if: (i) there is no NP or (ii) the possessor is associated with an agreement morpheme. Evidence for this comes from typological studies. In typological work it is not uncommon to classify languages as being either “head marking” or “dependent marking”. In terms of possessors this translates into whether possession is marked on the possessor as a case morpheme or on the head noun as an agreement. Krasnoukhova (2011) presents a survey of 55 South American languages, roughly half of which demonstrate head marking with respect to possessives and the other half were dependent marking. Thus, most of the sample either had a case marked on the possessor or an agreement morpheme. Only two languages in the sample were both head and dependent marking. Seven of the languages showed neither dependent nor head marking for pronominal possessors, which might be problematic for the current prediction if any of these languages turned out not to be case neutral languages. Unfortunately, Krasnoukhova did not name the languages in her sample which fell into this group, so it was impossible to check. However, the one example that Krasnoukhova did name, Urarina, does indeed not make use of morphological case at all (Dryer 2013). On the whole then, these results are fairly positive for the prediction made above.

4.2 Nominative Absolute Clauses

There is a gerund-like construction in English which makes use of a nominative subject:

- (13) We appointed Max, [he being the best qualified candidate].
(Huddleston and Pullum 2002, 1220)⁴

Again we see here a case which appears to contradict our prediction that possessors cannot have unmarked case, unless it is assigned by an agreement morpheme. However, there are certain observations concerning this construction which suggest that it is not the counterexample it appears to be.

The first thing to note is that the construction is extremely limited, both in its distribution and its internal make up. Such clauses can never appear in argument positions and are restricted to the absolute function, modifying clauses:

- (14) (a) *he washing the dishes was unusual
(b) *I didn't approve of he washing the dishes.

Furthermore, even as absolute clauses, they can only be formed using the verbs *being* or *having*.

- (15) (a) John left, [he being late for his appointment].
(b) [he having failed to impress us].
(c) *[he knowing that we didn't need him].

A search of the British National Corpus revealed only 73 instances of nonfinite “*ing*” clauses with a nominative subject, showing that this is not a very prevalent construction. All of these were absolute clauses, 49 contained *being* and 24 *having*, confirming the above claims. These limitations would suggest that what we have here is a kind of fossilized structure instead of something productively formed by the grammar.

A look at the history of the construction adds more weight to this suggestion and indicates that its origins are also far from usual. The construction dates back to Old English and originally took a dative subject (He and Wu 2015). Records of a nominative subject date back to the middle of the 14th century, but its use did not become more prevalent until the early 1800s. It seems that its use was championed by a literary group and there was much comment about it, both negative and positive, in scholarly works of the time. Its use stabilized soon after this and has not changed much since. Huddleston and Pullum (2005) claim that the use of the nominative in this construction

⁴ A reviewer points out that, while Huddleston and Pullum (2002) do not generally make a distinction between gerund and present participle clauses, the example given above is exactly the one for which they do note a difference. However, they do not discuss the distinctions pointed out immediately below in the present paper, which demonstrate that with the use of the nominative subject we do indeed have a different construction from the gerund.

is more prevalent than the accusative, as the use of the accusative is informal which jars with the rather formal nature of the construction. But this is contradicted by Hu and Wu's (2015) data, which show that the use of an accusative subject in absolute clauses has been gaining ground on the nominative absolute since the 1920s and in the present day it is by far the most common form in absolute clause usage. Moreover, absolute clauses with accusative subjects, unlike nominative absolutes, can appear with verbs other than *be* and *have*. What this suggests is that the nominative absolute clause is a fossilized "prestigious" form resulting from aggressive prescriptivism which is being replaced by the productive gerund construction in this function. From this perspective, the nominative absolute construction is not a counterexample for the claims we have made in this paper.

5. A Brief Word on Default

So far I have not discussed the possibility that the accusative case in the *acc-ing* gerund is an instance of the default, as claimed by Schütze (1997). This turns out to be a complex issue which deserves more space than I have here. I will give a brief response here, but for a detailed discussion of the issue see Newson (2018).

Schütze (1997; 2001) identifies a number of contexts which he claims involve the default accusative, the *acc-ing* gerund being one.⁵ His data indicate that some of these contexts allow for a variant in which the nominative may appear, and some do not:

- (16) (a) Why couldn't he take my car and me/?I his?
 (b) Me/*I, I like beans.

Although he proposes that default case, being an instance of the failure of case assignment rather than an actual assigned case itself, is susceptible to outside interference from extra linguistic considerations, such as prescriptive doctrine, he does not explain why the kind of variation we see in (16) is not uniform across his list of "default contexts".

The choice of the contexts that Schütze identifies is in part informed by his theory of case assignment, which is based on the standard head assignment idea. All of these contexts fail to have a head that could assign case to the relevant pronoun and hence the default form emerges.

However, the present theory makes other predictions, as it assumes that case assignment is not necessarily restricted to contexts where a case assigning head is present. What is required for case assignment is that the relevant structural conditions be met, i.e., there must be a domain in which c-command relations can be established.

⁵ In his dissertation, Schütze lists the *acc-ing* gerund as one of 12 contexts that he claims involve the default, though in the *Syntax* paper he only mentions the construction in a footnote.

If this is met, then dependent and unmarked case can be assigned, if it is not then the default will emerge. This theory makes more accurate predictions about where the default appears, as indicated by its alternation with the hypercorrective nominative, and where unmarked accusative is assigned. The latter, being an assigned case, does not enter into alternation with the nominative.

Obviously, the *acc-ing* gerund falls into the category in which unmarked accusative is assigned and, as predicted and as demonstrated in the previous section, the nominative is not an option.

An important observation following from this work is that the unmarked accusative is not just restricted to the DP domain. Indeed, from this perspective it can be argued that the general unmarked case in English is accusative and that it is only in the finite clause that we find the special unmarked nominative.

6. Conclusion

In this paper I have proposed an account of the English *acc-ing* gerund which adopts a theory of case assignment based on the idea that cases are assigned under certain structural configurations rather than the standard government-type relations. This has involved making a few claims which are novel in this theory, but essential to cover the construction. These claims are defensible and do not contradict the general assumptions of the theory. There are some phenomena which appear to contradict the claim that the possessor can only receive unmarked case if there is no NP. However, these turn out to be unproblematic once seen in the right light. The success of the present analysis stands in contrast to the problems faced by other accounts which assume the accusative case is either assigned by some head or is an instance of default.

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I Agrees with You: Object Agreement and Permissive *hagy* in Hungarian

Krisztina Szécsényi^a and Tibor Szécsényi^b

^aEötvös Loránd University, Budapest, Hungary;

^bUniversity of Szeged, Szeged, Hungary

^akszechenyi@gmail.com; ^bszecsenyi@hung.u-szeged.hu

Abstract: The paper discusses differences between object agreement in general and the LAK-agreement form identified as a special form of it in Hungarian. We show that it is not restricted to transitive verbs but to accusative environments in a broader sense, and, based on parallels with reflexives, propose a syntax-pragmatics interface driven account of LAK-agreement in terms of Participant Oriented Relational Agreement (PORA). This raises questions concerning dative control and the permissive constructions of Hungarian as well. We argue that the PORA analysis not only leads to a more explanatory account of the data but also has the interesting consequence of providing compelling evidence for the existence of unmarked passives in some of the permissive constructions of Hungarian, further supporting the claim made in Pitteroff (2015) that “a passive syntax does not have to correlate with passive morphology”.

Keywords: object agreement; reflexivity; passive infinitive

1. Introduction

Hungarian finite verbs agree with their subjects as a default, but in the presence of a definite object a different agreement paradigm is used. In case of a first person singular subject and second person (singular or plural) object a special form of the agreement marker surfaces, which is not found in the second or third person subject paradigm. Based on its morphological realization we are going to call it LAK-agreement. This LAK-marker is usually taken to be a part of the object agreement paradigm in spite of

earlier observations (den Dikken 2004) showing that some intransitive verbs can also bear this morpheme. The present paper addresses this apparent anomaly and offers a more refined analysis of the data. In order to do so, first some background information is provided on what we claim to be two different types of definiteness agreement. This claim is further supported by constructions with multiple embedding, which turn out to be subject to different locality restrictions depending on whether we are dealing with definiteness agreement in the narrow sense (to the exclusion of LAK-agreement) or LAK-agreement. Then we go on to discuss some relevant word order facts of Hungarian focusing on a contrast between the preverbal and the postverbal domain. The next section discusses the different patterns permissive *hagy* “let” can appear in, both in finite and non-finite clauses focusing on the different patterns of agreement. The central observation of the paper is that LAK-agreement shows the same patterns as reflexive sentences with *hagy* “let”: whenever reflexives are possible, LAK-agreement is well-formed as well, and when reflexives are ruled out, LAK-agreement is not possible either. Drawing on this parallel and Reinhart and Reuland’s (1993) account of reflexivity, we propose an analysis in terms of the shared relational nature of reflexives and LAK-agreement. In both of the cases the construction encodes a relationship between semantically or pragmatically salient participants: in the case of reflexives the reflexive anaphor itself expresses that the subject of the predication is to be understood as being the same as its object, in the case of LAK-agreement the verbal inflection encodes the two main contributors of the communicative situation, the speaker and the hearer.

This proposal has an interesting consequence: it predicts that in certain constructions containing permissive *hagy* “let”, the embedded infinitival clause is best understood as passivized. This is discussed in detail in Section 4. The section that follows introduces cross-linguistic data with similar claims for certain German permissive constructions (Pitteroff 2015) and Czech retroactive infinitives (Dotlačil and Šimík 2013). All these data suggest that passivization does not always correlate with passive morphology.

The paper finishes with a discussion of cross-linguistic differences and, to account for the rarity of the construction, suggestions for requirements that a language needs to meet in order to allow for these patterns.

2. Background Information on Hungarian

This section discusses in detail the two patterns of object agreement in Hungarian, and introduces those word order facts that will turn out to be relevant for the account proposed in Section 4.

2.1 Object Agreement

2.1.1 Object Agreement in Simple Sentences

Definiteness agreement in Hungarian leads to the following patterns: in the presence of a definite object the definite (also called object) conjugation is used. If the object is

indefinite or there is no object in the sentence the indefinite (also called subject) agreement forms appear in the verb, as shown in Table 1. Illustrative examples are given in (1).¹

| | Intransitive <i>fut</i> “run” | Transitive <i>lát</i> “see” | |
|-----|----------------------------------|-----------------------------|------------------|
| | | indefinite objects | definite objects |
| 1SG | <i>fut-ok</i> | <i>lát-ok</i> | <i>lát-om</i> |
| 2SG | <i>fut-sz</i> | <i>lát-sz</i> | <i>lát-od</i> |
| 3SG | <i>fut-Ø</i> | <i>lát-Ø</i> | <i>lát-ja</i> |
| 1PL | <i>fut-unk</i> | <i>lát-unk</i> | <i>lát-juk</i> |
| 2PL | <i>fut-tok</i> | <i>lát-tok</i> | <i>lát-játok</i> |
| 3PL | <i>fut-nak</i> | <i>lát-nak</i> | <i>lát-ják</i> |

Table 1. The present tense definite and indefinite paradigm

- (1) (a) Anna lát/*lát-ja egy könyv-et
 Anna.NOM see.INDEF/see-DEF² a book-ACC
 “Anna sees a book.”
- (b) Anna *lát/lát-ja a könyv-et
 Anna.NOM see.INDEF/see-DEF the book-ACC
 “Anna sees the book.”

If the subject is first person singular and the object second person (singular or plural), a unique marker of agreement, *-lak* appears on the verb.³ As Table 2 indicates, when the subject is second or third person singular, the usual definite or indefinite endings are used, just like in the whole plural subject paradigm not shown in the table. It is important to note that (for reasons irrelevant for the present discussion) first and second person pronouns trigger indefinite verb forms, but anaphoric pronouns always appear with a definite verb form.

1 For the more subtle details concerning the nature of the object and the form of the verb see Bárányi (2015), who accounts for the data in terms of Differential Object Marking (DOM). Bartos (2000), and Szécsényi and Szécsényi (2016; 2017) also discuss related issues.

2 In the examples we focus on object agreement and do not indicate subject agreement separately.

3 Since Hungarian has vowel harmony, there is a corresponding form with a front vowel, *-lek*.

| Object | Transitive <i>lát</i> “see” | | |
|--------|------------------------------|-------------------------------|------------------------------|
| | 1SG subject | 2SG subject | 3SG subject |
| 1SG | <i>lát-om magam</i> (DEF) | <i>lát-sz engem</i> (INDEF) | <i>lát-Ø engem</i> (INDEF) |
| 2SG | <i>lát-LAK téged</i> (LAK) | <i>lát-od magadat</i> (DEF) | <i>lát-Ø téged</i> (INDEF) |
| 3SG | <i>lát-om őt</i> (DEF) | <i>lát-od őt</i> (DEF) | <i>lát-ja őt</i> (DEF) |
| 1PL | <i>lát-om magunkat</i> (DEF) | <i>lát-sz minket</i> (INDEF) | <i>lát-Ø minket</i> (INDEF) |
| 2PL | <i>lát-LAK titeket</i> (LAK) | <i>lát-od magatokat</i> (DEF) | <i>lát-Ø titeket</i> (INDEF) |
| 3PL | <i>lát-om őket</i> (DEF) | <i>lát-od őket</i> (DEF) | <i>lát-ja őket</i> (DEF) |

Table 2. *-lak/lek* agreement with 1SG subject and second person pronominal object

In the simplest cases shown above definiteness agreement and LAK-agreement cannot be distinguished. Simple sentences do not reveal much about whether the two agreement patterns differ. Focus on simple sentences often results in the conclusion that the two are not to be distinguished (Bárány 2015), and the LAK form is just an exceptional marker of definiteness agreement. It is at this point that we diverge from earlier accounts and emphasize the importance of working with more complex data in order to see more precisely how agreement works. We have found that infinitival constructions reveal more of the real nature of the two agreement patterns in spite of the fact that infinitives themselves do not agree with their objects. This is what is discussed in the next section.

2.1.2 Object Agreement across Infinitival Clauses

It is not only nominal expressions that trigger different agreement patterns on the selecting verb, a contrast in agreement forms can be observed between finite and infinitival clauses as well. A finite clause triggers definite agreement (2a), whereas an infinitive typically counts as indefinite (2b).

- (2) (a) (Én) tud-om, hogy (te) szeret-ed a csoki-t.
 I.NOM know-DEF that you.NOM love-DEF the chocolate-ACC
 “I know you like chocolate.”
- (b) (Én) tud-ok úsz-ni.
 I.NOM know-INDEF swim-INF
 “I can swim.”

However, when an infinitival verb selects its own object, it can, and in most of the cases does affect the definiteness agreement appearing on the finite verb. This is what makes infinitival constructions an optimal testing ground for us: the existence of different

agreement patterns for the same type of object. Some verbs with infinitival complements show object agreement, while some others do not. Crucially, the class of verbs that shows definiteness agreement and LAK-agreement overlaps, but is not the same. The different verb classes and speaker variation are discussed extensively in Szécsényi and Szécsényi (forthcoming), what follows below is a brief summary of the attested patterns. What we systematically compare is whether agreement with a definite/indefinite object and LAK-agreement are possible for a verb selecting an infinitival complement.⁴ Three different groups can be observed.

1. Transitive verbs and auxiliaries taking infinitival complements obligatorily agree with the object of the infinitive. The subject control verb *akar* (“want”) is our representative example in (3). Agreement is full, both definiteness (3ab) and LAK-agreement (3c) are obligatory.

(3) (a) Definite infinitival object—definite finite verb

Anna *akar/akar-ja olvas-ni a könyv-et
 Anna.NOM want.INDEF/want-DEF read-INF the book-ACC
 “Anna wants to read the book.”

(b) Indefinite infinitival object—indefinite finite verb

Anna akar/*akar-ja olvas-ni egy könyv-et
 Anna.NOM want.INDEF/want-DEF read-INF a book-ACC
 “Anna wants to read a book.”

(c) 1SG subject, second person infinitival object

(Én) akar-lak lát-ni (téged)
 I.NOM want-LAK see-INF you.ACC
 “I want to see you.”

2. Some verbs optionally show LAK-agreement (4b), but definiteness agreement leads to ungrammaticality (4a), as pointed out in Den Dikken (2004) as well. This pattern strongly suggests that definiteness agreement and LAK-agreement are independent syntactic processes. The lack of agreement with the definite object of the infinitive is easy to account for: as opposed to the members of the previous class, these verbs are not transitive themselves, they only agree with their subject. When not taking an infinitival clause they are either objectless or select for an argument in oblique case. In such cases LAK-agreement is ruled out (4c, 5b). The obvious question that arises at this

⁴ Objects of infinitival adjunct clauses do not agree with the finite verb. This suggests that infinitival adjunct clauses are not transparent for object agreement.

point is what licenses it in constructions like (4b). One of the conditions is clearly the presence of a second person object, but the question still remains: how can a verb show LAK-agreement if it is not transitive under the assumption that LAK-agreement is part of the object agreement paradigm?

- (4) (a) Anna készül/*készül-i olvas-ni egy/a könyv-et
 Anna.NOM prepare.INDEF/prepare-DEF read-INF a/the book-ACC
 “Anna is preparing to read a/the book.”
- (b) (Én) készül-ök/*készül-öm/készül-lek meglátogat-ni (téged).
 I.NOM prepare-INDEF/prepare-DEF/prepare-LAK visit-INF you.ACC
 “I was preparing to visit you.”
- (c) Készül-ök/*Készül-öm/*Készül-lek a vizsgá-ra.
 prepare-INDEF/prepare-DEF/prepare-LAK the exam-SUBL
 “I prepare for the exam.”
- (5) (a) (Én) jöt-te-lek meglátogat-ni (téged).
 I.NOM come-PAST-LAK visit-INF you.ACC
 “I have come to see you.”
- (b) *(Én) jöt-te-lek
 I.NOM come-PAST-LAK

3. Finally, there are verbs that do not agree at all with the object of their infinitival complements. As pointed out in den Dikken (2004) these verbs are typically morphologically complex verbs. In the verb *próbálkozik* “try”, the morpheme *kozik* has the same form as the reflexive suffix of Hungarian. Hungarian offers a nice contrast to support the claim that it is indeed the presence of the extra suffix that is to blame: there are two verbs meaning “try” in Hungarian, the morphologically complex one that we can see in example (6) meaning “try hard”, and the suffixless version *próbál* “try”, which behaves as can be expected of a transitive verb described in the first group.

- (6) (a) *Anna próbál-koz-za megtanul-ni a vers-et
 Anna.NOM try-KOZ-DEF learn-INF the poem-ACC
 “Anna is trying to learn the poem.”
- (b) *(Én) próbál-koz-ta-lak lefesté-ni téged
 I.NOM try-KOZ-PAST-LAK paint-INF you.ACC
 “I was trying to paint you.”

- (7) (a) Anna próbál-ja megtanul-ni a vers-et.
 Anna.NOM try-DEF learn-INF the poem-ACC
 “Anna is trying to learn the poem.”
- (b) *(Én) próbál-ta-lak lefeste-ni téged
 I.NOM try-PAST-LAK paint-INF you.ACC
 “I was trying to paint you.”

2.2 Word Order

The second property of Hungarian relevant for us in the present paper is its word order. As discussed e.g. in Szabolcsi (1997) and É. Kiss (2008), the word order of Hungarian in the preverbal domain is determined by information structure and scope. Postverbal word order is free. In that domain the word order may be characterized by Behaghel’s (1932) Law of Growing Constituents: shorter constituents tend to be closer to the verb than longer ones. This results in the following pattern:

- (8) RefP >> DistP >> FocP >> TP >> vP . . . (Szabolcsi 1997)

Infinitival complement clauses undergo restructuring, as a result of which they can scramble with constituents of the matrix clause (cf. K. Szécsényi 2009; T. Szécsényi 2013) as shown in (9). In that case the usual restrictions on word order apply: topics and foci precede the matrix verb (including constituents from the infinitival clause), and information structurally neutral elements are postverbal, ordered according to phonological weight. It means that it can be hard to say whether a postverbal constituent is an argument of the finite verb or the infinitive, which is going to play an important role in the analysis proposed later.

- (9) **HOLNAP** akar-ja Péter-t Mari meglátogat-ni
 tomorrow want-DEF Peter-ACC Mari.NOM visit-INF
 “Mary wants to visit Peter TOMORROW.”

3. The Case of Permissive *hagy* “let” in Hungarian

Returning to the main target of this paper, permissive constructions with *hagy* “let”, the first observation to make is the multitude of constructions it can appear in. It can introduce different types of finite *that* clauses as well as different patterns of non-finite complementation.

With a finite clausal complement *hagy* can have a dative DP argument as well, which is obligatorily coreferent with the subject of the *that* clause (10a). This dative complement gets its theta role from permissive *hagy*. The main clause optionally contains a proleptic accusative pronoun, *azt* “it” introducing the clause. There is another finite *hagy* construction, where there is no dative complement, only the optional proleptic pronoun *azt* “it” (10b). In this construction a constituent of the embedded clause can move into the position of

the expletive. If the subject of the subordinate clause moves to the matrix clause, it gets accusative case from the matrix *hagy* verb, but no thematic role (10c).

- (10) (a) Anna *hagy*-ja Mari-nak_i, (az-t) *hogy* (ő_i) ír-jon egy level-et
 Anna.NOM let-DEF Mari-DAT it-ACC that she.NOM write-SUBJ a letter-ACC
 “Anna lets Mary write a letter.”
- (b) Anna *hagy*-ja (az-t), *hogy* Mari ír-jon egy level-et
 Anna.NOM let-DEF it-ACC that Mari.NOM write-SUBJ a letter-ACC
 “Anna lets Mary write a letter.”
- (c) Anna *hagy*-ja Mari-t_i, *hogy* t_i/*ő ír-jon egy level-et
 Anna.NOM let-DEF Mari-ACC that write-SUBJ a letter-ACC
 “Anna lets Mary write a letter.”

The data in (10) indicate that the dative version is ditransitive, and the accusative a monotransitive construction.

With a non-finite clausal complement the verb *hagy* “let” is generally followed by an accusative DP complement understood as the subject of the infinitival clause. The question arises whether it is the result of object control or subject-to-object raising (also called ECM),⁵ which is something that we consider in more detail in the next section. Dative forms are usually ungrammatical (11a, b). However, when the non-finite verb has an object of its own, which is invariably assigned accusative case, a dative complement is preferred with *hagy* (11c). We assume that it is the result of the two accusative forms ending up in the same domain after restructuring takes place. Notice that the presence of two accusative DPs is not a problem when *hagy* takes a finite complement since apparently they are then in two different domains.

- (11) (a) Anna *hagy*-ja Mari-t/*Mari-nak alud-ni
 Anna.NOM let-DEF Mari-ACC/Mari-DAT sleep-INF
 “Anna lets Mary sleep.”
- (b) Anna *hagy*-ja Mari-t/*Mari-nak beszél-ni a film-ről
 Anna.NOM let-DEF Mari-ACC/Mari-DAT talk-INF the film-DEL
 “Anna lets Mary talk about the film.”

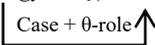
⁵ Section 3.5 presents evidence for the superiority of the subject-to-object raising analysis as opposed to an ECM account according to which the infinitival subject remains in the embedded subject position.

- (c) Anna hagy-ja ??Mari-t/?Mari-nak megnéz-ni a film-et
 Anna.NOM let-DEF Mari-ACC/Mari-DAT watch-INF the film-ACC
 “Anna lets Mary watch the film.”

3.1 Control vs. Raising: Tóth (2000)

In order to account for the alternation between dative and accusative forms in sentences like (11c), Tóth (2000) proposes that the accusative form is the result of ECM/raising-to-object, whereas sentences with the dative form are dative control constructions similar to the finite sentence that we saw in (10a).

- (12) ACC DP + infinitive: ECM/raising-to-object:
 $[_{AgrOP} DP_i(ACC) \text{ hagy } [_{TP} t_i V+ni [_{AgrOP} DP(ACC) \dots]]]$

- (13) DAT DP + infinitive: dative control:
 $\text{hagy } DP_i(DAT) [_{CP} [_{AgrSP} ec_i Agr [_{TP} V+ni [_{AgrOP} DP(ACC) \dots]]]]$


In order to support her proposal Tóth (2000) presents the sentences shown below, where (14a) is ambiguous between readings where accusative *Katit* is the deliberate or accidental hitter of herself. The accidental interpretation is absent from (14b) containing *Katinak* in a dative form, the sentence can only be understood with Kate hitting herself deliberately in spite of this being the less natural of the two possible readings. That is, the different argument structures of the verb *hagy* “let” are reflected in the infinitival constructions of Hungarian as well.

- (14) Tóth (2000, 253)
- (a) Nem hagy-tam Kati-t megüt-ni magá-t
 not let-1SG.DEF Kate-ACC hit-INF herself-ACC
 “I did not let Kate hit herself (accidentally against some hard object).”
 “I did not let Kate hit herself (deliberately with something).”
- (b) Nem hagy-tam Kati-nak megüt-ni magá-t
 not let-1SG.DEF Kate-DAT hit-INF herself-ACC
 “I did not let Kate hit herself (deliberately with something).”

3.2 *Hagy* “let” and Object Agreement

Changing the focus of Tóth (2000) somewhat, the primary aim of which is accounting for the accusative/dative case alternation, let us consider now how *hagy* “let” agrees with the object of its infinitive when present. Importantly, as pointed out above, in

these cases *hagy* typically takes a dative complement. Considering how this affects the definiteness agreement patterns available can lead us to a better understanding of the locality conditions on definiteness and LAK-agreement.

In (15a, b) we can see that definiteness agreement with the infinitival object is obligatory in the presence of a dative DP. Object raising *hagy* does not agree with the object of the infinitive, as seen in (15c). This is as expected: *hagy* has a closer object to agree with.

- (15) (a) Anna *hagy*/**hagy*-ja Mari-nak megnéz-ni egy film-et
 Anna.NOM let.INDEF/let-DEF Mari-DAT watch-INF a film-ACC
 “Anna lets Mary watch a film.”
- (b) Anna **hagy*/*hagy*-ja Mari-nak megnéz-ni a film-et
 Anna.NOM let.INDEF/let-DEF Mari-DAT watch-INF the film-ACC
 “Anna lets Mary watch the film.”
- (c) Anna **hagy*/*hagy*-ja Mari-t megnéz-ni egy/a film-et
 Anna.NOM let.INDEF/let-DEF Mari-ACC watch-INF a/the film-ACC
 “Anna lets Mary watch a/the film.”

Let’s turn to LAK-agreement now, not discussed in Tóth (2000). With a first person singular matrix subject and second person embedded object, there is no LAK-agreement in (16a), independently of the case of the matrix complement. A matrix second person object shows LAK-agreement, as expected (16b). The construction most important for the purposes of the present paper is (16c), which shows that dropping the DP complement of matrix *hagy* can result in the verb showing LAK-agreement with the embedded second person accusative object. The emerging questions are the following: How does agreement take place in (16c)? How and why does the intervening matrix dative or accusative block agreement in (16a)? This is what the rest of the paper addresses.

- (16) (a) (Én) nem *hagy*-om/**hagy*-lak Mari-nak/Mari-t átver-ni téged
 I.NOM not let-DEF/let-LAK Mari-DAT/Mari-ACC deceive-INF you.ACC
 “I don’t let Mary deceive you.”
- (b) (Én) nem **hagy*-om/*hagy*-lak téged átver-ni Mari-t
 I.NOM not let-DEF/let-LAK you.ACC deceive-INF Mari-ACC
 “I don’t let you deceive Mary.”
- (c) (Én) nem **hagy*-om/*hagy*-lak Ø átver-ni (téged)
 I.NOM not let-DEF/let-LAK deceive-INF you.ACC
 “I don’t let anybody deceive you.”

3.3 Direct Agreement?

In accounting for data very similar to those presented in (16) Den Dikken (2004) argues that agreement between the matrix verb and the object of the infinitive in (17) is the result of direct agreement, which is blocked by an intervening DP constituent. This accounts for the fact that LAK-agreement is possible only in the absence of the dative DP.

- (17) Den Dikken (2004, 453, ex [19b])
 Hagy-lak (*János-nak) meglátogat-ni téged
 let-LAK János-DAT visit-INF you.ACC
 “I let you be visited (by János).”

Den Dikken (2004) derives the ungrammaticality of sentence (17) in the presence of an overt dative DP from a dative control construction as shown in (13). As opposed to this we claim that this construction type can be derived with the help of subject-to-object raising (12). The translation of the Hungarian sentence into English using the passive voice in itself suggests an alternative explanation along these lines. Also, not having an overt DP, dative or accusative, present in the sentence actually results in a different interpretation: “I let you be visited by somebody.”. We return to these issues in section 4. Before we do that we need to point out important parallels between the constructions under discussion and reflexives.

3.4 Parallels with Reflexivity

Interestingly, in *hagy*-sentences reflexive objects in the infinitival clause that are coreferent with the subject of the matrix verb are allowed if and only if LAK-agreement is also allowed. In example (18) we simply substitute the second person pronouns of example (16) with reflexives. This correlation may be taken as suggesting a parallel structural account. One reason why this observation turns out to be particularly useful is that the substantial amount of research that has already been carried out in the domain of reflexives can help us understand the much lesser studied and understood phenomenon of LAK-agreement. Explaining the reflexive data may offer an explanation of at least certain aspects of LAK-agreement as well. Once again, the data in (18) are exact parallels of (16), the only difference being that instead of LAK-agreement we have reflexive anaphors coreferent with the subject of the matrix verb in (18).

- (18) (a) *(Én) nem hagy-om Mari-nak/Mari-t átver-ni **magam-at**
 I.NOM not let-DEF Mari-DAT/Mari-ACC deceive-INF myself-ACC
 intended meaning: “I will not let Mary deceive me.”
- (b) (Én) nem hagy-om **magam-nak/magam-at** átver-ni Mari-t
 I.NOM not let-DEF myself-DAT/myself-ACC deceive-INF Mari-ACC
 “I won’t let myself deceive Mary.”

- (c) (Én) nem hagy-om Ø átver-ni magam-at
 I.NOM not let-DEF deceive-INF myself-ACC
 “I will not let anyone deceive me.”

The principles accounting for the distribution of different types of nominal expressions such as anaphors, pronouns and R-expressions are the three binding principles. The principle relevant for us is Binding Principle A stating that an anaphor must be bound in its governing category. This leads to the following apparent contradiction: in sentence (18a) the matrix subject and reflexive are in different binding domains whereas in (18c) they seem to be in the same domain. In order to explain the difference in the grammaticality judgements we need to say more about the properties of the empty noun phrase in (18c).

3.5 Reflexivity and Coreference

In order for an infinitival reflexive object to be understood as coreferent with the subject of the selecting clause the properties of the infinitival subject must be suitable for a transmitter role. The presence of an overt accusative or dative DP turns out to interfere with this requirement. The control module of grammar accounts for this assuming that the zero subject of the infinitival clause identified as PRO is controlled by the subject or object of the control verb—in (19a) the subject control verb *szeretné* “would like” —, which in turn binds the reflexive. The same effect can be achieved if instead of a PRO there is a trace of a moved constituent in the subject position of the infinitival clause. Following Tóth (2000) in assuming subject-to-object raising in (19b), we can account for the interpretation of the sentence easily, under the assumption that the infinitival clause contains a trace of the raised reflexive, which can be identified as the subject of the infinitival clause. What (19c) shows is that the accusative DP can also bind the reflexive object of the infinitive. Again, we assume subject-to-object raising leaving a trace in the subject position of the embedded clause that binds the reflexive object. All these data show the importance of assuming a covert subject in the infinitival clause. The examples in (19ac) indicate that matrix DPs can bind an infinitival reflexive via such a covert subject.

- (19) (a) Anna_i szeretné [PRO_i meglep-ni magá-t_i]
 Anna.NOM would.like surprise-INF herself-ACC
 “Anna would like to surprise herself.”
- (b) (Én)_i nem hagy-om magam-at_i [_i pletykál-ni Mari-ról]
 I.NOM not let-DEF myself-ACC gossip-INF Mari-DEL
 “I will not let myself gossip about Mary.”

- (c) Péter_j hagy-ja Mari-t_i [_i beszél-ni magá-ról_{i/s_j}]
 Péter.NOM let-DEF Mari-ACC speak-INF herself-DEL
 “Peter lets Mary speak about herself.”

4. Proposal: Passive Infinitives in Hungarian

Now we are in a better position to discuss the sentences in (16c) and (18c), repeated here for the sake of convenience as (20a, b).

- (20) (a) (Én) nem *hagy-om/hagy-lak Ø átver-ni (téged)
 I.NOM not let-DEF/let-LAK deceive-INF you.ACC
 “I don’t let anybody deceive you.”

- (b) (Én) nem hagy-om Ø átver-ni magam-at
 I.NOM not let-DEF deceive-INF myself-ACC
 “I will not let anyone deceive me.”

In these sentences there is no overt DP complement present that could function as the antecedent of the reflexive. It is at this point that we need to take into consideration the word order facts of Hungarian: free word order after the finite verb. What this means is that it is not possible to decide whether the reflexive anaphor or second person pronoun is understood as the subject or the object of the infinitive. Actually, it is worse than that: serious problems emerge either way. Let us consider our options now. In (21) the reflexive is identified as the object of the infinitival clause bound by the trace of a proform that is coindexed with the subject of the matrix clause. However, the resulting meaning is not what this sentence actually means. The predicted meaning is “I will not let myself deceive myself” and not the expected “I will not let anyone deceive me”. A further problem with (21) is that we would have to assume the presence of a zero reflexive in the matrix clause.

- (21) (Én_i) nem hagy-om *pro*_i [_i átver-ni magam-at_i]
 I.NOM not let-DEF deceive-INF myself-ACC
 “I will not let myself deceive myself.”
 intended meaning: “I will not let anyone deceive me.”

An alternative analysis is presented in (22). Here the accusative reflexive is identified as the subject of the infinitive that undergoes the usual process of raising, so the problem of zero reflexives above disappears. The problem that we encounter this time is the lack of an object for the transitive infinitive. And again, the resulting interpretation is different from what we expect. This sentence is not about me deceiving someone else, but about me being deceived.

- (22) (Én_i) nem hagy-om magam-at_i [_i átver-ni *pro*]
 I.NOM not let-DEF myself-ACC deceive-INF
 “I will not let myself deceive ???.”

The representation of the sentence that we can see in (22) together with the expected interpretation suggests an easy but somewhat risky way out of the problems observed. Can the missing object indicated as *pro* be coindexed with the subject of the sentence? This would indicate that the object of the infinitive actually appears in the subject position. Such a construction is actually not unheard of, it is a defining property of passive constructions.

Now we have arrived at one of the main claims of the paper: the embedded infinitival clause of permissive *hagy* constructions can be a passive infinitive, where the pronoun ends up in the matrix clause and is coindexed with the internal argument of the embedded clause via the trace in the subject position as shown in (23). In case the matrix accusative DP is coreferent with the matrix subject, a reflexive form surfaces. An important part of the claim can be read off in (23) as well: reflexivity is established in the matrix clause, as it is at that point that the object and the subject of the verb end up as coarguments, perfectly capturing the interpretation of the sentence. When the reflexive appears after the infinitive, it is the result of the postverbal free word order of Hungarian, also indicated by the fact that the interpretation of the sentence does not change.

- (23) (Én_i) nem hagy-om magam-at_i [_i átver-ni_{pass} _i]
 I.NOM not let-DEF myself-ACC deceive-INF
 “I will not let myself be deceived (by anyone).”

The part of the sentence that undergoes this free postverbal reordering is the part following the main verb *hagyom* “I let” in sentence (23). Importantly, this reordering follows the raising of the infinitival subject to the main clause.

Turning to LAK-agreement we find that the account of (23) presented above carries over to (24): the embedded infinitival clause is a passive infinitive, the overt second person object is in the matrix clause and is coindexed with the internal argument of the embedded clause. The right configuration for LAK-agreement is established in the matrix clause, where the verb has a first person singular subject and a second person object. The ungrammaticality of the version with a dative pronoun, which cannot be assumed to originate in the embedded clause reflected in (25) further supports this account. In such a case the transitive verb of the embedded clause ends up objectless.

(24) (Én) nem hagy-lak téged_i [_{t_i} átver-ni_{pass} _{t_i}]
 I.NOM not let-LAK you.ACC deceive-INF
 “I will not let you be deceived (by anyone).”

(25) *(Én) nem hagy-ok/hagy-om neked átver-ni.
 I.NOM not let-INDEF/let-DEF you.DAT deceive-INF

4.1 Reflexivity and LAK-agreement

Now that we have managed to account for the interpretation of (23) and (24) we need to identify the properties that they share in order to explain their parallel behaviour. What we find to be the most relevant factor is that neither is strictly speaking object agreement, but the properties of the object also play a role. Reflexive constructions are best accounted for in terms of Reinhart and Reuland (1993) and Newson (2014), where reflexivization is identified as an argument structure changing operation with an emphasis on the relational nature of the process. Reflexivization encodes a coargument relation salient at the syntax-semantics interface: the subject and the object of the verb are the same individual leading to overt reflexes of reflexivization. The second major claim of the paper, our account of the distribution of LAK-agreement is based on this idea: LAK-agreement is also an argument structure changing operation establishing a coargument relation as well, but this time at the syntax-pragmatics interface. A first person singular subject and a second person object are the most prominent participants of a communicative situation, which Hungarian seems to have grammaticalized. We propose to call this kind of agreement **Participant Oriented Relational Agreement (PORA)**.

4.2 LAK-agreement in Control Structures

To conclude this discussion let us see the derivation of the different patterns of LAK-agreement (26). In this case the PORA relationship is established in the infinitival clause without any overt marking. LAK-agreement appears on the matrix verb as a result of the matrix subject controlling the infinitival PRO on which the PORA relationship is marked. This is independent of definiteness agreement, non-transitive matrix verbs also show this pattern. Notice that there is no need for the object of the infinitive to move to the matrix clause. This is what accounts for the lack of the transitivity requirement.

(26) = (3c) (Én) akar-lak PRO lát-ni (téged)
 I.NOM want-LAK see-INF you.ACC
 “I want to see you.”

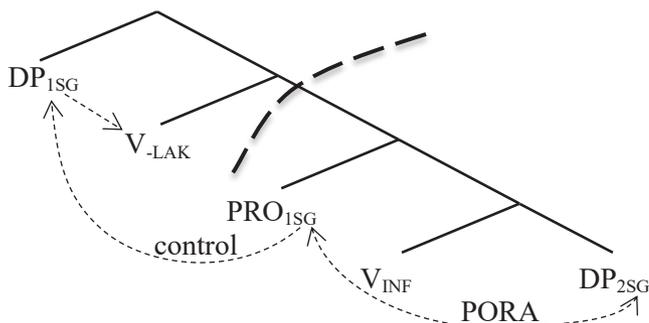


Figure 1. Structure of sentence (26).

4.3 LAK-agreement in Permissive *hagy*-constructions

Permissive *hagy* “let” shows LAK-agreement when the second person subject of the embedded infinitive undergoes raising to the matrix clause and receives accusative case there. PORA is established in the matrix clause between the matrix subject and the raised object. What (27) shows is that derived subjects of the infinitival clause can also be raised.

(27) = (24) (Én) nem hagy-lak téged_i [_{t_i} átver-ni_{pass} t_i]
 I.NOM not let-LAK you.ACC deceive-INF
 “I will not let you be deceived (by anyone).”

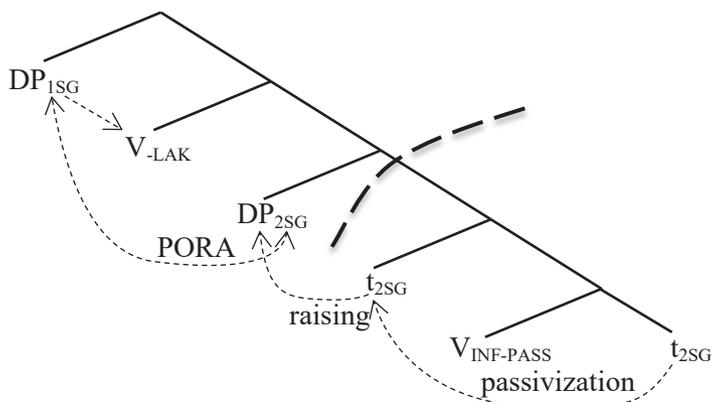


Figure 2. Structure of sentence (27).

5. A Cross-Linguistic Outlook

One problem that arises in connection with our account is the unmarked nature of passivization, since passivization as a marked operation is expected to go together with morphological indicators. In this section we present data from German and Czech to show that the proposed structure is actually attested in other languages as well, and is not merely a quirk of Hungarian. This cross-linguistic support indicates that the structure proposed is made available by Universal Grammar. In order to comply with the cross-linguistic observation that passivization is incompatible with reflexivity, a subtype of antipassive constructions, we are drawing attention to the fact that the two are in different domains in our proposal.

5.1 German

Discussing different types of permissive *lassen*-constructions in German including middles, Pitteroff (2015) argues that they are reflexively marked anticausative (*sich lassen*) constructions containing a derived subject without passive morphology. His analysis is also a raising analysis. In order to account for the rarity of the construction it is claimed that the unmarked passive is “restricted to contexts in which not enough structure is present for passive morphology to surface. Restructuring infinitives are one such context” (Pitteroff 2015, 1). Looking at the data in (28) the parallels with the Hungarian data discussed in this paper are very easy to see.

- (28) Das Buch lässt sich gut lesen (LM)
 the book lets refl well read
 “The book reads well.”

5.2 Czech

Dotlačil and Šimík (2013) also proposes an unmarked passive analysis of Czech retroactive infinitives to account for one of the meanings of the ambiguous sentence in (29). Their proposal is based on observations regarding English retroactive gerunds such as *That shirt needs washing*. Evidence for the claim comes from *by*-phrase modification and a correlation between passivizable verbs and those appearing in retroactive infinitives.⁶

6 For the sake of completeness it also has to be mentioned that Petter (1998) focuses on Dutch constructions similar to the Hungarian sentences discussed here and argues against an analysis in terms of passive infinitives. However, the arguments used for Dutch do not carry over to Hungarian and may not stand up to closer scrutiny even for Dutch in light of the more recent unmarked passive accounts. For space reasons we cannot discuss the details here.

- (29) Ten muž potrebuje milovat.
 that man.NOM needs love.INF
 (a) “That man needs to love (somebody).”
 (b) “That man needs love (from somebody).”

6. Conclusion

In this paper we discussed the two types of object agreement in Hungarian focusing on different permissive constructions with the verb *hagy* “let”. There are two main claims made: (i) one type of object agreement, LAK-agreement, is the result of Participant Oriented Relational Agreement (PORA), which helps in accounting for the parallels with reflexive constructions; (ii) in certain permissive constructions the embedded infinitive is an unmarked passive infinitive, also supported by cross-linguistic evidence.

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The Acquisition of Double Negation in Italian

Marta Tagliani

University of Verona, Verona, Italy

marta.tagliani@univr.it

Abstract: This experimental study aims to investigate at what age Italian children master the logical concept of double negation, according to which two negatives cancel each other out yielding a positive meaning. Previous acquisitional studies on child languages indicate that children show a cross-linguistic preference for a negative concord interpretation of all multiple negation structures, including those that are double negation. Italian children aged between 3;10–8;2 were tested both in the comprehension and in the production of double negation sentences. The results show that Italian children master the Law of Double Negation by age 7;3. Moreover, the data collected suggest that younger children have already acquired this logical complex but, due to their limited working memory capacity, they have difficulty in its implementation.

Keywords: double negation; negative concord; logic; child language; Italian

1. Introduction

In natural languages, the interpretation of multiple negation structures is problematic because it does not always follow the rules of formal logic. Zeijlstra (2004) made a typological distinction between double negative (DN) and negative concord (NC) languages, in which double negative constructions convey different and free-standing semantic meanings. Double negative languages (e.g. English) may express sentential negation by combining a negative marker with one or more NPIs:

- (1) Nobody ate any spinach.

In this subgroup of languages, the logical Law of Double Negation always applies: when a negative marker and one or more n-words are placed within the same sentence, they cancel each other out providing a positive meaning. However, double negative constructions have very strict pragmatic restrictions. As shown in (2), they can be used to convey a positive meaning only when the speaker wants to deny a previous negative assertion or assumption made by someone else (Horn 1989).

- (2) “I was afraid that nobody would have eaten any spinach.”
“And instead nobody has eaten no spinach! Look: the tray is empty!”

Although they are grammatically correct, DN structures are uncommon in the input due to their usage conditions. In order not to violate Grice’s maxim of manner (Grice 1975), the speaker will resort to this syntactic construction only in those communicative contexts in which it is more informative than the semantically equivalent positive sentence.

In negative concord languages (e.g. Czech), the Law of Double Negation does not apply: two or more negative elements are needed within the same sentence to express a single semantic negation. Independently of their distribution, the n-word must necessarily show up together with a negative marker to express a grammatically correct negative sentence.

- (3) Dnes nevolá nikdo.
today calls nobody
“Today nobody calls.”

Nevertheless, there is a subset of non-strict negative concord languages, in which the different combination of the negative elements within the sentence leads to different semantic interpretations of the statement itself (Giannakidou 2000). Italian belongs to this subgroup of NC languages. Unlike in strict NC languages, in Italian a negative doubling construction is required to express sentential negation only when the n-word is placed in post-verbal position (4a): otherwise, the sentence is grammatically incorrect (4b).

- (4) (a) Non ha telefonato nessuno.
not has called nobody
“Nobody called.”

(b) *ha telefonato nessuno
*has called nobody

Conversely, when the n-word is placed in subject position, no negative doubling construction is needed to express sentential negation: the negative marker is absent from the syntactic construction (5).

- (5) Nessuno ha telefonato a Marta.
 nobody has called to Marta
 “Nobody called Marta.”

As non-strict NC language, Italian allows a DN reading in specific syntactic constructions. When the n-word placed in subject position is followed by a negative marker, the NC reading is compromised: thus, the Law of Double Negation applies, providing a positive meaning to the sentence. This unusual DN construction is emphasized also by prosodic factors: a strong primary stress must be placed on the n-word in subject position.

- (6) Nessuno non ha telefonato.
 nobody not has called
 “Everybody called.”

The DN construction is an extremely marked option in non-strict NC languages. As in DN languages, it is subject to strict pragmatic usage conditions: it can be used only to deny a previous assertion, or a presupposition established in the communicative context. Moreover, since by definition NC languages usually resort to multiple negation constructions to express sentential negation, the DN readings are allowed only in specific syntactic configurations. Hence, both pragmatic and syntactic restrictions make DN constructions very uncommon in a non-strict NC input.

2. Double Negation in Child Languages

Different acquisitional studies show that children initially provide a negative concord interpretation of all multiple negative structures, including those that are properly double negation (Sano, Shimada, and Kato 2009; Van Kampen 2010; Zhou, Crain, and Thornton 2014). This cross-linguistic preference seems to occur in both negative concord and double negation languages, regardless of how the target input commonly uses and interprets multiple negative structures. However, there is no agreement on the nature of this linguistic behavior: it could be the result of an acquisition strategy adopted by children to reduce an extremely complex input (Van Kampen 2010); otherwise, the NC reading could be the default value set by Universal Grammar, which children will eventually reset later once they have been sufficiently exposed to a DN input (Sano, Shimada, and Kato 2009).

Zhou, Crain and Thornton (2014) investigated both the comprehension and the production of DN sentences by preschool Mandarin Chinese speaking children in

pragmatically felicitous context. The findings of the comprehension experiment support the hypothesis that, also in a DN language such as Mandarin Chinese, children pass through a stage in which DN structures are analyzed as a single negation: as a matter of fact, Chinese children master the concept of double negation only by age 5;6. In the production experiment, children were encouraged to produce DN sentences by means of specific eliciting questions: the results show that 6 years-old children are able to produce DN sentences, whereas younger children use alternative syntactic structures, which are both perfectly accepted answers for this kind of questions in Mandarin Chinese. The authors claim that the temporary NC step in Child Mandarin Chinese might be due to children's limited working memory capacity: younger children already have the concept of double negation, but they might have difficulty in correctly applying this logical mechanism. DN sentences are very complex in terms of reasoning, as they involve the computation of a logical equivalence between the multiple negative construction and the corresponding positive meaning. Conversely, NC structures require a less-effort processing: all the negative elements within the sentence are simply blended together to express sentential negation. Since young children do not have yet a fully developed working memory (Gathercole, Pickering, Ambridge, and Wearing 2004), they might adopt easier computational strategies to interpret DN constructions, which might lead them to a generalized NC reading of all the multiple negative contexts. For the same reason, in the production experiment, younger children resort to alternative but nevertheless correct syntactic constructions, which are less demanding than DN in terms of processing, to express the same intended meaning.

3. The Acquisition of Double Negation in Italian

In the present study, the experimental protocol proposed by Zhou et al. (2014) has been adapted to Italian with the aim to investigate the age of acquisition of double negation in a non-strict NC language. The experimental hypothesis is that, consistently with cross-linguistic findings, the logical concept of double negation is acquired later also by Italian children: hence, they would initially provide a default negative concord interpretation of all the multiple negative structures, including those that are properly DN. Two tests were conducted to assess children's knowledge of double negation. Test 1 was a comprehension experiment, with the aim to investigate at what age children are able to provide the correct semantic interpretation of DN structures. Test 2 was a production experiment, useful to determine at what age children correctly produce double negative structures.

3.1 Test 1

3.1.1 Participants

Thirty-six monolingual Italian-speaking children participated in the experiment. They were divided into three age groups: 12 children aged between 3;10 to 5;6 (8 boys and

4 girls), 12 children aged between 5;9 to 7;2 (5 boys and 7 girls) and 12 children aged between 7;3 to 8;2 (5 boys and 7 girls). The average age of participants was 6.4 years ($SD = 1.34$). All the participants were enrolled in the *Istituto Comprensivo di Bovezzo* (Brescia, Italy). None of them had reported history of speech, hearing or language disorders.

3.1.2 Procedure

Children were tested using a truth vale judgement task to understand which semantic meanings they were able to assign to sentences (Crain and Thornton 1998). The experimenters acted out short stories using toy characters. A teddy bear watched the stories along with children: at the end of the story, the puppet told the child what happened in the story using a test sentence. The child's task was to judge whether the puppet told the truth about the story or not. In both cases, children were successively asked to explain with their words what happened in the story. Children were first introduced to the task and then tested individually. Four practice trials were given before the test: in two of them, the puppet's statements were true descriptions of the stories; in the other two, the puppet's statements were false descriptions. Practice trials were used to familiarize children with the task and to show them that the puppet could lie. Only those children who correctly answered to all the control trials were included in the test.

3.1.3 Materials and Design

Test 1 consisted in six test trials. In three of them, the target DN sentence was a true description of the story (true scenario); in the other three, the target DN sentence was instead a false description of the story (false scenario). The story depicted in Figure 1 resembles the typical true scenario. In this story, Peppa Pig invited her friends Rebecca, Pedro and Freddy to her birthday party. The day before Peppa's birthday, both Rebecca and Pedro had already bought their presents. Freddy, instead, had the flu and could not buy a gift for Peppa. The next day, Rebecca and Pedro went to the party and told Peppa that Freddy was ill, and he might not come. However, Freddy suddenly arrived with his birthday gift: he recovered, and he made it to the party. After the story, the teddy bear told what happened in the story using the test sentence in (7). The child had to judge whether the puppet was telling the truth or not.

- (7) Nessuno non è andato alla festa di compleanno di Peppa
 nobody not is gone to the party of birthday of Peppa
 "Nobody did not go to Peppa's birthday party."

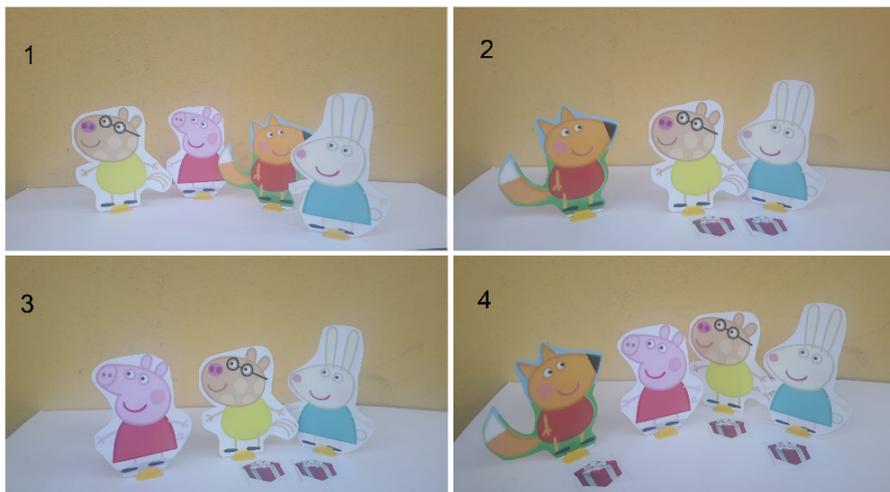


Figure 1. True Scenario: birthday party

The story depicted in Figure 2 exemplifies the typical false scenario. In this story, Peppa and Pedro went to the kindergarten with their moms. Rebecca, instead, was sick: it was made clear to children that Rebecca, unlike her friends, did not go to the kindergarten, but she had to stay at home to recover. After the story, the teddy bear told what happened in the story using the test sentence in (8). The child had to judge whether the puppet was telling the truth or not.

- (8) Nessuno non è andato all' asilo
 nobody not is gone to the kindergarten
 "Nobody did not go to the kindergarten."



Figure 2. False Scenario: kindergarten

The context provided in both the scenarios was pragmatically felicitous for the use of DN sentences, which are perfectly acceptable in Italian when the speaker wants to reject a previous assumption or negative statement. This was achieved by making clear the possibility that one of the characters might not perform the action described in the story: by the end of the story, this expectation is never fulfilled in the true scenario, in which all the characters succeed in the action; conversely it is realized in the false scenario, with one character who always misses to fulfil the action.

Four control trials were included to check that children could understand positive (9) and single negative (10) sentences. The stories used as controls were similar to those on the test trials: here again, the control sentences uttered by the puppet could be either true or false descriptions of the corresponding stories.

(9) Tutti hanno fatto merenda
 everybody have do snack
 “Everybody had a snack.”

(10) Nessuno è andato al parco
 nobody is gone to the park
 “Nobody went to the park.”

All the test and control trials were presented to children in random order.

3.1.4 Predictions

If children have the concept of double negation, they are expected to accept the DN sentences in the true scenarios by saying that, e.g., sentence (7) is true because it means that everybody went to Peppa’s party, and it is a true description of the story. Conversely, they should reject the DN sentences in the false scenarios by saying that, e.g., sentence (8) is false because it means that everybody went to the kindergarten, but it is not what happened in the story because Rebecca stayed at home. On the other hand, if children do not have the concept of double negation, they are expected to provide a NC interpretation of the DN sentences. In the true scenario, they should reject sentence (7) by pointing out that it is false because it means that nobody went to the party, whereas everybody did. Similarly, in the false scenario, they are expected to reject sentence (8) by saying that it is false because it means that nobody went to the kindergarten, whereas Peppa and Pedro did.

3.1.5 Results and Discussion

A child aged 4;2 was excluded from the test because he did not respond correctly to the control trials. All the other children answered correctly to the control trials 100% of the time and their data were included in the final analysis. The dependent variable was

the proportion of correct responses in the two types of scenarios: Figure 3 shows the proportion of correct responses by the three age groups. The division of the participants into three age groups was done post-hoc, based on the performance of each child in both the comprehension and the production task.

As shown in Figure 3, the older group of children gave more correct responses than the other two groups in both conditions. In the true scenario, children aged between 7;3–8;2 accepted the DN sentences 83.3% of the time, whereas children aged 5;9–7;2 did so only 11.1% of the time. Children aged between 3;10–5;6 never accepted the double negative structures. Across all the three age groups, when children did not accept the sentence, they justified their answer by pointing out that all the characters did something. In the false scenario, children aged between 7;3–8;2 correctly rejected the DN sentences 80.6% of the time, whereas children aged 5;9–7;2 did so only 8.3% of the time. Children aged between 3;10–5;6 never correctly rejected the target sentence. Across all the three age groups, the other times children rejected the DN sentences as well, but for the wrong reason. Two representative justifications are given as example. In the story of Rebecca who is not going to the kindergarten, the older group correctly rejected the DN sentence in (8), either by pointing out that Rebecca did not go to the kindergarten or by saying that only Pedro and Peppa did. The other two groups rejected the sentence as well, but for a different reason: they justified their answer by saying that someone actually went to the kindergarten.

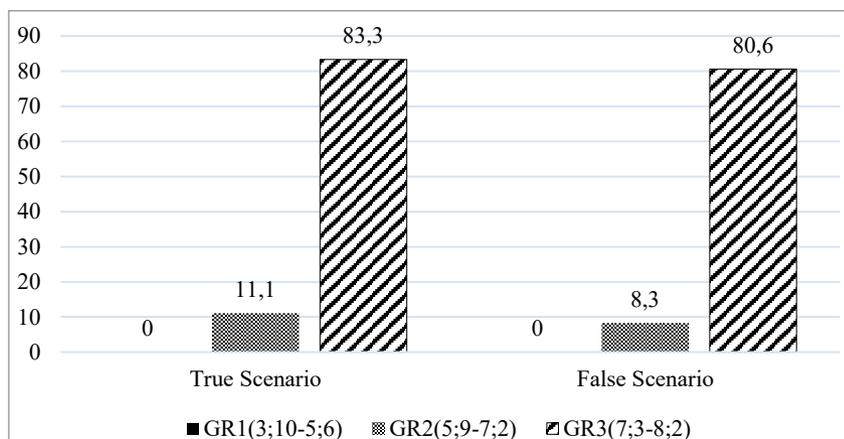


Figure 3. Mean proportion of correct responses by the three age groups

The performance of each child was consistent across trials: in the true scenario, the child either accepted or rejected all the three test sentences; in the false scenario, the child rejected the three test sentences providing similar justifications.

The differences between the three age groups were analyzed statistically: one-way ANOVAs were conducted using the SPSS software to compare the effect of age on the dependent variable. We analyzed the two conditions separately, by creating a model for children's responses in the true scenarios, and a model for their responses in the false scenarios. Both models treated age (i.e., the three age groups) as a fixed effect. The analysis of the variance showed a main effect of age (GR) on the proportion of children's correct responses in both conditions ($F(2,32) = 28.71, p < .001, \eta_p^2 = .642$ in false scenario condition; $F(2,32) = 29.27, p < .001, \eta_p^2 = .647$ in true scenario condition). In the true scenario condition, post-hoc analyses using Bonferroni indicated a higher proportion of correct responses in GR3 (7;3–8;2) than in GR2 (5;9–7;2), $p < .001$, and than in GR1 (3;10–5;6), $p < .001$. Similarly, in the false scenario condition, post-hoc analyses using Bonferroni indicated a higher proportion of correct responses in GR3 than in GR2 ($p < .001$), and than in GR1 ($p < .001$).

The findings of the comprehension experiment show that children aged between 7;3–8;2 correctly interpreted DN sentences as conveying a positive meaning, whereas children aged between 3;10–7;2 provided a negative interpretation of the same structures. This is an evidence that also Italian children pass through a stage in which double negation is analyzed as single negation.

3.2 Test 2

3.2.1 Participants

The same 36 monolingual Italian-speaking children also participated in the production experiment. 13 monolingual Italian-speaking adults were tested as controls to see whether they use double negative structures in the same contexts. The adult participants (6 men and 7 women) were aged between 21 to 35 (mean age 25;1 years, $SD = 3.5$). Both adults and children were recruited in the same geographical area (Brescia, Northern Italy).

3.2.2 Procedure

Both children and adults were tested through an elicited production task to investigate whether they were able to produce DN sentences. Like in test 1, the experimenters acted out short stories using toy characters, and a teddy bear watched the stories along with children. Before the experiment, children were told that the puppet was not very good at speaking Italian, so that they had to help him to learn how to speak properly. At the end of the story, the puppet asked the child a simple question: the child's task was to answer to the question in the best way possible. The puppet's questions were designed to elicit answers with a DN structure. Both children and adults were introduced to the task individually and then they were tested individually. Four practice trials were given before the test with the aim to familiarize participants with the task. Here again, the puppet asked a question about the corresponding story. Only those participants who correctly answered to all the control trials were included in the test. In addition, children were also tested in the production of simple

negative sentences. Since Italian children are exposed to a predominant NC input, they might infer that this multiple negative structure is always required to express sentential negation in Italian: that is, Child Italian might behave as a strict NC language. Six additional test trials were used to investigate whether children are able to express sentential negation by means of a single negative marker or whether they incorrectly resort to DN structures with the intention of providing a negative concord construction of the sentence.

3.2.3 *Materials and Design*

Test 2 consisted in 6 test trials: the stories resembled the true scenario in Test 1, in which all the characters successfully accomplished a task at the end of the story. A typical test trial is organized as follows. The experimenter told the story of Mamma Pig who cooked pizza for Peppa and her friends Rebecca and Pedro. Peppa and Pedro ate the pizza: Rebecca, instead, was not very hungry, and she did not want to eat it. However, at the end of the story, Rebecca decided to eat the pizza as well, because it smelt so good. After the story, the puppet asked a question as in (11):

- (11) Chi non ha mangiato la pizza?
who not has eaten the pizza?
“Who did not eat pizza?”

Four control trials were included: the stories resembled the false scenario in Test 1, in which one of the characters failed in doing something at the end of the story. On a typical control trial, Peppa and Rebecca were jumping in the puddles: they asked Pedro to join, but he preferred playing with the ball. After the story, the puppet asked a question as in (12):

- (12) Chi non ha saltato nelle pozzanghere?
who not has jumped in the puddles?
“Who did not jump in the puddles?”

Six additional trials were introduced to see whether Child Italian behaves as a strict NC language. On a typical test trial, Peppa, Pedro and Rebecca were picking strawberries in the woods. When it was time to go home, they no longer remembered how to get out from there. However, at the end of the story, they found their way home. After the story, the puppet asked a question as in (13):

- (13) Chi si è perso nel bosco?
who himself is lost in the woods?
“Who got lost in the woods?”

All the test and control trials were presented to children in random order.

3.2.4 Predictions

If children can produce DN sentences, they are expected to produce a sentence like (14) in response to question (11):

- (14) Nessuno non ha mangiato la pizza
 nobody not has eaten the pizza
 “Nobody did not eat pizza.”

If Child Italian behaves as a strict NC language, children are expected to produce a DN sentence like (15) to express sentential negation:

- (15) Nessuno non si è perso nel bosco
 nobody not himself is lost in the woods
 “Nobody did not get lost in the woods.”

Conversely, if Child Italian already behaves as a non-strict NC language, children are expected to express sentential negation by means of a single negative marker placed in subject position:

- (16) Nessuno si è perso nel bosco
 nobody himself is lost in the woods
 “Nobody got lost in the woods.”

3.2.5 Results and Discussion

A child aged 4;2 was excluded from the test because he did not respond correctly to the control trials. All the other children answered correctly to the control trials 100% of the time: their data were included in the final analysis. The dependent variable was the proportion of double negative structures in the participants’ production out of the six total test trials. The older group of children had an adult-like performance: they produced DN sentences 79.17% of the time, and adults did so 68.46% of the time. Children aged 5;9–7;2 used DN structures in response to the test questions 30.56% of the time, whereas the younger group of children did so only 9.09% of the time. Across the three age groups, when children did not use a double negative structure, they either resorted to the corresponding positive structure or to a single n-word. For example, when presented with the question in (11), younger children consistently provided either the answer in (17) or in (18):

- (17) Tutti hanno mangiato la pizza.
 everybody have eaten the pizza
 “Everybody ate pizza”

- (18) Nessuno.
 nobody
 “Nobody (did).”

Both these syntactic constructions are perfectly acceptable in Italian: in fact, they were also used by the control group of adults.

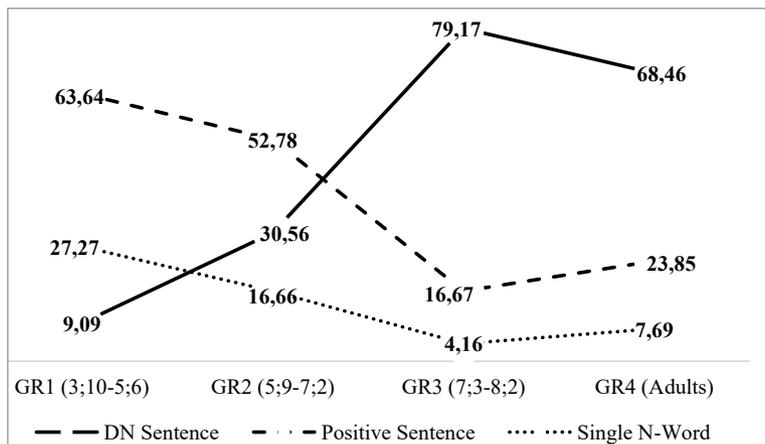


Figure 4. Mean proportion of structures used by the four age groups

The performance of both the younger and the older group of children was consistent across trials: each child selected a specific syntactic construction, which then was used to answer to all the six test trials. Conversely, each child aged between 5;9–7;2 provided different types of answers during the test: for example, a girl aged 6;6 produced a DN sentence in 4 out of 6 trials, but she used the corresponding positive sentence in the other two.

The differences between the four age groups were analysed statistically: one-way ANOVA were conducted using the SPSS software to compare the effect of age on the dependent variable. The models treated age (i.e., the four age groups) as a fixed effect. The analysis of the variance showed a main effect of age (GR) on the proportion of double negative structures in the participants’ productions, $F(3,44) = 6.87, p = .001, \eta_p^2 = .319$. Post-hoc analyses using Bonferroni indicated a higher proportion of double negative structures in GR3 than in GR1 ($p = .001$), and than in GR2 ($p = 0.28$). Moreover, post-hoc comparison indicated that there was no significant difference between GR3 and the adults in the proportion of double negative structures ($p = 1$).

The findings of the production experiment showed that children aged between 7;3–8;2 correctly produced DN sentences in an adult-like manner, whereas children aged between 3;10–5;6 consistently avoided using these structures to answer the test questions.

Children aged between 5;9–7;2 produced some DN structures, but it is a below-chance performance. However, all the children participants always provided the correct answer for the test sentences, either by producing the elicited DN sentences or by resorting to equivalent syntactic structures. Moreover, all the children participants were able to correctly produce simple negative sentences. They all correctly answered to these additional trials 100% of the time. This provides significant evidence that Child Italian does not behave as a strict NC language: even younger children already know that in Italian sentential negation can be expressed either by means of a single negative marker or by means of a NC construction, whereas DN structures convey a different semantic meaning.

4. General Discussion and Conclusions

The present study aimed to investigate at what age Italian children master the concept of double negation. The results of the comprehension experiment confirm the hypothesis that, also in a non-strict NC language such as Italian, children pass through a stage in which they assign a default negative concord interpretation to all multiple negative structures, including those that are properly DN. Children aged 7;3 and above correctly interpreted double negation sentences 82.6% of the time, whereas children younger than 7;2 understood the same structures as a single negation: children aged between 3;10–5;6 never provided the correct interpretation of DN sentences, and children aged between 5;9–7;2 did so only 9.2% of the time. The results of the production experiment show that children aged between 7;3–8;2 correctly produced a double negative structure in response to the test question 79.17% of the time. Taken together, these data indicate that the Italian children master the Law of Double Negation by age 7;3: Figure 5 shows that, by this age, children have an adult-like behavior both in the comprehension and in the production of this multiple negative construction.

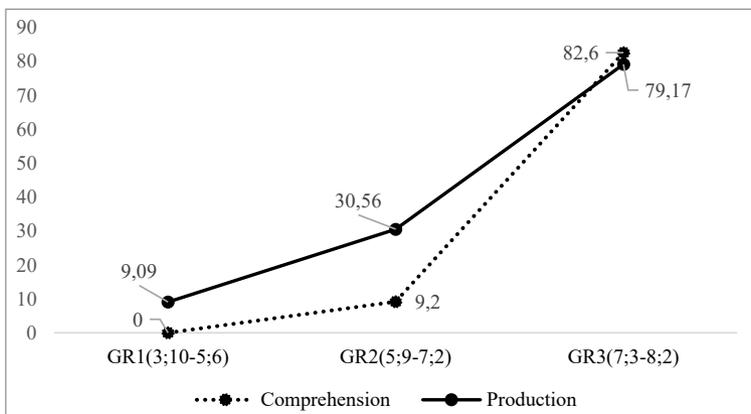


Figure 5. Mean proportion of correct responses by the three age groups

Although children younger than 7;2 did not use DN sentences in the production task, they resorted to alternative structures, which are nevertheless legitimate answers to the questions. This suggests that younger children already know the logical meaning of double negation: they simply avoid using DN structures to accomplish the task. This linguistic behavior can be explained in terms of a least-effort processing strategy. The construction of a DN sentence requires to hold first in the working memory the meaning of two different negative elements, and then to make the logical equivalence by applying the second negative to the first one in order to convey a positive meaning. This process might pose difficulty for younger children because their working memory is not yet fully developed. The corresponding positive sentence, instead, does not involve any negation marker but only the universal quantifier *tutti*. As for the use of the single n-word *nessuno*, the parser has to hold in her working memory the meaning of only one negative element, and no further logical equivalence is required to build the sentence. The following example shows younger children's difficulty in processing DN sentences. When children answered to a test sentence like (11) using the single n-word *nessuno* (19a), they were encouraged by the experimenter to complete the sentence (19b):

- (19) (a) Nessuno.
 nobody
 "Nobody (did)."
- (b) Nessuno cosa?
 nobody what?
 "Nobody (did) what?"

As shown in (20), a boy aged 4;7 initially tried to produce the DN sentence with the n-word in subject position: however, after long pauses for reflections, he chose to use the positive equivalent sentence.

- (20) Nessuno... Nessuno... Tutti hanno mangiato la pizza.
 nobody nobody everybody have eaten the pizza
 "Nobody... Nobody... Everybody ate pizza."

These findings strongly support Zhou et al.'s acquisitional hypothesis (2014) that younger children already have the concept of double negation. However, due to limitations in their working memory capacity, they have difficulty in the implementation of this complex logical structure. When they are asked to answer to test sentences like (11), children express the intended semantic meaning by means of equivalent linguistic structures, which are less demanding than DN constructions in terms of processing resources. The

individual performance of each child participant in the production task further supports this assumption. As a matter of fact, children aged 5;9–7;2 displayed a particular pattern of answers: in comparison to the younger group of children, they showed an increase in the use of DN sentences, but also a diversification in the responses, which lacks in both the other age groups. Whereas younger and older children consistently resorted to the same syntactic constructions across trials, children aged 5;9–7;2 tried to use different linguistic strategies to answer the test questions. Nevertheless, the same kind of difficulty in processing DN sentences has been found both in the younger and the intermediate group of children. However, when encouraged by the experiment, the latter made more attempts in the production of DN constructions:

- (21) Nessuno... Nessuno... ha mangiato...
 nobody nobody has eaten
 tutti hanno mangiato la pizza.
 everybody has eaten the pizza
 “Nobody... Nobody has eaten... Everybody ate pizza.”

- (22) Nessuno... Nessuno... ha mangiato...
 nobody nobody has eaten
 Nessuno non ha mangiato eaten la pizza.
 nobody not has eaten eaten the pizza
 “Nobody... Nobody has eaten... Nobody did not eat pizza.”

After long pauses, the girl in (21) partially formulated a single negative sentence but she noticed the mistake: hence, she stopped after the verb, and she decided to use the corresponding positive sentence. Conversely, the boy in (22) made the same reasoning but he was able to correct himself, and he succeeded in the production of the DN sentence.

In this study, the age range 5;9–7;2 emerges as an intermediate developmental stage for the acquisition of double negation. Crucially, it is also a crucial age for working memory development, which might explain children’s performance in terms of processing limitations and resources. Proceeding by trials and errors (i.e., the different pattern of answers), these children make more attempts in the elaboration of DN sentences because they have less difficulty in the mental processing: however, since their working memory is not yet fully developed, they do not always succeed in the production, and, in these cases, they resort as younger children to simpler but equivalent syntactic structures. This acquisitional hypothesis could also explain the gap between comprehension and production found among this intermediate age group: some children rejected DN structures in the comprehension task, but they were nevertheless able to produce them. When children had to judge the truthfulness of DN sentences,

they had to make a metalinguistic reasoning over utterances, which posed difficulties for younger children due to their limited working memory resources. The elicited question in the production task helped instead children to overcome this processing difficulty in order to express a logical concept that they have already elaborated. Children younger than 5;6 have no sufficient working memory resources to implement the logical law of double negation. In the comprehension task, they always assign to DN sentences a NC interpretation, which is easier in terms of processing because it does not require the elaboration of any logical equivalence. In the production task, they immediately resort to alternative structures, which nevertheless indicate a basic knowledge of double negation. Children aged 7;3 and above, instead, have enough working memory resources to have an adult-like behavior both in the comprehension and in the production of DN sentences.

The data collected strongly support the assumption that the development of children's knowledge of double negation is a gradual process, which occurs in parallel with the improvement of their working memory capacity: younger children's errors in both the comprehension and the production of double negation sentences might be due to a difficulty in the processing of this logical concept (i.e. a performance deficit due to limitations in their working memory capacity) and not to the lack of the concept itself (i.e. a competence deficit).

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Locative-Directional Alternations

Guido Vanden Wyngaerd

KU Leuven, Brussels, Belgium

guido.vandenwyngaerd@kuleuven.be

Abstract: This paper investigates three instances of locative-directional (LOC/DIR) alternation. The first involves words like *here* and *there* (henceforth HTW), which are traditionally taken to be adverbs, but which behave distributionally like either locative or directional PPs. I analyse HTW as the phrasal spellout of an abstract set of features expressing direction and location. These features stand in a containment relationship, i.e., directions contain locations. The LOC/DIR alternation is straightforwardly explained as an application of the Superset Principle, by which lexical trees may realize subtrees that they contain. From this it follows that lexical items that realize directions may also realize locations. A second case where a LOC/DIR alternation is observed is that of locative prepositions in combination with motion verbs. Here I claim that size differences in verbs and prepositions explain this phenomenon. The third case involves a LOC/DIR alternation where a locative P may become directional if the complement of P moves. These are analysed in terms of a peeling derivation, which leaves behind an oblique case layer, which transforms a locative P into a directional one.

Keywords: adverbs; prepositions; movement; direction; location

1. Introduction

The topic of this paper is the phenomenon of LOC/DIR alternations, i.e., instances where the same form can express either a locative or a directional meaning. In its simplest form, this is illustrated by the example in (1), where *there* may either refer to a location or a direction.

- (1) She danced there_{DIR/LOC}.

This behaviour is shared by other lexical items, of which *here* is the most obvious one. *Where* only has the locative sense, but for convenience, I shall henceforth refer to *here*, *there*, and *where* as HTW.

A more complex case is that of (2):

- (2) (a) She was swimming in_{LOC} the pool.
 (b) She fell in_{DIR} the pool.

Here we see that the same P (*in*) can either express a location or a direction. This type of LOC/DIR alternation is verb-controlled, i.e., it is dependent on the type of verb that P combines with, as the contrast between (2a) and (2b) makes clear.

The third type of shape that a LOC/DIR alternation can take is movement-controlled, i.e., dependent on the movement of the complement of a locative P to the left. It is illustrated by the Dutch sentences in (3):

- (3) (a) Ze zwom in_{LOC} het zwembad.
 she swam in the pool
 “She swam in the pool.”
 (b) Ze zwom het zwembad in_{DIR}.
 she swam the pool into
 “She swam into the pool.”

These examples show the same preposition, while the LOC/DIR alternation correlates with prepositional vs postpositional word order, respectively. In what follows, I discuss these three cases of LOC/DIR alternation in turn, and propose a nanosyntactic account for them.

2. Loc/Dir Alternation with HTW

2.1 HTW as Complex Constituents

The classical view on sentence structure in generative grammar is that words attach under terminal nodes. A phrase like *at this place* comprises three words, corresponding with three terminal nodes (P, D, and N, respectively). In contrast, an (alleged) adverb like *here* corresponds with a single terminal (Adv), which is the only word contained in the phrase (AdvP). There are two reasons why this view is unsatisfactory. First, as we shall show below, *here* has the distribution of a PP rather than an adverb. Second, the meaning of *here* is complex: it means the same as the complex phrase *at this place*. The nanosyntactic view on sentence structure (Starke 2009, 2011) offers an interesting alternative to the classical view. Specifically, words in the nanosyntactic

lexicon can spell out complex constituents. This solves both issues that are unsatisfactory in the classical approach. The complex meaning of *here* can be accounted for by assuming that *here* spells out a constituent equivalent with “at this place”. This complex constituent furthermore has the distribution of a locative or directional PP in virtue of the features that it is composed of.

Nanosyntax being a late insertion model, its syntax does not operate with words, but with abstract features. What are the features that are realised by HTW? These fall into two distinct sets, corresponding to two parts in the form of HTW. On the one hand, there is a deictic or wh-part (*h-/th-/wh-*), and on the other a locative/directional part (*-ere*). The deictic/wh-part (which is responsible for the differences between *here*, *there*, and *where*) is not one that I shall be concerned with in this paper. I will focus on the *-ere* part, which I take to be the phrasal spellout of an abstract set of features, expressing direction and location and an abstract ontological category PLACE (Baunaz and Lander 2018). The lexical entry for this second part may for now be represented in (4):

$$(4) \quad [\text{DIR} [\text{LOC} [\text{PLACE}]]] \quad \Leftrightarrow \quad \text{-ere}$$

I discuss this structure in a more detailed manner below. First, however, I turn to the evidence suggesting that HTW are PPs not adverbs.

2.2 HTW Are PPs

The argument that HTW behave distributionally like PPs and not adverbs has been made in Burton-Roberts (1991). A schematic overview of the relevant properties is given in Table 1.¹

| | Adverb | PP | HTW |
|---|--------|----|-----|
| Substitution | X | ✓ | ✓ |
| Complement of V | X | ✓ | ✓ |
| Modifies Adj/Adv | ✓ | X | X |
| Postmodifies N | X | ✓ | ✓ |
| Complement of P | X | ✓ | ✓ |
| Takes PP complement | X | ✓ | ✓ |
| Takes <i>right/straight/just</i> | X | ✓ | ✓ |
| Locative inversion | X | ✓ | ✓ |

Table 1. The distributional properties of adverbs, PPs, and HTW

¹ The category of the adverbs in Table 1 refers to undisputed adverbs, which are marked morphologically by the suffix *-ly*.

The table shows that HTW systematically pattern with PPs, not adverbs. For reasons of space, I will not review this evidence in detail, but restrict myself to the conclusions that can be drawn from this distribution. Burton-Roberts (1991, 171) takes HTW to be prepositions, but as we saw earlier, the semantics of HTW is more complex than that of a simple preposition. Aarts (2013) takes HTW to be PPs, but this is still too general category, since not all PPs show the distributional signature of Table 2: prepositional objects pattern quite differently than locative/directional PPs. Katz and Postal (1964) have proposed that HTW derive from an underlying PP-like structure.

- (5) here : at this place
 there : at that place
 where : at what place

Kayne (2005) echoes this idea, suggesting that *here* and *there* are licensed in a structure with silent nouns (to wit, THIS *here* PLACE, THAT *there* PLACE, respectively, with small caps marking nonpronunciation). The proposal I develop below is in this spirit, but I believe there is an important part missing from (5), which is that it only represents the locative sense of HTW, and not the directional sense. In other words, on top of (5), we also have (6).²

- (6) here : to this place
 there : to that place

That is, the conclusion to be drawn from the distributional evidence is that HTW behave like a subclass of the PPs, namely those with a locative or directional meaning. This alternation between locative and directional meanings is a further property that HTW share with PPs.

2.3 Analysis

As we saw above, HTW can potentially refer to either a direction or a location. We also gave a preliminary lexical entry for *-ere* in (4), which is repeated here as (7).

- (7) [DIR [LOC [PLACE]]] ⇔ *-ere*

We now turn to a more detailed discussion of this structure. The idea that directions structurally contain locations (as in [7]) is fairly widespread in the literature on the

² M. Sheehan (pers. comm.) has drawn my attention to the fact that *where* only has the locative sense. This is also true for the constituents built on *where*, like *somewhere* and *everywhere*. I make abstraction of this fact here and continue to refer to *here* and *there* as HTW.

syntax of prepositions (e.g., Koopman 2000, Holmberg 2002, Van Riemsdijk and Huybregts 2002, Zwarts 2005, Den Dikken 2010b, Cinque 2010, Svenonius 2010, Caha 2010, Pantcheva 2011). More specifically, directional prepositions are more complex than locative ones, i.e., directional prepositions contain locative ones:

$$(8) P_{\text{DIR}} = [\text{DIR} [P_{\text{LOC}}]]$$

Given that HTW distribute like locative or directional PPs, it stands to reason that we extend the same kind of containment relation that we see with directional prepositions to HTW, as in (7) above.

This approach furthermore gives us an immediate handle on the *LOC/DIR* alternations observed with HTW. They are a case of syncretism: the same form expresses two grammatical categories. More specifically, the *LOC/DIR* alternations with HTW illustrate the working of the Superset Principle (Starke 2009).

(9) Superset Principle

A lexically stored tree *L* can spell out a syntactic constituent *S* iff *L* contains *S* as a subtree.

The *L*-tree in (7) can spell out an *S*-tree to which it is identical (as in the directional sense of HTW), but also the locative subtree that it contains. This gives us the *LOC/DIR* alternation with HTW as a classical case of Superset Principle logic.

Not all Germanic cognates of HTW show the same *LOC/DIR* alternation. The Dutch ones, for example, systematically fail to have a directional sense:

$$(10) \quad \begin{array}{l} \text{Ze} \quad \text{zwom} \quad \text{daar}_{\text{LOC}/\text{DIR}}/\text{daar-heen}_{\text{DIR}}. \\ \text{She} \quad \text{swam} \quad \text{there/there-to} \\ \text{“She swam there.”} \end{array}$$

In this respect, Dutch HTW resemble English *where*, which also lacks this directional sense. The structure realized by Dutch HTW therefore corresponds to that in (11):

$$(11) [\text{LOC} [\text{PLACE}]]$$

The *DIR* feature of (8), which is needed for a directional sense, cannot be realized by *daar* “there”, and therefore has to be realized by a separate lexical item, the directionality marker *heen*.

Let us next consider the internal make-up of HTW a bit more closely. At the bottom of the feature tree stands the feature *PLACE*. This is a shorthand for what is presumably an internally complex node in itself, i.e., an ontological category similar

to THING, PERSON, and others, which stand in a containment relation, as proposed by Baunaz and Lander (2018). As far as LOC and DIR are concerned, it has been suggested by Caha (2017) that allative case is composed of DAT and LOC. Allative case expresses directions in languages that use case rather than prepositions. Applying this idea to the internal structure of HTW, this means that (7) has to be updated as in (12):

$$(12) \text{ [}_{\text{ALL}} \text{ DAT [}_{\text{LOC}} \text{ LOC [PLACE]]] } \Leftrightarrow \text{ -ere}$$

Evidence suggesting that such a decomposition of allative case is correct comes from Waris (Papuan), where ALL is visibly composed of DAT and LOC (data taken from Caha 2017).

- (13) (a) Him-ba buku ka-**m** vrahoi. [DAT]
 het-TOP book I-DAT gave
 “He just gave me a book.”
- (b) Ovla deuv-**ra** ka-**ina** dihel-v. [LOC]
 knife house-LOC I-LOC exist-PRS
 “The knife is at my house.”
- (c) Deuv-**ra-m** Luk-**in-am** ka-va ga-v. [ALL]
 house-LOC-DAT Luke-LOC I-TOP go-PRS
 “I go to Luke’s house.”

In (13a), we see the dative marker *-m*; (13b) shows two different locative markers, one for animates (*-ina*) and one for inanimates (*-ra*). The allative marking in (13c) shows the dative marker stacking on top of the (animacy-sensitive) locative markers. The structure of the allative case marked form *Lukinam* is shown in (14).

$$(14) \text{ [}_{\text{ALL}} \text{ [}_{\text{DAT}} \text{ m] [}_{\text{LOC}} \text{ ina [}_{\text{NP}} \text{ Luke]] }$$

Here the different features of the structure are lexicalized separately, in a manner that we shall not discuss the technical details of here (see Caha 2017). The important point in this context is that in HTW, there is a single exponent realizing the entire structure, as shown in (12).

3. Verb-Controlled LOC/DIR Alternation

3.1 Size Differences in P

Certain types of prepositions only have a locative meaning (e.g., *in*, or French *à*), whereas others are directional. The examples below (from Déchaine, Hoekstra, and

Rooryck 1995) use these prepositions in nominal postmodifiers, since in combination with certain types of verbs, locative prepositions may take on a directional sense, as we shall see below.

- (15) (a) a train $\text{in}_{\text{LOC}}/\text{to}_{\text{DIR}}$ Paris [English]
 (b) un train $\text{\grave{a}}_{\text{LOC}}/\text{vers}_{\text{DIR}}$ Paris [French]
 (c) een trein $\text{in}_{\text{LOC}}/\text{naar}_{\text{DIR}}$ Paris [Dutch]

Taking directions to be more complex than locations, we give this a nanosyntactic implementation in terms of phrasal spellout by assuming that the difference between locative and directional Ps is one of size. This is shown schematically in Table 2.

| DIR | LOC | PLACE |
|-----|-----|-------|
| | in | Paris |
| to | | Paris |

Table 2. Directional P is bigger than locative P

Directional Ps realize a structure that contains the structure realized by locative Ps. Taking our earlier decomposition of the allative case as consisting of DAT and LOC, and extending it to directional (i.e., allative) prepositions, we can state the following:

- (16) $P_{\text{DIR}} = [\text{DAT} [P_{\text{LOC}}]]$

A question raised by this analysis is why purely locative Ps sometimes have an apparent motion sense.

- (17) (a) She went/came/fell/jumped in_{DIR} the water. [English]
 (b) Ce train va $\text{\grave{a}}_{\text{DIR}}$ Paris. [French]
 “This train goes to Paris.”

The answer is that the motion sense is contributed by the verb. This is confirmed by the fact that not all motion verbs can do this. Stative verbs like *be* never occur with strictly locative Ps to give them a directional sense. The same is true of the so-called manner-of-motion (MOM) verbs like *dance*. The verbs that do have this capability are the verbs of directed motion, or motion verbs for short (see also Talmy [1975, 1985] on path-framed vs satellite-framed languages; also Levin 1993, Levin and Rappaport Hovav 1995, Ramchand 2008, Beavers, Levin, and Tham 2010, Den Dikken 2010a).

Assuming the different verbs to realize different sets of features, we analyse their relationships as a size difference: verbs of directed motion are more complex than (i.e., contain) manner of motion verbs, which in turn are more complex than stative verbs, as shown in Table 3.

| STATE | PROC | DAT |
|-------|------|-----|
| be | | |
| dance | | |
| go | | |

Table 3. Containment relations in different verb types

Analogous to our earlier equation on directional prepositions, we therefore have (18).

$$(18) V_{\text{DIR}} = [\text{DAT} [V_{\text{MOM}}]]$$

Verbs of directed motion (*go, jump, fly*) can realize DAT (Fabregas 2007, Caha 2010). This is what allows a purely locative preposition to appear to have a directional sense: DAT is spelled out by the verb. This is shown schematically in Table 4.

| STATE | PROC | DAT | LOC | PLACE | |
|-------|------|-----|-----|----------|---------------|
| be | | | in | Paris | (locative) |
| dance | | | in | the room | (locative) |
| go | | | in | the room | (directional) |

Table 4. The realization of DAT by motion verbs

Manner of motion verbs (*dance, walk, run*) are unable to spell out DAT, so that with these verbs, *in* can only have a locative sense.

- (19) (a) She danced in_{LOC} the room.
 (b) She danced (in)_{to_{DIR}} the room.

Neither the verb nor *in* can realize DAT, and a directional P is needed to realize a directional sense. This is shown in Table 5.

| STATE | PROC | DAT | LOC | PLACE | |
|-------|------|-----|-----|----------|---------------|
| dance | | | in | the park | (locative) |
| dance | | to | | the park | (directional) |

Table 5. The realization of DAT by *to*

Some verbs allow both a directed motion reading and a manner of motion reading. For example, *fall*, *jump*, and *fly* (but not *come* or *go*) can occur with both a directional or locative PP with *in*.

- (20) (a) She fell [in the water]_{DIR}.
 (b) She fell [in the bathroom]_{LOC}.
- (21) (a) The children jumped [in the water]_{DIR}.
 (b) The children were jumping [in the water]_{LOC}.

This situation is summarized in Table 6.

| | DIRECTED MOTION | MANNER OF MOTION |
|-------------------------|--------------------|---------------------|
| <i>go, come</i> | ✓ | ✗ |
| <i>dance, walk, run</i> | ✗ | ✓ |
| <i>fall, jump, fly</i> | ✓ | ✓ |

Table 6. Types of motion verbs in English

Observe that there is a single functional sequence involved in the expression of a motion or location sentence, as on the top line of Table 4. The idea of phrasal spellout implies that words spell out parts (or spans) of this functional sequence. As before, we gloss over the technicalities of exactly how this happens, for reasons of space. The relevant point is that a verb of directed motion is bigger than a manner-of-motion verb, i.e., it can realise a larger span of features. That is how the LOC/DIR alternation arises with strictly locative P: the verb realises the DAT.

At this point, we return to our earlier findings on HTW. Recall that HTW distribute like PPs, not adverbs. In view of the distinction between locative and directional Ps, a first question to ask is whether HTW more resemble locative Ps (like *in*), or directional ones (like *to*). As we already pointed out above, HTW can in fact have both a locative

and a directional sense. The locative sense of HTW appears with stative verbs, as in (22a), and manner of motion verbs (see [22b]), but also with directional verbs (22c):

- (22) (a) The pharmacy is there_{LOC}.
 (b) She danced_{MOM} there_{LOC/DIR}.
 (c) She came_{DIR} here_{LOC} yesterday.

The directional sense of HTW can only conclusively be inferred from the possibility of a directional interpretation in (22b). This sentence involves the manner of motion verb *dance*, which we know independently cannot realize DAT (see [19] above). Therefore, it must be the case that DAT is realized by HTW. Although (22c) has a directional meaning, it does not show that HTW is directional: as we saw earlier (see the examples in [17]), a strictly locative P may combine with a motion verb to yield a directional reading. Table 7 shows the size tradeoff between the verb and *there*.

| STATE | PROC | DAT | LOC | PLACE |
|-------|------|-------|-------|---------------|
| be | | | there | (locative) |
| dance | | | there | (locative) |
| dance | | there | | (directional) |
| go | | | there | (directional) |

Table 7. Size tradeoffs with HTW

In the bottom two lines of the table we see a tradeoff between the features spelled out by the verb and those spelled out by *there*. A manner-of-motion verb like *dance* cannot on its own express directed motion, i.e., it cannot realize the feature DAT, but since *there* can, the directional sense can be present when both combine (as shown in [2] above). A motion verb like *go* can realize DAT, so that DAT is not realized by *there*, which is a possibility that must be assumed independently, given that *there* can have a purely locative sense.

The behavior of Dutch HTW gives us a reason to further refine the structure in Table 7. Recall that we observed that Dutch HTW only have a locative, not a directional sense. We now expect Dutch HTW to combine with motion verbs like *gaan* “go”, but this prediction is not borne out.

- (23) Ze ging *daar/daar-heen.
 she went there/there-to
 “She went there.”

This suggests that the functional sequence is richer than we have assumed so far, in particular that there is an additional feature between DAT and LOC, as shown in Table 8.

| STATE | PROC | DAT | X | LOC | PLACE |
|-------|------|-------|---|------|---------------|
| dance | | there | | | (directional) |
| go | | there | | | (directional) |
| dans | | heen | | daar | (directional) |
| ga | | heen | | daar | (directional) |

Table 8. HTW in English and Dutch

Since we know that Dutch HTW can realize a location, it must minimally realize LOC and the feature PLACE below it. At the same time HTW is too small to realize a direction, even in the presence of a motion verb, which we have assumed can realize DAT. Assuming there to be a feature between DAT and LOC (indicated by X in Table 8) will have the desired effect. Since neither the verb nor HTW can realize X, the directionality marker *heen* is needed to realize this feature. This conclusion agrees well with many proposals in the literature for a fine-grained structure for adpositional phrases (see Cinque 2010 for an overview).

3.2 Locative and Directional Verbs in Dutch

In this section we discuss Dutch motion verbs, which provide some interesting confirmation for the treatment of semantic verb class in terms of differences in size. Dutch has the same distinction between directed motion verbs and manner of motion verbs as English, but it shows an additional property that is absent in English, namely auxiliary selection in the perfect that is sensitive to this difference. Taking the difference between HAVE and BE to be one of size, it becomes possible to see auxiliary selection as a matter of matching the size of the main verb with that of the auxiliary. Specifically, the smaller verb (manner of motion) takes the bigger auxiliary (HAVE), and vice versa: the larger verb (directed motion) takes the smaller auxiliary (BE).

Table 9 shows how Dutch has the same verb classes as in English. Some verbs only express directed motion (*gaan* “go”, *komen* “come”), others only manner of motion (*dansen* “dance”, *wandelen* “walk”), and a third class (*springen* “jump”, *vliegen* “fly”) is ambiguous between the two readings.

| | DIRECTED MOTION | MANNER OF MOTION |
|--------------------------|--------------------|---------------------|
| <i>gaan, komen</i> | ✓ | ✗ |
| <i>dansen, wandelen</i> | ✗ | ✓ |
| <i>springen, vliegen</i> | ✓ | ✓ |

Table 9. Types of motion verbs in Dutch

If we now look at the choice of the auxiliary in the perfect tense, we see that the directional or locative meaning of the main verb correlates perfectly with auxiliary choice. This is shown in Table 10.

| | BE | HAVE |
|--------------------------|----|------|
| <i>gaan, komen</i> | ✓ | ✗ |
| <i>dansen, wandelen</i> | ✗ | ✓ |
| <i>springen, vliegen</i> | ✓ | ✓ |

Table 10. Auxiliary selection with motion and manner of motion verbs

I shall not here illustrate these three classes of verbs in full detail, but instead show the core of the two patterns with an alternating verb like *vliegen* “fly”, which takes *zijn* “be” in the directed motion sense, and *hebben* “have” in the manner of motion sense (Hoekstra 1984).

(24) (a) Het vliegtuig is naar_{DIR} Bratislava gevlogen.
 the airplane is to Bratislava flown
 “The plane has flown to Bratislava.”

(b) Het vliegtuig heeft op_{LOC} grote hoogte gevlogen.
 the airplane has at big altitude flown
 “The plane has flown at high altitude.”

Just as there is a HAVE/BE alternation in the perfect tense, there is also a HAVE/BE alternation in the expression of possession. The argument that HAVE is bigger or more complex than BE has been made by a number of authors (e.g., Freeze 1992, Kayne 1993, Hoekstra 1994, Hoekstra 1995). Formulated as an equation, it looks as in (25):

(25) HAVE = P + BE

In (28a), we see the verb BE accompanied by a dative possessor. In (28b), the possessor argument has raised to the left, leaving behind a dative peel, which augments BE to become HAVE. There are various complexities that I gloss over here, such as what happens with the accusative feature. There are various ways of dealing with this, but since a full discussion of the matter is orthogonal to the concerns of the present paper, I will not undertake it here.

Taking the HAVE/BE difference to carry over to their use as auxiliaries, we can also explain the auxiliary selection facts with locative and directional verbs reviewed earlier in terms of size, as shown in Table 12.

| BE | DAT | PROC |
|--------|-----|-------------------------------------|
| zijn | | komen, gaan (directed motion) |
| hebben | | wandelen, dansen (manner of motion) |

Table 12. Auxiliary selection as size tradeoff

As before, the larger verb selects the smaller auxiliary, and the smaller verb the larger auxiliary.

4. Movement-Controlled LOC/DIR Alternation

Earlier we saw that there are two types of P, locative and directional. The difference there was a lexical one, which means it is unpredictable and unsystematic. This section investigates a way in which locative Ps may become directional as the consequence of a regular syntactic movement process, i.e., (at least to some extent) systematically and predictably. The phenomenon is illustrated in the following examples:

- (29) (a) de weg in_{LOC} het bos
 the road in the wood
 “the road in the wood”
- (b) de weg het bos in_{DIR}
 the road the wood into
 “the road into the wood”

The locative P in becomes directional if the order is postpositional. Clearly the directional meaning here cannot come from a motion verb, since there is no motion verb in the examples.

Other Dutch locative Ps show the same property (e.g., *op* “on”). In many languages, there exist similar LOC/DIR alternations in the meaning of prepositions, which correlate with a change in case marking. German provides a case in point.

- (30) (a) Alex tanzte in_{LOC} dem_{DAT} Zimmer.
 Alex danced in the.DAT room
 “Alex danced in the room.”
- (b) Alex tanzte in_{DIR} das_{ACC} Zimmer
 Alex danced in the.ACC room
 “Alex danced into the room”

Again, we see a size tradeoff: the smaller (locative) preposition goes with the large case (dative, or another oblique case in certain languages), whereas the bigger (directional) preposition goes with the smaller case (accusative) (Table 13). Although the specific oblique case may differ from language to language, the general pattern is clear (Caha 2010, 181).

| | | |
|------------|-----|-----|
| P | DAT | ACC |
| in_{LOC} | dem | |
| in_{DIR} | das | |

Table 13. Case selection by P as size tradeoff

Caha (2007, 2009, 2010) proposes a peeling derivation for this type of alternation, in which the dative location moves to become an accusative, leaving behind a dative peel. This peel then turns the locative P into a directional one. The derivation is depicted below, where (31a) shows locative *in* with a dative complement; (31b) shows the result of moving the accusative subpart of the complement of P to the left, leaving behind the feature *DAT*, which spells out with *in* to create directional *in*.³

- (31) (a) [in_{LOC} [$_{DAT}$ DAT [$_{ACC}$ ACC [$_{NOM}$ NOM [. . .]]]]]]
- (b) [$_{ACC}$ ACC [$_{NOM}$ NOM [. . .]]] . . . [in_{LOC} [$_{DAT}$ DAT]] $_{DIR}$]

The interesting property of this proposal is that it links two phenomena: the change in case (which is the result of subextracting a smaller case out of a bigger one), and the *LOC/DIR* alternation, which arises because the P gets bigger, i.e., turns from a locative

3 The actual analysis of Caha (2010) is considerably more complex, in a way that I cannot possibly do justice to here. One obvious issue that I leave untouched here is how German prepositional order arises with the directional sense and the accusative. I refer the reader to Caha (2010) for discussion of these issues.

into a directional one after peeling movement of the bigger case. Dutch postpositional order (creating P_{DIR} from P_{LOC}) likewise results from this peeling movement. In this analysis, the alternation in the meaning of the preposition is a case of syncretism: the same form expresses two grammatical categories. More specifically, it illustrates the nanosyntactic Superset Principle, whereby a lexical item may spell out a syntactic tree if the lexical tree contains the syntactic tree as a subtree. Since the lexical entry for directional *in* contains that of locative *in*, it may realize both meanings.

5. Conclusion

In this paper I discussed three types of LOC/DIR alternation. The first concerned HTW, which showed all the properties of either directional or locative PPs. HTW was analysed as the phrasal spellout of a structure consisting of the abstract set of features DAT, LOC, and PLACE, arranged in a containment relationship. Given these assumptions, the LOC/DIR alternation with HTW can straightforwardly be explained as a consequence of the Superset Principle. The second LOC/DIR alternation was that of locative prepositions, which may express directed motion in combination with motion verbs. These were accounted for by assuming that the relevant feature could be realized by a particular subclass of the verbs, those expressing directed motion. The third case involved a systematic LOC/DIR alternation in certain locative prepositions, which can become directional if the complement of P moves. This may be visible in postpositional word order, or in a smaller case appearing than the case that goes with the locative meaning. These were analysed in terms of a peeling derivation, where the movement of the complement of P strands a case peel, which makes the locative P directional (as proposed by Caha 2010).

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**Part II. Micro-syntax:
Word-Internal Morphosyntax
in Nominal Projections**

Micro-variation in the Possessive Systems of Italian Dialects

Anna Cardinaletti^a and Giuliana Giusti^b

Ca' Foscari University of Venice, Venice, Italy

^acardin@unive.it; ^bgiusti@unive.it

Abstract: The paper addresses the parametric variation found in the possessive systems of Italian dialects. Data come from AIS maps (Jaberg and Jud 1928–40; Tisato 2009) and the vast traditional and generative literature on the topic. We claim that variation mainly concerns lexical variation. Dialects differ from one another and from Italian with respect to the possessive forms available in their lexicon (clitic, weak, strong possessives; cf. Cardinaletti's 1998 extension to possessives of the tripartition of pronouns proposed by Cardinaletti and Starke 1999) and to the different lexical properties of kinship terms and common nouns (Giusti 2015). Much micro-variation is indeed found with kinship terms. Variation concerns the status of the possessive, the position of the noun, the occurrence of the definite article, and the paradigm of possessives, whether complete in the 3 singular persons or limited to 1st and 2nd person singular.

Keywords: possessives; Italian dialects; kinship terms; number features; microvariation.

1. Introduction

Italian possessive constructions distinguish between common nouns, with which prenominal possessives appear with an article in both singular and plural (1a)–(2a), and singular kinship terms, which are article-less in the singular (1b')–(2b):

- | | | | | | | | | |
|-----|-----|-----|------|----------|-----|------|------|----------|
| (1) | (a) | il | mio | libro | vs. | (a') | *mio | libro |
| | | the | my | book | | | my | book |
| | (b) | *il | tuo | fratello | vs. | (b') | tuo | fratello |
| | | the | your | brother | | | your | brother |

- (2) (a) i miei libri vs. (a') *miei libri
 the my books my books
- (b) i tuoi fratelli vs. (b') *tuoi fratelli
 the your brothers your brothers

Both common nouns and kinship terms occur with the article if modified by a post-nominal possessive: *la macchina mia* “the car my”, *il fratello mio* “the brother my”.

Other Romance languages have less complex systems. The occurrence (as in Catalan) or absence (as in French and Spanish) of the article with prenominal possessives does not distinguish between common nouns and kinship terms, or between singular and plural. In (3), we only report singular forms for space reasons:

- (3) Catalan French / Spanish
- (a) el meu llibre (a') mon livre / mi libro
 the my book my book
- (b) el teu germà (b') ton frère / tu hermano
 the your brother your brother

In addition to this, Spanish and Catalan display different possessives in prenominal and postnominal position, cf. Sp.: *mi libro* vs. *el libro mio* “my book”. This not found in Italian.

This paper addresses four research questions regarding dialectal variation:

1. Does the distribution of possessives across Italian dialects mirror the Italian pattern or the patterns found in other Romance languages?
2. Are there patterns that are not represented in Italian?
3. Is there variation in the morpho-syntactic properties of kinship terms (as found in Italian)?
4. Is there variation in the morpho-syntactic properties of possessives (as found in Spanish)?

We show that Italian dialects mirror the Italian pattern, although they do display possibilities unattested in Italian, including micro-variation with kinship terms.

Following Biberauer and Roberts (2012), we suggest that the microvariation analysed here is captured by nano-parameters associated with nouns and possessives in the lexicon. Dialects differ from one another with respect to (i) the possessive forms available (clitic, weak, strong possessives; cf. Cardinaletti’s 1998 extension to possessives of the tripartition of pronouns proposed by Cardinaletti and Starke 1999) and (ii) the different lexical properties of common nouns vs. kinship terms (cf. Giusti 2015, who proposes that rigid designators project a reduced structure).

The paper is organized as follows. Section 2 analyzes the Italian possessive system, which displays weak and strong possessives. Section 3 focuses on common nouns in Italian dialects. While most properties are shared with Italian (e.g., the distribution of the article and the weak/strong bipartition), a first difference emerges. In some Southern dialects, possessives only occur in postnominal position. This suggests that possessive raising does not apply in these dialects. Section 4 is devoted to kinship terms in the dialects, which display clitic possessives (both proclitic and enclitic) and null articles in the plural, unlike Italian. Section 5 briefly addresses possessive paradigms, which may display person restrictions. Section 6 draws the conclusions.

2. Weak vs. Strong Possessives in Italian

Italian prenominal and postnominal possessives are weak and strong, respectively (Cardinaletti 1998). While prenominal possessives have both human and non-human reference (4a/a'), postnominal possessives are restricted to human referents (4b/b'). Note that (4b') and parallel structures discussed below are ungrammatical only in the case the 3rd person referent is inanimate, as represented in the gloss:

- | | | | | | | | | | |
|-----|-----|-----|---------|---------|--|------|-----|-----------|-----------|
| (4) | (a) | il | suo | libro | | (a') | il | suo | coperchio |
| | | the | his/her | book | | | the | its | lid |
| | (b) | il | libro | suo | | (b') | *il | coperchio | suo |
| | | the | book | his/her | | | the | lid | its |

The strong possessive in (4b) is used in emphatic and contrastive contexts. Its syntactic distribution confirms the above analysis. It can occur in isolation (5a) and predicative position (6a), while the weak form referring to non-humans cannot (5b)–(6b):

- | | | | | |
|-----|-----|---------------------|-------------------|---------|
| (5) | (a) | Di chi è | questo libro ? | Suo |
| | | of whom is | this book? | his/her |
| | (b) | Di cos'è | questo coperchio? | *Suo |
| | | of what is | this lid | its |
| (6) | (a) | Questo libro è | suo | |
| | | this book | is his/her | |
| | (b) | *Questo coperchio è | suo | |
| | | this lid | is its | |

Rigid designators only project the lexical layer NP and the phasal layer DP. The possessor in (9) is theta-interpreted and referentially interpreted in the merger position (SpecNP), which is immediately lower than D, because no FP is merged between NP and D. In (9a), the kinship term in Italian has a bare D. In (9b), following Longobardi (1994), the proper name remerges in D. This captures the fact that the possessor is pre-nominal in (9a) and postnominal in (9b). Note that some kinship terms also raise (9c), completing the parallel with proper names:¹

- (9) (a) [_{DP} 0 [_{NP} mia sorella]]
 “my sister”
- (b) [_{DP} Maria [_{NP} mia Maria]]
 “my Maria”
- (c) [_{DP} mamma [_{NP} mia ~~mamma~~]]
 “my mom”

Giusti’s reduced structure correctly predicts that proper names and kinship terms do not project modifiers. If modifiers are merged, the Nominal Expression is no more a rigid designator and has the tripartite structure of common nouns, with the intermediate FP projected and the possessor moving from SpecNP to SpecPossP, as in (7b) above. In this case, the article is mandatory irrespective of the three possible orders of possessor and adjective, as shown in (10):

- (10) (a) *(la) mia simpatica sorella
- (b) *(la) mia sorella simpatica
- (c) *(la) simpatica sorella mia
 “my nice sister”

The same holds of proper names, cf. **simpatica Maria*; **Maria simpatica*; *la simpatica Maria*.

Another parallel between proper names and kinship terms is the restriction of both (at least in Italian) to singular number:

¹ In this paper, we abstract away from kinship terms like *mamma* in (9c), restricting our survey to the core constructions, represented in (9a).

- (11) (a) *(le) mie sorelle
 the my sisters
- (b) *(i) Giusti
 the Giusti's

This suggests that the reduced structure is only possible when the lexical item is specified in the lexicon for this property. This specification is part of its inflectional morphological specification and can be sensitive to gender and number. In Italian, plural kinship terms have the same full syntactic structure as common nouns:

- (12) [_{DP} le [_{PossP} mie [_{FP} sorelle [_{NP} mie sorelle]]]]
 the my sisters
 “my sisters”

3. Weak vs. Strong Possessives in Italian Dialects

Like in Italian, many Italian dialects have both weak prenominal and strong postnominal possessives. This is the case of Paduan in (13) (Cardinaletti 1998), and of the dialect of Marsala (Trapani) in (14). Unlike Italian, the two forms are morphologically different. The weak form is reduced and does not concord with the noun:

- (13) (a) el me libro
 the my book
- (b) el libro mio
 the book my
- (14) (a) i to causi
 the your trousers
- (b) i causi toi
 the trousers your

Like in Italian, weak possessives move to SpecPossP, while strong possessives stay in their NP-internal thematic position and end up being postnominal due to N-raising to an intermediate functional head:

(15) (a) [_{DP} el [_{PossP} me [Poss] [_{FP} libro [_{NP} me libro]]]]
 the my book

(b) [_{DP} li [_{PossP} to [Poss] [_{FP} causi [_{NP} to causi]]]]
 the your trousers

(16) (a) [_{DP} el [_{PossP} [Poss] [_{FP} libro [_{NP} mio libro]]]]
 the book my

(b) [_{DP} li [_{PossP} [Poss] [_{FP} causi [_{NP} toi causi]]]]
 the trousers your

Weak possessives in prenominal position are the unmarked choice in northern dialects, western central dialects down to northern Lazio, and Sicilian dialects. In some central and the remaining southern dialects, postnominal possessives are the only possibility with common nouns (cf. AIS map 1554 *i tuoi calzoni* “the your trousers”). This is exemplified with the Ancona dialect in (17)–(18):²

(17) (a) l’ amigo mio
 the friend my

(b) i caltsoni tui
 the trousers your

(18) (a) *el mi amigo
 the your friend

(b) *i tu caltsoni
 the your trousers

In Anconetano, the postnominal possessive is strong as shown by the fact that it only has human reference and is allowed in isolation and predicative contexts:

(19) (a) el ca’ mio/ tuo/ suo
 the dog my/ your/ his/her
 “my/your/his/her dog”

² Note that in Anconetano, prenominal weak possessives exist but are only possible with kinship terms, cf. (22a) below.

- (b) *el cuperchio suo
the lid its
“its lid”
- (c) De chi è sto libro? Mio.
of whom is this book? My
“Whose book is this? Mine.”
- (d) Sto libro è mio
this book is my
“This book is mine”

In upper southern Italian dialects, notably Abruzzese, postnominal possessives are instead weak, as confirmed by the fact that they can have non-human reference and are ungrammatical in isolation and predicative position. Data come from the dialect of Lanciano (Chieti) (Cuonzo 2018):³

- (20) (a) lu canə mé/ té/ sé
the dog my/ your/ his/her
“my/your/his/her dog”
- (b) el cuperchiə sé
the lid its
“its lid”
- (c) Di chi iè ssu libbrə? *Mé.
of whom is this book? My
“Whose book is this? Mine.”
- (d) *Ssu libbrə iè mé
this book is my
“This book is mine”

3 This dialect does not have strong possessives. In contexts like (20c–d), weak possessives occur in elliptic nominal expressions:

- (i) (a) Di chi ié ssu libbrə? Lu mé.
of whom is this book? the mine
- (b) Ssu libbrə ié lu mé.
this book is the mine

In Lanciano, postnominal possessives have a reduced form showing no concord with the head noun, unlike the postnominal forms in Anconetano which are inflected (cf. (17)).⁴

We propose that postnominal possessives stay in the NP-internal thematic position and are moved across by the noun. The relation with the head Poss is the same as in northern dialects. The only difference is that movement is not triggered:⁵

(21) (a) [_{DP} eɪ [_{PossP} [Poss] [_{FP} ca' [_{NP} mio eɑ²]]]]

(b) [_{DP} lu [_{PossP} [Poss] [_{FP} canə [_{NP} mé eɑnə]]]]

The mandatory postnominal position of possessives with common nouns, as in the Ancona and Abruzzo dialects, is a first difference between Italian dialects and Italian. Movement to the prenominal position is not obligatory in southern dialects, while it is in Italian and northern, western central, and Sicilian dialects, as we have seen above. Different movement possibilities of verbal arguments are a well-known source of language variation. This is a case in which different movement possibilities of nominal arguments are observed.

In all cases reported in this section, common nouns modified by a possessive always occur with an article. The only exceptions are found in some Piedmontese dialects where, certainly due to contact with French, omission is found in both the singular (AIS map 1108 *dal mio amico* “from the my friend”) and the plural (AIS map 1554 *i tuoi calzoni* “the your trousers”). Interestingly, Benincà, Parry and Pescarini (2016, 198) report on some differences with respect to gender and number richly exemplified by Manzini and Savoia (2005, v. 3), suggesting that this pattern is unstable in the modern dialects.

4. Kinship Terms in Italian Dialects

Most variation among Italian dialects concerns kinship terms. As in Italian, the number feature of the kinship term is often relevant, although not always. Furthermore, dialects instantiate more possibilities than Italian. Variation regards the status of the possessive (which may be clitic, weak, or strong), the position of the noun, which may raise to D,

4 Some central dialects display gender/number neutralization in strong postnominal possessives: Macerata *lu paese mia* “the.M.SG village.M.SG my” (Loporcaro and Paciaroni 2016, 237).

5 The structure in (21b) is simplified. Assuming parallel structures for clauses and Nominal Expressions (Giusti 1996, 2006) and assuming that weak pronouns move to the middle field (Cardinaletti 1991, Cardinaletti and Starke 1999), weak postnominal possessives in the Lanciano dialect should be analysed as moving to a nominal middle field, lower than the head in which the lexical noun is realized. This is confirmed by Cuonzo’s observation that the weak possessor can precede or follow color adjectives but only precede size adjectives. We leave the detailed analysis of the landing position of weak possessives in Abruzzese for further research.

and the co-occurrence with the article. An overview of the possibilities found with singular and plural kinship terms is provided in (22) and (23), respectively:

- (22) (a) prenominal without article:
me pare (Padua)
- (a') mi padre (Ancona)
my father
- (b) prenominal with article:
il mi babbo (Florence)
the my father
- (c) enclitic without article:
petrə-mə (Lanciano)
father-my
“my father”
- (23) (a) prenominal without article:
so fradei (Mira)
his/her brothers
- (b) prenominal with article:
i so fradei (Mira)
the his/her brothers
- (c) enclitic without article:
fradi-di (Treia)
brothers-my
- (d) postnominal with article:
i frатели mii (Ancona)
the brothers my
“my brothers”
- (e) enclitic with article:
li sucəmə (Lanciano)
the parents-in-law-my
“my parents in law”

We are not aware of the occurrence of any other logical possibility not mentioned in (22)–(23), i.e. enclitic possessives with article and postnominal possessives with and without article in the singular, and postnominal possessives without article in the plural.

4.1 Prenominal Possessives with both Singular and Plural Kinship Terms

In the whole northern Italy and Sicily, we find a pattern similar to Italian, namely prenominal possessive forms without article in the singular and with article in the plural. As with common nouns in these dialects, prenominal forms are reduced and generally uninflected. In (24), we exemplify this pattern with Sicilian forms (cf. AIS map 13 *tuo fratello / i tuoi fratelli* “the your brother / the your brothers”). The structural analysis for Italian in (9a) and (12) above is extended to these cases. Singular kinship terms project a reduced structure, while plural kinship terms have full nominal structure:

(24) (a) [_{DP} 0 [_{NP} to frati]]
 “your brothers

(b) [_{DP} li [_{PossP} to [Poss] [_{FP} frati [_{NP} to frati]]]]
 “your brothers”

The status of a prenominal possessive can however be different. In dialects like Paduan, the reduced possessive form is clitic, as shown by the fact that it can double a PP.⁶ Being clitic, the possessive encliticizes into D:

(25) (a) so pare (de Toni)
 his father of Toni
 “Toni’s father”

(b) [_{DP} [_D so] [_{NP} so pare]]

In the plural, Veneto dialects display two possibilities (cf. AIS maps 13, 14, 18–21, 23, 24, 26, 28): some dialects require the article, on a par with Sicilian (24b); others extend the absence of the article, typical of the singular throughout Italy. The dialect of Mira (Venice) displays both possibilities (Laura Volpato, pers. comm.) and allows us to check whether the absence or presence of the article correlates with the status of the possessive. This is indeed the case. When the article is absent, the possessive is clitic, as shown by the availability of doubling (26a). The structure (26b) is therefore the same as in the singular (25b). When the article is present, doubling is not possible (27a). The

⁶ In this respect, clitic *so* differs from weak *so* occurring with common nouns (cf. (13a)), which does not allow clitic doubling: *el so libro* (**de Toni*) “the his book of Toni” (Cardinaletti 1998).

structure (27b) is therefore the same as with common nouns in Veneto (15a) and plural kinship terms in Sicilian (24b).

(26) (a) so fradei (de Toni)
 his brothers of Toni

(b) [_{DP} [_D so] [_{NP} sɔ fradei]]

(27) (a) i so fradei (*de Toni)
 the his brothers of Toni

(b) [_{DP} i [_{PossP} so [Poss] [_{FP} fradei [_{NP} sɔ fradei]]
 “his brothers”

The doubling diagnostics only holds in the third person. With first and second persons, doubling cannot be checked because genitive PPs embedding personal pronouns are independently ruled out (**de mi* “of me” / **de ti* “of you”). Therefore, we cannot exclude that with first and second persons, the structure proposed for Italian (9a) and Sicilian (24a) is also present and extended to the plural in these dialects.

This must be assumed anyway in case of bisyllabic possessives such as *nostro* “our” and *vostro* “your.PL”, which cannot be clitic. In (28), null articles occur with NP-internal weak possessives, as proposed for singular kinship terms in Italian (9a) and Sicilian (24a):

(28) (a) [_{DP} 0 [_{NP} nostri nevedi]]
 “our nephews” (S. Stino di Livenza, AIS map 18, point 356)

(b) [_{DP} 0 [_{NP} vostre nevode]]
 “your nieces” (Vicenza, AIS map 23, point 363)

4.2 Singular Kinship Terms with Articles

In northern Piedmont and Lombardy, Tuscany, and northern Umbria, singular kinship terms occur with articles (AIS maps 13, 14, 16, 17). Two potential analyses are available for these cases: kinship terms have either a reduced structure as in Italian and the dialects discussed so far (29a), or the full structure typical of common nouns (29b):

(29) (a) [_{DP} i [_{NP} tu fratello]]
 the your brother

(b) [_{DP} i [_{PossP} tu [Poss] [_{FP} fratello [_{NP} tu fratello]]]]
 “your brother” (Firenze, AIS map 13, point 523)

Let us now deal with enclitic possessives, a possibility not attested in Italian. This form can either be found only in the singular or also in the plural.

The former case is exemplified by the Calabrian dialect of Verbicaro (Cosenza, from Manzini and Savoia 2005, v. 3, 677). In the singular (31a), we propose that both the noun and the possessive raise to the D head. In (31b), we propose that the plural behaves like common nouns, as usual:

- (31) (a) [_{DP} [_D fratə-mə] [_{NP} mə fratə]]
 brother-my
- (b) [_{DP} i [_{PossP} [Poss] [_{FP} fra:tə [_{NP} me:jə fratə]]
 the brothers my
 “my brother” / “my brothers”

Note that the clitic can double a strong possessive, e.g. *fratima (mia)* “brother-my my” (Cervicati, Cosenza, Manzini and Savoia 2005, V.3, 720).

The latter case is found in southern Marche and sporadically throughout southern Italy. For example, in the dialect of Treia (Macerata, Marche; AIS map 13, point 558), the reduced structure observed for the singular in (32a) is extended to the plural (32b):

- (32) (a) [_{DP} [_D fradi-du] [_{NP} dɪ fradi]]
 “your brother” / “your brothers”
- (b) [_{DP} [_D fradi-di] [_{NP} dɪ fradi]]
 “your brother” / “your brothers”

A more intricate case is represented by Abruzzese dialects such as the dialect of Lanciano (Chieti), where enclitic possessives are found in both the singular and the plural, but the distribution of the article distinguishes between the two (33) (for a similar pattern in the Abruzzese dialect of Arielli, Chieti, see D’Alessandro and Migliori 2017). We take the clitic possessive and the kinship term to move to D in the singular (33a), as in (31a)–(32a). The plural case in (33b) needs further elaboration. We suggest that this is an instance of split DP (Giusti 1996; 2006). The plural does not project full nominal structure, as shown by the fact that it behaves like the singular in not allowing nominal modification (34) (Cuonzo 2018 and pers. comm.):

- (33) (a) [_{DP} [_D petrə-mə] [_{NP} mə petrə]]
 father-my
 “my father”

- (b) [_{DP} li [_{dP} sucə-mə [_{NP} mə sucə]]]
 the parents-in-law-my
 “my parents-in-law”

- (34) (a) *zijəmə bellə
 aunt-my pretty

- (b) *li zijəmə billə
 the aunts-my pretty
 “my pretty aunt / aunts”

Movement to D correlates with reduced forms. The possessive displays a final schwa (cf. clitic *mə* vs. weak *mé* in (20) above), and the noun can either undergo metaphony (*patrə* > *petrəmə* “father, father-my”) or syllable drop (*socərə* > *socəmə* “father/mother-in-law, father/mother-in-law-my”) (Cuonzo 2018).

5. Person Restrictions

Further variation concerns the persons of the possessive paradigm with kinship terms: all (singular) persons vs. 1st and 2nd singular only. Veneto dialects display the first pattern (35a), the dialect of Ancona does not have 3rd person weak possessive forms but uses the article instead (35b). The same contrast is found with enclitic possessives. Calabrian dialects display the three forms (examples (36a) from Rohlf 1968, 125), while the dialect of Lanciano uses the definite article in the 3rd person (36b) (Cuonzo 2018):⁸

- (35) (a) me / to / so pare
 my your his/her father

- (b) mi / tu / *su/ el padre
 my your his/her the father

- (36) (a) ziumma, zitutto, zisa
 aunt-my aunt-your aunt-his/her

- (b) petrəmə, petrətə, *petrəsə, lu patrə
 father-my father-your father-his/her the father

8 In the dialect of Roiate (Orlandi 2000, 118f), quoted by Loporcaro and Paciaroni (2016), enclitic possessives are also only possible in the 1st and 2nd person singular: *paremu* “father my”, *paretu* “father your”. This dialect differs minimally from the one of Lanciano in that the 3rd person singular displays a postnominal strong possessive: cf. (36b) with *ju patre seo* “the father his”.

These data show that person restrictions are independent of N-to-D raising.

Note finally that enclitic plural possessives are very rare but do exist. Rohlf's (1968, 125) reports *neputene* “nephews our” in San Donato (Caserta), Campania, and *neputevo* “nephew your” in Sonnino (Latina).

6. Results and Conclusions

We have shown that the syntax of possessives across Italian dialects mirrors the Italian pattern: on the one hand, there is a major difference between common nouns and kinship terms; on the other, number features often distinguish among kinship terms. These two features set Italian and Italian dialects apart from the other Romance languages.

We have also shown that Italian dialects display micro-variation and instantiate more syntactic possibilities than Italian.

First, Italian dialects display reduced weak possessives and clitic possessives (both proclitic and enclitic) not present in Italian.

Second, kinship terms may differ with respect to

- whether they project a reduced structure, or not
 - and if so, whether they project a reduced structure only in the singular (as in most dialects), or also in the plural (e.g., Mira (26) and Treia (32));
- whether they have a reduced form and move to D, or not
 - and if so, whether they have a reduced form only in the singular (as in most dialects), or also in the plural (e.g., Treia (32) and Lanciano (33));
- whether they co-occur with a zero article, or not
 - and if so, whether they have a zero article only in the singular (as in most dialects), or also in the plural (e.g., Veneto dialects (28)).

We suggest that the observed micro-variation stems from lexical properties of possessive forms and kinship terms, respectively. They can therefore be considered as nano-parameters in the typology of parameters proposed by Biberauer and Roberts (2012).

The availability of clitic, weak or strong forms is a lexical property of a language. Similar language variation is found in personal pronoun systems. For instance, while clitic pronouns appear in most Romance languages, they are not found in Rhaeto-Romance dialects (Benincà and Poletto 2005, 228–229), which make use of the functionally equivalent weak forms (Cardinaletti and Starke 1999; Cardinaletti 2015).

The properties of kinship terms are also lexical properties. If functional structure is taken as the extended projection of the noun, the choice between a reduced and a full structure is a lexical property of the noun. The existence of reduced forms of N, which move to D, is also a lexical property of the language. Finally, if the article is the highest functional head of the nominal structure, its realization also depends on the lexical properties of the noun.

In this perspective, the fact that plural kinship terms in some dialects can project the reduced structure is captured by the hypothesis that this property is specified on the

paradigm of the noun. Our proposal correctly predicts that the plural is equally or more complex than the singular but never vice versa.

Finally, we predict that the kinship terms which project the reduced structure may be different in different dialects, as is indeed the case. A thorough search for this type of lexical variation is however yet to be done.

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Where Do English Sibilant Plurals Come From?

Joseph E. Emonds

Palacký University, Olomouc, Czech Republic

joseph.emonds@upol.cz

Abstract: Very early in Middle English, texts especially in the North and East, tend to use an orthographic suffix *-(e)s* for noun plurals, in Southern and Western texts the plural suffix *-(e)n* of the Old English weak declension at first spreads, but then before 1300 also yields to *-(e)s*. This essay first shows that on phonological and phonetic grounds this *-(e)s*, which remains the productive plural in Modern English, must, as a vocabulary item, be *lexically specified* as +Voice; it is not voiced by any progressive assimilation process in synchronic derivations. The source of this underlying voiced sibilant *-z*, completely absent in Old English, is to be found in the genealogical ancestor of Middle English, Proto-Scandinavian, whose plural in all non-neuter declensions is precisely this segment (Haugen 1982). The present essay argues that this form was an integral part of the Norse brought to England by the earliest Scandinavian settlers in the 9th c. In all likelihood, the later change in Mainland Scandinavian of this *-z* to *-r*, completed in the 12th c., failed to establish itself in the Anglicized Norse of England, due to sociolinguistic factors akin to those set out in the classic paper of Labov (1963).

Keywords: Common Scandinavian; English plurals; Middle English inflection; Old English plurals; Proto-Scandinavian; Voicing Assimilation; Vowel syncope

1. Middle and Modern English Noun Plurals

The Modern English noun suffix, spelled *-(e)s*, became the regular and productive way to form plurals in (early) Middle English (ME).¹ Other than in conservative southern

1 I am particularly grateful to Kristina Smejová for discussions on Section 3.4. I thank Simin Karimi for organizing a presentation at the University of Arizona in January 2018, and the audiences there, at the Fourth Olomouc Linguistics Conference, and at the 20th International Conference on English Historical Linguistics in Edinburgh for helpful commentary.

and western dialects, which were a closer continuation of Old English (OE—also known as West Saxon), this usage was already established from 1200 onwards; this was noted already in White (1852, xxii). The detailed summary of Baugh and Cable (2013, chap. 7) merits reproduction in full.²

In early Middle English only two methods of indicating the plural remained fairly distinctive: the *-s* or *-es* from the strong masculine declension and the *-en* (as in *oxen*) from the weak (see § 41). And for a time, at least in southern England, it would have been difficult to predict that the *-s* would become the almost universal sign of the plural that it has become. Until the 13th c. the *-en* plural enjoyed great favour in the south [the productive, default, so-called “weak” OE plural—JE], being often added to nouns which had not belonged to the weak declension in Old English. But in the rest of England the *-s* plural (and genitive singular) of the old first declension (masculine) was apparently felt to be so distinctive that it spread rapidly. Its extension took place most quickly in the north. Even in Old English many nouns originally of other declensions had gone over to this declension in the Northumbrian dialect. By 1200 *-s* was the standard plural ending in the north and north Midland areas; other forms were exceptional. Fifty years later it had conquered the rest of the Midlands, and in the course of the fourteenth century it had definitely been accepted all over England as the normal sign of the plural in English nouns. Its spread may have been helped by the early extension of *-s* throughout the plural in Anglo-Norman, but in general it may be considered as an example of the survival of the fittest in language.

This view is not modified, certainly not in any essentials, in more recent work such as Fulk (2012). This use of the spelling *-s* to mark plurals can be seen in the book *The Ormulum* (c. 1200) and other 13th c. work (Watts 2011, 110).

As is well known, this same plural suffix in Modern English, call it *Z*, has three allomorphs, which are without exception conditioned by the final segment of a noun stem:

- (1) **Allomorphs of the plural morpheme Z:** /-əz/ after final sibilant segments, then /-z/ following final voiced segments and /-s/ following final unvoiced segments.

2 Baugh and Cable’s passage ends with a Darwinian flourish. There is of course no non-circular reason to consider *-s* as “more fit” than *-n* for survival as a plural suffix. The metaphor reflects the fact that the authors find no internal linguistic motivation for the change.

As far as I know, there is no reason to think that the phonetic alternation between voiced and unvoiced allomorphs has not been present from the earliest Middle English uses of this Z.

Analyses of Modern English are quite aware of the fact that three other inflectional morphemes have exactly the same phonetic forms as (1):

- (2) (a) The third singular agreement suffix on present tense verbs, referred to here as Z', has the same allomorphs as the noun plural Z.
- (b) The contracted form 's of the third singular copula *is* has the same allomorphs as the noun plural Z.
- (c) The possessive 's, referred to here as 'Z, has the same allomorphs as the plural Z.³

Verb forms such as *chooses*, *holds*, and *thinks* exemplify (1) for (2a). One can easily exemplify the same patterns for (2b–c):

- (3) (a) Contracted and possessive /-əz/ after final sibilants:
The Church's still fixated on the past.
The Church's strong fixation on the past
- (b) Contracted and possessive /-z/ after voiced segments:
The Cardinal's still fixated on the past.
The Cardinal's strong fixation on the past
- (c) Contracted and possessive /-s/ after final unvoiced segments:
The Pope's still fixated on the past.
The Pope's strong fixation on the past

Moreover, almost all analyses agree that the underlying form of all these forms should be the same. For an overview of their arguments, including a minority position about (2c) unrelated to concerns here, see Zwicky (1975).

2. The Lexical Representation of the English Plural

The underlying phonological form of the English plural Z (and of Z' and 'Z as well) must be voiced –z, rather than either unvoiced –s or a “neutralized” sibilant unspecified for voicing. Several papers rather conclusively argued for this lexical –z in the 1970s,

3 The voiced sibilant ending on English possessive pronouns (*his*, *hers*, *its*, *whose*, *(y)ours*, *theirs*) could as well be spelled 's, since this allomorphs are exactly those in (3b).

Lightner (1970), Sloat and Hoard (1971), and Shibatani (1972), so this conclusion seems established. For concreteness, I formulate here three arguments that unequivocally support this conclusion, including one which I do not think has previously been made in strong enough or general enough terms.

A first argument is that the phonetic behaviour of plurals (2a) is exactly the same as the contracted allomorphs of the free morpheme *is* (2b). The copula's final consonant, in its uncontracted lexical form, is always voiced. Contraction consists in simply dropping the vowel, yielding *the Cardinal is* → *the Cardinal's* (no change in the underlying voiced sibilant). But when the preceding consonant is –Voice, then devoicing must change the phonetic –z to –s: *the Pope is* → *the Pope's*. If the lexical forms of Z, Z', and 'Z are all +Voice, the exact same analysis (phonetic devoicing of underlying z) accounts for their allomorphs as well, with no added stipulation.

A second argument concerns the several irregular plurals of nouns ending in *f*: *calves, hooves, knives, leaves, loaves, scarves, selves, shelves, wolves*, etc. 3rd singular verbs and possessives are unaffected: *she loaf's around; a wolf's fur*. Mossé (1952, 39) and other researchers have hypothesized that the final *f* of these roots was voiced between vowels in ME. However, the vowel in the ending was dropped by 1400 at the latest, resulting in irregular morphemes with an *f/v* lexical alternation for singulars vs. plurals (Lass 2006, 59–60). Given the many centuries that no vowel has followed these *v*, today's synchronic (and still learnable) analysis must be different.

To begin, today's alternation must be lexically stipulated with these roots. Over the centuries there has been no general tendency for the voiced allomorphs to generalize phonetically, either before vowels/sonorants in (4i) or in plurals (4ii):

- (4) (i) *leafy, stuffy, beefy, goofy, toughie, selfish, loafer, loafing, oafish*
 (ii) *bluffs, briefs, cliffs, cuffs, foodstuffs, puffs, reefs, spoofs, toughs*

Now, if the underlying plural segment in the irregular pairs were either unvoiced or unspecified for voicing, these plurals would be completely irregular, since the voicing of the final consonant sequence (–vz) could not be related to any other source in English phonology. However, this voiced sequence can be related to an underlying . . . *f-z* by *regressive voicing* assimilation. While not productive in English, this universal tendency is sporadically found elsewhere in the language (and often reflected in spelling) in e.g. *halv-ed, lous-y, spas-m, fif-th, fif-teen, lef-t, twelf-th, leng-th*.⁴

4 Regressive voicing assimilation is widespread in the world's languages, though the relatively few instances in Modern English appear to be isolated remnants of earlier sound changes: Current English has plenty of contexts, even with bound morphemes, where no voicing assimilation happens: *childhood, dreadful, dukedom, Falklands, handsome, handful*, and *Scotland* are a few of many possible examples.

Before continuing to the third argument, these first arguments suggest a lexical entry for the English plural morpheme. (Because the notion “alveolar” may well combine more than one phonological feature. I do not write it with \pm in this paper.)

(5) **Lexical entry for the English plural $-z$.**

PLUR, N____, [Alveolar, +Continuant, +Voice, –Sonorant]

The third argument for the Voice feature in (5) concerns a cross-linguistic restriction on voicing assimilation. Many texts, looking for an instance of “progressive assimilation” readily give English plurals as an example of a rule that spreads the voice feature of a stem-final segment *rightward* to a bound suffix’s first (or only) consonantal segment.

But more generally, progressive assimilation, particularly of the value +Voice, is quite rare in the world’s languages (Lombardi 1999; Borowsky 2000). In fact, English *excludes progressive voicing entirely* in any compounds or any suffixes other than the inflection under discussion and the parallel regular past tense $-d$ (see again note 3).

(6) No rightward phonetic spreading of +Voice in English:⁵

him-self (**himzelf*), *special-ty*, *frail-ty* (**special-dy*, **frail-dy*), *lambkin* (**lambgin*);

four-th, *nin-th*, *ten-th*, *leng-th*, *wid-th*, *tru-th*, *heal-th* (all exclude a voiced *th*);

contain/content, *restrain/restraint*, *high/height*, *weigh/weight* (exclude voiced *d*);

spoon-ful, *hand-ful*, *dread-ful*, *care-ful* (*-ful* never assimilates to voiced **-vul*);

Bingham-ton, *Washing-ton*, *Barring-ton*, *Middle-ton* (*-ton* never becomes **-don*);

John-son, *Atkin-son*, *Richard-son*, *William-son* (*-son* never assimilates to **-zon*);

hand-some, *fear-some*, *loath-some*, *cumber-some* (*-some* never becomes **-zome*)⁶

The diverse sources of the morphemes in these combinations testify to the fact that Middle and Modern English have never had any phonetic “tendency,” even slight, to spread voicing of a final segment to a following morpheme in the same word.

These data strongly suggest that, throughout history, the voicing in the English noun plural (5) has been underlying (i.e. in a lexical entry) rather than due to a derivational process. Minkova (2014, 89) argues that similarly, voicing of the alveolar stop of the regular English past tense is due to its lexical entry. But if both these inflections

5 In this paper, * before a form uniformly means “ill-formed” rather than “unattested.”

6 As in all other positions in English, bound morphemes have voiceless *s* as their initial lexical segment (*-self*, *-son*, *-some*) rather than the voiced *z* in (5).

(-z and -d) are underlyingly voiced, the robust data pattern in (6) essentially forces the following conclusion:

- (7) **Progressive voicing ban.** No progressive assimilation in English introduces +Voice.

On the other hand, it might still appear that the other feature value -Voice can spread rightward in English, so as to account for the voiceless allomorph /-s/ of Z, Z' and 'Z, as well as the voiceless allomorph /-t/ of the regular English Past Tense. However, we can show that this is also a misconception.

We have seen that the English regular plural morpheme has long contained an *underlyingly voiced sibilant* -z. Voicing on this plural morpheme disappears only if the final segment of the noun is voiceless: *cats, naps, cliffs, rocks*. However, this devoicing is not due to some morpheme-particular “rightwards de-voicing.” The lack of voicing in this context on all the Z morphemes has its source in a more general, probably universal restriction which is moreover *bi-directional*. Consider for example clauses which begin with an optionally contractible singular copula *is*. The second column is a (perhaps not standard) spelling of the contraction, and the third represents it phonetically:

- | | | | |
|-----|-----------------------------|-----------------------------|------------------------------|
| (8) | <i>Is Dave coming back?</i> | <i>'s Dave coming back?</i> | <i>/z/ Dave coming back?</i> |
| | <i>Is Beth coming back?</i> | <i>'s Beth coming back?</i> | <i>/z/ Beth coming back?</i> |
| | <i>Is Ann coming back?</i> | <i>'s Ann coming back?</i> | <i>/z/ Ann coming back?</i> |
| | <i>Is Ed coming back?</i> | <i>'s Ed coming back?</i> | <i>/z/ Ed coming back?</i> |

Unsurprisingly, all these contracted forms retain their lexical feature +Voice.⁷

But now what happens when the subject begins with an unvoiced segment? The fully contracted form (with no vowel) *must be unvoiced*:

- | | | | |
|-----|------------------------------|-------------------------------|--------------------------------|
| (9) | <i>'s Ted coming back?</i> | <i>/s/ Ted coming back?</i> | <i>*/z/ Ted coming back?</i> |
| | <i>'s Fanny coming back?</i> | <i>/s/ Fanny coming back?</i> | <i>*/z/ Fanny coming back?</i> |

The following general restriction, plausibly valid across at least a range of languages, suffices to describe the loss of voicing in the contracted English copula *is*, regardless of whether it precedes or follows a host morpheme in the same phonetic word:

⁷ The contractions discussed in this section are not separate words, since they have no vocalic nucleus, as in (8)–(9). Generally an English contraction must be part of a *preceding* word, but when contraction is allowed clause-initially, it becomes part of the following word.

- (10) **Cross-linguistic Voicing Restriction.** Voicing is not realized in positions *separated from all Sonorant segments in the same word* by a voiceless segment.⁸

For a recent general justification of the feature Sonorant, see Kaisse (2011). I am not assuming that the “sonority” of phonological segments must be graded along a scale; the feature Sonorant as used here can as well be purely binary; i.e. vowels, glides, and voiced liquids and nasals are sonorants and other segments are not.

This formulation (10) is designed to make my use of it later transparent. Nonetheless, this restriction might still be a special case or corollary of some Sonority Sequencing Principle as in Clements (1990), which forbids a more sonorant segment being external in a syllable to a less sonorant one.⁹ Though there are debates as to how voicing relates to sonority, essentially all accounts claim that voiced fricatives, which are what concerns us here, are more sonorous than any voiceless segment.¹⁰ The Voicing Restriction therefore blocks realization of Voice on a fricative (i.e. the lexical $-z$) in e.g. *cats/ coughs/ tricks*. It is irrelevant that these segments are adjacent to a voiced segment inside a following word.

The Voicing Restriction (10) now automatically explains the devoicing not only of all contracted English singular copulas. It equally well accounts for the voiceless allomorphs of the English plural morpheme *Z* and its homophones *Z'* and *'Z*, provided they are all *lexically specified as +Voice*. This completes the third argument for +Voice in the lexical entry (5).

Notice further that the Voicing Restriction applies regardless of the host being on the left or right. It is more general than any prohibition of voicing formulated explicitly or implicitly as a constraint on left to right (or right to left) scanning. For example, any constraint formulation in terms of “turning on” or “turning off” voicing

8 If English voicelessness results from the feature Spread Glottis, as argued in Iverson and Salmons (1999), then Restriction (10) is equivalent to saying that when this feature is present in a syllable, it impedes any voicing external to it (in either direction).

9 I am taking for granted here rather traditional uses of these feature labels. It may be that the English lexically voiced suffixes are voiced phonetically only by virtue of a neighbouring voicing. In this case, (10) would be a special case of a more general phonetic property. This issue appears related to ultimately determining which laryngeal feature should be used to characterize English obstruent voicing. For discussion see Iverson and Salmons (1999).

10 Thus, the restriction as formulated in (10) does not itself depend on Sonority Sequencing, and is even consistent with the claim in Henke, Kaisse, and Wright (2012) that such sequencing is an epiphenomenon: “. . . the patterns attributed to Sonority Sequencing are the result of a few broad perceptually-motivated constraints which interact with other constraints and language-specific lexical contrasts to yield the phono-tactics of particular languages.”

during such scanning fails to capture the generalization that includes the voiceless prefixation seen in (9).¹¹

Independent support for this analysis is that it also allows us to generalize (7):

- (11) **Ban on progressive voice assimilation rules.** English has no rightward phonetic assimilation to either value \pm Voice.

This principle is thus an alternative to the apparent “progressive (de-) voicing assimilation” in both the plural and past tense inflections of English. Such phonetic rules are banned by (11).

3. A Diachronic Source for the English Plural *-z*

3.1 Why the Source Is Not (Anglo-Norman) French

With regard to appearance of final voiced continuants such as *-z* in ME, mention is sometimes made of their presence in Anglo-Norman French. However, the lexical entries for the latter were not borrowed in any significant number before the late 13th century (Jespersen 1912; Classen 1919; Watts 2011, 110–111), later than the appearance in early ME of the sibilant plural. The serious influence of French vocabulary on English thus occurs too late for this language to have been the source of something as grammatically central as the ME plural.

There is a second and more telling reason why the ME plural suffix cannot be ascribed to French. Despite its huge influence on later ME vocabulary, the fact remains that English borrowed no French inflections (or grammatical free morphemes) at all.¹² More generally, borrowing of any inflection *into a living, expanding language* under even intense language contact situations is extremely rare.¹³ The idea that early ME speakers in especially the north of England would borrow one of its most basic inflections from French even before any open class vocabulary is linguistically inconceivable.

On the other hand, a general fact about noun plurals in current French can serve to undermine a frequent presupposition about why ME *-z* so quickly replaced OE *-n* plurals. Since final *-n* tended to drop in northern ME, it is sometimes speculated that

11 If the direction of scanning/ production of syllables is left to right, devoicing the prefixed contractions in (9) should count as “turning voice off.” Then, not resuming voicing would imply that an entire syllable with a devoiced prefixal onset would be expected, counter to obvious facts. The Voicing Restriction (10) accurately avoids an implication of directionality.

12 The grammatical free morphemes *very* and *much* might seem exceptions, but *very* derives from the French open class *vrai* “true” and *much* has a Proto-Germanic source.

13 For instance, in today’s American Southwest, there is not even a hint of its Spanish borrowing any English verbal inflection, or vice-versa.

English somehow “needed” a new productive pronounced plural, a need filled by *-z*. But there is no general “need” for a productive inflectional noun plural (cf. their lack in Chinese, Japanese); even in Indo-European which generally has them, Modern French no longer has such a morpheme. On nouns its plural *-s* is *purely orthographic*, not even pronounced in liaison with a following initial vowel, e.g. in *les magasins ouverts* “the stores open”. There is thus no structural reason why ME nouns, even if they had lost all others, had to have a new pronounced plural.¹⁴

3.2 Why the ME Plural *-z* Is Plausibly Proto-Scandinavian

A motivated and more plausible source of the lexical *-z* of the ME noun plural is the Norse language brought to England by Scandinavian settlers between the early Viking raids (before 800) and the Norman Conquest of 1066–1090.¹⁵ Their language was in the North Germanic (NG) branch of Indo-European. In contrast, the conclusion of essentially all analysts is that Old English (West Saxon) was a West Germanic (WG) language.

By 837, today’s England was divided into West Saxon and Danish kingdoms (the “Danelaw”). Scandinavian immigration into the latter region was extensive; see Map 1 for its density and location (Emonds and Faarlund 2014, 33). Danelaw Scandinavians were numerous and prosperous, reclaiming farmland from marshland (Lincolnshire) and establishing new currencies and economic centers (East Anglia), some as far west as Leicester (Wood 1986; Kershaw 2017).

As is generally agreed, West Saxon (OE) and Norse co-existed in England well into the 12th c. However, a century later, as far as surviving texts are concerned, Middle English (ME) (with its disparate “dialects”) was the country’s sole native Germanic tongue.

In contrast to OE, ME in its syntax is typologically a North Germanic (NG), i.e. Scandinavian language (Gianollo, Guardiano, and Longobardi 2008). On the basis of evidence from over twenty syntactic constructions, Emonds and Faarlund (2014) argue further that, counter to previously accepted classifications, ME descends directly from NG Scandinavian, modified over the centuries in England to include extensive West Saxon (OE) vocabulary. They refer to this branch of NG as “Anglicized Norse” (AN), which is then synonymous with Early ME. The beginning of written AN is probably best dated in the late 12th c., perhaps starting with the first book in AN, the monk Orm’s *Ormulum* of c. 1200. This book is notable among other things for its wide use of

14 There are a few phonetically distinct irregular noun plurals in French, but none of them involve pronouncing an *s*: *chevaux*, *vitaux*, *yeux*, *oeufs*, etc. have final vowels. Their number is comparable to that of English plurals with vowel changes, e.g. *feet*, *geese*, *mice*, *women*.

15 For the demographics and economics of this extensive and continuous settlement, see Woodruff (1974); Wood (1986); Townend (2002), and Kershaw (2017).

the nominal plural inflection *-s*. For dating and discussion of the sharp ME break with OE, i.e. West Saxon, see Watts (2011, chap. 3–4).¹⁶

Following traditional scholarship, Emonds and Faarlund note that AN/ME lacks much of the bound morphology of both Old English and Old Norse (ON). Thus, ME quickly lost most agreement (except for 2nd and 3rd singular verbs).¹⁷ Nonetheless, these authors give four inflection-based reasons for deriving ME from an NG source.

(12) Norse sources for Modern English Inflections

- (a) Both ON and ME replaced synthetic comparison on longer adjectives (Germanic *-er* and *-est*) with analytic grading (English *more*, *most*; ON *meir*, *mest*).
- (b) The ME nominalizing suffix *-ing* comes directly from ON (e.g. *viking* “walking”) rather than from OE *-ung*.
- (c) WG infinitives are marked by a bound prefix (OE *to*, Dutch *te*, German *zu*), while NG has free morphemes (ME *to*), i.e. NG infinitives can be “split” by adverbs.
- (d) Early ME and Medieval Mainland Scandinavia both develop phrasal rather than word-based genitive suffixes.

Given that verbal past stems in ON and OE are quite similar (Strang 1970, Ch. IV), the only remaining inflection that might distinguish ME from Scandinavian is in fact the noun plural. The rest of this essay addresses this issue and concludes that its ME form *-(e)z* derives not from late OE but from an NG source. As in note 16, the relevant contemporary of later OE, from 800–1100, is not written ON, but instead the

16 Here are the accepted names for stages of the languages germane to this paper. Note that written Old Norse corresponds to the time period of early Middle English.

Proto-Scandinavian (PS) until c. 800. Only the sparse evidence of runic inscriptions.

Common Scandinavian (CS)/Early Old Norse, c. 800–1150. Runic evidence, but still unwritten.

Late Old Norse (ON), written in Latin script, *from 1150 onwards*.

Old English or West Saxon (OE), written in mostly Latin letters, *until 1150*.

Middle English (ME), written in Latin script, *from 1150 onwards*.

17 For example: “In the North, the endings *-e* and *-en* on finite verbs are lost after the earliest texts” (Fulk 2012, 74). Those ME plural verbs in *-(e)n* that remain plausibly derive from the PS 3rd plural agreement (Haugen 1982, 122–125). OE speakers did apparently import the now lost 2nd singular suffix *-st* into ME.

earlier “Common Scandinavian (CS) / Early Old Norse” rather sparsely documented in runic inscriptions. This stage of NG in turn immediately follows reconstructed Proto-Scandinavian (PS), which is contemporary with earlier OE. The sequence is thus Proto-Germanic → PS (coeval with early OE) → CS (coeval with late OE) → written ON.

Haugen (1982) describes both these successive NG stages in some detail, and his tables in chap. 4–5 (1982, 90–91; 122–125) unflinchingly represent the PS plural as a *voiced sibilant* *z*, which I write here as *ž*. We can now review why Haugen’s practice is uncontroversial in NG scholarship.

(13) **Justifications for taking CS *ž* as a PS *Voiced Alveolar Sibilant***

- (i) The CS rune *ž* for both noun plurals and 2nd sing. verbs uniformly corresponds to the Est Germanic Gothic sibilant endings.
- (ii) The final CS *ž* runes occur precisely after unstressed vowels, where throughout Germanic *they are predictably voiced by Verner’s Law*.
- (iii) CS *ž* has fully expected *unvoiced* non-Germanic cognates *–s* in 2nd sing. Agreement, Czech *–š* and Spanish *–s*. Similarly for the cognate Spanish noun plural *–s*.
- (iv) When CS *ž* dissolves into allophones of other ON phonemes (12th c.), all of them are coronal and (except for *s*) all are voiced: *d, n, l, r, s* (Haugen 1982, 62).
- (v) During the CS period, the rune for nominal plurals and 2nd sing. agreement was *entirely distinct* from runes for either *r* or *s*. This “pitch-fork” rune (for a phonemic voiced continuant) persisted in certain regions into the 12th c. (Haugen 1982, 57–62)

Haugen’s tables of Proto-Scandinavian nominal inflections (1982, 90–91) also indicate that the most common nominal plural in non-neuter nominatives and accusatives (the same forms used by traditional histories of English for ancestors of the noun plural), is by far the *same* mono-segmental voiced *z* of Modern English plurals:¹⁸

(5) **Lexical entry for the Proto-Scandinavian and English plural *–z***
 PLUR, N____, [Alveolar, +Continuant, +Voice, –Sonorant]

¹⁸ All the “strong nouns” in Haugen’s tables have this form, except that some masculine nouns take *–n* in the accusative. All non-neuter nominatives and all feminines take a *–z* plural.

I therefore propose:

(14) Genealogical source of the English voiced plural

The productive English noun plural *-z* descends directly from Proto-Scandinavian *-z*.

We have now established that both the Proto-Scandinavian plural and the ME *-z* of entry (5) are *alveolar voiced continuants*. Nonetheless, the productive Common Scandinavian nominative plural suffix, also a descendant of PS final *-z*, eventually became a Latin alphabetic *-r* in Late ON (1150 onwards). The development of ON thus involved a change that distinguishes ME *-z* from ON; the single feature difference between the two segments is that ON *-r* is sonorant, while the earlier (more archaic) continuant *-z* retained in ME is not.

3.3 Later Development of Proto-Scandinavian *-z*

The change from the PS plural suffix *-z* to a standard *-r* in later ON and Mainland Scandinavian, if one is too quickly influenced by orthography, may seem unrelated to the English *-s*. But since this *s* is just a spelling for a lexical *-z*, and moreover rhoticization (*z* → *r*) is widely attested in both North and West Germanic, it is not so surprising that if Proto-Germanic final *-z* in plurals could develop into *-r*:

From this perspective, the pre-history and history of Middle and Modern English plurals seems to be as follows:

(15) Step-by-step history of English plurals

- (i) The modern noun plurals in English *-z* and Scandinavian *-r* (differing only by ±Sonorant) both originate in I.-E. case/ number inflections that contained *-s* preceded by a long or lengthened vowel, e.g. I.-E. *-e:s* and *-o:s*, etc.
- (ii) These I.-E. inflectional long vowels on nouns were most often *unstressed*.¹⁹
- (iii) After this, when Germanic stress moved to initial syllables; all final sibilants in plurals become voiced, because of Verner's Law but possibly also by some "analogical levelling".
- (iv) No later than when NG short vowels dropped due to vowel syncope/ apocope in the 7th and 8th c. (Haugen 1982, 28–29), voicing of the plural sibilant *z* became distinctive, i.e. a lexical feature, as in the lexical entry for the plural morpheme (5).

¹⁹ This is transparently reflected in Latin descendants of I.-E. A two syllable noun has initial stress, even if the second syllable has a long vowel. One can observe many unstressed long vowels in final syllables in the Latin inflectional tables in Henle (1945, 2–13).

This last step preceded the bulk of Scandinavian settlement in England (c. 850–1066). That is, the settlers brought with them to England a noun plural inflection that was some kind of coronal voiced continuant. The one uncertainty, to be discussed below, is: what was its mode of articulation? Was it a fricative, a sonorant or something with features of both?

Whatever the answer, one can conclude that in NG languages, the final alveolar continuant (with possibly some allophonic variation) that marks noun plurals has *never lost its voicing*. By 1150, this continuant became *r* in ON (written in Latin script) and current Mainland Scandinavian, but it remained an *unchanged z* (with allophones) in Middle and Modern English.

3.4 The Proposed OE Precursor of the English Plural *-z*

As can be inferred from the cited summary from Baugh and Cable (2013, chap. 7), no possible OE ancestor of the ME noun plural is or contains the segment *-z*. The process of deriving *-z* must then involve changes in representing the plural, which do not arise for the hypothesis (14). According to this simple proposal, the ME *-z* is identical to the same phoneme in PS, i.e. *nothing happened* to noun plurals between PS and ME.

This obvious hypothesis has not previously found supporters among historians of English (perhaps never crossing their minds). As remarked in Emonds and Faarlund (2014), all detailed studies of ME assume without argument that outside of lexical borrowing, essentially all characteristics of ME find their source in OE.²⁰

Despite this assumption, these historians have not succeeded in finding a convincing OE source for the voiced plural suffix *-z*. This is not for lack of trying, and in fact most analysts have settled on (and firmly believe in) an impressionistic scenario consistent with the assumption that OE → ME. Upon investigation, we will see that this scenario, which can be called “re-lexicalization of *n* as *z*”, is badly flawed.

A first and brutal formulation of re-lexicalization (16) assumes a preliminary reduction of unstressed OE short vowels to *e* (Minkova 1991, 5) and leaves aside the vowel after noun stems ending in sibilants.

(16) Traditional diachronic change leading from OE to ME *-z*:

PLUR, {*-en, -es, -e*} → *-z* / N___

On the face of it, such an arbitrary (but pervasive) change is quite implausible. No doubt to soften the blow (to the revered ancestral status of OE), scholars have divided it

²⁰ The possible non-linguistic sociological, religious and historical motivations for this (probably unconscious) assumption are too many and too obvious to merit space here. A few studies have proposed, with sketchy and unsystematic arguments and definitions, that ME is a “creole” (i.e. derives from multiple sources). This is indisputable only with respect to the lexicon.

into four less drastic intermediate steps and discussed diverse conditioning factors for deleting *e*, such as vowel reduction and loss in (a few) unstressed final closed syllables; see Lass 2006, 102–105; 109–111 and others he cites). In addition, it is generally assumed that (16) implies two separate changes, one into a mono-segmental *-s* and then a second step whereby *-s* → *-z*.

But no matter how complex the interplay of factors such as region, number of syllables, preceding consonants, and poetic meter, orthographic *-(e)s* must emerge as the only competitor for productively marking the ME noun plurals. Revealingly, with respect to the voicing in (16), scholarship has chosen to debate *when* the sound change from *-es* to *-(e)z* took place, rather than *why*; consequently, this voicing is not systematically related to other ME properties or developments. And independently of all this, what also must be explained is the initial “come from behind” victory of *-(e)s* over *-(e)n* as the regular plural; see again the summary in Baugh and Cable (2013, chap. 7). The scenario required by (16) remains ad hoc, no matter many intervening steps it supposedly results from (all moreover taking place in not much more than a century, 1150–1250).

In more detail, this basic scenario consists of four steps that derive ME plurals from OE nominative/accusative plurals.

- (17) (a) Various OE plural morphemes in non-productive declensions consist of vowels that reduce to early ME short *-e*; the non-productive (“strong”) *-as* reduces to *-es* (Lass 2006, 152; Algeo and Butcher 2014, 137–140).²¹ The productive (“weak”) plural *-en* remains.
- (b) Final short *e*, often considered to be a schwa, deletes. Minkova (1991) covers many facets of this process, including contexts that specify numbers of syllables, vowel lengths, optionality, regional variants, borrowings from French, relation to syntax, etc.
- (c) After an early 12th c. spread of productive OE *-en* from the South, *-(e)s* inexplicably replaces it as the productive ME plural first in the North around 1200, and then spreads from North to South (Baugh and Cable 2013, chap. 7; Lass 2006, 111).

21 Sometime in the pre-history of the OE suffix *-as*, which derives from I.-E. “unstressed vowel + sibilant”, Verner’s Law should have voiced the sibilant, as it did in both PS (North Germanic) and Gothic (East Germanic). However, *even though a WG language*, OE loses this voicing in final obstruents, as described in the cited sources.

- (d) This last change consists of two phonetic steps: *e* drops (except after sibilants), and final *s* becomes *z*. That is, *-es* becomes *-z*. Each step should be considered separately.

Thus, the changeover from OE plurals, whose last texts are about 1140, to a general ME plural (c. 1250) involves four rules, or sound changes.²² According to Bech and Walkden (2016, Section 2.1), nothing can be more important than sound change in determining the history of a language, so I will consider the plausibility of (17) as abbreviated in (18i–iv).²³

- (18) (i) Final short *e* deletes.
 (ii) *-en* is relexicalized as *-es*.
 (iii) Short *e* deletes in “some” closed final syllables, in particular in noun plurals.
 (iv) Progressive voicing applies to “some” final *s* and *f*.

I critically examine in turn the plausibility of steps (18i–iv) given in the traditional histories. We will see that none of them express generalizations with the scope expected of “regular sound changes;” none of them really has any general or explanatory force.

3.4.1 Deletion of Final Short *e*

Rule (18i) describes the deletion of final short *e*, probably a schwa. This first step accounts for the loss of OE plural allomorphs that consist of only a vowel. This rule,

22 This traditional consensus scenario of four steps is summarized in a Wikipedia entry, which however ignores the change from OE voiceless *s* to the voiced *z* of Modern English (<https://english.stackexchange.com/questions/34029/origin-of-pluralisation-of-verbs-and-nouns-in-english/304830>).

The English plural *-s* is the only survivor of a much more complicated Old English nominal declension system. . . The plural ending for the Nominative and Accusative of “strong masculine nouns” was *-as*, and as the Old English nominal system broke down, this ending was generalized to *all* nouns in *all* cases. By Middle English we only have the ending *-es* for all nouns, and in Modern English the *-e-* has disappeared (except in spelling in some cases), giving us the plural *-s*.

23 I do not subscribe to these authors’ claim that phonological sound change should remain today the only sure foundation for linguistic genealogy. The ground-breaking papers in Battye and Roberts (1995) demonstrate that syntax is on a par with phonological inventories as a source for uncovering a language’s past.

at least when formulated as optional, seems to be general from exactly the period first identified as ME around 1200, e.g. the language of the *Ormulum*.²⁴ That is, final “Schwa loss during the ME period is axiomatic in all standard descriptions of the history of English” (Minkova 1991, 36).

However, Minkova’s further claim (1991, 9) that “there is no parallel development in Scandinavia” is almost certainly wrong. Short vowel deletion in final position, including *e*-deletion, was endemic in earlier North Germanic, practically its hallmark (Haugen 1982, 28–29). Since the question in this essay is exactly whether ME and Scandinavian are related, i.e. share their history, it is circular to use a dating difference in schwa-deletion which has been determined by *assuming* that they are not related. If, as Emonds and Faarlund (2014) argue, ME is simply a successor of PS, it is no wonder that evidence of *general* final *e*-deletion, i.e. resembling NG syncope, is found only in ME and not yet in the OE period. Many forms with final schwas that appear to “delete” in early ME were possibly words whose final short *e* had deleted earlier in NG.

So given this possibility, there is no safe conclusion about when final *e*-deletion starts in England; we can only conclude that it was not fully productive in OE. There is in fact a parallel in ME and ON (i.e. from 1150 onwards): *neither language exhibits final short e for any inflections*. By this period, some ON inflections had again acquired short *a*, *i*, and *u*, but not *e*. This is clear from the many ON inflectional tables in Faarlund (2004, chap. 3).

Since traditional histories of English have not fully investigated relating final *e*-deletion (a particular short vowel) to the more general short vowel apocope in Scandinavian, rule (18i) is not general enough to merit what is usually meant by “regular sound change.” It is rather a description of an ME vocabulary artificially isolated from its possible roots in CS.

3.4.2 *Re-lexicalization of –en as –es*

Leaving aside outright irregular plurals (formed with umlaut, null morphemes, etc.), regular OE plurals were constructed within different noun classes with *several different* plural suffixes: *–en*, *–as*, *–e*, *–a*, and *–u*. There is no linguistic reason, other than a vague appeal to “frequency,” why out of these five endings, only *–as* should have become the only productive survivor. A century ago, Classen (1919) showed the frequency factor favored *–en*, not *–as*.²⁵ The logic of the traditional scenario thus is not based on

24 The date of the onset of schwa loss is debated, but some authors put it in the 12th century (Minkova 1991, 24) on the basis of some words in early documents without certain final *e*.

25 Classen argues for a hybrid analysis involving OE and Norse: OE speakers in the Danelaw borrowed many Norse “weak declension” nouns, and then due to similarities in oblique cases,

linguistic plausibility or independently justified aspects of ME phonology. Rather, *by assumption (not argument)*, among the five OE non-productive plurals, the choice is *-as* because it “looks like” ME *-s* more than do the others.

The fact is, the traditional choice of an OE precursor depends on “looks like” (in orthography) rather than on the appropriate “sounds like”, which involves comparing phonological features, not graphemes. When we do this, there is no affinity between OE *-as* and ME *-z*. In OE, as eventually in other WG languages (e.g. Dutch and German) non-sonorants including continuants (*f, th, s, χ*) were unvoiced in word-final position (Strang 1970, 288; Mitchell and Robinson 1992, 15; Lass 2006, 57–61).²⁶ Since final voicing was not a possibility, the relexicalization step in the traditional scenario has no basis whatever in either frequency or phonetics; it is purely arbitrary.

3.4.3 Short e Deletion in Closed Final Syllables

The traditional scenario for noun plurals needs the (sporadic) ME “sound change” (18iii) in order to delete the short *e* in the newly productive descendant *-es* of the OE strong plural *-as*.

I first note that in other Middle and Modern English inflections of similar form, no productive process of “short *e* deletion” has ever happened: neither to Proto-Germanic short *e* in superlatives (*slowest, truest, highest, greyest* do not rhyme with *toast, boost, Christ, taste*), nor to its short *e* in comparatives or agent nouns: the pairs *rower/roar, lower/lore* and *mower/more* are not homonymous. The ME 3rd singular suffix *-eth* never productively lost its vowel (*grow-eth, show-eth, stay-eth* do not rhyme with *growth, both, faith*), nor has vowel deletion ever affected the pervasive unstressed suffix *-ing*.²⁷

Outside inflections, there are some instances of ME schwa deleting in final closed syllables. Yet according to Fulk (2012, 50), “Unstressed /ə/ in final syllables is never lost when the result would be a final consonant cluster in which the sonority of the final consonant is greater than that of the preceding consonant.” In this same passage, the author’s logic crucially uses the “high sonority of fricatives.” By this

they misanalysed them as OE “strong declension” nouns, so that *-as* plurals became (for only Danelaw speakers) more frequent, while OE *-en* plurals remained more frequent in the South. As a result, the North generalized *-as* and the South *-en*. The argument seems to depend on OE speakers recognizing the (foreign) oblique case endings of the Norse weak declension, which is a shaky sociolinguistic assumption on which to base a sound change.

26 Since voicing in sibilants was non-distinctive in OE, occurring phonetically only in intervocalic contexts, the *s* in the OE suffix *-as* was always unvoiced.

27 If regular sound changes derived the ME plural from a late OE *-es*, by deleting schwa before a sibilant and voicing *s*, then one should also find *shyness* → phonetic *shines*, *oneness* → phonetic *ones*, *baroness* → phonetic *barons*, and *illness* rhyming with *kilns*.

reasoning then, the vowel in the OE plural *-as/-es* should never be lost after a stop, yet (except after sibilants) it always is. This general fact renders this deletion of *e* discussed by Fulk irrelevant to the history of the plural, even if extended to (a few) isolated instances of inflected forms. In fact, Fulk (2012, 59–60) also claims via metric analysis of poetic texts that some ME medial *e* are indeed purely orthographic. For instance he scans *sinnes* “sins” from the poet Richard Rolle (c. 1325) as monosyllabic; the plural consists of only a consonant.²⁸

In sum, an important advantage of this essay’s history of English plurals is that it dispenses with the need for the ad hoc rule (18iii).²⁹

3.4.4 *Progressive Voicing in Plurals*

The traditional scenario requires finally a spontaneous and ad hoc voicing of an OE word-final *s*. Though authors often fail to mention this, Honeybone (2012) realizes the isolated nature of this voicing, moreover occurring in very few contexts: “English is odd in this regard. It seems to feature a case of final obstruent voicing, which is essentially unheard of in the history of languages” (2012, Section 3.4). This final voicing cannot therefore be related to any “progressive voicing tendency” in any stage of English, since it would contravene the general Ban (11) argued for in detail in Section 2.

Lass (2006, 59–61) suggests that distinctive voicing of ME *z* in both initial position and in sibilant plurals was present from the beginning of ME, a view with which I concur:

Be that as it may, by around 1250, /v/ and /z/ were separate phonemes in foot-initial position . . . The development of a final voice contrast is tied to the loss of final /ə/ [reference omitted], which probably began *in the north and north midlands in the twelfth century* [before 1200; my emphasis, JE], and then spread southwards . . .³⁰

28 As southern speakers adopted AN/ ME, initially as a second language (nonetheless close to their native West Saxon), they could have felt that its plural *-z* corresponded to the Saxon *-as/-es*, not realizing that the AN plural was mono-segmental. In this way, some southern ME speakers might have used it in e.g. poetry as they would a final weak syllable plural in West Saxon, which they doubtless still also spoke. This study’s hypothesis (14) thus predicts that any evidence for deriving ME *-s* from “Vowel + *s*” should be from southern ME dialects.

29 The much earlier NG loss of short vowels in final syllables (7th and 8th c.) was a regular and productive sound change, namely the short vowel apocope that is almost this family’s defining characteristic (Haugen 1982, 28–29). But the text here concerns ME after 1200.

30 For a scholar working in the traditional framework, to situate a ME “innovation” prior to 1200 is equivalent to making it part of what I claim is the changeover from OE to AN.

However, this dating of initial and final voiced segments in ME still leaves open the issue of a *motivated source* for this new peripheral ME phoneme *z*. In this regard Lass makes two further points: (i) He favors an account in which phonemic distinctness in both final and initial positions reinforce each other (his account is in terms of weak and strong syllables).³¹ (ii) He finds a source for distinctive voicing of initial *v* and *z* only in some non-productive borrowings of southern dialect forms (e.g. *vixen* vs. *fox*, etc.). The first point seems broadly correct, but the second is very weak. I suggest instead that only the long standing voicing in CS noun plurals provided a robust springboard for a extending a contrastive ME *z* to both initial and final positions.

Note that this view is consistent with the sequencing in the above quote from Lass (2006): the voiced plural (1200) precedes the establishment of an initial *s-z* contrast. The only motivated source for the ME voiced plural is thus in CS; the voicing cannot be convincingly squeezed out of OE or its dialects.

The overall points of Section 3 can be summarized: Deriving the voiced ME plural *-z* from one OE plural inflection (among many) requires that it comes from *e* + voiceless *-s*, via two unmotivated, ad hoc rules: *vowel deletion in (very few) final closed syllables* and *progressive voicing assimilation*. Moreover, this productive plural *-z* has to spontaneously replace a late OE tendency by which the southern (West Saxon) plural *-n* was spreading, as indeed expected in the West Germanic languages. In the end there is no actual evidence for postulating the sound change (16) or the developmental sequence (18) proposed by traditional historians of English. This sound change, no matter how many steps it is decomposed into, amounts to nothing more than just what they have to (and do) say to maintain a priori that main properties of ME grammar, including its noun plurals, must originate in OE.

One remaining question concerns the earliest typical ME spelling *-es* of the plural, claimed here to be a phonetic *-z* in most contexts. Does the spelling suggest a different phonetics? Of course, the exact same question applies to 500 years of the same Modern English spelling, and here the answer is, scribes/ printers are not linguists; spelling is by far more influenced by the ambient scribal/ printing tradition, which almost without fail overrides phonetic accuracy.

What was different for early ME is that it was essentially being newly written, so its first scribes like the monk Orm could draw on only Latin and OE writing traditions. In Latin, most plural case forms end in Vowel + *s*, as does the only sibilant plural in OE. Hence, we cannot take the ME combination of a Vowel + *s* in plurals as phonetic evidence, unless it is corroborated by evidence such as metric scanning of poetry, as cited here in Section 3.4.3.

31 We should avoid any “intuition” that distinctive consonantal phonemes always enter a language in word-initial position. The English voiced palatal continuant phoneme *zh* is a counter-example (cf. the medial contrasts in *lesion*, *reason*, *lotion* and *occasion*, *station*).

4. Overall History of the North Germanic Plural

4.1 Proto-Scandinavian and Common Scandinavian Plurals

In the first millennium, NG inscriptions are found in an alphabet of phonological “runes”. Spurkland (2005) is a detailed scholarly treatment of this writing system and its stages.

The considerations listed earlier in (13) motivate the consensus in NG studies that the PS noun plural was a voiced phonemic *z*, written as the 3-pronged pitchfork rune represented here as *z̥*.³² For these reasons, Haugen (1982, chap. 4–5) is justified in systematically transcribing PS *z̥* in his tables as a *voiced sibilant z*.

The period in which ON and its descendants were written with the Latin alphabet, starts about 1150. ON still had several different inflectional classes of nouns, with four often distinct cases in both the singular and plural; they are given with examples and sources in Faarlund (2004, 24–33).³³ Inspection of these paradigms shows that non-neuter nominative plurals no longer terminate in *-z* but in *-r*; this change is typically called *rhoticization*; the accusative plural counterparts are either identical to the nominative or simply lack the *r*. That is, except for one class of neuter nouns, ON had no other overt allomorphs in nominative and accusative that compete with *-r* as a noun plural.³⁴

The transition to Modern Norse then consisted simply in generalizing the ON nominal plural ‘(vowel) + *r*’. Since the distinctive features of *r* are [Alveolar, +Continuant, +Voice, +Sonorant], the “phonemic distance” of the modern inflection from the PS and lexical ME plural *z* is minimal; they differ in only one distinctive feature.

During the period of Common Scandinavian, the rune *z̥* used for the nominal plural and 2nd singular agreement remained *entirely distinct from* the runes for either *r* or *s*. This indicates that despite (probably undecidable) debates about its exact phonetic quality, the CS inflectional *z̥* must have remained *a phoneme separate from the phoneme r*, which it eventually would join. According to Haugen (1982, 57–62), this separate rune and the phonemic voiced sibilant it represented persisted in certain regions into the 12th c.

To construct a timeline, we can date the end of significant Scandinavian immigration to England in 1066, at the Danish defeat at Stamford Bridge and the imminent arrival of William the Conqueror. Consequently, during most of, and perhaps all of, the period of Scandinavian settlement in England, their noun plural was more akin *phonemically*

32 Like some other runes, those for *s*, *m*, and *h*, later runic script modified its form; in the case of *z*, the “pitchfork” was inverted but quite recognizable.

33 Faarlund’s descriptive grammar of ON predates by several years serious consideration that English might be North Germanic, so his study is definitely not skewed in that direction.

34 Modern writers who use the small Latin capital *z* for this rune, written here with *z̥*, are graphically anticipating their knowledge of its linguistic future: that *z̥* will *later* merge with *r*.

to its origin as a fricative than to its future as a sonorant. For these reasons, I conclude that the *z* that became an inflectional *-r* in ON was not yet actually part of that phoneme well into the Common Scandinavian period (c. 800–1100).

This then provides the source of the voicing of the ON plural and an even more transparent one for voicing in the plural of its Anglicized Norse (=ME) sibilant counterpart. At least for some time after 800, Norse in England had a phoneme written here as *z*, in contrast to *r*, and this was the spelling of the plural on nouns.³⁵ It represented exactly the distinctive features of what we recognize as a phonemic *z* in ME, spelled as a word-final sound with *s* (as are modern *is, was, as, these, because, phrase, rise, rose, vase, etc.*); those features were and are: Alveolar, +Continuant, +Voice, –Sonorant. Today’s productive English plural is therefore an unchanged continuation from Proto-Scandinavian.

4.2 Common Scandinavian Splits into Anglicized Norse (ME) and Old Norse

I thus propose that the main diachronic structural event affecting Proto-Scandinavian and Common Scandinavian *z* occurred not in England or the history of English but in Scandinavia. CS (written only in runes) underwent a phonemic change apparently starting around 900 and completed in the 11th c.

(19) Old Norse Rhotic Merger

The phoneme *z* loses the feature value distinguishing it from the phoneme *r*:

On the face of it, this process merged *z* and *r* in one abrupt step. But there is an additional factor. In its history *z* appears to have somehow “rhotacized” (become a sonorant) before the merger (19) in early ON made it an *r* like any other.

According to Thöny (2016), a first stage of rhoticization occurred *early* in Proto-Scandinavian. The insertion of a rhotic feature (for which I am using +Sonorant) exempted *z* from later devoicing of final obstruents such as *z*. If his scenario is correct, the Common Scandinavian phoneme *z* was already +Sonorant (rhotic), at least in the NG branch that became ON. This suggests that something like (20) produced an allophone of *z*, whose features still differed from the feature content of “true *r*”. For convenience, I label it *-ř*.

(20) CS Allophonic Rhoticization of *z*.

[Alveolar, +Continuant, +Voice] → +Sonorant

35 Essentially all historians of English agree that Norse continued to be spoken in England into the 12th c. For discussion, see Emonds and Faarlund 2014, Sections 1.3 and 2.1. Since ON runic inscriptions also continued to appear in England into the 11th c., so distinctions in that alphabet almost certainly reflect those in spoken AN.

To me the most parsimonious, least convoluted account is that the PS “true *r*”, like the two very distinct *r* of today’s French and English, *was not alveolar*. That is, (20) was an allophonic rule that began in the PS period, but did not bring about merger with the phonemic *r* (which had a separate rune). In order for ON *ž* and *r* phonemically to merge as in (19), they first had to lose distinctive specifications for the feature Alveolar.³⁶

Turning now to the destiny of PS *z* in England, one need only say that Allophonic Rhoticization (20) (*z* → *ř*) was not (permanently) implemented in AN/ME; instead, the earlier *z* was uniformly retained. It might be asked, if this process began on the Mainland by some (bit not all) accounts as early as the 7th century, why would Scandinavian speakers in England not adopt it, and then transmit it to ME? The fact is, sociolinguistics frequently describes phonetic innovations in a language’s homeland or central area that do not develop in its colonies or overseas extensions. Thus, French in Canada is often more conservative than in France; several innovative changes in English phonology have not occurred in e.g. Ireland, Scotland and the United States (one thinks of the loss of post-vocalic *r*). Along the same lines, post-vocalic *s* is retained more in Spanish-speaking countries farthest from Spain (Mexico).

Such divergence (using or not using an allophonic variant) may sometimes be random, but as Labov (1963) persuasively argues, it can also reflect social distinctions between populations whose cultural allegiances are split, in the case at hand between an “old world” (Scandinavia) and a “new world” (the Danelaw), even when they speak the same language, Common Scandinavian (800–1050). Let us keep in mind that the Scandinavian colonists in the Danelaw were prospering (by the standards of the time)—in fact, it must have been the improved opportunities that attracted settlers to England in the first place. According to Wood’s (1986) account of their economic and legal status, such as the ability to own and bequeath land, they came on average to surpass the Anglo-Saxon peasantry.

Probably because of such success, Anglicized Norse was slowly replacing Anglo-Saxon dialects, from North to South in the Danelaw, as the island’s predominant Germanic tongue. This tendency must have been reinforced and accelerated by the Danish conquest of all of England in 1013–1016. The subsequent rule of England by Norsemen, continuous into the late Middle Ag (except for 10 months in 1066), sealed the fate of OE (West Saxon). But at the same time, the settled English Scandinavians, far from remaining poor immigrants who identified with their ancestral country, were better off than more recently arriving immigrants. It is thus sociolinguistically natural to propose that in the 10th and 11th c. Danelaw the older, conservative Norse of established settlers, which retained *-z* as a plural morpheme, was more prestigious than

36 Languages can have two *r* sounds that differ by the feature Alveolar. Current Czech orthographic *r* is an alveolar trill, while Czech orthographic *ř* is palatal, not alveolar.

that of immigrants and successive generations of Viking raiders, whose speech could be identified by Mainland innovations such as the \check{r} of (20).

This situation in 9th and 10th c. England calls to mind that on another island a millennium later, the dialectal differences on the island of Martha's Vineyard off the New England coast, as analysed in Labov's (1963) classic sociolinguistic study. He uncovered social correlates of the unconscious differences in allophones of their English dialects. (In the following quote, "the model" refers to the speech of the oldest English stock fishing families on the island; "centralization" to their non-standard conservative allophones of certain diphthongs.)

If someone intends to stay on the island, this model will be ever present to his mind. If he intends to leave, he will adopt a mainland reference group, and the influence of the old-timers will be considerably less. The differential effect in the degree of centralization used is a direct result of this opposition of values . . . In summary, we can then say that the meaning of centralization, judging from the context in which it occurs, is *a positive orientation towards Martha's Vineyard*. (Labov 1963, 305–306)

Replacing "(the degree of) centralization" with "a non-sonorant sibilant plural", i.e. non-application of (20), I propose that for the Scandinavian settlers, the meaning of a non-sonorant z plural signified *a positive orientation towards living in England*.³⁷

Especially in the 10th c., when Allophonic Rhoticization (20) was spreading on the mainland, English Scandinavians strongly identified with being permanently settled in England, and very likely as a population, they rejected or never seriously considered severing links with their established island home. In fact, English Scandinavians are known to have often sided with the Anglo Saxons in the 10th and again in the late 11th c. in efforts to ward off ever renewed Norse incursions.³⁸ They thus had social reasons for not identifying with their newly arrived aggressive "cousins". Instead, while retaining and spreading their mother tongue AN/ ME inside England, they freely adopted West Saxon vocabulary. In the same vein, they unconsciously resisted Mainland linguistic innovations such as Allophonic Rhoticization in the noun plurals.³⁹

37 Labov's "centralization" refers to a conservative rejection of final stage diphthongs *ai* and *au* in the English vowel shift.

38 The Norman Conquest itself was simply the last and most devastating of these. The rulers of Normandy were a war-prone clan of Scandinavian descent who felt that Anglo-Saxons were wrongly taking control of England after the Danish King Canute and his stepson Edward the Confessor were left without heirs (both ruled all of England from 1016 to 1066).

39 A fortiori, AN never adopted some even later Scandinavian innovations, such as a definite enclitic *-en*, which appeared in Mainland runes around 1100 (Haugen 1982, 173–174).

As a lasting result, English has steadfastly adhered to older Proto-Scandinavian hallmarks such as the voiced sibilant plural *-z*. The torturous derivation of the ME noun plural *-z* from the very different and non-productive West Saxon *-as* must be rejected.⁴⁰

Appendix: Labov's Scenario for Prestigious Archaism

Labov (1963) lays out five steps, cited in (21), that lead to an *archaic prestige dialect* becoming predominant in a region. They fit not only the situation on Martha's Vineyard c. 1970 (the left column follows his exposition), but also I submit in the Danelaw 1000–1100 years earlier. These steps in the right column led to the dominance of the prestige plural *-z* of Anglicized Norse, the North Germanic dialect that rejected the Mainland use of the rhotic plural:

(21) **Labov's five sociolinguistic steps** (1–5 in italics cited from Labov 1963, 307):

| | |
|---|---|
| 1. On Martha's Vineyard, c. 1970 | 2. In the 9th–10th century Danelaw |
| <i>1. A language feature used by a group A is marked by contrast with another standard dialect.</i> | |
| Island fishing families (group A) use older "central" diphthongs. Standard Mainland English has the completed vowel shift diphthongs <i>au</i> and <i>ai</i> . | Early Scandinavian immigrants (group A) arrive in England with <i>-z</i> plurals, Mainlanders start replacing it with <i>-ř</i> . |
| <i>2. Group A is adopted as a reference group by group B, and the feature is adopted and exaggerated as a sign of social identity in response to pressure from outside forces.</i> | |
| Islanders who identify with a life and future on the island (group B) adopt the older pattern of Group A, in response to the possibility of a life on the Mainland model. <u>This holds for both Martha's Vineyard and the Danelaw.</u> | |
| <i>3. Hypercorrection under increased pressure, in combination with the force of structural symmetry, leads to a generalization of the feature in other linguistic units of group B.</i> | |

⁴⁰ According to this essay, the AN/ME noun plural is closer to Proto-Germanic than ON. A hypothetical parallel can be drawn in the history of Romance. Standard French is solidly established as a daughter of some version (perhaps spoken) of Latin, though it lacks the Latin feature of unstressed final syllables. Suppose Provençal were only recently proposed as related to French. Then, discovery of Provençal's unstressed final syllables would place it *between* Latin and French, and be hailed as confirming the Comparative Method. This essay's analysis of the English sibilant plural likewise places this aspect of ME *between* Proto-Germanic and ON.

| | |
|--|---|
| Minority island communities also adopt the older diphthongs, as the fishermen become the model for Group B's "independent life on the Island." | All Scandinavians in England adopt the older plural <i>z</i> ; settled successful farmers become the model for group B's "life in England". |
| 4. <i>A new norm is established as the process of generalization levels off.</i> | |
| "Down-island" speech keeps the Mainland dialect, which goes beyond centralization. | All of Mainland Scandinavian adopts <i>-r</i> plurals. |
| 5. <i>The new norm is adopted by neighbouring and succeeding groups for whom group B serves as a reference group.</i> | |
| "Up-island" speech becomes the prestige dialect on the island, with centralization. | Anglicized Norse with <i>-z</i> plurals becomes standard in ME. |

Whether the plural of Anglicized Norse was phonetically *simply* *-z* or an allophonic rhotic *-z*, we cannot know with certainty. If the latter, the rhotic quality was lost in England by the time ME was written, e.g. late 12th c. But we know that this *voiced sibilant plural* spread southward exactly in the way and at the time of several dozen other "Norsifications" of early ME (Thomason and Kaufman 1988), just as ME became a written language. In contrast to the blanket devoicing of West Germanic final non-sonorants, the North Germanic languages of ME and Modern English have ever since used the Proto-Scandinavian voiced final sibilants for their noun plurals.

In sum, returning to the general question of whether Modern English inflection is North Germanic, not only some but basically all productive Modern English inflections (*-s*, *-d*, *-ing*, *-er*, *-est*) have ancestral lineages traceable to Proto-Scandinavian.

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Roots, Categorizers and Reduplication in Xining Chinese

Anders Holmberg^a and Qi Wang^b

Newcastle University, Newcastle upon Tyne, UK

^aanders.holmberg@newcastle.ac.uk; ^bqwssg17@outlook.com

Abstract: In Xining Chinese, especially as used by older people, free nouns are always reduplicated, as a purely formal condition without any semantic effects. We argue that the reduplication takes place when an acategorial root is merged with a null nominal categorizer which copies the phonological matrix of the root. There is a condition on word formation, maybe universal but certainly applying to Chinese, that a content word must consist of at least two constituents. A root merged with a categorizer satisfies this condition. In Xining Chinese the condition on nouns is that they have to consist of minimally two pronounced constituents. When the condition is not independently satisfied, as in a compound or affixed noun, reduplication is how the condition is met. In conjunction with a minimalist theory of word formation, this will be shown to predict the distribution of reduplication in various contexts. For instance, the head of a compound can be reduplicated, but not the modifier, some affixes but not others permit reduplication of the base, non-compositional compounds do not allow any reduplication, and so called “bound roots” (really, bound words) are not reduplicated. The phenomenon provides very strong evidence that simple content words are made up of an acategorial root and a categorizer which is often null, but can be overt in some languages, including Xining Chinese.

Keywords: root; bound word; compound; merge; reduplication

1. Introduction

A morphological peculiarity of the variety of Chinese traditionally spoken in and around Xining in the North West of China is that common nouns are always reduplicated, as exemplified in (1).

- (1) (a) Nao sa da zi **fo fo** ha yo -go
 I PRT big DE spoon spoon OBL need -AFF
 “I need a big spoon.”
- (b) Jia sa **mo mo** ha mei ha zhei
 She PRT steamed bun steamed bun OBL buy PRT PRT
 “She has bought steamed buns.”
- (c) Zhi go **hai hai** hudu guei na
 this CL shoe shoe very expensive PRT
 “This pair of shoes are very expensive.”

The reduplication has no semantic effect whatsoever, but is a purely formal requirement. In particular in the variety of Xining Chinese spoken by the older generation, which we will refer to as Traditional Xining Chinese, the reduplication is compulsory. Similar reduplication is common also in other dialects spoken in North West China. Our data are exclusively from Traditional Xining Chinese, though, abbreviated TXC (in Wang 2018 the dialect is called Old Xining Chinese, OXC).¹

The analysis we propose here is that the reduplication of nouns in TXC is the result of copying of the phonological features of the root by a nominal categorizer. It is based on the premise that lexical categories are made up of a root devoid of a syntactic category feature, merged with a categorizer, that is a functional head encoding syntactic category. The categorizer is often a null morpheme. That is the case with lexical categories generally in for example Mandarin, except in some cases where the category is provided by an overt affix. It is also the case in TXC with categories other than the noun. But for nouns in TXC, the nominal categorizer is always overt. If it is not realized as an affix, it is realized by copying the phonological features of its sister root.

This hypothesis makes a number of predictions about contexts where reduplication will be found, predictions that are all met. This means that we can always tell a root from a noun in Xining Chinese: a root not accompanied by a nominal categorizer will not be reduplicated, while a root merged with a nominal categorizer will be. In this way the reduplication serves as a probe into the structure of words,² particularly

1 One of the authors is a native speaker of TXC. The data are checked with other speakers of TXC, including speakers that are older than 70. For other work on Xining Chinese, see Dede (2006), Ren (2006), Bell (2017). For other work on reduplication in Xining Chinese, see Ren (2006) and Wang (2009).

2 The point that reduplication can serve as a probe into the structure of words and phrases is also made by Travis (2001). It could be noted that the reduplication that we describe does not fall into any of the classes of reduplication that Travis identifies.

nouns, in TXC. This will be shown to shed new light on controversial categories in Chinese morphology, including various kinds of compounds and the category called bound roots in the literature (Packard 2000). On a more general level, reduplication in TXC provides strong evidence for the hypothesis that content words are made up of an acategory root merged with a designated categorizer. This hypothesis is widely but not universally assumed within generative morphosyntax (see Borer 2014 for a rebuttal), and is even more controversial in more traditional morphological theory.

An important premise is that the reduplication, although it obviously has a phonological effect, is not a phonological operation in the sense of being motivated by phonological conditions and relying on phonological primitives, but is a morphological/morphosyntactic operation. It is not, for example, motivated by conditions on the size of minimal words in TXC (McCarthy and Prince 1990; Hall 1999). For one thing, it concerns specifically nouns, a morphosyntactic, not phonological, category. Verbs and adjectives are not usually reduplicated in TXC, and if they are, it has a semantic effect, denoting repetition or intensification, among other effects. We will demonstrate that the properties and distribution of the reduplication can be predicted under a morphosyntactic approach, but not under a phonological approach.

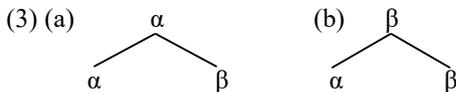
2. Roots and Categorizers: The Structure of Nouns

2.1 Merge, Labelling, and the Structure and Linear Form of Words

We assume that words are composed by the same rule as phrases, that is Merge in the sense of Chomsky (1995, 243) and subsequent work within the Minimalist program:

- (2) Merge α and β to form a set $\{\alpha, \beta\}$ with a label γ , where γ is = either α or β , depending on which one is the head.

Following standard practice we represent the set as a tree. The two trees formed by α and β are (3a, b):



That α and β make up a set, rather than a pair, means that they are not linearly ordered by Merge. Linearization is determined by a phonological rule taking a labelled set as input, so labelling of the set formed by Merge is crucial not only for its interpretation but also its linear order. The rule that is followed in TXC is the same as in English and Mandarin, a version of the Righthand Head Rule of Williams (1981):

- (4) A set $\{\alpha, \beta\}$ where α is the head projecting a word is linearized as $\beta > \alpha$.

Following much work in generative morphosyntax, we assume that common nouns are made up of a root merged with a nominalizer (Josefsson 1997, 1998; Marantz 1997; Harley and Noyer 1999; Embick and Noyer 2007, 2008; Harley 2011; de Belder 2011; Hu and Perry 2017). For a set made up of a root and a nominalizer, the nominalizer will invariably be the head, because the root, by hypothesis, has no categorial or other syntactic features, and thus cannot label the set. It follows that nominalizing affixes in TXC, Mandarin, and English are suffixes.

In derived words, such as, in English, *likeable*, *greatness*, *obesity*, etc., the suffix *-able*, *-ness*, *-ity* is the head, determining the category of the word. The linear order follows from (4). Their status as heads follows directly if the other member of the set is a root.

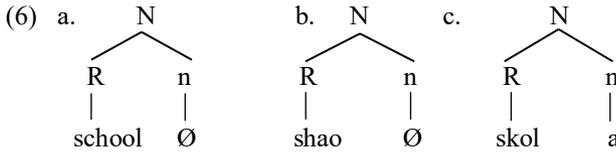
What about compounds? In a compound such as *wallpaper*, *paper* is the head, determining the interpretation of the compound as denoting a kind of paper, while (4) determines the linear order *wall* > *paper*. We propose that there are essentially two ways that a set $\{\alpha, \beta\}$ making up a compound can be labelled: One of the members, say α , is a word, hence has syntactic category, and β is either a root, in which case it cannot be head, or is a word marked as non-head. Overt marking of a non-head is seen in English compounds such as *men's room* and *bird's nest*. We assume, following Mukai (2008, 2017), that the marking can be, and often is, covert, cross-linguistically. Overt indication that the non-head member of a compound is a root is seen in Swedish compounds such as in (5):

- (5) skol- flicka, skol- väska, flick- skola, väsk- ryckare,
 school girl school bag girl school bag snatcher
 (Swedish)

The nouns *skola* “school”, *flicka* “girl”, *väska* “bag”, all belonging to the so called 1st declension, are made up of a root (*skol-*, *flick-*, *väsk-*) and an overt nominalizer *-a* (also encoding singular number) (Kiefer 1970; Holmberg 1992; Josefsson 1997, 1998). The non-head of the compounds is the root, while the head is a word itself made up of a root and a nominalizer (*skola*, *flicka*, *väska*). (4) determines the linear order as root > word.

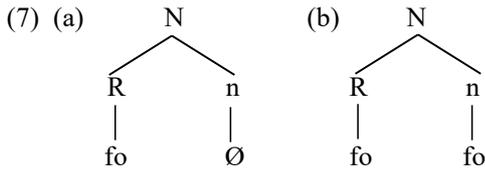
As predicted, the root form of these nouns also shows up in derived words, such as *skol-ning* “schooling” and *flick-aktig* “girlish”, here merged with a derivational suffix functioning as head, determining the syntactic category of the resulting word.

Concluding, the structure of a simple common noun in English is (6a), the structure of a Mandarin common noun in (6b), and the structure of a Swedish common noun of the 1st declension is (6c).



2.2 The Structure of Common Nouns in Traditional Xining Chinese

Free common nouns in TXC are always reduplicated; see (1). As in other languages, a common noun in TXC is made up of a root and a nominalizer. The nominalizer is initially null. However, we propose that the null nominalizer in TXC has the characteristic property of copying the phonological features of the sister root, deriving a reduplicated noun. This is a morphological, post-syntactic rule with no effect on LF/meaning and involving phonological features, but applying to a word-syntactic representation. Before reduplication, the structure of the noun “spoon” is (7a), and after, it is (7b).



To be more precise, we propose that there is a condition on word structure which may be universal, or else holds for a class of languages including the languages mentioned so far: English, Swedish, Mandarin and TXC, which is (8); we will refer to it as the two-constituent condition.

(8) A content word is made up of minimally two constituents.

A special case of a minimal word is content words consisting of a root and a categorizer. As we shall see in Section 4, there are content words which do not consist of a root and a categorizer, but satisfy the two-constituent condition in other ways.

TXC has a special version of the two-constituent condition applying to nouns.

(9) TXC: A noun is made up of at least two pronounced constituents.

This condition is what motivates the reduplication in nouns which do not satisfy the two-constituent condition in other ways. A null nominalizer is ruled out as it would lead to a violation of (9).

The two-constituent condition applies to content words only. There is little reason to think that function words (complementizers, tense and aspect particles, articles, classifiers, etc.) consist of two constituents. As we will demonstrate in Section 3.1, for instance nominal suffixes do not undergo reduplication in TXC. Proper names also do not consist of a root and a nominalizer, and are not generally reduplicated (although they can be, especially as pet names).³ The structure of pronouns is a controversial issue (cf. Cardinaletti and Starke 2000; Déchaine and Wiltschko 2002), which we will not discuss here, except to note that the fact that they cannot be reduplicated in TXC follows if they are not made up by a root and a nominalizer.

3. Predictions

We have proposed that reduplicated nouns in TXC consist of a root and a null categorizer, and that the reduplication is a procedure where the null categorizer copies the phonological features of its single sister root. Based on this, a set of predictions are made concerning reduplication in TXC affixed nouns and attributive compound nouns, which will all be seen to be true.

3.1 Head Affixes

There are suffixes in TXC which are used to form nouns.

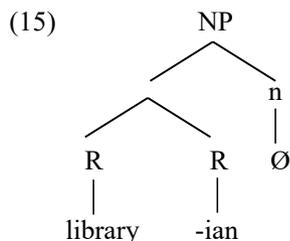
- | | | | | | |
|----------|-------------------|---------------|-----|-------------|--------------|
| (10) (a) | <i>xiong</i> | - <i>bong</i> | (b) | <i>rou</i> | - <i>dan</i> |
| | countryside | -person | | meat | -person |
| | “country bumpkin” | | | “blockhead” | |

The suffixes *-bong* and *-dan* have the meaning “person who is associated with X”, where X is the entity that is denoted by the item the suffix is merged with, similar to that of the English suffix *-er* in *teenager*, *foreigner* or *-y* in *fatty*. Both suffixes have pejorative connotation. (10a) denotes a kind of person, so categorial and semantic features of the suffix *-bong* project to the word *xiong-bong* which dominates the suffix *-bong*. Hence the suffix is the head in (10a). Same in (10b), which denotes a kind of person, not a kind of meat, so the semantic and presumably the categorial features of the suffix *-dan* project to the resultant word *rou-dan*. So the suffix *-dan* is the head in (10b).

This means that the object-denoting items *xiong* “countryside” and *rou* “meat” that the suffixes in (10a) and (10b) are merged with are the non-head elements. Their status as non-heads is ensured if they are roots, not words, comparable to the roots in the Swedish derived nouns. As roots they have no categorial feature to project, and are hence by necessity non-heads. The structure of, for example, (10b) would be (11).

3 There is some evidence that proper names in Chinese conform to the two-constituent condition. This is clearly not the case in all languages. We leave this issue for future research.

example, argues that the English derived noun *librarian* has basically the structure (15) using our notation.



Under this view the interpretation of the word would not be compositionally derived – it could not be, as the [R,R] combination has no head—but would be acquired directly from the Encyclopedia. This would always be the case where two roots are merged to form a word (see also Zhang 2007; Bauke 2014, chap. 2; Hu and Perry 2017).

In Section 5 we will argue that there are words in Mandarin and TXC that have this structure, including various kinds of non-compositional compounds. However, we do not adopt this analysis for words formed by the suffixes *-bong* and *-dan*. Classifying them as roots would require assuming that there is a special subcategory of roots which have a selection feature, selecting to merge with a root, and a linearization feature: they are always spelled out following their sister. We maintain that roots have no features other than semantic ones. But the derivational suffixes *-bong* and *-dan* have syntactic features: they are nominal and select a root. Being heads, they follow their sister: they are suffixes.

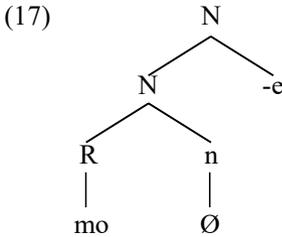
3.2 Non-Head Affixes

There are some suffixes in TXC which do not have effect on the category or the meaning of the resultant word:

- (16) (a) mo -e
 cat -E
 “cat”
- (b) za -zi
 powder -ZI
 “powder”

The suffix appears to have no effect on either the semantics or the category of the word: *mo-e* is a noun which means “cat” and *za-zi* a noun which means “powder”. Alternative forms are the reduplicated forms *mo mo* “cat” and *za za* “powder”. This suggests that the suffixes are devoid of any syntactic features, including categorial features; they would have a phonological matrix and nothing else. If so, the other constituent in (16a, b), *mo* and *za*, must be a noun, providing a head for the word. It cannot be a bare

root, or the word would have no category. By hypothesis, this means that it is made up of a root and a null nominalizer. The structure of for example (16a) would be (17):



A prediction can be made based on this analysis of *mo* “cat” and *za* “powder” in (16a, b) and the procedure of reduplication in TXC nouns, which is that in the resultant affixed word, the item that the non-head suffix is merged with, can be reduplicated. This prediction is borne out:

- (18) (a) *mo mo -e*
 cat cat -E
 “cat”
- (b) *za za -zi*
 powder powder -ZI
 “powder”

Comparing (18) and (16), it can be seen that the reduplication is optional. This, we contend, is because condition (9) is satisfied already without reduplication, by the suffix. This means that the reduplication is not strictly a last resort operation. Where the conditions for the operation are met, that is where there is a root and sister null nominalizer, the reduplication may apply. If condition (9) is not otherwise met, the reduplication must apply.

We also have prefixes in TXC, which do not contribute to the category or the semantics of the resultant affixed word:

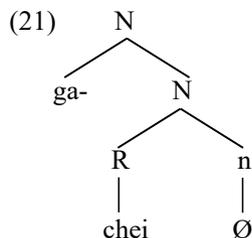
- (19) (a) *a- yi*
 A- grandfather
 “grandfather”
- (b) *ga- chei*
 GA- bike
 “bike”

The prefix *a-* only has phonological features. With or without the prefix, (19a) denotes grandfather, which can be understood if the semantic and categorial features of the item *yi* project to the resultant word *a-yi*. Hence the item *yi* “grandfather” is the head and the prefix *a-* is the non-head. Similarly in (19b), the prefix *ga-* is the non-head and *chei* “bike” is the head, as features of *chei* “bike” project to the resultant word *ga-chei* “bike”, while the prefix contributes nothing towards its interpretation. So *yi* “grandfather” and *chei* “bike” must be categories which are able to project. That is to say, they

cannot be roots but must be nouns. That means they are made up of a root and a null nominalizer. This predicts that they can be reduplicated. This prediction turns out to be accurate, as (19a, b) can have the following reduplicated forms:

- (20) (a) a- yi yi
 A- grandfather n
 “grandfather”
- (b) ga- chei chei
 GA- bike n
 “bike”

The structure of, for example (19b) would be as follows:



The null nominalizer may copy the phonological matrix of the root, optionally in this case, as condition (9) is satisfied anyway, by the prefix. In addition to derivational affixes, there is also an inflectional affix in TXC nouns:

- (22) dueng -men
 hole -PLURAL
 “holes”

The pluralizing suffix *-men* is a syntactic category which will only merge with another syntactic category, that is with a noun (or possibly more correctly, NP); Li (1999), Ueda and Haraguchi (2008). A root cannot merge with an inflectional suffix. If the sister of the plural suffix is a noun, it will consist of a root and a null nominalizer, which predicts that it may undergo reduplication. This prediction is right as the following example shows:

- (23) dueng dueng -men
 hole n -PLURAL
 “holes”

- (31) yi ba yi -zi
 a CL chair -ZI
 “a chair”

In the literature these items are called bound stems (Dai 1992, 40, 75–76) or bound roots (Sproat and Shih 1997; Packard 2000; Pirani 2008; see Wang [2018] for a review of the literature). In the present theory, we do not assume a level of stems, hence there are no bound stems, and it does not make sense to classify them as bound roots, as roots are, by hypothesis, devoid of categorial features, and are therefore necessarily bound. Instead, following Wang (2018) we call them bound words. They are content words, but unlike free content words, they are words with inherent word category. In other words, they are not a combination of a root and a categorizer but lack internal structure. Bound words are like functional heads in this regard.

There are similarities between the bound word and the root, in Mandarin and TXC. First of all, the bound word and the root both have lexical content. Further, neither of them can stand alone as a free content word in a phrase; both need to merge with another item to form a free content word. However, the bound word is crucially different from a root, in that a root can merge with an item which is not pronounced, i.e., a null categorizer, and together they can form a free content word. A bound word cannot do this. Following Wang (2018) we claim that this is because it has inherent category, it is a single morphological item with semantic features and a syntactic categorial feature, and thus merging with a null categorizer is excluded on the grounds of economy. However, following the proposed two-constituent condition (8) in Section 2.2, which says that a free content word minimally contains two constituents, a bound word has to merge with another constituent, to form a free word.

So bound words, unlike free content words, are not made up of a root merged with a categorizer. This makes a prediction: Since reduplication in TXC nouns is derived by copying the phonological matrix of a root onto a sister null nominalizer, bound words in TXC cannot be reduplicated. The prediction is true, as we will now show.

The following is a list of bound words in TXC:

- | | | | | |
|------------|---------------|-------------|----------|----------|
| (32) yi | ta | ti | can | gei |
| “clothing” | “inner shirt” | “drawer” | “shovel” | “armpit” |
| jieng | nong | zuen | ji | |
| “towel” | “dirty” | “beautiful” | “solid” | |

(33a) illustrates the fact that *can* “shovel” cannot be used alone as head of a phrase in TXC, but can be, if it is merged with another word or root in a compound, as in (33b), or if it is merged with an affix, as in (33c).

(33) (a) *qieng zi can
 light DE shovel
 Intended reading: “light shovel”

(b) qieng zi mu can
 light DE wood shovel

(c) qieng zi can -zi
 light DE shovel -ZI

Like its counterpart in Mandarin, the bound word in TXC is, by hypothesis, a single item with a categorial feature. In other words, the bound word is not composed of a root and a null categorizer, and does not have internal structure. (34) demonstrates that the reduplicated form of *can* (“shovel”) is ungrammatical as head of an NP.

(34) *qieng zi can can
 light DE shovel shovel
 Intended reading: “light shovel”

In fact, reduplication of the bound word is ungrammatical in any context. (35) shows that it is ungrammatical when the bound word is merged with a root, and thus functions as head of a word; recall from Section 3 that reduplication of the head of a compound noun is otherwise optional.

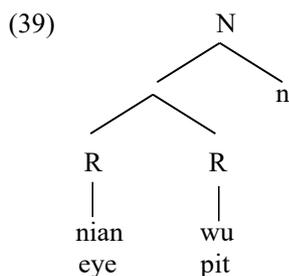
(35) *shou jieng jieng
 hand towel n

(36) shows that reduplication is also ungrammatical when the bound word is merged with an acategorial affix; recall that this is a context where reduplication is otherwise optional in TXC.⁴

(36) *jieng jieng -e
 towel towel -E

⁴ Please see Section 3.2 for the optional reduplication in affixed words in TXC. The fact that two bound words can merge and form a compound with compositional semantics has interesting theoretical consequences, not discussed here for reasons of space; see Wang (2018).

in (38b) it is the final constituent. Instead, they are best regarded as a subtype of coordinative compounds. Following Wang (2018) we propose that they are derived by root merger. The structure of, for example, (38a) is (39):



Two roots are merged, forming an unlabelled, acategorical unit, which is merged with a null nominalizer. The meaning is not derived compositionally, and the linear order is not derived by rule, but instead meaning and spelled-out form are both drawn directly from the Encyclopedia.

The prediction now is that the constituents in this type of compound cannot be reduplicated. The compound has a null nominalizer, but as it is not the sister of either of the roots, reduplication will not apply. The prediction is right.

- (40) (a) *nian nian wu
 (b) *nian wu wu

As free nouns, *nian* and *wu* have to be reduplicated, and when occurring as heads of compositional compounds they can be reduplicated, but as constituents in a non-compositional compound they cannot, as our theory would predict.⁵ The generalization holds true of non-compositional compounds in general in TXC: The constituents cannot be reduplicated, as predicted if they are derived by root merger.

6. Conclusions

In Traditional Xining Chinese (TXC) free nouns are always reduplicated. We claim that this is because (a) free content words consist of a root and a categorizer, (b) there is a condition on content words that they must contain at least two constituents, which

⁵ The constituents of non-compositional compounds can be bound words. As a bound word can label a phrase (in some contexts), this could be seen as possibly affecting the derivation. We leave this complication for future work. Reduplication is ruled out in any case, as bound words are never reduplicated.

may be a root and a categorizer, (c) TXC has a version of this condition which says that the two constituents, in the case of nouns, must be pronounced. If this condition is not already satisfied, as in the case of a compound or a root merged with an overt affix, the condition is satisfied by reduplication: the nominalizer copies the phonological matrix of the sister root. We have shown that this hypothesis makes the right predictions for all kinds of complex words in the language.

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Asymmetries in Plural Agreement in DPs

Leonardo M. Savoia^a, Benedetta Baldi^b, and M. Rita Manzini^c

University of Florence, Italy

^alsavoia@unifi.it; ^bbenedetta.baldi@unifi.it; ^cmariarita.manzini@unifi.it

Abstract: In some Friulian and Rhaeto-Romance varieties the inflection *-s* of the plural competes or interacts with the vocalic plural *-i*, and, in the feminine, with *-a*. In the North-Lombard varieties spoken in Switzerland (Soazza in the Mesolcina Valley) feminines select the plural inflection *-ŋ*. This article addresses the asymmetric occurrence of sigmatic and nasal plural inflections in the DP and in the sentence, interacting with the nominal class (gender) inflection *-a*. Furthermore, *-ŋ* inflection on clitics presents a complementary distribution with the verbal inflection. We argue: (i) that the asymmetries are restricted to the feminine *-a* because of the mass/plural properties of Romance *-a*; (ii) that the asymmetries between nouns and determiners or clitics depend on the referential properties of these elements, requiring a specialized inflection of plural; (iii) that the asymmetric distribution is phase-based, distinguishing phasal heads from their complement.

Keywords: nominal inflection; plural; morpho-syntactic asymmetries; agreement; phases

1. Background: Plural in Romance and Some Theoretical Points

Plural *-i*, *-e* in Italian and Romanian varieties (also *-a* in Italian) contrast with *-s* in Western Romance. The vocalic plural inflection is not totally eradicated but interacts with *-s* in Sardinian, Friulian, Rhaeto-Romance, Occitan and Franco-Provençal varieties spoken in peripheral areas of Italy. Moreover, in some North-Lombard varieties spoken in the Bregaglia Valley and in the Mesolcina Valley (Soazza) (Manzini and Savoia 2005, 2007), feminine selects the plural inflection *-ŋ*. From a diachronic point of view the compresence of *-i/-e* and *-s/-ŋ* is the result of an old continuum, competition and micro-variation between the two plural systems. The distribution of the vocalic plural

inflections is syntactically governed, in the sense that *-i* typically associates with D, i.e., with determiners and with subject and object clitics, including the dative. Also the nominal class (gender) inflection *-a* interacts with sygmatic and nasal plural inflections. As a consequence, different asymmetries emerge between D and N that can be connected to the referential properties of these categories. Two main theoretical points are involved: the structure of the noun and the nature and distribution of number inflection inside NP. A further point is the behaviour of *-η*, occurring in complementary distribution with the verbal inflection. Schematizing, we find the following asymmetries:

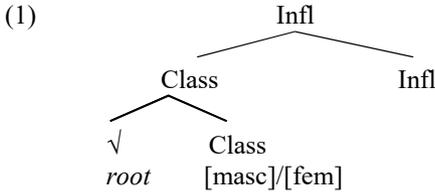
- between determiners and modifiers/nouns
- between *-s* and vocalic plurals
- between masculine and feminine plural inflections

There has been considerable theoretical interest, in the last decade or so, in the analysis of the noun inflectional morphology, for instance in familiar Indo-European languages (Halle and Marantz 1993; Halle and Vaux 1998 for a DM treatment of Latin), including our empirical focus here, i.e., Romance. The relevant categories we focus on encompass the traditional notions of gender, number and inflectional class. In keeping with Manzini and Savoia (2011, 2017a, b), Savoia, Manzini, Franco, and Baldi (2017), we assume a model of the internal morphological organization of the noun based on the idea that inflectional elements are bona fide lexical entries endowed with interpretive content. This theoretical point separates our approach to morphosyntax from DM and from other models in which exponents are inserted so as to correspond to clusters of features subject to be manipulated by rules. Along these lines, we assume that the innermost component of the noun is a root; following Marantz (1997), the root $\sqrt{\quad}$ is category-less. Next to the root, a vocalic morpheme encodes properties that, depending on the language, include gender and/or number and/or declension class. A third slot may be available, specialized for number (e.g., Spanish) or for case (e.g., Latin).

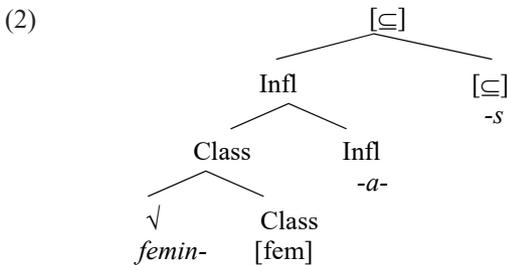
Our proposal is based on the idea that inflectional phenomena depend on the same basic computational mechanisms underlying syntax (Chomsky 2005), but moving away from traditional DM approaches. The category-less lexical root $\sqrt{\quad}$ in the internal structure of the noun is interpreted as a predicate (Higginbotham 1985). This merges with inflectional elements (gender, number, etc.), as suggested in (1) for Italian and Romance varieties, which are endowed with interpretive content restricting the properties associated to the argument *x* open at the predicate (Manzini and Savoia 2017a, b; Savoia, Baldi, and Manzini 2018). Class corresponds to gender.¹ We assign the inflectional morpheme to an

1 In Romance languages, some Class contents are determined directly by the root, as in the case of Italian *donn-a* “woman”, feminine, or *marit-o* “husband”, masculine. Some *root*, *Class* combinations have a compositional reading, as *gatt-o* “he-cat”, *gatt-a* “she-cat”.

Infl category, which merges with Class, including the root and its gender specification. Infl is discussed immediately below.



The standard DM treatment of inflectional class (Oltra-Massuet and Arregi 2005; Kramer 2015) has a Th(ematic vowel) node adjoined to Class/*n* post-syntactically. The content of Th are diacritics such as [I], [II], etc. for I, II inflectional class, etc. spelled out for instance as *-a*, *-o*, etc. in Spanish. We reject this treatment as it is based on a counter-cyclic operation and on the redundant stipulation of both inflectional classes and their corresponding vowels. Instead, we introduce an Infl node to host inflectional vowels selected by the underlying bases. In Italian and Italian type varieties the plural is obtained by a change of the inflection, i.e., by inserting *-i/-e/-a* inflections. In Spanish, Sardinian, and Rhaeto-Romance the specialized *-s* inflection combines with the Class inflection morpheme, *-a-* in (2) for Sardinian feminine nouns. The sigmatic plural belongs to an additional node, which is notated [\sqsubseteq] for reasons that we examine below.



Following the proposal of Manzini and Savoia (2011, 2017a, b), plural morphology is associated with the part-whole (or inclusion) property, i.e., [\sqsubseteq]. In other words, the content of the plural, [\sqsubseteq], is that the argument of the root can be partitioned into subsets of individuals. In some Rhaeto-Romance varieties *-s* competes with the *-i* inflection (Savoia, Baldi, and Manzini 2018) or combines with it, as in the case of Friulian in Section 2. We conclude that both *-s* and *-i* are associated to this content, although some slight semantic difference may be involved insofar as in Romance clitic systems *-i* lexicalizes also the dative. In any event, in *-i* plurals the [\sqsubseteq] content must be associated with the Class node. As to agreement, we keep the assumption that Chomsky's (2001) Agree also

applies within DPs. However all phi-feature sets are treated as interpretable. What impels Agree to apply is the necessity of creating equivalence classes of phi-feature bundles denoting a single referent (Manzini and Savoia 2005, 2007, 2011).

2. Friulian Plural Systems

The data in (3), from Montereale (Central Friuli), show that *-i* and *-s* can both combine and exclude one another according to the different gender classes (Savoia, Baldi, and Manzini 2018). In the feminine, *-i* occurs between the lexical base and *-s* in nouns, while it appears alone in determiners, as in (3b). (3a) illustrates the *-a* singular.

(3) *feminine*

(a) l-*a*/ kist-*a* (bjel-*a*) fēmin-*a* vɛtʃ-*a*
 the-FSG/ this-FSG fine-FSG woman-FSG old-FSG
 “the/this (fine) woman old”

(b) l-*i*/ kest-*i* fēmin-*i*-s (vɛtʃ-*i*-s)
 the-PL/ this-PL woman-PL-PL old-PL-PL
 “the/these women (old)”

In the masculine, we find the plural inflection *-s*, as in (4b, b’); *-i* characterizes a sub-set of nouns/adjectives, in (4c). Determiners, in (4b, c) present (*-i*) as the plural morpheme. The masculine singular is generally devoid of a specialized inflection, as in (4a), except for a subset of forms which introduce *-u*, like *vɛtʃ-u* “old”, *kist-u* “this”, as in (4a’, a”).

(4) *masculine*

(a) l ɔŋ/ al fɔr/ al kurtʃel
 the man/ the oven/ the knife

(a’) kel/kist-*u* ɔŋ
 that/this-MSG man
 “that/this man”

(a”) kel bjel ɔŋ vɛtʃ-*u*
 that fine man old-M
 “that fine man old”

(b) i/ ke-*i* bje-*i* ɔŋ-s (vɛtʃ-*u*-s)
 the.PL/ that-PL nice-PL man-PL old-M-PL
 “the/those nice (old) men”

(b') i fər-s
 the.PL oven-PL
 "the ovens"

(c) i kurtʃe-i
 the.PL knife-PL
 "the knives"

Plural clitics have the inflection (-)*i* both in the object (OCl) and subject (SCl) forms. In plural SCls, (-)*i* occurs in the 3rd person plural *i*, as in (5a); adjectives and participles agree in gender and number, as in (5a'). The masculine plural OCl is *i-u*, in (5b), and the feminine plural OCl is *l-i*, in (5b'). *-i-* is associated to the dative clitic as well, in (5c). Singular subject and object clitics are illustrated in (5d) and (5d') respectively.

(5) *clitics*

(a) l-i fəmin-i-s/ i oŋ-s i duar
 the-PL woman-PL-PL/ the.PL man-PL SCl.PL sleep.3PS
 "The women / the men sleep."

(a') i soŋ vijnu-s/ vijnud-i-s
 SCl.PL are come.(M)-PL/ come-PL-PL
 "They have come."

(b) i-u ai vjeɾ-s
 OCl.PL-M I.have open.(M)-PL
 "I have opened them (masculine)."

(b') l-i ai vjert-i-s
 OCl-PL I.have open-PL-PL
 "I have opened them (feminine)."

(c) a i-e da kist-u
 SCl to.him give.3PSG this-MSG
 "(S)he gives him this."

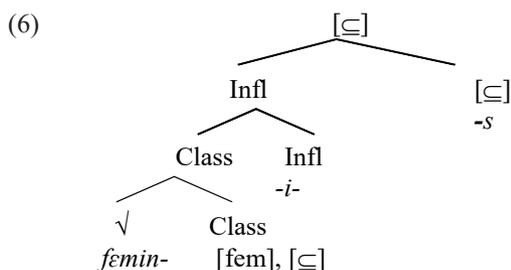
(d) a e vijnud-a/ al e vi'ŋu
 SCl.FSG is come-FSG / SCl.MSG come.MSG
 "She has come / he has come."

- (d') l-u ai vjert/ l-a ai vjert-a
 OCl-MSG I.have open.MSG/ OCl-FSG I.have open-FSG
 "I have opened it."

Montereale

On the basis of the preceding data, we may draw some generalizations:

- (-)i is the plural marker in determiners;
- (-)i characterizes clitics;
- -i- is the inflection of the feminine plural, inserted between the root and -s, so that the plural is reduplicated in feminine nouns, as in (6).



We associate -s with the specialized [⊆] plural node, whereas -i seems to encode a slightly different denotation, able to introduce also the possessor, as suggested by its occurrence in the dative clitic *i-e* in (5c).

2.1 Rhaeto-Romance Varieties

Plural inflections in the Rhaeto-Romance (Ladin) varieties of Cadore (Italy), here exemplified by Borca, show a specular pattern with respect to Friulian. In the literature (Chiocchetti 2003; Rasom 2006; Pomino 2012), the asymmetric distribution of -s has been understood as involving a less complete inflection on determiners or pre-nominal adjectives. Feminine -s occurs on nouns and post-nominal/predicative modifiers and not on determiners. (7) exemplifies the gender and number inflection of nouns in the context of articles. Feminines in (5a') systematically have -e-s. Masculines present different morphemes, associated with different lexical subsets, i.e., -e, -s, -i, as in (7b', c'). Therefore, -e(-) is a plural morpheme.

(7) *feminine*

- | | |
|--|--|
| <p>(a) l-a botf-a/ɔndʒ-a/rɔð-a the-F mouth-FSG/nail-FSG/wheel-FSG "the mouth/the nail/the wheel"</p> | <p>(a') l-a botf-e-s/ɔndʒ-e-s/rɔð-e-s the-F mouth/nail/wheel-(F)PL-PL "the mouths/the nail/the wheels"</p> |
|--|--|

masculine

- | | | | |
|---------------|-----------------|----------------------|-----------------------|
| (b) al | djɛd-o/jal | (b') i | djɛd-e/ ja-i |
| the.MSG | finger-MSG/cock | the.MPL | finger-(M)PL/cock-MPL |
| “finger/cock” | | “the fingers/ cocks” | |
| | | | |
| (c) al | fuo | (c') i | fuo-s/ fuog-e |
| the.MSG | fire | the.MPL | fire-PL/fire-(M)PL |
| “the fire” | | “the fires” | |

Borca di Cadore

(8) shows the distribution of the *-s* plural in more contexts including pre-nominal modifiers and post-nominal adjectives. More precisely, (8a', b', c') display the fact that *-e-s* morphology occurs on the last element of the NP, the noun in (8a', b') and the adjective in (8c'). The article, the pre-nominal modifiers and the nouns followed by an adjective have the *-a* inflection, as in the singular forms in (8a, b, c). In the masculine in (9b', b''), determiners systematically show the inflection *-i*.

(8) *feminine*

- | | | | | |
|-------------------------------|---------|----------------|---------|----------------|
| (a) l-a/ | kel-a/ | kel | autr-a | femen-a |
| the-F/ | that-F/ | that | other-F | woman-F |
| “the/that/that other woman” | | | | |
| | | | | |
| (a') l-a/ | kel-a/ | kel | autr-a | femen-e-s |
| the-F/ | that-F/ | that | other-F | woman-(F)PL-PL |
| “the/those/those other women” | | | | |
| | | | | |
| (b) kel-a | bɛl-a | femen-a | | |
| that-F | fine-F | woman-F | | |
| “that fine woman” | | | | |
| | | | | |
| (b') kel-a | bɛl-a | femen-e-s | | |
| that-F | fine-F | woman-(F)PL-PL | | |
| “those fine-PL women” | | | | |
| | | | | |
| (c) kel-a | femen-a | bra-a | | |
| that-F | woman-F | good-F | | |
| “that good woman” | | | | |

(c') kel-a femen-a vetf-e-s
 that-F woman-F old-PL-PL
 “those old women”

(9) *masculine*

(a) kel (autr-o)/ (ke)st-o libr-o/tfaŋ
 that other-MSG/ this-MSG book-MSG/dog
 “that (other) / this book/dog”

(b') k-i/kist-i bje-i libr-e/ tʃe-i
 that/this-MPL nice-MPL book-(M)PL/dog-MPL
 “those/these nice books/dogs”

(b'') k-i tʃe-i vetf-e
 that-MPL dog-MPL old-PL
 “those old dogs”

Borca di Cadore

(10a, b) illustrate plural exponents in subject and object clitics; (9c) illustrates the dative clitic and (10d) participles and predicative adjectives.

(10) *clitics*

(a) i i / (e)l-e-s l-e-s ðorm-e
 they.MPL SCI.MPL / they-FPL-PL SCI-FPL-PL sleep.3P
 “They sleep.”

(b) l-a l/ l-a/ i/ l-e-s veð-e
 SCI.FSG OCI.MSG/ OCI-FSG/ OCI.MPL/ OCI- (F)PL-PL see-3PS
 “She sees him/her/them (masculine/feminine).”

(c) i ða-o kest-o
 OblCl.DATIVE give-1PSG this.MSG
 “I give this to him/her/them.”

(d) al l-e-z a veðuð-e-s strak-e-s
 SCI.MSG OCI-FPL-PL have.3PS seen-(F)PL-PL tired-FPL-PL
 “He has seen them tired.”

Borca di Cadore

In short, we observe that:

- plural *-s* characterizes feminine nouns/adjectives (7a') and a sub-set of masculine nouns (7b', c');
- in the feminine, the *-a* inflection occurs in pre-nominal modifiers and possibly in pre-adjectival nouns; plural *-s* is lexicalized on nouns or on post-nominal/predicative adjectives (8a', c'), (9d);
- in masculines, plurality is realized by *-e*, *-s* or *-i*, on pre-nominal modifiers, nouns and post-nominal adjectives, (9b', b'');
- (-) *i* lexicalizes the masculine plural in articles, in other modifiers and in clitics in (10a, b); in addition, it lexicalizes the dative clitic, in (10c).

The following asymmetries emerge in Ladin:

- i. between feminine and masculine, whereby only feminines constrain the distribution of the plural inflection to certain positions in the DP;
- ii. in the feminine, between left and right positions in the DP.

The asymmetry in (i) is unexpected if we consider related phenomena in Ibero-Romance *-s* plurals (Bonet, Lloret, and Mascaró 2015), which only present the left-right asymmetry. The asymmetry in (ii) is the mirror image of that normally found in Italian varieties, whereby definite/deictic elements require a (richer) plural morphology. Generally, the latter distribution is imputed to the role determiners play in the referential anchoring of arguments (Manzini and Savoia 2018; cf. Costa and Figueiredo [2002] on Brazilian Portuguese; Baier 2015). Under (ii), in the Ladin sigmatic plural, [_□ s] merges with [[_□ femēn] [fem, □]_{Class}] *-e* [_{Inf}] giving rise to *femen-e-s*. The question is why *-a* is inserted on determiners. Two possibilities are immediately available, i.e., *-a* is a default solution or *-a* is an appropriate lexicalization of plural. We return to this question in Section 3.

3. The *a*-Plural and Distributional Restrictions

The asymmetry between the inflectional properties of determiners and nominal modifiers/ adjectives and those of nouns has been brought out in the literature. Different types of split emerge. Costa and Figueiredo (2002) describe Brazilian Portuguese varieties, in which plural inflection *-s* only occurs on the determiners of prenominal adjectives, as in *O-s/est-es/algun-s/un-s livr-o muit-o bonit-o* ‘The/these/some book very nice’. They adopt a distinction between dissociated and singleton morphemes, in the spirit of the DM treatment of Embick and Noyer (2001), whereby the plural in Brazilian Portuguese corresponds to a specialized interpretable morpheme (singleton), which combines only with the ‘‘element anchoring the information concerning number’’, namely determiners. In Cadore varieties, on the contrary, (feminine) determiners may lack the specialized

plural inflection. The distribution in which pronominal determiners and adjectives lack (a set of) agreement properties, as in Cadore varieties in (7)–(10), is discussed in Bonet, Lloret, and Mascaró (2015). Their idea is that pre-nominal agreement is due to a “family of constraints” enforcing or not general agreement at PF; on the contrary, post-nominal agreement is syntactic in nature and triggered by Spec-Head agreement (see also Cinque 2009).

The hypothesis that different manifestations of agreement could be referred to different syntactic operations, or to different components of grammar, is pursued by several authors. In particular, various approaches deal with noun-modifier agreement (concord) as a process applying in the morphological component, separating it from subject-verb agreement mechanism (Baier 2015). A mechanism based on the split between different types of features, specifically marked vs. unmarked, is pursued in Pomino (2012) in accounting for the lack of number inflection in Italian dialects. Our data call into question the proposals that try to explain the asymmetries between determiners/pre-nominal modifiers and nouns as involving the realization of plural inflection or the lack of it. In these approaches, number is treated as substantially accessory with respect to person and other referential properties. We put forward a different idea, assuming that what we see are different types of plural inflection, possibly endowed with different interpretive characterizations, which are inserted in different morpho-syntactic contexts.

The fact that the clearly plural morphologies *-s*, *-e* and *(-i)* occur not only complementarily but also in combination, excludes the notion of dissociated morpheme as an explanation for partial distributions of any of them. The occurrence of *-i* in sigmatic systems like Friulian singles out Ds as opposed to Ns—but this has nothing to do with the issue of singletons since plural is expressed (by varying means) throughout the DP. Rather, under some type of morpho-syntactic split, definiteness and deictic elements are endowed with specialized morphology, given the role they play in the identification of arguments. Generally, the occurrence of specialized plural elements is associated with the head of the DP phase, i.e., determiners and possibly other nominal modifiers.

In this perspective, we propose that the *-a* forms of feminine plural DPs are not reduced or default forms. Rather, *-a* is able to lexicalize plurality. More precisely, *-a* is selected in DPs by virtue of its interpretive content, that in a number of North Italian varieties, allows it to lexicalize plurality in the feminine class, e.g., in Viano (North Tuscany) in (11) and Bormio (North Lombardy) in (12) (Rohlf's [1949] 1968; Manzini and Savoia 2018, 2019). The same element is involved in the *-a* plurals of Italian and other Italian varieties (e.g., *uov-a* “eggs”; Acquaviva 2008; Manzini and Savoia 2017b; Savoia, Baldi, and Manzini 2018). Viano's (11a), (11c) and (11d) illustrate the distribution of *-a* as the only inflection of the feminine in all morpho-syntactic domains, including the two interpretations of singular and plural. The masculine plural is lexicalized by the specialized inflection *-i* in nouns, determiners and subject and object clitics, in (11b, c', d').

(11) (a) l-a/ kođ altr-a dōnn-a
 the-F/ that other-F woman-F
 “the/that/those other woman/women”

(b) əl gatt-o/ i gatt-i
 the.MSG cat-MSG/ the.MPL cat-MPL
 “the cat / the cats”

(c) l-a dōrmə/ dōrmə-nə
 SCl-F sleep.3PSG/ sleep-3PPL
 “She sleeps/they sleep.”

(c') i dōrmə/ dōrmə-nə
 SCl-M sleep.3PSG/ sleep-3PPL
 “He sleeps/they sleep.”

(d) a l-a veđə
 SCl OCl-F see.1PSG
 “I see her/them.”

(d') a l/ i veđə
 SCl OCl-MSG/ MPL see.1PSG
 “I see him/them.”

Viano

In the variety of Bormio, the *-a* plural is limited to nouns, whereas determiners, pronominal modifiers and clitics have *-i*, in (12a', b', e', f) in the feminine on a par with plural masculines, in (12c', d', e', f). Note that *-a* is the inflection of the 3rd person object clitic both in feminine and masculine, in (12e), as in many Lombard dialects (Manzini and Savoia 2005).

(12) (a) l-a femēn-a
 the-F woman-F
 “the woman”

(a') l-i femēn-a
 the-PL woman-F
 “the women”

(b) kwel-a bel-a femēn-a
 that-F nice-F woman-F
 “that fine woman”

(b') kwel-i bel-i femēn-a
 that-PL nice-F women-F
 “those fine women”

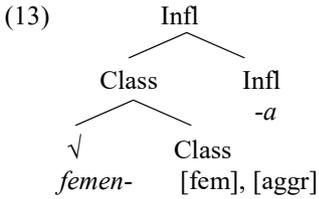
- | | |
|---|---|
| <p>(c) l omen / al gat the man / the.MSG cat “the man / the cat”</p> | <p>(c’) i omen/gat the.PL man/cat “the men / the cats”</p> |
| <p>(d) kwe-l bəl omen that nice man “that nice man”</p> | <p>(d’) kw-i be-i omen that-PL nice-PL men “those nice men”</p> |
| <p>(e) al/l-a dɔrm SCL.3MSG/-FSG sleep.3PSG “he/she sleeps.”</p> | <p>(e’) i/l-i dɔrm-ən SCL.3MPL/-PL sleep-3PPL “they sleep”</p> |
| <p>(f) al l-a/ i-a tʃam-a SCL.3MSG OCl-SG/ OCl-PL call-3PSG “he calls him/her/them”</p> | |

Bormio

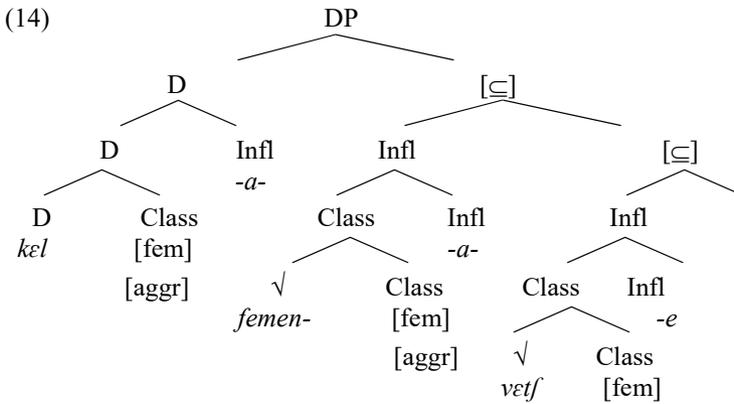
The data in (11) and (12) provide crucial evidence concerning the nature of *-a*:

- *-a* is able to lexicalize the plural on its own, as in (11) for Viano, where it embraces both singular and plural interpretation in all contexts;
- in (12) for Bormio, *-a* occurs in the plural of nouns in combination with *-i* in D and pre-nominal modifiers. In other words, this distribution is compatible with that of the plural specialized inflection in other varieties;
- in both languages we conclude that the interpretive value of *-a* implies a possible reference to (sub)sets of individuals.

These facts, on the one hand, support the idea that *-a* is able to encode a (type of) plural reading. On the other, they suggest that the *-a* inflection in determiners of the variety of Borca in (7)–(10) is a morpheme endowed with specialized content suitable for expressing the plural properties of D. We characterize this content as [aggregate]. The notion of *aggregate* is used by Chierchia (2010) to characterize the common core of mass and plural denotation. Manzini and Savoia (2017a, b, 2018), Savoia, Baldi, and Manzini (2018) have recourse to the [aggr(egate)] class in differentiating the *-a* plural from the *-i* plural, for instance in standard Italian. In (13) we extend this to Borca. Thus *-a* on determiners has both gender [fem] and number [aggr] content.



As we have seen, the exponent *-s* has a denotational value of subset divisibility, notated $[\subseteq]$, present on the elements occurring on the right-hand side of DP, as illustrated in (14) for *Borca*. *-s* introduces a plural interpretation that encompasses also masculines.



In the structure above, the vocalic inflection combining with *-s* is not the specialized *-a*, but *-e*. Under present assumptions *-e-s* is not denotationally stronger than *-a*. We further assume that set-divisibility $[\subseteq]$ is a specialization of $[\text{aggr}]$ so that the two are compatible under Agree. Thus all determiners/modifiers select *-a* as positively specified for a plural (compatible) denotation, and not as a default type agreement. We suggest that D vs NP distribution corresponds to the basic distinction between head and complement of the DP phase—a point to which we return more in detail in Section 5. Ladin also has the property that pre-adjectival nouns behave like pre-nominal adjectives in presenting the *-a* inflection (though they need not). In other words, they seem to restrict the referents which the adjective in final position individuates, like prenominal adjectives restrict the noun. The matter will not be discussed further in the present work.

4. The *-η* Feminine Plural in the Soazza Variety

The North-Lombard variety of Soazza (Switzerland, cf. Manzini and Savoia 2005, 2007; Sganzi 1933; Rohlf 1968 [1949]) shows an asymmetric distribution of plural feminine *-η*. This morpheme appears on nouns and pre- and post-nominal modifiers except

articles, in (15a')–(16a'). Masculines realize plurality on articles, and some sub-sets of masculine nouns present the specialized morphology *-i* or *-ŋ*, as illustrated in (15c'), (16b').

(15) *feminine*

- | | |
|---|--|
| (a) l-a ʃkabel-a the-F chair-F “the chair” | (a') l-a ʃkabel-əŋ the-F chair-FPL “the chairs” |
|---|--|

masculine

- | | |
|---|---|
| (b) eɪ di:t the.M finger “the finger” | (b') i di:t the.MPL finger “the fingers” |
| (c) eɪ mar'tel the.M hammer “the hammer” | (c') i mar'te-i the.MPL hammer-MPL “the hammers” |

(16) *feminine*

- | | |
|---|--|
| (a) kwel-a ʃkabel-a/mat-a that-F chair-F/ girl-F “that chair/girl” | (a') kwel-əŋ ʃkabel-əŋ/ma't-a-ŋ that- FPL chair- FPL/girl- FPL “those chairs/girls” |
|---|--|

masculine

- | | |
|---|---|
| (b) kwel ɔm/mat/di:t that.M man/boy/finger “that man/boy/finger” | (b') kw-i ɔm-əŋ/ma'to-ŋ/ di:t that-MPL man-PL/boy-PL/finger “those men/boys/fingers” |
|---|---|

Soazza

Feminine subject and object clitics exclude *-ŋ* and realize the form *l-a* for singular and plural, (17)–(18). In clitic contexts, *-ŋ* is added to the inflected verb, in (17b, b', c', d). Ambiguous readings are triggered when 3rd person feminine SCL and OCL combine, as in (17d). Note that *-ŋ* behaves like an enclitic adding to the personal inflection; for instance, it combines with the ending *-i* of the 1st sg in (17e).

- (17) (a) əɪ/ l-a dɔrm
SCL.MSG/ SCL-F sleeps.3PS
“(S)he sleeps.”

- (a') l a dor'mi:t
 SCl.3P has slept
 "(S)he has slept."
- (b) i dɔrm/ l-a dɔrm-əŋ
 SClMPL sleep/ SCl-F sleep-PL
 "They sleep."
- (b') i a dor'mit/ l a-ŋ dor'mit
 SCl.MPL have.3P slept/ SCl have-3PL slept
 "They have slept."
- (c) tu l/ l-a/ i ve:t
 SCl.2PS OCl.M/ OCl-F/ OCl.M see.2PS
 "You see him/her/them."
- (c') tu l-a ved- əŋ
 SCl OCl-F see- 3FPL
 "You see them."
- (d) l-a l-a tʃam-əŋ
 SCl-F OCl-F call-3FPL
 "She calls them / they call her."
- (e) l-a tʃam-i-əŋ
 OCl-F call-1PSG-FPL
 "I call them."

Soazza

In (18a) the presence of a plural lexical subject forces agreement with *-ŋ*; in (18b) the agreement with the plural participle may imply a plural OCl, although the reading with a plural SCl is available.

- (18) (a) kwel-əŋ ma'ta-ŋ l-a l-a lav- əŋ
 that-FPL girl-FPL SCl-F OCl-F wash- 3FPL
 "Those girls wash her/them."
- (b) l-a l a-ŋ tʃamad-əŋ
 SCl-F OCl.F have-3FPL called-3FPL
 "She/they has/have called them (feminine)."

- (c) i a-ŋ tʃa'ma-i
 OCl.MPL have-3PPL called-MPL
 “They have called them.”

Soazza

Finally, *-ŋ* combines with post-verbal *l-* in imperatives, in (19).

- (19) tʃama l-əŋ *imperative*
 call them.FPL
 “Call them!”

In short, 3rd person referential elements, i.e., articles and clitics, exclude the feminine plural inflection *-ŋ*. These elements, endowed with referential properties/definiteness, the *-a* inflection is required for the plural. At an abstract enough level, in Soazza variety the distribution of *-ŋ* follows a similar pattern to that investigated for Friulian in Section 2 and for the Cadore varieties in Section 2.1, showing an asymmetry between the plural inflection on D and the one on N. The plural *-ŋ*, that we represent as the part-whole relation [\subseteq], therefore like *-s*, is introduced by the elements inside NP and, in the sentence, by the inflected verb, in (20). In this instance an ambiguous reading emerges, since the plural inflection of the verb is referred to a *l-a* clitic which could be either the subject or the object.

- (20)
-
- ```

graph TD
 IP1[IP] --- D1[D]
 IP1 --- IP2[IP]
 D1 --- D2[D]
 D1 --- Infl[Infl]
 D2 --- D3[D]
 D2 --- fem["[fem]"]
 D3 --- l[l]
 Infl --- a["-a_{x/y}"]
 IP2 --- I[I]
 IP2 --- vP[vP]
 I --- ved["ved_{x,y}"]
 I --- sub["[⊆]"]
 sub --- en["-əŋ_{x/y}"]

```

The behaviour of plural agreement in the Soazza dialect is discussed by Nevins (2011, 8–9). He assumes that the ability of number to extend ambiguously to object or subject descends from the underspecified status of singular, whereby “unmarked values of number, e.g., [-singular], are never syntactically active and never referred to in the syntax”. By contrast, “person features are always fully specified on syntactic arguments”, thus excluding generalization processes.

We construe the facts differently. Beginning with the examples concerning DPs, we take it that referential D elements require the *-a* plural, preventing them from combining with *-ŋ*. In sentential contexts, *-ŋ* combines with the verb; thus the same property [ $\subseteq$ ] is introduced in nouns and in verbs by the morpheme *-ŋ*. It remains to be explained how the *-ŋ* inflection of the finite verb may be referred to the object clitic. We will come back to this in Section 5.

## 5. A Syntactic Sketch

As suggested at the end of Section 3, the occurrence of plural inflection may be connected with the phase domains (Chomsky 2001, 2005, 2013). We assume that the internal structure of the phase is universally defined and that the head and the complement of the phase are independently individuated by the Phase Impenetrability Condition. According to Manzini and Savoia (2018), Manzini, Baldi, and Savoia (2018), the head-complement articulation of phases provides us with a syntactic characterization of the different distributions of agreement morphemes. What may be observed is the following generalization.

**(Micro)variation:** When the phase is externalized, a given referential property P can be differently realized on the head of the phase vs the complement of the phase. Logical possibilities include: non-realization on head, non-realization on complement and different realization. All logical possibilities are instantiated.

On the basis of the preceding generalization, we are in a position to schematize the occurrence of plural inflections in the different varieties we have investigated. What we are especially interested in is whether traces of the phasal organization may be visible in the vP and CP phases. Indeed, Manzini and Savoia (2019) and Savoia, Baldi and Manzini (2018) find phasal organization in the externalization of clitic-verb clusters in vP and CP, in another Lombard variety with nasal plurals, namely Casaccia.

In Friulian (Montereale), the head of DP phase, i.e., determiners D and possibly other nominal modifiers, and the NP complement of the phase are distinguished in that they are associated with different plural elements, as in (21). In the sentential domain, clitics display *-i* alone, like determiners, while participles externalize *-s* like nouns (though a subset of adjectives has *-i*). Therefore, in each phase *-i* is associated with referential/argumental content, namely with D in DP, with OCl in vP and with SCl in CP. Nouns and participles systematically include *-s*.

(21) Montereale

|               |     |            |        |
|---------------|-----|------------|--------|
| (a) DP phase: | D   | A          | N      |
|               | -i  | i-(s)      | (-i)-s |
| (b) vP phase: | OCl | Participle |        |
|               | -i  | (-i)-s     |        |
| (c) CP phase: | SCl | I          |        |
|               | i   | ...        |        |

A different picture is presented by Cadore varieties (Borca), in (22). In the vP phase, object clitics lexicalize the plural specifications by means of the exponents *(-)i* or *-s*, according

to gender. In the masculine, the *-i* lexicalization obviously characterizes the D head of the DP phase, suggesting a pattern of lexicalization not dissimilar from that of Friulian where the same morphology privileges the categorial content D. At the same time, the feminine returns a different picture, since OCl and SCl are associated with the plural morphology which in DPs excludes D. From (22) we conclude that the distribution of *-i* is best understood as targeting D material. The distribution of feminine plurals suggests that only the DP phase registers the contrast between referential and lexical content elements, reserving the *-a* specialized inflection to D.

(22) Borca

|               |               |                        |                               |
|---------------|---------------|------------------------|-------------------------------|
| (a) DP phase: | D             | A                      | N                             |
|               | $-i_M / -a_F$ | $-e-s_F / -a_F / -e_M$ | $-e-s_F / -a_F / -e_M / -i_M$ |
| (b) vP phase: |               | OCl                    | Participle                    |
|               |               | $-i_M / -e-s_F$        | $-i_M / -e-s_F$               |
| (c) CP phase: |               | SCl                    | I                             |
|               |               | $-i_M / -e-s_F$        |                               |

In Soazza, feminine plural *-η* is excluded from D, SCl and OCl; thus, as in Cadore varieties, we find a language where *-a* is the inflection of plural selected by referential elements, strengthening its connection with rich referential content. Similar to (21)–(22), the masculine plural *-i* contrasts with the distribution of feminine inflections, insofar as it is usually associated to the referential D elements. What is more relevant for present purposes is that the distribution of plural feminine *-η* for Soazza in (23), differently from the others considered, involves I in the CP phase. DP-phase contexts externalize *-η* on the lexical complement NP of the phase head. In the CP phase, the plural *-η* is introduced on the inflected verb in I and may interpretively be associated with the external or the internal argument. Not dissimilarly, in the vP phase *-η* occurs on the participle, and interpretively connected to the internal argument.

(23) Soazza

|               |               |             |             |      |
|---------------|---------------|-------------|-------------|------|
| (a) DP phase: | D/Q           | Adj         | N           | Adj  |
|               | $-a_F / -i_M$ | $-η / (-i)$ | $-η / (-i)$ | $-η$ |
| (b) vP phase: | OCl           | Participle  |             |      |
|               | $-a / -i_M$   | $-η / -i$   |             |      |
| (c) CP phase: | SCl           | I           |             |      |
|               | $-a / -i_M$   | $-η$        |             |      |

Given the discussion that precedes, evidently the plural specification *-ŋ* is externalized on the phase complement in DP, i.e., on NP, to the exclusion of D. On the other hand, if we take the participle and the finite verb to be exponents of the *v* and *I* head of the *vP* and *CP* phases (the latter by inheritance from *C*), then the generalization does not extend to the *vP* and *CP* phases. The generalization holds that in a phase only one element bears the plural inflection associated with the specialized [*I*] node. A stronger thesis would be that plural is in fact associated with the phase head in *vP* and *CP*, mirroring what happens in the DP. An argument in favour of this are the imperative data in (19) where the *-ŋ* morphology is in fact attached to the enclitic. One way to understand the data is that once the verb positions in *C* the clitic stranded in *I* acts as the agreement head of the phase.

Finally, recall that we still lack an account why a sentence like (20) is ambiguous between object and subject agreement. The general idea is that each phase contains a single exponent for plurality, and that this is uniqueness is dictated by association with the phase head. This means that no pluralizable clitic (i.e., 3rd person accusative) can bear plural morphology, which is instead associated with the finite verb. As is often found in parametrization, the externalization solution is essentially idiosyncratic, but against an invariant basis for it in the computational component.

## 6. Concluding Remarks

We argued that phase theory may predict the split between phasal heads and phasal complements, though not the coupling of each with one or another morphology. The need to satisfy other requirements may be involved:

- Referential elements select inflections endowed with specialized referential import, if available in the lexicon.
- This asymmetry especially concerns feminines.

The fact that *(-i)* can lexicalize the plural independently of gender distinctions means that its content, on a par with *-s*, is the part–whole relation [ $\sqsubseteq$ ]; in many varieties it also doubles the marker *-s*. In addition, *-i* lexicalizes the dative; in other words its [ $\sqsubseteq$ ] content translates into possessive inclusion (Manzini and Savoia 2011). The lexical content of the different plural inflections is tentatively specified in (24).

(24) plural in Romance

|                |                                               |
|----------------|-----------------------------------------------|
| <i>-s/-ŋ</i> : | [ $\sqsubseteq$ ] merged in [ $\sqsubseteq$ ] |
| <i>-i</i> :    | [ $\sqsubseteq$ ], merged in Class/Infl       |
| <i>-a</i> :    | [aggregate] merged in Class/Infl              |

In many Italo-Romance varieties, the feminine inflection seems to be associated with a richer referential content than the masculine, which in the singular lacks any

externalization. As far as we can tell, the opposite is not found, at least in Romance. This is possibly connected to the fact that *-a* turns out to be a number, as in (24), rather than a gender—and not to functional considerations such as the markedness of feminine.

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**Part III. Macro-syntax:  
Structure and Interpretation of Discourse  
Markers and Projections**



# Typology and Parameters: A Study of DP Ellipsis in Formosan Languages

Yi-ming Marc Chou

National Tsing Hua University, Hsinchu, Taiwan

woodman.chou@gmail.com

**Abstract:** This paper argues that DP ellipsis (DPE) in Formosan languages exhibits at least two patterns: voice-sensitive type as in Javanese (Sato 2015) and non-voice-sensitive type. Two Formosan languages, Amis and Atayal, are investigated to support this conclusion. Formosan languages are treated as discourse-oriented languages (Wei 2016). Moreover, their voice systems possess the characteristics of both accusative-languages and ergative-languages (i.e., a split-ergative pattern or a mixed-pattern) with respect to morphosyntactic alignment. Unfortunately, the comparison of DPE between actor voice (abbr. AV) and non-actor voice (abbr. NAV, including Passive, Locative and Instrumental/Benefactive) constructions is less discussed in the literature. Typologically, the results of this study suggest that not all languages—even those within the same language family—are sensitive to voice when undergoing DPE; for instance, Atayal DPE is of the voice-sensitive type, while Amis DPE is of the non-voice-sensitive type. We propose a feature-based analysis to account for within-language DPE restrictions on certain types of DPs. We find that the voice agreement between an argument and a predicate involves not only theta-features but also the co-occurrence of a [TOP] feature. Only the argument with a [TOP] feature can move to the topic position and check CP's [*u*TOP] feature. This explains why the external arguments of NAV constructions can undergo discourse binding in Amis but not in Atayal.

**Keywords:** ellipsis; voice agreement; formal features; discourse binding; Austronesian

## 1. Setting the Stage

This section outlines the characteristics of DPE in Formosan languages. Longer texts reveal that DPE is quite common in Formosan languages, especially in the actor-voice (AV) construction. For instance, the Nominative DPs of an AV construction can be deleted in our target languages, as shown in (1)–(2).

- (1) Amis (G.-C. Huang 2015, 438)<sup>1</sup>

ma-hrek *e* a mi-ngota toya nanom . . .  
 AV<sup>2</sup>-finish LK AV-muddy that water  
 “(The father)<sup>3</sup> muddied the spring water . . .”

- (2) Atayal (Adong 2016, 27)<sup>4</sup>

tehuk gbyan lga, s<m>xu ru m-ahuy lukus lozi *e*.  
 arrive night CS.TOP <AV>pound and wash AV-clothes also  
 “In the night, (my mother) even has to cook and to wash clothes.”

The Accusative DPs of an AV construction can also to be deleted, as shown in (3)–(4).

- (3) Amis (G.-C. Huang 2015, 443)<sup>5</sup>

ya sato a mi-laop-ay a kapah no *e*.  
 that some LK AV-chase-CS LK youth GEN  
 Piwma i tirato a ma-sa’opo a mi-kilim  
 Paiwan PREP here LK AV-gather LK AV-search  
 “Those hunted men, Paiwan youths, assemble here and search for (this two brothers)”

1 Cited *Malahecekay a Fokloh* “the legend of stone columns” (G.-C. Huang 2015, 438). In an AV construction, the basic word order of Atayal is VOS, while that of Amis is VSO. However, both are VAS in NAV constructions.

2 The abbreviations of this paper follow those of the Leipzig glossing rules (2015). Other abbreviations not included there are: AV, actor voice; ASP, aspect; CS, change of state; HAB, habitual marker; INTJ, interjection; LK, linker element; LV, locative voice; PN, proper noun; PREP, preposition; PV, patient voice; TOP, topic marker.

3 The elided DP(s) in this paper is in marked italic bold “*e*”. Also, the corresponding English translation of null argument(s) is indicated by parenthesis.

4 Cited *qutux ryax ni yaya* “a day of my mother” (Adong 2016, 27).

5 Cited *Malahecekay a Fokloh* “the legend of stone columns” (G.-C. Huang 2015, 443).

(4) Atayal (Huang and Wu 2016, 299)<sup>6</sup>

yaqu m-tntun ru m-l'ax p<in>rayas ga,  
 INTJ AV-put and AV-dyspnea <IMPER.PV>cross TOP  
 nyux e h<m>twiy mha si bzinah  
 PROSS <AV>stop AV.say always AV-return  
 e ru laxi usa' q<m>alup ru q<m>buying.  
 and NEG AV-go <AV>hunt and <AV>seize

“‘concentration’ and ‘crossing’ are two bird divinations which stop (hunters) and give (hunters) a hint to turn back and to not to go hunting.”

In fact, the two target languages even allow for the deletion of multiple DPs in the AV construction, as evidenced in (5) and (6).<sup>7</sup>

## (5) Amis

(a) ma-keter ci Mayaw<sub>i</sub> ci-Panay<sub>j</sub>-an haw?  
 AV-scold NOM PN OBL-PN-OBL Q  
 “Is Mayaw scolding Panay?”

(b) hai, ma-keter e<sub>i</sub> e<sub>j</sub>.  
 yes AV-scold  
 “Yes, (Mayaw) is scolding (Panay).”

## (6) Atayal

(a) wal = m-ihiy Rimuy<sub>i</sub> qu Watan<sub>j</sub> ga?  
 PRF = AV-beat PN NOM PN Q  
 “Did Watan beat Rimuy?”

6 Cited *gaga' na qmalup ru mita' siliq* “the norm of hunting and bird divination” (Huang and Wu 2016, 299).

7 We thank reviewers for their valuable comments. The question and answer pairs in this paper are designed to account for the distribution of and to identify A'-dependency-related DPE in Formosan languages. However, there are many variables, especially given the variety of language-specific properties. Thus, such question and answer pairs could provide a limited context (or model), which is helpful for controlling the number of potential referents of empty categories. The co-indexation subscripts help readers figure out if the referent(s) of an empty category in a given position is clause-bound, discourse-bound or both. Holmber (2016) offers a similar argument with respect to question and answer pairs: “[T]here is hope, though, that investigation of question and answer pairs in more languages at the same level of detail as here will eventually make it possible to explain the variation observed among the languages in terms of well-defined parameters” (Holmber 2016, 92).

- (b) aw, wal = m-ihiy  $e_i$   $e_j$ .  
 yes PRF = AV-beat  
 “Yes, (Watan) beat (Rimuy).”

(5b) and (6b) are acceptable replies to the questions proposed in (5a) and (6a), respectively. Both Nominative DPs and Accusative DPs are omitted.

Comparing (7b) with (8b), Atayal—unlike its Amis counterpart—does not permit the external arguments of a NAV predicate to be deleted.<sup>8</sup>

8 Nominative case marked DPs can bear a variety of theta-roles, depending on the voice marker of the verb. Take Amis for instance, NOM marked DPs can be agents of an AV verb, patients of a PV verb, instruments of an I/BV verb, and locations of a LV verb, as seen in the following examples (Wu 2016, 62–67).

- (i) mi-tangtang-ay ci ina to naniwac. (AV)  
 <AV>cook-REAL **NOM mother** OBL mung  
 “My mother is cooking the mung.”
- (ii) ma-ala no kaka ko impic no mako. (PV)  
 PV-take GEN sibling **NOM pensil** GEN 1SG.POSS  
 “My pencil was taken away by my brother.”
- (iii) sa-pi-’icang niyam to panay ko cidal. (I/BV)  
 I/BV-PI-dry 1PL.GEN OBL husk **NOM sun**  
 Lit: “Sun is employed to dry the husk by us.”
- (iv) o ka-kero-an no finawlan ko potal. (LV)  
 N KA-dance-LV GEN tribe **NOM NOM square**  
 Lit: “The square is employed to dance by the tribe people.”

The same interaction between case marking and voice is also found in Atayal (cf. Huang and Wu 2016).

NOM, ACC, and GEN marked DPs constitute the bulk of sentences. Note that terminology with respect to case markers is not consistent in the literature. Wu (2016) employs OBL(Oblique) to indicate both the Accusative DP of an AV verb and Absolutive DP of a NAV verb. In fact, case markers including *to*, *ci-* *-an*, and *ca-* *-an*, function as ACC/OBL/ABS markers in the relevant voice constructions. For consistency, this paper follows Wu’s analysis and gloss them as OBL. Moreover, the Accusative marker is phonologically null in Atayal. Finally, though there are some additional case markers in Atayal—including Instrument, Locative and Comitant (Huang and Wu 2016, 61)—these markers have no equivalents in Amis (Wu 2016, 42). This paper focuses on the analysis of the three core case-marked DPs, which are in both target languages.

## (7) Amis

- (a) na-ma-palo = to    ni        Mayaw<sub>i</sub> ci        Panay<sub>j</sub> haw?  
 PST-PV-beat = CS    GEN<sup>9</sup> PN        NOM PN        Q  
 “Was Panay beaten by Mayaw?”

- (b) hai, na-ma-palo = to    e<sub>i</sub> ci        Panay.  
 yes PST-PV-beat = CS        NOM PN  
 “Yes, Panay was beaten by (Mayaw).”

## (8) Atayal

- (a) 'bhy-an na    Ciwas<sub>i</sub> qu        Tali'<sub>j</sub> ga?  
 beat-LV GEN PN        NOM PN        Q  
 “Was Tali' beaten by Ciwas?”

- (b) \*'bhy-an e<sub>i</sub> qu        Tali'.  
 beat-LV        NOM PN  
 Intended for: “Yes, Tali' was beaten by (Ciwas).”

(7b) and (8b) are possible replies to the questions proposed in (7a) and (8a), respectively. The deletion of the Genitive DP of a NAV construction is allowed in Amis, whereas the same syntactic operation is prohibited in Atayal. Semantically, a NAV sentence is truth-conditionally equivalent to its AV counterpart. They are only pragmatically different. For example, the grammatical subject, which is marked by Nominative case, of the AV construction is an agent. In the NAV construction, however, the grammatical subject is a patient, an instrument/benefactor or a location. Likewise, there is no truth-conditional distinction between DPE construction and its non-DPE counterpart.<sup>10</sup>

According to C.-T. Huang (1984; 2010), the above DPE constructions involve so-called Discourse Binding: an argument first undergoes A'-movement to the topic position in the CP layer and is then deleted from this position. In the meantime, this null argument is co-indexed with a discursal referent. This 2-step operation will be

9 Following general terminology in the field, the label Genetive—rather than ergative—is employed in this paper because, in Formosan languages, such morphology can label the Agent of a predicate and the possessive relationship between an object and a possessor.

10 We thank reviewers for their thoughtful review of our manuscript. This paragraph addresses their question about the semantic content of DPE and non-DPE constructions. Although topicalization and different voice constructions are pragmatically significant, a syntactic restriction rules out the possibility of DPE of the Genitive DP in Atayal. In the following sections, we will show that the asymmetry between languages and language-internal arguments with respect to DPE is explainable under a feature-bundle analysis.

detailed in Section 3. Given these observations, this paper explores the three research questions listed below:

- (9) (a) Why does voice agreement influence DPE patterns in Atayal but not in Amis?  
 (b) What triggers the A'-movement of different types of DPs?  
 (c) How can the asymmetry in DPE between Atayal and Amis be best accounted for?

## 2. Literature Review

In discourse-oriented languages, a given argument can be omitted and co-indexed with a referent in the discourse context. Both subjects and objects can have a discourse antecedent, but only the subject can co-refer with a matrix argument. Following C.-T. Huang (1984), this subject-object asymmetry can be attributed to the characteristics of two types of empty categories: Pro<sup>11</sup> and a variable. For instance, the embedded null subject in (10a) can be co-indexed with the matrix subject, Zhangsan, or with a referent in the discourse. However, the embedded null object in (10b) can only refer to a discourse topic. In other words, a null object must be a variable, while a null subject may be either a variable or Pro. For C.-T. Huang, a variable refers to a discourse topic while Pro is co-indexed with the matrix argument.

- (10) Mandarin Chinese (C.-T. Huang 1984, 538)
- (a) Zhangsan<sub>i</sub> [xiwang  $e_{ij}$  keyi kanjian Lisi].  
 Zhangsan hope can see Lisi  
 ‘Zhangsan<sub>i</sub> hopes that (**he**<sub>*ij*</sub>) can see Lisi.’
- (b) Zhangsan<sub>i</sub> xiwang [Lisi keyi kanjian  $e_{*ij}$ ].  
 Zhangsan hope Lisi can see  
 ‘Zhangsan<sub>i</sub> hopes that Lisi can see (**him**<sub>*j*</sub>).’

Another piece of evidence supporting the subject-object asymmetry comes from the exceptional island effect. Once again, only the null subject allows for the exceptional island effect, while the null object does not, as shown in (11a) and (11b), respectively.

- (11) Mandarin Chinese (C.-T. Huang 1984, 563)
- (a) Zhangsan<sub>i</sub>, [ $e_i$  xie de shu] bu shao.  
 Zhangsan write DE book not few  
 ‘Zhangsan<sub>i</sub>, the books that (**he**<sub>*i*</sub>) wrote are not few.’

11 In the framework of Government and Binding Theory (Chomsky 1981), the distinction between *pro* and PRO is related to the issue of Case or the notion of Government. However, Chinese is not a language with a rich agreement system, and both *pro* and PRO are subject to GCR. As a result, the term ‘empty noun’ or the abbreviation Pro refer to both *pro* and PRO in Huang’s (1984) work.

- (b) \*Zhangsan<sub>i</sub>, [wo nian-le bu shao [e<sub>i</sub> xie de shu]].  
 Zhangsan I read-ASP not few write DE book  
 Intended for: “Zhangsan<sub>i</sub> I have read quite a few books that (he<sub>i</sub>) wrote.”

Wei (2016) furthermore proposes that the target Formosan languages in his study are discourse-oriented because all of them allow null pronouns to have a discourse antecedent, as shown in Table 1.<sup>12</sup>

|                 | <i>pro</i> | zero topic | discourse topic |
|-----------------|------------|------------|-----------------|
| Amis            |            | ✓          | ✓               |
| Paiwan          | ✓          |            | ✓               |
| Puyuma          |            |            | ✓               |
| Bunun           | ✓          |            | ✓               |
| Mayrinax Atayal |            |            | ✓               |
| C’uli           | ✓          |            | ✓               |

**Table 1.** The characteristics of discourse-oriented languages (Wei 2016, 614)

If Formosan languages are indeed discourse-oriented (Wei 2016), DP ellipsis in all Formosan languages should be relatively free and consistent; that is, any given DP should be able to be construed as a variable, co-indexed with a discourse referent (cf. C.-T. Huang 1984). However, our target languages provide counterexamples to this postulation, such as (8b) above. Briefly, the Genitive DP of a NAV construction in Atayal cannot undergo A'-movement. More importantly, though, the elaborate voice system of Formosan languages displays characteristics of both Accusative-Nominative languages and Ergative-Absolutive languages (i.e., a split-ergative pattern or a mixed-pattern) with respect to the morphosyntactic alignment. In our target languages, Genitive case marking on DPs is a solid indication of Ergative-Absolutive alignment. With these observations in mind, this paper offers an alternative approach based on voice-sensitivity to account for the DPE asymmetry between Atayal and Amis.

Sato (2015) proposes that Şener and Takahashi’s (2010) anti-agreement hypothesis on argument ellipsis, developed through a comparative survey of Japanese and Turkish, cannot account for the DPE asymmetry in Javanese because it lacks a  $\phi$ -agreement system altogether. Consequently, the key factor for licensing/blocking argument ellipsis in Javanese is the voice agreement system. In Sato’s analysis, Javanese exhibits an asymmetry between null subject and null object with respect to sloppy/quantificational

12 The check mark in Table 1 denotes that a specific type of DPE is allowed in a given language.

interpretations. On the one hand, null objects allow sloppy/quantificational readings, as shown in (12b) and (13b).

(12) Javanese (Sato 2015, 64)

(a) Esti seneng guru-ne  
 Essti like teacher-3SG  
 “Esti likes her teacher.”

(b) Budi ya seneng *e*. (OKstrict; OKsloppy)  
 Budi also like  
 Lit: “Budi also likes *e*.”

(13) Javanese (Sato 2015, 64)

(a) Esti ketemu mahasiswa telu.  
 Esti meet student three  
 “Esti met three students.”

(b) Budi ya ketemu *e*. (OKE-type; OKquantificational)  
 Budi also met  
 Lit: “Budi also met *e*.”

On the other hand, null subjects do not allow for these sloppy/quantificational readings, as evidenced in (14b) and (15b).

(14) Javanese (Sato 2015, 64)

(a) Esti ngomong [<sub>CP</sub> guru-ne isa basa Prancis].  
 Esti say teacher-3SG can language French  
 “Esti said that her teacher can speak French.”

(b) Budi ngomong [<sub>CP</sub> *e* isa basa Jepang]. (OKstrict; \*sloppy)  
 Budi say can language Japan  
 Lit: “Budi said that *e* can speak Japanese.”

(15) Javanese (Sato 2015, 64)

(a) Esti ngomong [<sub>CP</sub> mahasiswa telu teka arep ketemu dewe’e].  
 Esti say student three come to meet 3SG  
 “Esti said that three students came to meet her.”

- (b) Budi ngomong [<sub>CP</sub> *e* teka arep (OK<sub>E</sub>-type; \*quantificational)  
 Budi say come to  
 ketemu dewe'e].  
 meet 3SG  
 Lit: "Budi said *e* came to see him."

The above asymmetry might be treated as a result of Verb-stranding VP ellipsis (Otani and Whitman 1991, Goldberg 2005, Rouveret 2012, Gribanova 2017, among others). According to this analysis, the main verb is left as a remnant due to V-to-T raising followed by VP-ellipsis. In languages like English, for example, the sloppy reading can be attributed to VP ellipsis (Williams 1977, quoted in Sato 2015, 65), as in (16).

- (16) (a) John will invite his wife to the party. (OK<sub>strict</sub>; OK<sub>sloppy</sub>)  
 (b) Tom will [<sub>VP</sub> *e*] too.

VP-ellipsis occurs in V-stranding languages such as Irish and Hebrew only when the verb in the antecedent clause is identical to the verb in the elliptical clause (Goldberg 2005, Rouveret 2012). However, in Javanese, the verbs in question can be different, as exemplified in (17). In fact, we would get an incorrect reading like "Budi did not solve his problem quickly" if the null object in (18b) were derived via V-stranding VP-ellipsis.

- (17) Javanese (Sato 2015, 66)  
 (a) Esti seneng guru-ne.  
 Esti likes teacher-3SG  
 "Esti likes her teacher."  
 (b) Tapi Budi sengit *e*. (OK<sub>strict</sub>; OK<sub>sloppy</sub>)  
 but Budi hate  
 Lit: "... but Budi hates *e*."

- (18) Javanese (Sato 2015, 66)  
 (a) Esti njawab soal matematika-ne cepet-cepet.  
 Esti solve problem mathematics-3SG quick-RED  
 "Esti solved that problem quickly."  
 (b) Tapi Budi ora njawab *e*.  
 but Budi NEG solve  
 Lit: "... but Budi didn't solve *e*."  
 = Budi didn't solve his mathematics problem.  
 ≠ Budi didn't solve his mathematics problem quickly.

Thus, Sato argues that the subject–object asymmetry in Javanese cannot be explained under the Verb-stranding approach because objects, but not subjects, are included within the ellipsis site. Instead, he proposes that dyadic voice agreement in Javanese plays an important role in this subject–object asymmetry. Crucially, topic arguments, which agree with the *v* head, also disallow sloppy/quantificational interpretation; thus, both Agent (or Actor-topic) DPs in actor voice constructions and Theme-topic DPs in passive voice constructions prohibit the sloppy/quantificational interpretation, as shown in (19b) and (20b).

(19) Javanese (Sato 2015, 77)

(a) Esti ngomong [<sub>CP</sub> mahasiswa-ne di-sun karo Budi].  
 Esti say student-3SG PV-kiss by Budi  
 ‘‘Esti said that her student was kissed by Budi.’’

(b) Yuli ngomong [<sub>CP</sub> *e* di-sun karo Ali]. (OKstrict; \*sloppy)  
 Yuli say PV-kiss by Ali  
 Lit: ‘‘Yuli said that *e* was kissed by Ali.’’

(20) Javanese (Sato 2015, 77–78)

(a) Esti ngomong [<sub>CP</sub> mahasiswa telu di-sun karo Budi].  
 Esti say student three PV-kiss by Budi  
 ‘‘Esti said that three students were kissed by Budi.’’

(b) Yuli ngomong [<sub>CP</sub> *e* di-sun karo Ali]. (OKE-type; \*quantificational)  
 Yuli say PV-kiss by Ali  
 Lit: ‘‘Yuli said that *e* was kissed by Ali.’’

However, the null oblique Agent DP in a passive voice construction allows for the sloppy/quantificational interpretation because it lacks any voice agreement with the passive *v* head, as shown in (21b) and (22b).

(21) Javanese (Sato 2015, 78)

(a) Esti ngomong [<sub>CP</sub> Budi di-sun karo mahasiswa-ne]  
 Esti say Budi PV-kiss by student-3SG  
 ‘‘Esti said that Budi was kissed by her student.’’

(b) Yuli ngomong [<sub>CP</sub> Ali di-sun *e*]. (OKstrict; OKsloppy)  
 Yuli say Ali PV-kiss  
 Lit: ‘‘Yuli said that Ali was kissed.’’

(22) Javanese (Sato 2015, 77–78)

(a) Esti ngomong [<sub>CP</sub> Budi di-sun karo mahasiswa telu].  
 Esti say Budi PV-kiss by student three  
 “Esti said that Budi was kissed by three students.”

(b) Yuli ngomong [<sub>CP</sub> Ali di-sun *e*]. (OK<sub>E</sub>-type; OK<sub>Q</sub>quantificational)  
 Yuli say Ali PV-kiss  
 Lit: “Yuli said that Ali was kissed.”

Sato (2015, 74) concludes that this prohibition on sloppy/quantificational readings of null arguments in subject position (i.e., Agent-DPs in actor voice constructions and Theme-topic DPs in passive voice constructions) results from the definite restriction imposed by the topic requirement created by active or passive voice agreement. Topical DPs must be definite and cannot introduce new discourse referents. Sato further proposes that the so-called subject–object asymmetry in Javanese can, in fact, be treated simply as a subject/non-subject asymmetry because only agreement between a subject and a verb prohibits sloppy and quantificational readings.<sup>13</sup> In other words, non-subjects do not possess such agreement. Thus, he further suggests that not only  $\phi$ -agreement, but also voice agreement needs to be included in a general theory of agreement.

Unlike Javanese,<sup>14</sup> Formosan languages have an elaborate case system that labels the voice agreement relationship between a DP and a *v* head. The voice affix on a verb and the case marker on a DP jointly determine the theta-role of a given DP. Moreover, Formosan languages allow for topicalized constructions, in which a moved topicalized DP is indicated by a topic marker and A' binds its trace. But, the construal of zero topic (C.-T. Huang 1984, 2010) is also permitted in Formosan languages, as mentioned earlier. Thus, the case-marked DP in Formosan languages should not be treated as a “topic-DP” exactly as in Javanese. Nevertheless, Sato’s insight regarding voice-sensitivity provides us an alternative approach to analyze the asymmetry of the Genitive DP ellipsis between Atayal and Amis.

Crucially, Formosan languages show two types of morphosyntactic case alignment: Nom-Acc and Erg-Abs. In the Nom-Acc pattern, a given DP is allowed to be omitted in both Atayal and Amis. However, in the Erg-Abs pattern, Amis allows for the deletion of a Genitive DP, but Atayal does not. What, then, contributes to this difference between the two related languages?

13 In Sato’s work, the term *subject* refers either to the **actor** argument in an AV construction or the **theme** argument in a PV construction.

14 Though Javanese, a head-initial SVO language, possesses an elaborate voice system (active, theme and various applicative voices), it lacks overt tense markers,  $\phi$ -agreement and case morphology (Sato 2015, 64).

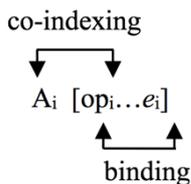
### 3. Syntactic Derivations and Specified Features

According to Cheng (2011) and Aldridge (2017), Nominative DPs and Genitive DPs are different in nature: the two different types of DPs result from different syntactic derivations; Nominative and Genitive arguments consist of different syntactic features.<sup>15</sup> On the one hand, the external argument in AV constructions moves to SpecTP and to receive a structural case (*viz.*, Nominative case). On the other hand, the external argument in NAV constructions is base-generated adjoined to *v*P and is endowed with a Genitive case. If Cheng’s analysis is on the right track, the syntactic derivation of relevant arguments can be illustrated as in (23).<sup>16</sup>

- (23) (a) the NOM DP of AV construction  
 $[_{TP} DP [NOM]_i [_T, [_{vP} DP [NOM]_i [_v, \ ]]]]$
- (b) the ERG DP of NAV construction  
 $[_{vP} [_v, DP [GEN] [_v, \ ]]]]$

Second, constructions involving zero topic in Formosan languages can be explained by Discourse Binding (C.-T. Huang 1984, 2010), which states that an argument first undergoes topicalization and is then deleted from the topic position in CP. In the meantime, the null argument is co-indexed with a referent in the discourse context. Thus, the syntactic operation of Discourse Binding can be depicted as (24).

- (24) The process of Discourse Binding



15 It is worth noting that there are still other linguists argue that little *v* does not, by itself, introduce an argument (cf. Legate 2014, Pylkkänen 2008). Instead, voice, appl, and prepositional heads are preferred in different theories to introduce external arguments. For the sake of space, we will not seriously engage this issue in this paper. Here, we simply follow Aldridge’s (2017) proposal.

16 Many thanks to the audience of Olinco 2018 for reminding me of the issue regarding the direction of probing. In the literature, uninterpretable features can probe downwards (Chomsky 1998) and upwards (Zeijlstra 2012, Wurmbrand 2011). The former model is tentatively adopted in this paper for ease of discussion.

If C.-T. Huang’s analysis is on the right track, we can further propose that a given DP should possess a [TOP] feature first, and only then can it undergo A’-movement to a topic position and become zero topic. Relatedly, one can assume that not all kinds of DPs can be endowed with a [TOP] feature. In both Amis and Atayal, Nominative DPs bear an inherent [TOP] feature specification when entering the derivation, which enables such DPs to undergo discourse binding. The DPE in (3) and (4) can be formally represented as (25a) and (25b), respectively.

- (25) (a) Amis  
 [CP ~~Mayaw~~<sub>[TOP]i</sub> [CP' [<sub>#TOP</sub>] [TP ~~Mayaw~~<sub>[TOP]i</sub> [T [<sub>VP</sub> ~~Mayaw~~<sub>[TOP]i</sub> [<sub>V'</sub> ]]]]]]]
- (b) Atayal  
 [CP ~~Watan~~<sub>[TOP]i</sub> [CP' [<sub>#TOP</sub>] [TP ~~Watan~~<sub>[TOP]i</sub> [T [<sub>VP</sub> ~~Watan~~<sub>[TOP]i</sub> [<sub>V'</sub> ]]]]]]]

On the other hand, the external argument of a NAV construction enters the derivation with a [TOP] feature in Amis, but not in Atayal. As a result, the asymmetry regarding discourse binding between Amis and Atayal can be explained as in (26a) (= [7b]) and (26b) (= [8b]), respectively.

- (26) (a) Amis  
 [CP ~~Mayaw~~<sub>[TOP]i</sub> [CP' [<sub>#TOP</sub>] . . . [VP [<sub>V'</sub> ~~Mayaw~~<sub>[TOP]i</sub> [<sub>V'</sub> ]]]]]]]
- (b) Atayal  
 \*[CP ~~Ciwas~~<sub>[Ø]i</sub> [CP' [<sub>#TOP</sub>] . . . [VP [<sub>V'</sub> ~~Ciwas~~<sub>[Ø]i</sub> [<sub>V'</sub> ]]]]]]]

Our alternative analysis has several consequences, as listed in (27).

- (27) (a) Nominative case and Genitive case involve different syntactic derivations.
- (b) The [<sub>#TOP</sub>] feature in CP triggers the A’-movement of a given DP.
- (c) [TOP] might not be universally available, e.g., this feature is inherent in Amis GEN DPs but not in Atayal GEN DPs.
- (d) Typologically, Atayal is voice sensitive, while Amis is non-voice sensitive.

**4. Supporting Evidence**

**4.1 Unselective Binding and Nominative-Sensitivity Constraint**

The nominative-sensitivity constraint for unselective binding supports the claim that NOM DPs and GEN DPs have different syntactic features. Per W.-T. Tsai (2011), *wh*-nominals conform to unselective binding due to an implicit Q-morpheme on C

(cf. Baker 1970, Pesetsky 1987, Nishigauchi 1990, among others), by virtue of being able to introduce a choice function variable in situ (cf. Reinhart 1998), as sketched in (28).

- (28) W.-T. Tsai (2011, 217)  
 $[_{CP} [_C Qf [_{IP} \dots f(wh) \dots ]]]$

Though Formosan languages, such as Tsou, Saisiyat, Amis and Atayal, are recognized as *wh*-in-situ languages (Y.-Y. Chang 2000, C.-Y. Tsai 2008, Wei 2011, W.-T. Tsai 2011), W.-T. Tsai (2011) further argues that *wh*-nominals cannot stay in-situ, as in (29a), and they must undergo A<sup>3</sup>-movement of some sort to check [*u*T] on C, as in (29b) and (29c).<sup>17</sup>

- (29) Atayal (W.-T. Tsai 2011, 211–212)

- (a) \*m-usa Sincik suxan qu-ima?  
 AV-go Hsinchu tomorrow NOM-who  
 Intended for: “Who will go to Hsinchu tomorrow?”

- (b) *wh*-pseudo-cleft  
 ima qu- $[_{DP} e_i$   $[_{CP} Opi$  [m-usa Sincik suxan  $t_i$ ]]]?  
 who NOM AV-go Hsinchu tomorrow  
 “Who is (the person who) will go to Hsinchu tomorrow?”

- (c) focus movement  
 ima(\*-ga) m-usa Sincik suxan?  
 who(\*-TOP) AV-go Hsinchu tomorrow  
 “Who will go to Hsinchu tomorrow?”

17 Unlike English, Chinese lacks *wh*-islands as well as complex NP islands. W.-T. Tsai (1994, 1999) attributes this distinction to the parameter setting with respect to unselective binding, as sketched in (i).

- (i) (a) Chinese-type languages:  $[_{CP} OP_{x[Q]} [_{IP} \dots wh(x) \dots ]]$   
 (b) English-type languages:  $[_{CP} [_{IP} \dots [_D^0 wh(x)-OP_{x[Q]} \dots ]]]$   
 $\rightarrow [_{CP} [_{PP/DP} wh(x)-OP_{x[Q]k}] [_{IP} \dots t_k \dots ]]$

On the one hand, Chinese Q-operators are located in [Spec, CP] and involve no movement. On the other hand, the whole English *wh*-phrase must move to [Spec, CP] as an operator-variable pair for feature checking. Thus, because of *wh*-movement, English is subject to locality constraints, e.g., *wh*-islands and complex NP islands.

In Atayal and Amis, only null DPs in a Nominative position can build A'-dependencies with fronting *wh*-nominals via unselective binding. That is, prospective *wh*-nominals cannot possess such A'-construal from a non-Nominative position, as evidenced in (30)–(31).

## (30) Atayal

- (a) ima<sub>i</sub> qu s<m>oya' [cqri' Ciwas t<sub>i</sub>]? (NOM)  
 who NOM <AV>like AV-tease PN  
 "Who likes to tease Ciwas?"
- (b) \*ima<sub>i</sub> qu s<m>oya' [cqri' t<sub>i</sub> Tali']? (\*ACC)  
 who NOM <AV>like AV-tease PN  
 Intended for: "Who likes that Tali' teases (him)."
- (c) ima<sub>i</sub> qu s<m>oya' [bhy-an na Ciwas t<sub>i</sub>]? (NOM)  
 who NOM <AV>like beat-LV GEN PN  
 "Who likes to be beaten by Ciwas."
- (d) \*ima<sub>i</sub> qu s<m>oya' [bhy-an t<sub>i</sub> qu Ciwas]? (\*GEN)  
 who NOM <AV>like beat-LV NOM PN  
 Intended for: "Who likes Ciwas to be beaten by (him)."

## (31) Amis

- (a) cima<sub>i</sub> ko ma-olah [mi-copcop t<sub>i</sub> ci-Mayaw-an]? (NON)  
 who NOM AV-like AV-kiss OBL-PN-OBL  
 "Who likes to kiss Mayaw."
- (b) \*cima<sub>i</sub> ko ma-olah [mi-copcop ci Mayaw t<sub>i</sub>]? (\*ACC)  
 who NOM AV-like AV-kiss NOM PN  
 Intended for: "Who likes that Mayaw kiss (him)."
- (c) cima<sub>i</sub> ko ma-olah [copcop-en ni Mayaw t<sub>i</sub>]? (NOM)  
 who NOM AV-like kiss-PV GEN PN  
 "Who likes to be kissed by Mayaw?"
- (d) \*cima<sub>i</sub> ko ma-olah [copcop-en t<sub>i</sub> ci Mayaw] (\*GEN)  
 who NOM AV-like kiss-PV NOM PN  
 Intended for: "Who likes Mayaw to be kissed by (him)."

The different behaviors exhibited by DPs in Nominative and non-Nominative positions indicate that NOM and GEN DPs have different syntactic features and are likely derived in different ways.

#### 4.2 Successive-Cyclic DP Movement and Nominative DP Constraint

The same Nominative/Genitive asymmetry is also attested in control constructions involving full nominal DPs. In Atayal, the null DPs in embedded nominative subject position can be controlled by a matrix NOM DP, as in (32a) and (32b), while the null DPs in embedded genitive position are not, as in (32c).

##### (32) Atayal

###### (a) NOM-NOM

s<m>oya' Tali'<sub>i</sub> [<sub>IP</sub> cqri' Ciwas e<sub>i</sub>].  
 <AV>like PN AV-tease PN  
 "Tali' likes to tease Ciwas."

###### (b) NOM-NOM

s<m>oya' Tali'<sub>i</sub> [<sub>IP</sub> bhy-an na Ciwas e<sub>i</sub>].  
 <AV>like PN beat-LV GEN PN  
 "Tali' likes to be beaten by Ciwas."

###### (c) \*NOM-GEN

\*s<m>oya' Tali'<sub>i</sub> [<sub>IP</sub> bhy-an qu Ciwas e<sub>i</sub>].  
 <AV>like PN beat-LV NOM PN  
 Intended for: "Tali' likes Ciwas to be beaten by (him = Tali')."

Likewise, Amis permits pronominal construal of embedded null Nominative DPs but not null Genitive DPs; that is, a null genitive DP cannot be co-indexed with any referents in the matrix clause, as shown in (33).

##### (33) Amis

###### (a) NOM-NOM

ma-olah [<sub>IP</sub> mi-copcop e<sub>i</sub> ci Mayaw-an] ci Panay<sub>i</sub>?  
 AV-like AV-kiss OBL PN-OBL NOM PN  
 "Panay likes to kiss Mayaw."

###### (b) NOM-NOM

ma-olah [<sub>IP</sub> copcop-en ni Mayaw e<sub>i</sub>] ci Panay<sub>i</sub>.  
 AV-like kiss-PV GEN PN NOM PN  
 "Panay likes to be kissed by Mayaw."

## (c) \*NOM-GEN

\*ma-olah [<sub>IP</sub> copcop-en e<sub>i</sub> ci Mayaw] ci Panay<sub>i</sub>  
 AV-like kiss-PV NOM PN NOM PN

Intended for: “Panay likes Mayaw to be kissed by (him=Panay).”

Aldridge (2017) proposes that the A/A'-partition for DP movement is not universal. She proposes Extraction Competition, which states that DPs move only to case positions. Aldridge cited Davies and Kurniawan's (2013) work on Sundanese to verify that long-distance movement must target each subject position (or “Nominative position” in this paper). In other words, she argues that the case-driven DP-movement is successive-cyclic, as shown in (34).

## (34) Sundanese (Davies and Kurniawan 2013, 114–5, quoted in Aldridge 2017, 5)

- (a) Mobil naon nu di-anggap ku Ali  
 Car what REL PV-assume by Ali  
 [(nu) kakara di-beuli \_\_\_ ku Hasan]?  
 REL recently PV-buy by Hasan

“What car did Ali assume Hasan had recently bought?”

Lit: “What car was assumed by Ali to have been bought by Hasan?”

- (b) \*Mobil naon nu Ali ng-anggap [(nu)  
 car what REL Ali AV-assume REL  
 kakara di-beuli \_\_\_ ku Hasan]?  
 recently PV-buy by Hasan

“What car did Ali assume Hasan had recently bought?”

- (c) \*Mobil naon nu di-anggap ku Ali  
 car what REL PV-assume by Ali  
 [(nu) Hasan kakara m-euli \_\_\_ ]?  
 REL Hasan recently AV-buy

“What car did Ali assume Hasan had recently bought?”

If Aldridge's theory of case-driven DP movement is on the right track, then the ungrammaticality of (32c) and (33c) might result from the “mismatch” between a Genitive DP and a Nominative DP. As mentioned in Section 3, Genitive DPs and Nominative DPs have distinct case features. The former has inherent [GEN] case (i.e., it enters the derivation already valued GEN), while the case feature of the latter is structurally licensed (i.e., it moves to [Spec, TP] to check T's [ $\mu$ NOM] feature). Because Genitive DPs already possess inherent case, there is no reason for these DPs to move. This is just another way in which Nominative and Genitive DPs have different features and involve different syntactic derivations.

### 4.3 Topicalization and A'-dependency

We propose that in Atayal, Genitive DPs lack the [TOP] feature, which prevents them from undergoing A'-movement to a topic position, unlike their Amis counterparts. This conclusion is supported by the fact that a Genitive DP cannot be A'-bound by an overt topicalized argument. Atayal allows Nominative and Accusative DPs to move to topic position, as shown in (35).

(35) Atayal

- (a) Watan<sub>i</sub> ga, wal m-ita Rimuy *e<sub>i</sub>* la. (NOM)  
 Watan TOP PRF AV-see PN CS  
 "As for Watan, (he = Watan) saw Rimuy."
- (b) hozil qasa<sub>i</sub> ga, m-aniq hi na bawaw banray *e<sub>i</sub>*. (NOM)  
 dog that TOP AV-eat meat GEN top table  
 "As for that dog, (it) is eating the meat on the table."
- (c) Rimuy<sub>i</sub> ga, wal m-ita *e<sub>i</sub>* qu Watan la. (ACC)  
 Rimuy TOP PRF AV-see NOM PN CS  
 "As for Rimuy, Watan saw (her = Rimuy)."
- (d) Rimuy<sub>i</sub> ga, pzyux squlik s<m>oya *e<sub>i</sub>*. (ACC)  
 PN TOP many person <AV>like  
 "As for Rimuy, many people like (her = Rimuy)."

Likewise, Amis also allows null Nominative and Accusative DPs to be A'-bound by topicalized DPs, as shown in (36).

(36) Amis

- (a) Mayaw<sub>i</sub> an, taroma' = to *e<sub>i</sub>*. (NOM)  
 PN TOP come = PRF  
 "As for Mayaw, (he) came back."
- (b) Mayaw<sub>i</sub> an, ma-keter *e<sub>i</sub>* ci-Panay-an<sub>j</sub>. (NOM)  
 PN TOP AV-scold ACC-PN-ACC  
 "As for Mayaw, (he) is scolding Panay."
- (c) Panay<sub>i</sub> an, ma-keter ci Mayaw *e<sub>i</sub>*. (ACC)  
 PN TOP AV-scold NOM PN  
 "As for Panay, Mayaw is scolding (her)."

- (d) epah'<sub>i</sub> an, ma-ola mi-kaen ci Mayaw e<sub>i</sub>. (ACC)  
 alcohol TOP AV-like AV-drink NOM PN  
 “As for millet wine, Mayaw likes to drink (it)”

Furthermore, in Amis, A'-dependencies involving a Nominative or a Genitive DP, are allowed without exception in NAV constructions, as shown in (37).

(37) Amis

- (a) Panay<sub>i</sub> an, ma-palo'= to ni Mayaw e<sub>j</sub>. (NOM)  
 PN TOP PV-beat = PRF GEN PN  
 “As for Panay, (she) was beaten by Mayaw.”
- (b) Mayaw<sub>i</sub> an, ma-palo'= to e<sub>i</sub> ci Panay. (GEN)  
 PN TOP PV-beat = PRF NOM PN  
 “As for Mayaw, Panay was beaten by (him = Mayaw).”

In Atayal, though, the TOP-feature restriction mentioned above applies in NAV constructions (e.g., Locative voice and Passive voice). In other words, only Nominative DPs are allowed to undergo topicalization in NAV constructions, as shown in (38).

(38) Atayal

- (a) biru qani<sub>i</sub> ga, szy-on = myan balay e<sub>i</sub>. (NOM)  
 book this TOP like-LV=IPL.EXC.GEN very  
 “As for this book, (it) is appreciated by us very much.”
- (b) Rimuy<sub>i</sub> ga, s<n>atu na Yumin e<sub>i</sub> (NOM)  
 PN TOP <PV.PST>accompany GEN PN  
 tehuq Q'wilan.  
 arrive PN  
 “As for Rimuy, (she) was accompanied by Yumin to go to Q'wilan.”

However, in Atayal, a Genitive DP cannot undergo A'-movement to a topic position because it lacks a [TOP] feature, as evidenced in (39).

(39) Atayal

- \*Ciwasi<sub>i</sub> ga, szy-on e<sub>i</sub> qu Yumin. (\*GEN)  
 PN TOP like-LV NOM PN  
 Intended for: “As for Ciwas, Yumin is appreciated by (her = Ciwas).”

The sentence in (39) becomes grammatical if a pronominal clitic, which is co-indexed with the topicalized argument, attaches to the verb, as shown in (40).

(40) Atayal

Ciwas<sub>i</sub> ga, szy-on = nya'<sub>i</sub> qu Yumin.  
 PN TOP like-LV = 3SG.GEN NOM PN  
 “As for Ciwas, Yumin is appreciated by her (= Ciwas).”

Again, the TOP-feature constraint is attested in this complex construction of Atayal. In these NAV constructions, only the Genitive DP cannot be topicalized due to the lack of [TOP]; Nominative and Accusative DPs can still be topicalized, as shown in (41).

(41) Atayal

(a) squliq qasa<sub>i</sub> ga, kmal Rimuy mha: (NOM)  
 person that TOP say PN say  
 wal m-ita Watan e<sub>i</sub> la.  
 PRF AV-see PN CS  
 “As for the person, Rimuy says that (he = that person) saw Watan.”

(b) squliq qasa<sub>i</sub> ga, kmal Rimuy mha: (ACC)  
 person that TOP say PN say  
 wal m-ita e<sub>i</sub> qu Watan la.  
 ASP AV-see NOM PN CS  
 “As for the person, Rimuy says that Watan saw (him = that person).”

(c) squliq gasa<sub>i</sub> ga, kmal Rimuy mha: (NOM)  
 person that TOP say PN say  
 wal kt-an Watan e<sub>i</sub> la.  
 PRF see-LV PN CS  
 “As for the person, Rimuy says that (he = the person) was seen by Watan.”

(d) Watan<sub>i</sub> ga, kmal Rimuy mha: wal (\*GEN)  
 PN TOP say PN say PRF  
 kt-an e<sub>i</sub> squliq qasa la.  
 see-LV people that CS  
 Intended for: “As for Watan, Rimuy says that that person was seen by (him = Watan).”

## 5. Beyond “Definiteness”

In the literature, some linguists attribute the distinction between A/A'-movement to definiteness (Sato 2015, Aboh 2004, among others). However, the conclusion is not completely true for our target languages, especially Atayal.

Sato (2015, 72) proposes that Javanese follows the so-called definite subject restriction, which states that only proper names and NPs marked with a demonstrative particle or the definite suffix can appear in subject positions. Moreover, the syntactic subject in Javanese must be topical (Cole et al. 2002). Furthermore, though topic and focus are often treated as clausal properties, Aboh (2004) proposes that a nominal structure may encode these specifications; in other words, there is topic specification within both the nominal left periphery and the clausal left periphery. Thus, (42a) represents a nominal topic and (42b) is a clausal topic.<sup>18</sup>

(42) Gungbe (Aboh 2004, 2)

- (a) Sétù nɔ xɔ [lésì gúkúmè tɔn lɔ].  
 Setu HAB buy rice Gukome POSS **DET**<sub>[+spec;+def]</sub>  
 “Setu habitually buys the **forementioned** rice from Gukome.”
- (b) [Lésì gúkòmè tɔn] yà é nɔ víví gbau.  
 rice Gukome POSS **TOP** 3SG HAB sweet very  
 “As for the rice from Gukome, it is very sweet.”

It is worth noting that the nominal topic in (42a) can be further topicalized, as in (43).

(43) Gungbe (Aboh 2004, 2)

- [Lésì gúkòmè tɔn lɔ] yà e nɔ  
 rice Gukome POSS **DET**<sub>[+spec;+def]</sub> **TOP** 3SG HAB  
 víví gbau.  
 sweet very  
 “As for the **forementioned** rice from Gukome, it is very sweet.”

Aboh (2004) proposes that if topicality, *assumed familiarity* (Prince 1981) and specificity (Enç 1991) are related in some sense, then the noun sequence in (42a) is marked for topicality because the referent of this noun sequence is pre-established in discourse. In (42b), however, the topic of discussion is expressed by a bare noun phrase that may be interpreted as ( $\pm$ definite) or ( $\pm$ generic) depending on context. He further argues that the

18 According to Aboh (2004), Gungbe distinguishes between non-specific (i.e., non-discourse anaphoric) and specific (i.e., discourse anaphoric) noun phrases. A non-specific NP surfaces as a bare NP, while a specific NP is labeled by a specific marker *lɔ*].

nominal left periphery (or D-system) involves topic and focus projections, whose heads are realized by determiners or articles and whose specifiers contain the fronted topic and focus constituents.

(44) Split-D analysis (Aboh 2004, 4)

[DP . . . [D . . . top . . . focus . . . [NumP . . . [Num . . . [FP . . . N . . . ]]]]]

Yet this definiteness-based approach cannot successfully account for all the patterns of our target languages. For instance, if Aboh's approach were applied to our target languages, all the DPs with [+spec, +def] ought to be able to undergo A'-movement to a topic position. Unfortunately, this is not the case, as shown in (45)–(46).

(45) Amis

(a) ma-palo' = to    na    tamdaw kira    ci    Panay.  
 PV-beat = PRF    GEN    people    that<sub>[+spec, +def]</sub>    NOM PN  
 "Panay was beaten by that person."

(b) tamdaw kira<sub>i</sub> an,    ma-palo' = to    e<sub>i</sub>    ci    Panay.  
 PN    that    TOP    PV-beat = PRF    NOM PN  
 "As for that person, Panay was beaten by (him = that person)."

(46) Atayal

(a) bhy-an    na    squliq qasa    qu    Tali'.  
 beat-PV    GEN    people    that<sub>[+spec, +def]</sub>    NOM PN  
 "Tali was beaten by that person."

(b) \*squliq qasa<sub>i</sub> ga,    bhy-an    e<sub>i</sub>    qu    Tali'.  
 people    that    TOP    beat-PV    NOM PN  
 "As for that person, Tali' was beaten by (him = that person)."

In (46b), we see a counterexample to the definiteness-based approach; the Genitive DP is still excluded from topicalization even when marked with a demonstrative particle. However, Aboh's (2004) concept of the D-system provides us an insight into DPs; that is, a given type of DP can be decomposed into a bundle of fine-grained features. Along the same lines as Aboh, we further propose that it is [TOP], rather than [+def], that decides whether a DP can undergo topicalization. Crucially, [TOP] is not universally available for all DPs. Our comparative study shows that the Genitive DPs of Amis enter the derivation with a [TOP] feature specification, while the Genitive DPs of Atayal lack this feature.

## 6. Conclusion

According to C.-T. Huang (1984; 2010), a null DP might be construed as a variable, which is co-indexed with a referent in the discourse/context, and as Pro, which is co-referential with a matrix argument. Typologically, a discourse-oriented or topic-prominent language, such as Mandarin Chinese, allows a null DP to be construed as a variable and as Pro. However, in a syntax-oriented language, such as English, a null DP can only be interpreted as Pro. In the literature, Formosan languages are treated as discourse-oriented languages (Wei 2016). However, the dichotomy of syntax-oriented and discourse-oriented *cannot* capture the nature of Formosan DPE. Likewise, Y.-L. Chang (1997) argues that Formosan languages can be further classified as voice-prominent. Building on this past work, this paper proposes that in some languages, such as Atayal, the elaborate voice system plays a crucial role in the derivation of DPE. Such voice sensitivity explains why the variable reading is relatively restricted in non-actor voice (NAV) constructions of Atayal, but free in those of Amis. Specifically, Atayal does not allow the Genitive DP of a NAV predicate to be deleted, while such ellipsis is acceptable in Amis. That is, DP ellipsis (DPE) in Formosan languages exhibits at least two patterns with respect to extraction conditions: voice-sensitive type as in Javanese (Sato 2015) and non-voice-sensitive type. The parameter for such a typological distinction can be attributed to a formal feature, namely [TOP]. The evidence for this conclusion comes from many areas, such as unselective binding, DP movement and topicalization, and data indicating that Nominative and Genitive DPs share different syntactic properties. Specifically, Genitive DPs in Atayal cannot become zero topic traces or null pronominals. This paper argues that the main factor that determines the availability of DPE is [TOP] rather than [+def]. More importantly, [TOP] is not universally available for all types of DPs. This feature-based analysis successfully explains differences in DPE across Formosan languages.

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# Even Hypothesis of PPIs Licensing: An Experimental Study

Mojmír Dočekal<sup>a</sup> and Iveta Šafratová<sup>b</sup>

<sup>a,b</sup>Masaryk University, Brno, Czech Republic

<sup>a</sup>docekal@phil.muni.cz; <sup>b</sup>safratova@mail.muni.cz

**Abstract:** In this paper, we report results of an experiment designed to map the semantic and pragmatic properties of Czech strong negative polarity item *ani* “not even” and a positive polarity scalar particle *i* “even”. In the theoretical part, we focus on the positive polarity particle *i*. We describe its acceptability in different contexts (manipulated for likelihood) and environments (upward entailing, downward entailing, ...) as a result of *i*'s unlikelihood presupposition, building on Krifka (1995) and Crnič (2011). The experimental data lead us to claims concerning embedded exhaustification which in some cases allows *i* to associate with strong scalar elements even in downward entailing environments. The results of the experiment support the scope approaches to *even*-type of expressions in natural languages (and brings arguments against the ambiguity approaches to *even*).

**Keywords:** PPIs; scalar particles; alternatives; experimental linguistics

## 1. Introduction

In this paper, we describe an experiment on Czech polarity items and scalar particles.<sup>1</sup> The experiment brings new data in support of a pragmatic theory of polarity items (PI) licensing as formulated in Heim (1984), Krifka (1995) and developed in more

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detail by Crnič (2011, 2012, 2014). The pragmatic theory of PI applied to *even* (one of the most prominent and most studied PI) belongs to the scope type of *even* theories because it explains some intricate ambiguity patterns via scope interactions between *even* and other logical operators in the clause (prejacent) where *even* appears. Czech is an important source of linguistic data concerning polarity items and scalar particles because it is more expressive (in this area) than the more studied English. Consider sentence (1) from Rullmann (1997, ex. (26)). The sentence is reported by Rullmann to be ambiguous between a reading where the scalar particle *even* associating with the NP *Syntactic Structures* yields a very unlikely / very remarkable presupposition (in (1) then a supporting context would be such where reading *Syntactic Structures* is a very unlikely/remarkable thing for a linguist to do) and a reading where *even* associating with the same NP produces just the opposite presupposition: that reading *Syntactic Structures* is a very likely thing for a linguist to do.

(1) They hired every linguist who had even read SYNTACTIC STRUCTURES.

Now we turn to Czech: (1) is disambiguated in Czech w.r.t. the different presuppositions by using two lexical items: *i* (least likely) *even* and *ani* (most likely) *even*: (2) and (3). Because *ani* usually requires clause-mate negation, (2) has to be adopted (negated) in (3) but because the likelihood part of the meaning is a presupposition, it projects through the negation.

(2) Přijali každého lingvistu, který si přečetl  
hire-PAST.3PL every linguist-Acc.SG who SE read-PAST.3SG  
**i** SYNTAKTICKÉ STRUKTURY.  
even syntactic structure-Acc.PL  
“They hired every linguist who had even read *Syntactic Structures*.”

(3) Přijali každého lingvistu, který si nepřečetl  
hire-PAST.3PL every linguist-Acc.SG who SE NEG-read-PAST.3SG  
**ani** SYNTAKTICKÉ STRUKTURY.  
even syntactic structure-Acc.PL  
“They hired every linguist who had even read *Syntactic Structures*.”

Such data (existence of more lexical items corresponding to the English *even*) were already observed at least for Greek, Dutch, German, Finnish and Swedish and were used for so-called lexical/ambiguity theories of *even* (Rooth 1985; Rullmann 1997; Giannakidou 2007; a.o.). The ambiguity theories of *even* basically claim that generally there is the positive *even* (such as the Czech *i*) with a least likely presupposition and the negative *even* (such the Czech *ani*) with a most likely presupposition which

in some languages (such as English) collapse into one lexical item (resulting in ambiguity in examples such as (1)). From a general point of view, positing such an ambiguity repeated in different lexical pairs language after language is suspicious. Moreover, even if *prima facie* data such as (2) and (3) seem to point in the direction of ambiguity approaches, the results of the experiment reported below bear direct empirical evidence against the ambiguity approaches. Because of that, we will couch our formalization in the scope approaches to *even* (Heim 1984; Krifka 1995, 2011; a.o.) but we'll comment on the consequences for the ambiguity approach where appropriate.

The structure of the paper is the following: in Section 2 Theoretical background we introduce the linguistic assumptions behind the experiment: we work with the scope theory of *even*; Section 3 Positive *even* in Czech summarizes the results of the experiment and shows that the scope theory of *even* predicts the observed data patterns mostly right; Sections 4 and 5 Summary and Interpretation address some puzzling outcomes of the experiment.

## 2. Theoretical Background: Unified Theory of (N/P)PI and Scalar Particles

In this section, we will first introduce the background theoretical assumptions and frameworks we use. Based on the previous theoretical works, we will consider Polarity Items (PI) to be introducing alternatives that are ordered w.r.t. likelihood in a certain way using a covert operator *even* which is useful for capturing the nature of the Czech *ani* and *i*.

Let us start with Krifka's (1995) observation that emphatic (strong) Negative Polarity Items (NPIs) and Positive Polarity Items (PPIs) are subject to the same probability-based presupposition (Emph.Assert in Krifka's terminology): strong NPI in (4a) becomes acceptable when the sentence is negated: (4b); for PPI *tons of money* just the opposite is true: (5a) vs. (5b).

- (4) (a) \*Mary read even ONE book.  
 (b) Mary didn't read even ONE book.
- (5) (a) \*Mary doesn't have TONS of money.  
 (b) Mary has TONS of money.

In our article, we use Krifka's spirit but rely on Heim/Crnič formalization (Heim 1984; Crnič 2011; Crnič 2014) of Krifka's ideas. Especially we need the following ingredients:

1. PIs are alternative-introducing (stressed *ONE* in (4) introduces numeral alternatives: 2, 3, 4, ...);
2. alternatives are integrated into truth-conditions via the covert *even* ( $\approx$  Krifka's Emph.Assert) operator;
3. *even* is vacuous in truth-conditions but triggers a scalar presupposition.

*Even*'s presupposition is of the pragmatic nature: the sentence in which *even* occurs has to be least likely among alternatives (consider a sentence such as *Even Martin Luther King joined Ku Klux Klan* where the alternatives would be other possible individuals, all of them more probable candidates for joining than MLK). The unlikelihood presupposition is computed even if *even* is covert and obligatorily triggered, e.g., by strong NPIs or PPIs. The formalization of the presupposition is in (6) – after Crnič (2014, ex. (4)).<sup>2</sup>

(6)  $\text{even}(C)(p,w)$  is defined only if  $\forall q \in C: p \neq q \rightarrow p <_C q$ .

We will now demonstrate the framework on the basic cases (4) and (5). Consider (7): in the adopted theory the sentence is unacceptable because it triggers a presupposition which is inconsistent in any context, namely that all the alternative propositions ( $\{ \textit{Mary read 2 books, Mary read 3 books, ...} \}$ ) are more likely than the prejacent proposition. Notice that the ranking of likelihood respects entailment and if  $p \rightarrow q$ , then  $q$  cannot be less likely than  $p$  ( $q \not<_C p$ ), by way of example:  $\llbracket \textit{read 2 books} \rrbracket \rightarrow \llbracket \textit{read 1 book} \rrbracket \dots \llbracket \textit{read 1 book} \rrbracket \not<_C \llbracket \textit{read 2 books} \rrbracket$ .

(7) (a) \**Mary read even ONE book.*

(b)  $\text{even}(C)(\textit{Mary read one book})$  is defined only if for all relevant  $n > 1$ : *Mary read one book*  $<_C$  *Mary read  $n$  books.* (inconsistent)

It follows then that weak elements (bottom elements of scales) become grammatical (in case they trigger the *even* presupposition) if a scale reversing operator intervenes between the overt (or covert) *even* and the weak element. A necessary ingredient for this to work is the scope theory of *even*: *even* is allowed to scope over negation or other Downward-entailing (DE) operators. With this in mind, consider the theoretical explanation of the grammatical (8a) in (8b): negation reverses entailment; consequently, the

<sup>2</sup> The symbol  $<$  presents the relation between A and B such that  $A < B$  means that A is less likely than B. (We use the symbol  $<$  instead of Crnič's  $\triangleleft$ , but the symbols mean exactly the same.)  $p <_C q$  means that all alternatives are less likely than the propositional argument p (in a given context C).

prejacent entails all the alternatives and then is the least likely among them. As a result, the presupposition of (8a) is consistent in all contexts. Note that if *even* stayed in its surface scope position, its presupposition (projecting through the negation) would be as inconsistent as in (7).

(8) (a) Mary didn't read even ONE book.

(b)  $\text{even}(C)(\text{Mary didn't read one book})$  is defined only if for all relevant  $n > 1$ : Mary didn't read one book  $<_c$  Mary didn't read  $n$  books.  
(consistent)

According to Krifka, the same is operative in the case of Positive Polarity Items (PPIs). We assume the usual monotonicity of degrees, therefore if Mary in (9a) has tons of money, she has all lesser amounts of money too, the extreme value (tons of money) entails all lesser degrees, and the presupposition of (9a) in (9b) is consistent in all contexts (in this case, *even* is covert).

(9) (a) Mary has TONS of money.

(b)  $\text{even}(C)(\text{Mary has tons of money})$  is defined only if for all relevant  $n < \text{tons of money}$ : Mary has tons of money  $<_c$  Mary has  $n$ -money.  
(consistent)

In the case of an intervening operator (negation in (10a)) the prediction is just reversed than in the case of strong NPIs: not having tons of money is logically weak because it is entailed by all lesser degrees (than tons of money); and consequently, cannot be less likely than all the alternative propositions, the sentence in (10a) is inconsistent in all contexts (10b).

(10) (a) # Mary doesn't have TONS of money.

(b)  $\text{even}(C)(\text{Mary doesn't have tons of money})$  is defined only if for all relevant  $n < \text{tons of money}$ : Mary doesn't have tons of money  $<_c$  Mary doesn't have  $n$ -money. (inconsistent)

The framework introduced above is a very attractive tool for a description of Czech data: we assume that Czech *i* behaves similarly to PPIs of the TONS OF MONEY type (or the English *even* with unlikelihood presupposition in sentences such as (1)). *Ani*, we assume, is a counterpart of the English *even* associating with weak elements (in downward entailing contexts like in (8a) – see (11).

- (11) (a) *i* “positive even” scalar particle  
(b) *an-i* “not-even” strong NPI

In the rest of the paper we discuss an experiment designed to verify the following hypothesis:

- (12) Expressions which associate with scalar items at the top end of scales exhibit PPI behaviour.

Notice that the hypothesis is very different from the usual PPI approaches (Szabolesi 2004, a.o.) focusing on *some*, disjunctions and other expressions of weak logical nature. Nevertheless, for a very similar perspective (as the one adopted here) to superlative–modified numerals as PPIs see Mihoc and Davidson (2017) and Cohen and Krifka (2014). Next, for the sake of consistency (and also because of space limitations) we will discuss just a subset of conditions which were tested in the experiment: the experiment was designed as a mapping territory project, we tested strong NPIs (*ani* “neg-even”) in it too, but we will not report details of the whole experiment in our current article.

### 3. Positive *even* in Czech

This section summarizes a relation between likelihood and scopal properties of the Czech *i* “even” and its PPIs behaviour w.r.t several environments tested in the experiment. We introduce the design of the experiment focusing on *i* and the results we found. We experimentally tested whether the Czech *i* “even” carries the unlikelihood presupposition (discussed in the last section) and whether it behaves like a PPI; namely, we tested: (i) likelihood properties of *i* “even” in likelihood manipulated contexts; (ii) PPIs behaviour and covert *even* scopal properties. We investigated the hypothesis (12): whether maximal degrees (plus their appropriate alternatives) can lead to PPI behaviour.

#### 3.1 Method

##### 3.1.1 Procedure and Participants

The experiment was run on Ibex and the participants filled the experiment online. The experiment began with instructions and following that the experiment continued with practice items; then the subjects rated real items and fillers.

We used the Latin square design in both experimental parts. The experiment was presented in such a way that each item appeared only once in the whole experiment for each subject, whereas individual conditions cycled with the subjects. The order of items and fillers was presented to each participant randomly.

The experiment was distributed by HUME Lab – Experimental Humanities laboratory at Masaryk University to the students within a course focused on experimental

methods taught by HUME Lab. The students received the course credit for their participation. Fifty Czech native speakers participated in the experiment.

### 3.1.2 Materials

The experiment consisted of the truth value judgment task: we used the 5-point Likert scale from 1 (*absolutně nepřijatelná věta* “completely unacceptable sentence”) to 5 (*věta je naprosto v pořádku* “completely acceptable sentence”). The experiment tested whether a sentence fits a given context. The context preceded the target sentence. The experiment consisted of two parts.

**Part 1:** there were 18 items and 18 fillers in the first part of the experiment in two sub-conditions: (i) items with *i* “even”, and (ii) items with *ani* “not even”. A sample item including both sub-conditions is shown in (13).

(13) Context: Brown rice can preserve essential vitamins, but it has to be stored in the fridge, packed in a hermetic container and you have to consume it within three days after cooking.

- |                                                                                                        |     |
|--------------------------------------------------------------------------------------------------------|-----|
| (a) Rýže v ledničce vydrží <b>i</b> tři dny.<br>“Rice lasts even three days in the fridge.”            | TOP |
| (b) Rýže v ledničce nevydrží <b>ani</b> tři dny.<br>“Rice doesn’t last even three days in the fridge.” | TOP |
| (c) Rýže v ledničce vydrží <b>i</b> dva dny.<br>“Rice lasts even two days in the fridge.”              | MID |
| (d) Rýže v ledničce nevydrží <b>ani</b> dva dny.<br>“Rice doesn’t last even two days in the fridge.”   | MID |
| (e) Rýže v ledničce vydrží <b>i</b> jeden den.<br>“Rice lasts even one day in the fridge.”             | LOW |
| (f) Rýže v ledničce nevydrží <b>ani</b> jeden den.<br>“Rice doesn’t last even one day in the fridge.”  | LOW |

In this article, we describe the first sub-condition, i.e., items with *i* because we focus only on PPI-behaviour in the present study. A sample item restricted to the first sub-condition (positive *even*) is in (14).<sup>3</sup>

<sup>3</sup> The context used in the examples (13) and (14) remains the same.

All items were tested in three conditions:

1. TOP: top of the scale (14a)
2. MID: middle of the scale (14b)
3. LOW: low of the scale (14c)

- (14) (a) Rýže v ledniče vydrží i tři dny.  
 rice-Nom.SG in fridge-Loc.SG last-PRS.3SG even three day-Acc.PL  
 “Rice lasts even three days in the fridge.”
- (b) Rýže v ledniče vydrží i dva dny.  
 rice-Nom.SG in fridge-Loc.SG last-PRS.3SG even two day-Acc.PL  
 “Rice lasts even two days in the fridge.”
- (c) Rýže v ledniče vydrží i jeden den.  
 rice-Nom.SG in fridge-Loc.SG last-PRS.3SG even one day-Acc.SG  
 “Rice lasts even one day. in the fridge.”

The logical scale for the contextual alternatives is the following (because of the contextual entailment, the likelihood is ordered as in (15b)):

- (15) (a)  $x$  lasts 3 days  $\rightarrow$   $x$  lasts 2 days  $\rightarrow$   $x$  lasts 1 day  
 (b)  $x$  lasts 3 days  $<_c$   $x$  lasts 2 days  $<_c$   $x$  lasts 1 day

The alternative *x lasts 3 days* is the strongest one because it entails the alternatives *x lasts 2 days* and *x lasts 1 day*. Simultaneously, the alternative *x lasts 3 days* is the least likely alternative because it is less likely than *x lasts 2 days* and it is less likely than *x lasts 1 day*. The likelihood respects entailment in this case; therefore, the strongest alternative is also the least likely alternative.<sup>4</sup> In the experiment we used other contextual and logical scales too:

- (16) (a) logical scale: buy 3 kg of sugar  $\rightarrow$  buy 2 kg of sugar  $\rightarrow$  buy 1 kg of sugar  
 (b) contextual scale: come often  $\rightarrow$  come sometimes  $\rightarrow$  come seldom

<sup>4</sup> The likelihood respects entailment, but if there is no entailment, the likelihood can be manipulated by a context in any way. The proposition *John will win the election* is logically independent of the proposition *Mary will win the election* and vice versa, but these two propositions are ordered by likelihood: there are always more likely and less likely candidates in elections; therefore even if there is no entailment, there is a likelihood ordering between these two propositions. The likelihood between logically independent propositions can be manipulated by the context, but if the propositions are in the entailment relation, the likelihood must respect the entailment.

According to the assumed theories, we predicted that the condition TOP would be the most acceptable because the positive *even* should associate with the least likely alternative; therefore, we expected the acceptability neither in the condition LOW nor in the condition MID.

**The second part** of the experiment consisted of 32 items and 32 fillers in the same two sub-conditions as in the first part: (i) items with *i* “even”, and (ii) items with *ani* “not even”. A sample item including all five conditions is shown in (17).

- (17) Context: A mother would be happy if her son worked for the police. The lowest rank is a sergeant, the highest is a general and somewhere in the middle is a colonel.
- (a) Syn se nakonec nestal **ani** rotným. NEG-ANI  
“In the end, the son didn’t become neg-even a sergeant.”
- (b) Syn se nakonec nestal **ani** generálem. NEG-ANI-TOP  
“In the end, the son didn’t become neg-even a general.”
- (c) Jestli se syn stane **ani** rotným, bude matka ráda. COND-ANI  
“If the son becomes neg-even a sergeant, his mother will be happy.”
- (d) Otec nechce, aby se syn stal **ani** rotným. NR-ANI  
“The father doesn’t want his son to become neg-even a sergeant.”
- (e) Otec nechce, aby se syn stal **i** generálem. NR-I  
“The father doesn’t want his son to become even a general.”
- (f) Syn nakonec vystudoval biochemii a nestal se **i** generálem. NEG-I  
“In the end, the son studied biochemistry and he didn’t become even a general.”
- (g) Jestli se syn stane **i** generálem, matka bude ráda. COND-I-TOP  
“If the son becomes even a general, his mother will be happy.”
- (h) Jestli se syn stane **i** rotným, matka bude ráda. COND-I-BOT  
“If the son becomes even a sergeant, his mother will be happy.”

We focus now on a subset of conditions examining *i* “even”:

1. NEG: *i* in a simple negative sentence (18a);
2. COND-TOP: *i* in the antecedent of the conditional associating with the top of the scale element (18b);
3. COND-BOT: *i* in the antecedent of the conditional associating with the bottom of the scale element (18c).

In this part of the experiment, we used logical and contextual scales, as in the first part of the experiment. A sample item restricted to 3 conditions<sup>5</sup> of all 5 conditions is in (18).<sup>6</sup>

- (18) (a) Syn                      nakonec                      vystudoval                      biochemii  
 son-Nom.SG                      in the end                      study.PAST.3SG                      biochemistry-Acc.SG  
 a                      nestal                                              se                      i                      generálmajorem.  
 and                      neg-become-PAST.3SG                      SE                      even                      general-Ins.SG  
 “In the end, the son studied biochemistry and he didn’t become even a general.”
- (b) Jestli    se    syn                      stane                                              i                      generálmajorem  
 if                      SE    son-Nom.SG                      become-FUT.3SG                      even                      general-Ins.SG  
 jeho                      matka                                              bude                                              šťastná.  
 his                      mother-Nom.SG                      Be-FUT.3SG                      happy-Nom.SG  
 “If the son becomes even a general, his mother will be happy.”
- (c) Jestli    se    syn                      stane                                              i                      rotným  
 if                      SE    son-Nom.SG                      become-FUT.3SG                      even                      sergeant-Ins.SG  
 jeho    matka                                              bude                                              šťastná.  
 his    mother-Nom.SG                      Be-FUT.3SG                      happy-Nom.SG  
 “If the son becomes even a sergeant, his mother will be happy.”

The contextual scale of the alternatives given in the context is the following:

- (19) (a) become general → become colonel → become sergeant  
 (b) become general <<sub>c</sub> become colonel <<sub>c</sub> become sergeant

The alternative *become general* is the strongest one because it entails *become colonel* and it entails *become sergeant*. Simultaneously, the alternative *become general* is the least likely alternative because it is less likely than *become colonel* and it is less likely than *become sergeant*.

We hypothesize that *i* is PPI; therefore it should be unacceptable in simple negative sentences. Taking into account Krifka’s/Crnič’s theory (Krifka 1995; Crnič 2011, 2012),

5 The conditions were chosen with respect to the testing of the PPI behaviour of the Czech *i*. Taking into account theoretical prediction, *i* is ungrammatical in simple negative sentences, and it should be grammatical in the antecedent of the conditional associating with the strong element (COND-TOP) unlike associating with the weak element (COND-BOT) because PPIs associate with the strong element.

6 The context used in the examples (17) and (18) remains the same.

we expected that only a weak element should be grammatical in the antecedent of conditional, not a strong element (predicted preference of COND-BOT over COND-TOP).

### 3.2 Results

The fillers were uncontroversially grammatical/acceptable, and we checked whether the average of each participant’s responses to ungrammatical fillers was lower than the average of their responses to grammatical fillers. All the participants successfully passed the fillers; therefore, we kept all participants in the subsequent analysis. Responses in the experiment were modeled by linear mixed-effects models (in R package *lmer*).

#### 3.2.1 Part 1

To model the data, we constructed a mixed linear model which tested whether the subjects’ answers can be predicted from a condition (fixed effect) and whether the conditions are statistically significantly different. The model had one predictor, i.e., reference level condition: MID (relevelled) and all fixed effects were significant (the model also included random effects for subjects and items). The model reports that the condition LOW was significantly different from the condition MID and it shows that the condition TOP is significantly different from the condition MID as well.<sup>7</sup> The output of the model is reported below:

| Fixed effects:       |          |        |          |         |                 |
|----------------------|----------|--------|----------|---------|-----------------|
|                      | Estimate | Error  | df       | t value | Pr(> t )        |
|                      | Std.     |        |          |         |                 |
| <b>(Intercept)</b>   | 3.3500   | 0.1915 | 14.2807  | 17.491  | 4.80e-11<br>*** |
| <b>Condition LOW</b> | -1.0257  | 0.1415 | 382.4998 | -7.246  | 2.38e-12<br>*** |
| <b>Condition TOP</b> | 0.6831   | 0.1415 | 382.4998 | 4.826   | 2.02e-06<br>*** |

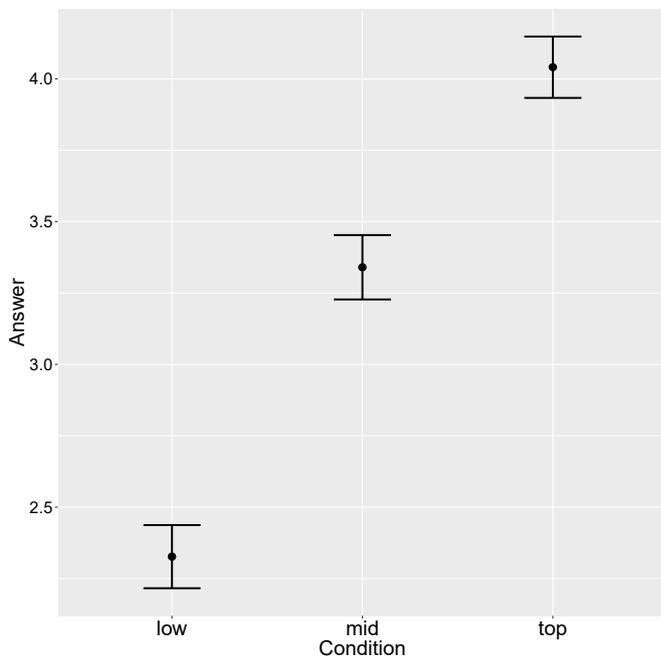
**Table 1.** The statistical output: Part 1

|                      | (Intr) | Cndtnl |
|----------------------|--------|--------|
| <b>Condition LOW</b> | -0.370 |        |
| <b>Condition TOP</b> | -0.370 | 0.500  |

**Table 2.** Correlation of Fixed Effects: Part 1

<sup>7</sup> Three stars for each condition symbolize the high statistical difference between the given condition and the reference level.

Error bars<sup>8</sup> of the individual conditions of the first part are shown in Figure 1.



**Figure 1.** Results of part 1

The statistical output and descriptive statistics clearly show:

- i. the high preference for strong expressions associating with *i* (TOP was significantly better than MID);
- ii. the unacceptability of weak expressions associating with *i* (LOW was significantly worse than MID);
- iii. in linguistic terms: *i* required the least likely alternative;
- iv. in-between-acceptability for MID condition (which was not expected) can be explained in various ways. The first conceivable option (suggested as a possibility by Crnić [2011] as well for a bit different type of cases) is to weaken the universal quantifier from (6) to an existential quantifier, in other words, to claim that just some of the alternatives have to be more likely than the prejacent. But

<sup>8</sup> Error-bars graph shows the variation, which from the data, you would expect can occur if repeating the experiment with different subjects. It is not a real variation among participants but an expected variation across experiments.

the result of our experiment shows that such a move is unmotivated because then it would be expected that MID and TOP conditions would be acceptable to the same extent – contrary to the facts. Another option is to blame the acceptability of MID on domain manipulation (clearly the universal presupposition of (6) is not satisfied in MID) and this is the route we take: we suggest that participants shrunk the domain to two alternatives only instead of three alternatives in such a way that they took into consideration alternatives *x last 1 day* and *x lasts 2 days*; therefore, the alternative *x lasts 2 days* was the strongest one in this case (and satisfying the universal presupposition). But the shrinking of the domain does not lead to the same high acceptability as the condition TOP with all three alternatives because additional operation (shrinking) had to be processed. As suggested by the anonymous reviewer, such shrinking in itself does not explain the lowered acceptability of MID, since an additional operation (shrinking) does not necessarily lower the acceptability of conditions. We agree on that point but still believe that the shrinking of the domain is the only viable theoretical explanation of the observed facts. Nevertheless, we plan to construct a follow-up experiment where we will test on more dense scales whether the effect will be gradable: such gradability would be another supporting evidence for the shrinking of the domain solution (e.g. in a 10-points domain, association of *i* with 9 is expected to be more acceptable than association with 6).

### 3.2.2 Part 2

In the second part, we again constructed a mixed linear model of the acceptability of the three conditions (the conditions were fixed effects) to model the data. The model had one predictor, i.e., reference level condition: COND-BOT and each condition (COND-TOP and NEG) was significantly different from the condition COND-BOT (the model again included random effects for subjects and items).<sup>9</sup> The output of the model follows:

| Fixed effects:                |                  |        |          |         |                 |
|-------------------------------|------------------|--------|----------|---------|-----------------|
|                               | Estimate<br>Std. | Error  | df       | t value | Pr(> t )        |
| <b>(Intercept)</b>            | 3.0210           | 0.1234 | 112.5777 | 24.490  | < 2e-16 ***     |
| <b>Condition<br/>COND-TOP</b> | 0.5883           | 0.1293 | 515.7070 | 4.551   | 6.66e-06<br>*** |
| <b>Condition NEG</b>          | -1.2590          | 0.1285 | 531.0764 | -9.801  | < 2e-16 ***     |

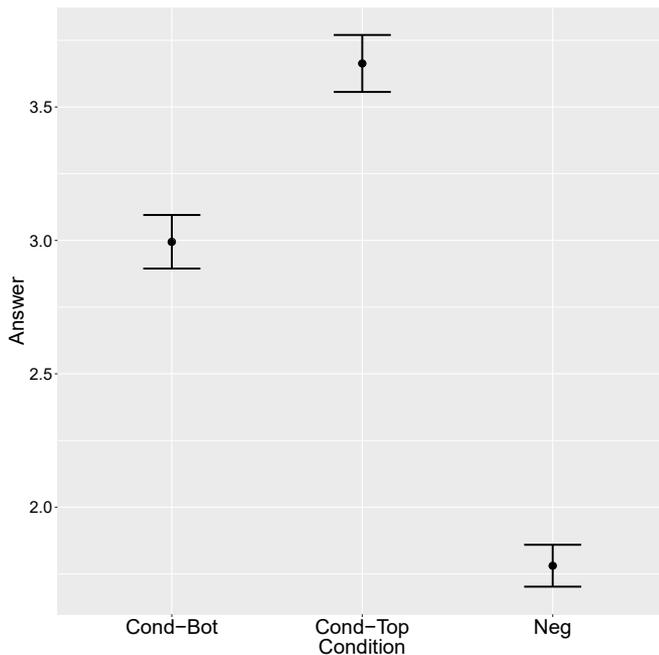
**Table 3.** The statistical output: Part 2

<sup>9</sup> As in part 1, a highly significant difference between each condition and the reference level condition is represented by three stars.

|                           | (Intr) | CndC-T |
|---------------------------|--------|--------|
| <b>Condition COND-TOP</b> | -0.521 |        |
| <b>Condition NEG</b>      | -0.520 | 0.499  |

**Table 4.** Correlation of Fixed Effects: Part 2

Error bars of the individual conditions of the second part are shown in Figure 2.

**Figure 2.** Results of part 2

Results of the second part show that:

- i. *i* prefers to associate with strong elements but not so uncontroversially as in simple sentences in the first part of the experiment (COND-TOP was significantly better than COND-BOT);
- ii. *i* is ungrammatical in negative sentences (NEG);
- iii. *i* associating with the top of the scale is more acceptable than with the bottom of the scale in the antecedent of the conditional, but both are better than NEG.

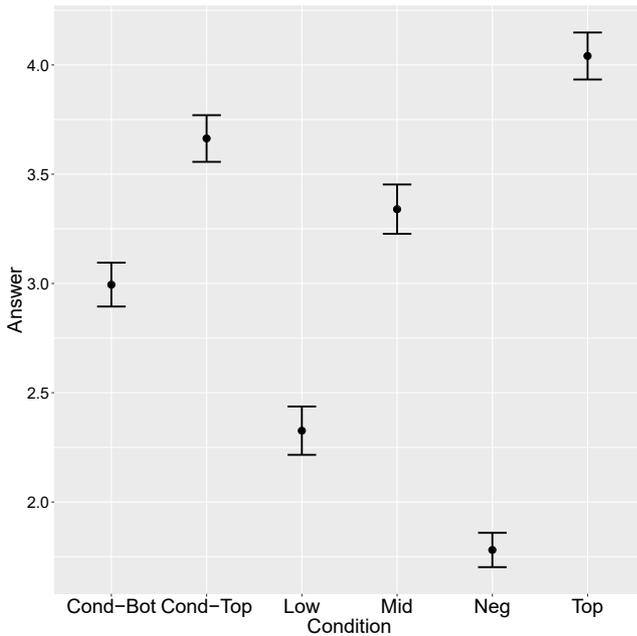
### 3.2.3 Overall Results

Putting the first part and the second part together, the descriptive statistics showing means and medians<sup>10</sup> of the individual conditions is the following:

|   | Condition | Means    | Medians |
|---|-----------|----------|---------|
| 1 | COND-BOT  | 2.994898 | 3       |
| 2 | COND-TOP  | 3.663265 | 4       |
| 3 | LOW       | 2.326531 | 2       |
| 4 | MID       | 3.340136 | 4       |
| 5 | NEG       | 1.780612 | 1       |
| 6 | TOP       | 4.040816 | 5       |

**Table 5.** Means and medians of the individual conditions

Error bars of the individual conditions of both parts are shown in Figure 3.



**Figure 3.** Overall results

<sup>10</sup> The mean differs from the median in that the mean is the average of all numbers whereas the median is obtained by ordering all numbers from the smallest number to the largest one and then the central value (or the average of the two central value) is taken.

The most surprising result of the experiment is the preference of Czech native speakers for strong elements in the antecedent of the conditionals (conditions COND-TOP > COND-BOT); in other words the pseudo-Czech version of the two conditions from the example item in (18) repeated here as (20) shows the acceptability as indicated by question marks. This is surprising as the antecedent of conditional is Strawson-DE environment, and consequently, only weak elements are expected to be grammatical if associated with (by hypothesis) PPI *i*.<sup>11</sup> The two presuppositions of the strong and weak elements are shown in (21a) and (21b). We will deal with this discrepancy between the predictions of the theory and the experimental results in the next section.

- (20) (a) ? If the son becomes *i* general, then ...  
 (b) ??If the son becomes *i* sergeant, then ...
- (21) (a) even(C) (if the son becomes general, ...) is defined only if for all relevant alternatives  $a \in \{\text{sergeant, mayor, general}\}$ : if the son becomes general, ...  
 $\prec_c$  if the son becomes  $a$ , ... (inconsistent)
- (b) even(C) (if the son becomes sergeant, ...) is defined only if for all relevant alternatives  $a \in \{\text{sergeant, mayor, general}\}$ : if the son becomes sergeant, ...  
 $\prec_c$  if the son becomes  $a$ , ... (consistent)

Another result of the experiment bears on the question of choosing the right theory (scopal/ambiguity) for *even* (cross-linguistically). The results of our experiment are at least unexpected from the perspective of ambiguity theories: in simple cases *i* behaves like the positive *even* postulated in such theories but in a more complex context it allows not only the association with strong elements (the condition COND-TOP) but

11 Note that the conditionals are Strawson-downward entailing, analogically to the restriction of plural definites and universal quantifiers. The entailment pattern for Strawson-DE is illustrated below:

- (iii) (a) If the son becomes sergeant, his mom will be happy.  
 $\approx \forall w \in Acc[\text{the son becomes sergeant in } w \rightarrow \text{the mom happy in } w]$
- (b) It is possible that the son will become mayor or more.
- (c)  $\{w: \text{the son becomes mayor or more in } w\} \subseteq \{w: \text{the son will become sergeant in } w\}$
- (d)  $\models$  If the son becomes general, his mom will be happy.  
 $\approx \forall w \in Acc[\text{the son becomes general in } w \rightarrow \text{the mom happy in } w]$

even also with the weak elements (the relatively acceptable condition COND-BOT); in other words: it shows both the unlikelihood and the likelihood presupposition derivable by different scopes of *even* predicted by the scope theory but unavailable in the ambiguity theories, where elements like *i* are described as having a rigid scope and only the unlikelihood presupposition.

#### 4. Summary

Let us now summarize the experimental results. We tested the Czech *i* in several conditions with respect to its likelihood and scalar properties, plus its PPI behaviour. Now we will discuss the linguistic consequences of the experimental results.

We can summarize the results of the experiment in the following manner: the condition TOP and NEG in (22) are reference level conditions, TOP being the positive benchmark and NEG the negative one. All the other conditions lie in the acceptability interval between the two: (23). The PPI analysis of *i* as a Czech *even* contributing the unlikelihood presupposition then explains all the conditions with the exception of COND-TOP. The acceptability of TOP and unacceptability of LOW are straightforward because *i* can associate with the strong element in a simple sentence but not with the weak element which contributes to the prediction of the PPI behaviour of *i*. The worst status of NEG under the PPI analysis is uncomplicated. In fact, we consider the worst acceptability of NEG to be a consequence of the concurrence of *i* in grammar with *ani*. However, as in this article we focus on *i* and the PPI analysis explains the NEG worst acceptability as well, we leave more detailed scrutiny for future research. We will focus on the antecedent of conditionals in the following section because the pattern is not so unproblematic as other conditions.

- (22) (a) ✓ [... *i* + TOP ...] Top  
 (b) \*¬[... *i* ...] Neg
- (23) (a) if [... *i* + TOP ...] Cond-Top  
 (b) [... *i* + MIDDLE ...] Mid  
 (c) if [... *i* + BOTTOM ...] Cond-Bot  
 (d) [... *i* + LOW ...] Low

#### 5. Interpretation

As was observed before, in most cases the scope theory of *even* can be applied directly but in the case of Strawson-DE environments the Czech *i* may associate either with the weak element or the strong element; however, the PPI-behaving *even* should be grammatical when associating only with weak elements in this environment (COND-BOT). Let us repeat the problematic conditions in (24) – such a pattern is problematic for the *even*-approaches to PIs. But there is already a theoretical solution based on a very similar type

of pattern: Crnič (2012) notices that, unexpectedly, a sentences such as the one in (25) is acceptable for English native speakers: its acceptability is unexpected for similar reasons we discussed w.r.t. (24): universal quantifier in (25) is entailed by the alternative existential quantifier, so cannot be less likely; the calculation of the presupposition is in (25a).

- (24) (a) ? If son becomes *i* general, then ...  
 (b) ??If son becomes *i* sergeant, then ...
- (25) Even if John read ALL of the books, he will fail the exam.  
 (a) even(C)(if John read all book ...) is defined only if John read all book ...  $<_c$  if John read some books ... (inconsistent)

Crnič's solution to the problem is the following one: he claims that the alternatives computed by *even* are not the expected alternatives in (26a) but exhausted alternatives in (26b). The alternatives in (26b) are logically independent and consequently can be ordered on a likelihood scale in any way compatible with the context. This is similar to logically-independent propositions *{John will win the race, Mary will win the race}* which can be ordered by likelihood in any reasonable ranking compatible with the context. If the alternatives for (25) are the ones in (26b), even the strong element in the SDE environment can trigger a consistent presupposition. The technical implementation of this idea, again following Crnič, is via embedded exhaustification, as shown in (26c). The exhaustification operator similar in meaning to the English focus sensitive particle *only* is defined in (27).

- (26) (a) {that if John read all of the books, he will fail the exam; that if John read some of the books, he will fail the exam}  
 (b) {that if John read all of the books, he will fail the exam; that if John read some but not all of the books, he will fail the exam}  
 (c) [even  $C_2$ ] [if [exh  $C_0$ ] [John read all<sub>F</sub> of the books] he will fail the exam]

- (27)  $\text{exh}(C)(p,w) = 1$  iff  $p(w) = 1$  and  $\forall q \in C[p \not\subseteq q \rightarrow q(w) = 0]$   
 all the alternatives not entailed by the prejacent are false

It is easy to apply such reasoning to our experimental results: the problematic configuration has a logical form in (28) where *even* scopes over an embedded exhaustification operator. Again, the alternatives which are produced by the *exh*-operator – (28a) – are logically independent and can be manipulated by the context. In our case the presupposition of *even* is consistent. Moreover, the exhaustification strategy predicts that in

this case the linguistic context ranks the likelihood; in the example at hand correlating a mother's happiness with the rank of her son's hierarchy corresponds to our common-sense view of the world and can explain why top-elements were more acceptable in items analogical to (28).

- (28) [even C<sub>2</sub>] [if [exh C<sub>0</sub>] [son becomes general]<sub>F</sub>] mother will be happy]
- (a) {that if the son becomes general, his mother will be happy; that if the son becomes mayor and not general, his mother will be happy; that if the son becomes sergeant and not general, his mother will be happy}

The most unlikely and the most likely interpretation of the Czech *i* is the most surprising and to some extent controversial. It was noticed in the current psycho-linguistic literature (Altmann and Steedman 1988, Frazier 1978, a.o.) that sine qua non-human parser selects a simpler syntactic (or semantic) structure over a more complex one. But embedded exhaustification we postulated as a theoretical tool for explaining the higher acceptability of COND-TOP over COND-BOT is semantically more complex in the case of COND-TOP, as the LF of COND-TOP involves one more level of alternative embedding (the exh-operator) than in case of COND-BOT. We believe that the results of the experiment present good empirical arguments for the embedded exhaustification, but naturally, its usage poses non-trivial questions too. One immediate prediction which can lead us forward in answering at least some of them is the following one in (29). The prediction simply states the consequences of our analysis: if *i*-association with strong elements over interfering scalar-reversing operators is a result of embedded exhaustification, it should lead to unacceptability in the cases of blocked or weakened exhaustification. And there seems to be some empirical evidence in favor of such a prediction.

- (29) Prediction: the environments where the exhaustification is blocked or weakened should not allow association of *even* with strong elements.

Crnič (2012) assumes that obligatory exhaustification in (30a) – without embedded exhaustification (=... *read some but not all* ...) the sentence would be unacceptable – is related to acceptability of *all* in (30b). But because exhaustification in the scope of *doubt* in (31a) is weakened, the sentence is less acceptable and a strong element in (31b) cannot be associated with *even*. It remains to be established whether good empirical support of this prediction can be found – which is our project for future research.

- (30) (a) The students who read some of the books failed the exam but also the students who read all of the books did.
- (b) Even the students who read ALL of the books failed the exam.

(31) (a) ?I doubt that John read some of the books, but I also doubt that he read all of the books.

(b) ?I even doubt that John read ALL of the books.

## 6. Conclusion

This article reports the results of an experiment focusing on the scalar particle *i* “even”. The results of the experiment bring empirical support for theories treating scalar particles and their distribution with respect to classes of expressions admissible as their focus associates as derivable from a likelihood presupposition. The individual pieces of the experimental data lend support to the following sub-conclusions:

1. *i* “even” carries an likelihood presupposition; in environments which do not satisfy the presupposition (LOW), *i* becomes ungrammatical – this supports Heim (1984), Krifka (1995) and Crnič (2011) type of scalar particles/polarity items theories;
2. *i*’s presupposition is interpreted with wider scope than scale-reversing operators (COND-BOT); if *i* cannot associate with weak elements across a scale reversing operators, it is un-acceptable (NEG – possibly also outcome of *i* competition with *ani*) – in support of a PPI analysis of *even* such as Rullmann (1997); see Hoeksema (2009) and Morzycki (2012) for a similar approaches to swarm constructions and extreme adjective respectively;
3. in some cases *i* allows association with strong elements across a scale-reversing operator too (COND-TOP): this results from an embedded exhaustification as observed for *even* associating with universal quantifier in Crnič (2012);
4. as discussed in more detail at the end of Section 3, our experimental results strongly prefer the scope theories of *even*, since the proposed rigid likelihood presupposition of *i* (in the ambiguity theories) goes against the observed ambiguity of this Czech *even*: both the most unlikely and the most likely interpretations were acceptable in the antecedent of conditionals, as discussed in Section 5.

Our experimental results strongly support the hypothesis of the PPI behaviour of the Czech *i*; however, the PPI hypothesis predicts preference of the condition COND-BOT over the condition COND-TOP which was not experimentally confirmed. We suggest that the PPI behaviour in the antecedent of the conditional is masked by the embedded exhaustification.

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# Pragmatic and Syntactic Recursion of a Person Suffering from Schizoaffective Disorder in His Acute Phase: A Case Study

Eszter Kárpáti<sup>a</sup>, Anita Bagi<sup>b</sup>, István Szendi<sup>c</sup>, Lujza Beatrix Tóth<sup>d</sup>, Karolina Janacsek<sup>e</sup>, and Ildikó Hoffmann<sup>f</sup>

<sup>a</sup>University of Pécs, Pécs, Hungary; <sup>b, c, d, f</sup>University of Szeged, Szeged, Hungary; <sup>e</sup>Eötvös Lóránd University, Budapest, Hungary

<sup>a</sup>karpati.eszter@pte.hu; <sup>b</sup>bagi.anita@med.u-szeged.hu;  
<sup>c</sup>szendi.istvan@med.u-szeged.hu; <sup>d</sup>toth.beatrix.lujza@med.u-szeged.hu;  
<sup>e</sup>janacsek.karolina@ppk.elte.hu; <sup>f</sup>i.hoffmann@hung.u-szeged.hu

**Abstract:** The paper aims to demonstrate that the occurrences of recursion in narrative and dialogue discourse of a person with schizoaffective disorder, both at the syntactic and pragmatic levels, support known deficits of linguistic functions in an acute phase. The case study describes the language usage of a right-handed male with schizoaffective disorder (bipolar type), in an acute relapse. The analysis can be divided into three major parts. In the first part general cognitive abilities were studied. The second part includes results of sentence-level tasks. And finally, the appearances of recursive structures were examined in spontaneous speech tasks and in an interview. Hypotheses were as follows: we sought to find out whether (1) spontaneous embedding in his speech production is present and, if it is, what pattern it may have. We assumed that (2) the topic will be about himself; his utterances will be characterized by syntactic recursion; while (3) pragmatic recursion will be less apparent.

**Keywords:** schizophrenia, schizoaffective disorder, language, recursion, embedding

## 1. Introduction

According to Crow's theory, language and psychosis have a common evolutionary origin (Crow 1997; 2000). Mitchell and Crow (2005) explain that language is linked to both hemispheres. The main linguistic symptoms of schizophrenia could be considered as a disorder of coordination between the two hemispheres. "Recursion" (understood as embedding) may be the one crucial domain-specific feature of linguistic ability (Levinson 2014, 6).

### 1.1 Schizophrenia

The first and comprehensive description of the disease was given by Emil Kraepelin (1856–1926). He set up a symptomatic criteria system which is also used for today's diagnostic systems (DSM<sup>1</sup> and ICD<sup>2</sup>) (see Bitter and Füredi 2000). According to the DSM-5 (2013), the following criteria of symptoms represent the disease: (1) delusions; (2) hallucinations; (3) incoherent speech; (4) strikingly disintegrated or catatonic behavior; and (5) negative symptoms, i.e. emotional emptiness, alogia, or lack of willingness. The disease is also characterized by social and occupational dysfunctions. An additional important criterion of the disease is the durational aspect: some signs of the disorder must last for a continuous period of at least 6 months. This six-month period must include at least one month of symptoms (or less if treated) that meet criterion A (active phase symptoms) and may include periods of residual symptoms. During residual periods, only negative symptoms may be present (DSM-5 2013).<sup>3</sup>

There are several different ideas for the development of schizophrenia from an etiological point of view: neurochemical, neuroanatomical, psychological and genetic factors may also be present in the background of the disease. Even though numerous studies approached schizophrenia in various ways, specific genetic, neurobiological or environmental factors have not been identified so far. Returning to the former spectrum theory holds promise to outline a possible endophenotype (see Tringer 2010, 305). The presumed endophenotype concept is closely related to Crow's theory, which explains schizophrenia on the evolutionary side: "schizophrenia is the price that homo sapiens pays for language" (Crow 2000, 118). He assumed that the underlying reason

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1 DSM= **D**agnostic and **S**tatistical **M**anual of Mental Disorders.

2 ICD: **I**nternational **S**tatistical **C**lassification of **D**iseases and Related Health Problems.

3 DSM-5 is commonly used in clinical researches worldwide, however, ICD codes are also widely used for medical statistics and health record systems. Most of the tests used in clinical research, such as SCID-I and -II (Structured Clinical Interview for DSM-5) or PANSS (Positive and Negative Syndrome Scale), are all based on DSM-5 interview and diagnostic criteria system. The DSM-5 and ICD-10 classifications are in harmony with each other; those are complementary, rather than exclusive.

for the “preservation of schizophrenia”, as a possible point of connection, may be the genetic changes that cause lateralization. Kéri and Janka (2003, 731) summarize Crow’s approach as follows:

It is accepted by many that a significant proportion of lexical, semantic, and pragmatic aspects of the language is linked to the left temporal areas. The right side of these left temporal areas are thicker in the majority of the population. This asymmetry in schizophrenia is often lacking, and the corpus callosum, which connects the two hemispheres, has also been reported to have differences compared to the brains of healthy people.<sup>4</sup>

In our case study, we analyzed the results of a person with – according to his last diagnosis – schizoaffective disorder. In accordance with basic findings (cf. Tringer 2010, 317–20), schizoaffective psychoses are psychotic states situated somewhere between the various types of schizophrenia and affective disorders, which, according to their classification, more closely resemble affective disorders. Pursuant to Tringer’s summary, schizoaffective psychoses “absorb” the symptoms of schizophrenia, but the progression has characteristics similar to affective psychoses. Any mix of symptoms may occur. Diagnostic criteria rely on the existence of typical symptoms of schizophrenia in addition to severe depression and mania symptoms (Tringer 2010; Nussbaum 2013; Bitter and Füredi 2000). The behavior of affected people is seriously disorganized, symptoms often develop in a day or two. As it is a “mixed disease”, we can talk about depressive and manic type of schizoaffective disorder (based on Tringer 2010, Nussbaum 2013).

## 1.2 Language and Thought Disorders

Thought disorders were divided by Cutting and Murphy into two categories: internal thinking disorders, and language and speech disorders. (Lieberman et al. 2006, 205) There are several types of thought disorders: *derailment* and *incoherence* (where the logical relations are violated or lost between words and sentences in the patient’s speech); *tangentiality* (gradually moving away from the topic); *illogicality* (illogical answers); *circumstantiality* (unnecessarily details); in addition, a very characteristic symptom may be the so-called *clanging* (rhythm association) phenomenon.<sup>5</sup> Another significant symptom could be the using of *neologisms*. Abstract thinking may also become difficult, in addition *echolalia* or *thought block*, or even (in extreme cases) *mutism* can develop (Lieberman et al. 2006, 207–8).

<sup>4</sup> Translated by Anita Bagi.

<sup>5</sup> An example of clanging: “He went in entry in trying tying sighing dying ding-dong dangles dashing dancing ding-a-ling!” (Grinnel 2018).

Besides, the first and perhaps most striking symptom of schizophrenic language is *contextual disorder*. Contextual sensitivity can be described by word-recall and memory tasks. Schizophrenic patients provide better performance in semantic word study tasks compared to recall tasks of unrelated words. It can be assumed that it is not the disorders of lexical systems that cause the language deficit, but rather the disorders of imprinting strategies. (Lieberman et al. 2006, 206).

Covington et al. (2005) summarizes works about schizophrenia and language, which are sometimes quite contradictory. In prosody deviations from the healthy control groups can be detected: on supra-segmental levels intonational differences can be detected; additionally, lack of tone and intonation may appear as a negative symptom.

From the aspect of speech production on the one hand, spontaneous speech tasks examined the complexity of communicated thoughts. It was found that the message communicated by people with schizophrenia is less complex than that of the healthy controls, but in the case of patients with better performance, there were higher involvement with depression and anxiety disorders (Moe et al. 2015). On the other hand, the above-mentioned prosodic abnormalities and possible characteristics were investigated (Bedwell et al. 2014; Martínez-Sánchez et al. 2015; Elvegag et al. 2010), as well as fluency and disfluency of speech, i.e. quality and rate of the silent and filled pauses (Alpert et al. 1997; Rapcan et al. 2010).

From the perspective of speech perception, the social cognition of people with schizophrenia is an interesting direction of research: subjects were asked to make decisions about utterances with different emotional prosodies, and they performed worse than the healthy controls (Brazo et al. 2014).

The involvement of morphology is not characteristic, Covington et al. (2005, 90) cite examples from Chaika and Kleist. The syntax is intact, but semantics and the structure of discourse might be violated. Other authors, however, found differences in syntactic complexity: subjects with schizophrenia had worse results in comparison with the healthy control group (Meilijson et al. 2010). Perlini et al. (2012) also found a mild deviation between bipolar and schizophrenic patients in the aspects of speech tempo, local and global cohesion elements. Andor (2016) wrote about the status of the keyword (or the lack of it) in Hungarian. One of the most striking disorders occur at the level of pragmatics: “strange words in strange context” (cf. Nagels-Kircher 2016; Noonan 2014).

Garab (2007) summarized linguistic-based examinations of the executive functions, but these studies do not primarily approach the results from the field of linguistics. The importance of prefrontal cortex and thus the importance of executive functions, and the deficits of pragmatic abilities can also be observed in patients with right hemisphere injuries (cf. Tóth–Ivaskó 2012).

In present case study, the results of a person with schizoaffective disorder were analyzed. Due to the mixed symptoms of the diagnosis, we should also describe the

language symptoms that may appear alongside the possible language manifestations of schizophrenia. Schizoaffective disorder is between schizophrenia and affective disorders (see above Section 1.1), therefore, it can add the symptoms of bipolar disorder as well (Tringer 2010).

Bipolar disorders generally have two distinct states: depression and mania. Frequency is equally around 1% in both sexes; it manifests around the age of 30 (Tringer 2010, 265). It can be classified into three types: bipolar disorders I and II and cyclothymia. According to the duality of the disorder, depressive and manic main symptom groups could be distinguished (Tringer 2010, based on Nussbaum 2013).

The characteristics of the depressive symptom group are as follows. Mood disturbances can range from mild discomfort to deep vital depression. The patients' gestures become poorer or completely disappear; their speech is quiet, slowed down, perhaps it is just one word. Along with it, thinking also slows down, the patient is unable to discard a particular topic or incapable of making decision. An early symptom may be a distraction of attention and concentration: it is reported by those concerned that if they try to read, only "their eyes read". The person becomes tired and often becomes completely incapacitated. In severe depression, psychotic symptoms can also occur, such as hallucinations and delusions (based on Tringer 2010 and Nussbaum 2013).

The features of the manic symptom group are as follows. The abnormal elevation of the mood level can range from the cheerfulness to the ecstatic delight. The patient's attention is hyperprosex: it grabs every tiny detail, but does not bind it permanently. Thinking and associations are accelerating, sometimes there is racing thought, and this is reflected in the secondary incoherence of speech. The manic patient is characterized by logorrhea, the speech is often uninterrupted, in which the goal is difficult to recognize, and other times frequent and difficult to follow topic changes. There may also be sound associations in mania as well (Tringer 2010).

Articulatory movements of a depressed patient slow down – this is reflected by the speech rate, while in the case of a manic patient we see an acceleration. In addition, prolonged recall time has also been shown for words with repressed emotional content – presumably because of inhibition (Gósi-Greguss et al. 2004, cited by Gósy 2005, 339). Increasing the duration of vowels is frequent, while speech is quiet and weak, and the prosody is poor for an anxious person (Gósy 2005, 339). The linguistic characteristics of bipolar disorder are also twofold due to the two groups of symptoms: both in terms of quantity and quality of speech; from the speech rate to the differences in theory of mind result (Simon et al. 2011).

### 1.3 Recursion

"Beginning with Bar-Hill (1953), countless studies have argued that recursion is the tool that allows people to create a potentially infinite number of different sentences"

(cited by Bánréti and Mészáros, 2011, 9).<sup>6</sup> However, it can be seen that the various scientific fields provide different definitions of the concept of recursion. In our study, beside the definition of syntactically embedded recursion, the following recursion concepts will be used.

The present study used a method of Bánréti et al. (2011). Their concept of specific recursion is based on Chomsky's (1957) approach, according to which "computational operations of language recursively construct syntactic objects from the selected lexical units and the syntactic objects which had already been formed." (Bánréti and Mészáros 2011, 9.) Syntactic objects (language expressions) can be interpreted as combinations of smaller syntactic objects.

Such a recursion in terms of hierarchical grouping allows the concept of specific recursion: repeatedly embedding a syntactic-structural component into the same type of structural component, for example a clause into a clause, a noun phrase into a noun phrase or detection of a word as a component in a compound word. ... This recursion concept does not contain regulations to the amount of operations, using a previous output as an input once is just as much a recursive operation as if (in principle) it was repeated infinitely.<sup>7</sup>

Thus, structural (formal) recursivity can appear on the level of words, phrases and also on the levels of sentences. According to Hauser, Chomsky and Fitch (2002), the recursive nature of syntax is the only feature of language that is domain-specific, and this is responsible for the species-unique character of human language. Levinson, however, emphasizes the use of language instead of the linguistic structure (2014, 3). An important consequence of it is that he examines its role in understanding. The capacity for understanding central embedding, as a kind of recursion, is finite in sentences. Even degree 3 (embedding within an embedding within an embedding) is difficult to follow (e.g. Karlsson 2007). It can be assumed for longer spoken language utterances (narratives) that final embeddings are more frequent: the right-branching

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6 Translated by Anita Bagi. In Hungarian: "Bar-Hilleltől (1953) kezdődően számtalan tanulmány érvelt amellett, hogy a rekurzió az az eszköz, amely lehetővé teszi, hogy az emberek potenciálisan végtelen számú, különböző mondatot hozzanak létre."

7 Translated by Anita Bagi. In Hungarian: "az ilyen hierarchikus csoportosítás értelmében vett rekurzió megengedi a specifikus rekurzió fogalmát: egy szintaktikai-szerkezeti összetevő ismételtető beágyazását azonos típusú szerkezeti összetevőbe, például tagmondat beágyazását egy tagmondatba, főnévi szerkezet beágyazását egy főnévi szerkezetbe vagy egy szó komponenseként való azonosítását egy összetett szóban. . . . E rekurziófogalom nem tartalmaz a műveletek mennyiségére előírást, a korábbi outputnak inputként történő felhasználása egy alkalommal éppen úgy rekurzív művelet, mintha (elvileg) végtelen sokszor ismétlődne."

structures characterize spontaneous speech, while central embeddings characterize pre-conceived, consciously edited speech, or written text.

The narrative is a “mental model” the defining property of which is its unique pattern of events over time (Bruner 1991, 6): it reveals the patterns that characterize the speakers themselves. Narrative and descriptive texts can also be considered as representation of narratives – assuming that the character of the text the speaker creates reflects the available presets, scripts and macrostructures.

In interactive discourse just as in narratives the basic units are utterances, not sentences. “There are embeddings in interactive discourse that have the same basic properties exhibited in sentential syntax, but that are distributed over two (or more speakers). But in this case there is no parallel limit on embedding – multiple embeddings seem in principle indefinite, certainly at least to degree 6” (Levinson 2013, 154). The ability to plan and execute common activities is the background for dialogues and speech acts (which are creating them), so it can be assumed that “mental time travel” supports the recursive nature of language (Corballis 2012; 2014, 27).

## 2. Materials and Methods

The study was approved by the Ethics Committee of the University of Szeged, and it was conducted in accordance with the Declaration of Helsinki.

### 2.1 Subject

The subject of the case study is BT. His latest diagnosis was schizoaffective disorder, bipolar type – at the end of an acute relapse. At the time of the examination (July 4–13, 2017), his age was 30 years, right handed, his education in years was 18. His previous diagnoses were the following: 2005: F2.380 other acute and temporary psychotic disorders; 2007: F20.00 paranoid schizophrenia; 2012: F20.90 unspecified schizophrenia + F31.00 bipolar affective disorder, hypomanic episode; earlier in 2017: F20.00 paranoid schizophrenia.<sup>8</sup>

His premorbid personality is in the upper zone of average intelligence; graduated as a social worker; open and friendly. First prodromal signs were at his age of 18: there was a short, just a few weeks long behavioral change during and after the stork camp.

His first psychotic episode (FEP) was at the age of 18. It had a fast progression with psychotic transition in a few days (provoked by a slight alcohol consumption). Leading symptoms were as follows: attention distractivity, conceptual disorganization, grandiosity, paranoid behavior, bizarre and destructive behavior, ambivalence, ambivalence, indifference and puerile behavior. His first psychiatric hospitalization was relatively short (2.5 weeks) with rapid therapeutic response (Risperidone 4 mg/day).

About psychotic relapses: FEP was followed by 3 other relapses (with 4 hospitalizations:

<sup>8</sup> ICD-10-codes from *International classification of diseases*.

- Episode 2 (drug omission): at age 20 (2 weeks of hospitalization, Risperidone 6 mg/day)
- Episode 3 (with maintenance therapy): at age 25 (2.5 and 3.5 weeks of hospitalization, Risperidone Consta 37.5 mg/2 weeks + Risperidone 1 mg/day followed by Risperidone Consta 50 mg/2 weeks after second hospitalization) Risperidone 6 mg/day + Valproate 1000 mg/day)
- 5-year compensated period (Paliperidone worked well after Risperidone; the cause of change is unknown; Aripiprazole had not been switched on, soon after changing episode 4 happened – cause of change is unknown)
- Episode 4 (in connection with drug change): at age 30 (3 weeks of acute hospitalization followed by rehabilitation hospitalization; Paliperidone Depot 150 mg/4 weeks + Paliperidone 9 mg/day)

Developmental data: There was no perinatal injury (Chernobyl catastrophe preceded the conception by 3.5 months that the family had allowed). There was no cranial trauma with unconsciousness (in his childhood he hit his eye area on a smoking table, sometimes he knocked his head against the wall slightly). There was no psychosocial traumatization (at the age of 11 he lost his favorite horse).

Symptom pattern during acute psychotic and affective episodes: conscious functions leading to disintegration, once accelerated psychomotor system, no hallucination (perhaps once), attention slightly hypotenax, thinking content with megalomaniac ideas, overvaluation, sometimes with the deficit of reality testing, usually state-dependent anosognosis, usually euthymia-like mood level, but also parathym excited or calm, emotionally generally available. Mixed insomnia. His behavior is rejectional or uncritical and irritating, or trying to follow conventions.

Therapy:

- effective: Risperidone and Paliperidone
- ineffective: Aripiprazole
- current therapy: Xeplion (paliperidone) 150mg/4 weeks; Invega (paliperidone) 9mg/day; Nebivolol 5mg/day; Covercard (perindopril/amlodipine) 5/10mg/day; Coverex AS Komb (perindopril/indapamide) 10/2.5mg/day

His social status is permanently compensated, has a good quality of life, worked in his own profession as a social worker, and lives with his parents.

Somatic history: laparoscopic knee surgery, tonsil surgery, hypertension.

Family psychiatric history: maternal grandmother maybe has dementia; aunt has depression; grandfather is a regular drinker and grandfather's brother hanged himself.

Stimulants: smoking for 10 years, alcohol occasionally, cannabis (twice in his life)

At the time of the examination: only moderate positive symptoms including conceptual disorganization and excitement; the negative symptoms also include a cognitive symptom, namely the lack of abstract thinking. Negative symptoms are mild. Mood is slightly hypomanic with a mix of minimal depressive symptoms (grandiosity is only indicated). His insight is now relatively well preserved. Functionally moderately damaged, weak. Cognitive performance and level of functioning are basically determined by leading conceptual disorganization.

## 2.2 Methods

The tests were taken at the Department of Psychiatry, University of Szeged, Szeged. The present study was achieved as part of an interdisciplinary research project.<sup>9</sup> There is a separate research room at the Department of Psychiatry, where all the paper and computer tasks were carried out. Results were archived on paper, computer outputs and sound recordings.

### 2.2.1 Testing Cognitive Functions and Working Memory Components

The following tests were carried out to measure different cognitive functions and working memory components.

| Test                                                                                                                                                                                                                    | Tested function or working memory component        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Mini Mental State Examination (= MMSE; Folstein et al. 1975) + Clock Drawing Task (= CDT; in Hungarian Kálmán et al. 1995)                                                                                              | General cognitive condition testing                |
| Fluency tasks: letter, semantic, action naming (Tánczos 2012); Backward digit span (Racsmány et al. 2005), Listening span (Janacsek et al. 2009), Stroop test (based on Stroop 1935), SRT-test (Nissen & Bullemer 1987) | Executive functions, complex verbal working memory |
| Non-word repetition (Racsmány et al. 2005); Digit span (Racsmány et al. 2005)                                                                                                                                           | Phonological short-term memory                     |
| ToM-tests (Herold et al. 2004), False belief (Youmains & Bourgeois 2010)                                                                                                                                                | Theory of Mind abilities                           |
| Metaphor and irony comprehension (based on Herold et al. 2002a, 2002b); Pragmatic test (based on Varga 2015)                                                                                                            | Pragmatic competence                               |

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| Test                                                          | Tested function or working memory component |
|---------------------------------------------------------------|---------------------------------------------|
| Syntactic recursion (Bánréti et al. 2016)                     | Recursions                                  |
| Spontaneous speech task                                       | Semantic structure                          |
| Wisconsin Card Sorting Test (Grant & Berg 1948)               | Behavioral and cognitive flexibility        |
| Directed forgetting and remembering (Racsomány & Szendi 2001) | Inhibition and memory systems               |
| Raven's Progressive Matrices (Raven 1938)                     | Fluid intelligence                          |
| Visual Pattern Test (Sala et al. 1997)                        | Visual short-term memory                    |

**Table 1.** Recorded tests and tasks for cognitive functions or working memory components

### 2.2.1 Syntactic Recursion

The syntactic recursion test is a method for testing the syntactic-structural recursion (Bánréti and Mészáros 2011; Bánréti et al. 2016), in which photos of everyday life are shown to subjects and questions are asked about the pictures (154 images; based on Stark 1998). The test operates with four different types of questions, which are all required answers with defined syntactic structures. The question types are summarized in Table 2.

| Types of questions            | 1: What is X doing?                            | 2: What does X hate/like/want?                                                                                                                                              | 3: What can be the most entertaining/unpleasant/urgent thing for X to do?                                                            | 4: What can X say / think / remind Y of / ask Y to do?                               |
|-------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Structurally required answers | finite verb; inflected noun phrase or sentence | a subordinate clause in direct object role (with recursive operation); the verb of the question and its infinitival direct object; a definite noun phrase in the accusative | a subordinate clause in subject role (with recursive operation); a bare infinitive subject; a definite noun phrase in the nominative | a clause embedded (with recursive operation) signaled by a subordinating conjunction |

**Table 2.** Types of question and structurally required answers

**2.2.2 Pragmatic Recursion**

Among the aspects of pragmatic recursion appearances of recursive structures were examined in spontaneous speech tasks and in an interview. The spontaneous speech task and the interview were analyzed as a record and as a prepared transcription as well.

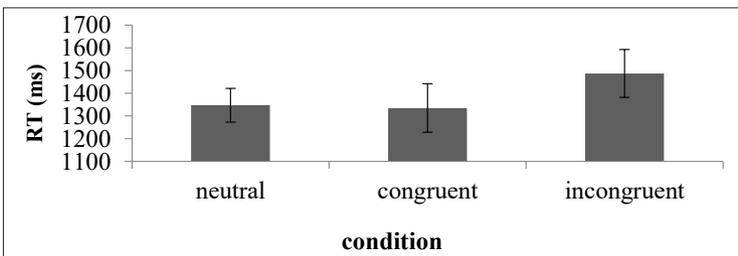
**3. Results and Discussion**

In the next chapter results will be presented. They are divided into three main parts, i.e. the mapping of general cognitive abilities, measuring of syntactic recursion and the analysis of narratives and discourses.

**3.1 General Cognitive Results**

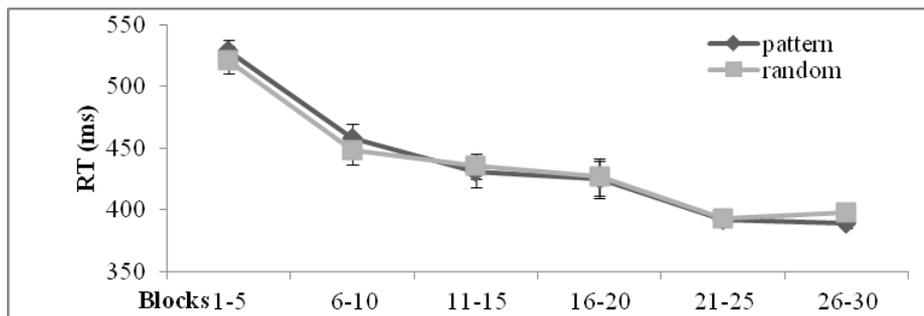
The subject showed the following symptoms during the examination: among moderate positive symptoms only conceptual disorganization and excitement were detected; among negative symptoms as another cognitive symptom, the lack of abstract thinking was appreciable – however, negative symptoms were mild. His mood was mildly hypomanic, with minimal depressive symptoms (grandiosity was only indicated). His acceptance of disease was relatively well preserved. His functionalization was moderately impaired and weak.

The results of the Wisconsin Card Sorting Test showed that his cognitive performance and the functional level were basically determined and limited by the leading conceptual disorganization. From the results of the directed forgetting and remembering tasks we can conclude that there was no directed forgetting effect either in case of free recall or with stimuli. Judging by Stroop Test, it appears that he was slower (according to RT [= Reaction Time]) in an incongruent set, compared to a neutral/ congruent (Figure 1) one, but it could not be supported by a t-test since the data was noisy.



**Figure 1.** Results of the Stroop test

There was no sequence learning in the ASRT task, either on the t-test, accuracy or RT indicators (= reaction time) (Figure 2). From these results, it can be concluded that he responded equally to the pattern and random stimuli. Only a general acceleration can be observed in the reaction time.



**Figure 2.** Results of the ASRT test

The results of further tests are shown in Table 3. His intelligence according to the Raven test is in the normal range. The VPT test measures short-term visual memory, on which he scored slightly low. The MMSE and CDT values are good. The results of measuring phonological short-term memory, digit span and non-word repetition tasks are within the normal range. The result of the listening span test (which measures complex working memory) is low.

| Tests                           | Values   |
|---------------------------------|----------|
| Raven                           | IQ: 102  |
| VPT                             | 7        |
| MMSE (max. 30 p.)               | 30       |
| CDT (max. 10 p.)                | 9        |
| Non-word repetition (max. 9 p.) | 7        |
| Digit span (max. 9 p.)          | 5        |
| Backward digit span (max. 9 p.) | 4        |
| Listening span (max. 8 p.)      | 2,6      |
| ToM-1 (max. 4 p.)               | 4        |
| ToM-2 (max. 8 p.)               | 8        |
| ToM-2 (max. 8 p.)               | M:4, I:1 |

**Table 3.** Results of further cognitive tests

The subject performed relatively well in the verbal fluency tasks (which are mapping the central executive functions); a higher semantic cluster number can be observed in some letter and category fluency tasks. The result of the backward digit span test is average. The results of the metaphor and irony comprehension tests showed a worse

score in irony comprehension (1 point). Considering all of these results, it seemed that his cognitive abilities were in normal range, but some cognitive functions had deficits.

### 3.2 Syntactic Recursion

Analyzing syntactic recursion we found that question Type 4 (which has a structurally required answer, i.e. a clause embedding, introduced by a recursive operation and signaled by a subordinating conjunction) is considerably different from the other types (Table 4).

|        | BT |     |
|--------|----|-----|
|        | R% | NR% |
| Type 1 | 18 | 72  |
| Type 2 | 29 | 71  |
| Type 3 | 44 | 56  |
| Type 4 | 87 | 13  |

**Table 4.** The percentage distribution of recursive and non-recursive responses for the 4 types of questions (R: recursive, NR: non-recursive)

He gave structurally different answers for question Type 4 (Table 5). It can be said that the abilities of the syntactic-structural recursion and theory of mind reasoning are intact, but the answers to the content of the pictures are not always conventional. He used the content of theory of mind reasoning in situational sentences in his answers.

| Category                                                                                     |                                              | BT        |
|----------------------------------------------------------------------------------------------|----------------------------------------------|-----------|
|                                                                                              |                                              | Subject   |
| Simple sentences<br>non-recursive                                                            | Simple descriptive sentences                 | 8         |
|                                                                                              | Simple sentence with subjunctive             | -         |
| <b>Simple situational sentences</b>                                                          |                                              | <b>5</b>  |
| recursive                                                                                    | <i>That</i> + situative statement            | 25        |
|                                                                                              | Introductory + "colon" + situative statement | 10        |
|                                                                                              | <i>That</i> + descriptive clause             | 23        |
|                                                                                              | <i>That</i> + clause with subjunctive        | 29        |
| <b>Structural embedding of the clauses in TOTAL of the task's structured linked sentence</b> |                                              | <b>87</b> |
| <b>Total for situative statements</b>                                                        |                                              | <b>38</b> |

**Table 5.** The percentage distribution of grammatical categories of structurally linked grammatical responses to Type 4 question

The results show that the patient preferred syntactic recursion instead of direct positioning (situational sentence).

### 3.3 Pragmatic Recursion

When analyzing the narratives of the subject, our aim was to answer whether central embedding would appear in his speech production. Depending on the tasks we expected descriptive and narrative texts and in the case of the dialogue an interactive discourse. The degree of the syntactic and pragmatic embeddings was examined.

It was assumed that because of his status, he himself will be the main topic; his statements will be characterized by coordinate clauses and final embedding structures; anticipatory and deliberate editing mode (resulting in pragmatic recursion) will not be characteristic. If it is so, then it could be a reason for us to hypothesize a possible connection between mental status and discursive behaviour.

#### 3.3.1 Description

In the first type of task (description), three separate 5-minute recorded speech productions were analyzed: *Talk about yourself! Talk about your mom! Talk about your dad!* In the self-describing text every utterance concerned the subject. Speaking about his mother, he held two clauses of “distance” at most, usually in every second clause turned his own viewpoint up. His father was “let go” by 5, 9, 6 units at the beginning of the presentation, but then the same close view (as a strategy) was selected as in the other two texts. The characteristics of the narratives are shown in Table 6.

|                         | Hisself | Mother  | Father  |
|-------------------------|---------|---------|---------|
| Number of utterances    | 86      | 100     | 91      |
| Degree 1 recursion      | 12      | 13      | 20      |
| Degree 2 recursion      | 5       | 5       | 5       |
| Degree 3 recursion      | 2       | 2       | 2       |
| Initial embedding       | 2       | 1       | 2       |
| Central embedding       | 3       | 2       | 2       |
| Final embedding         | 14 (26) | 17 (28) | 23 (34) |
| Self-enclosed structure | 1       | 1       | 1       |

**Table 6.** Features of narratives

The text about his father seems to have a larger number of utterances – in fact, however, a surface structural repetition sequence appeared. The subordinate structures were relative clauses. Whenever he stopped at an embedding, he did not revise his thoughts or the

structure, but started a new unit. The central embedding is always a certain change of plane: using deictic expressions, speaking out from the text, phrases; proverbs or quotations from well-known songs are interpolated. In fact, it is not a merger of syntactic structures, but rather elements of memories and knowledge are lifted into the descriptions.

- (1) 6 How was it so,  
 7       as it was written in the story,  
 8                   to believe that the ring is gold,  
 9       I do not know<sup>10</sup>

Self-contained units appear also as self-enclosed structures: a coherent description or story starts and ends, from which the speaker clearly stands off into the original frame.

- (2) 41 but, but I hope,  
 42       that they will soon also understand it much better,  
 43                   that I'm not like a marble taw ball,  
 44                                   what you lose and it's gone.  
 45 Maybe rather a lighter.  
 46 Not because,  
 47       because, because we can burn the house with it,  
 48 but  
 49       because the fire is an instrument, a tool.  
 50 Sometime there was a word,  
 51       “fire tool”.  
 52 Today you can make it with a lighter  
 53 with a good lighter, with a good Zippo, with that smoothly.  
 54 Hm, my dad?

Overall, it can be said that real embedding as an organic incorporation does not appear in these texts, either in the individual sentences or in the text as a whole. There is no real embedding which could show a reflective order either in the temporal structures or the person-related beliefs. His own point of view is vindicated all the time.

### 3.3.2 Narrative

In the second type of task (narration: *Tell me about your previous day!*) a real narrative was expected. The text is divided into two parts: in the first half (1–60) there appeared temporality, referring to the specificity of the situation, connecting of events as well as some intentionality. Taking relevance and background knowledge into consideration,

10 All translations by Anita Bagi. For the Hungarian originals, see the Appendix.

contextual-sensitivity or normativity are not characteristic. No progression takes place in the story between units 60 and 201. Images flare up (dog and its keeper, horse racing, medicine experiment), and these are related to the patient but not related to each other. Time alignment is missing or at least not important. According to the syntactic characteristics this text consists of 201 utterances. Embedding levels are the following: degree 1: 21; degree 2: 8; degree 3: 6.

- (3) 94 Perhaps for some reason, there will still be  
 95 maybe,  
 96       my illness has brought it or something else,  
 97               that I feel,  
 98                               I feel more, I'm worth more than,  
 99                                       to be put, to be put into a category like, well,  
                                                           like the "*also-runs*"

While initial embedding appeared once only, central embedding appeared 6 times in his narrative. Two of these were two-tier (44-45, 95-96), one is linear (118; quotes from hypothetical subject).

- (4) 114 I prefer a little more,  
 115       to lie back,  
 116       to clasp my hands  
 117       and for them to say,  
 118               all right, Tomi, I do not know what you did, I do not know if  
       you did something or not, I do not know if you're worth something, but I see  
       that you understood something,  
 119 which is not ... no, "to understand" is not a good expression.

The apparent increase in embedding degree is due to the fact that the central embeddings in the descriptive texts are more phrase-like. In this text they are organically linked to the utterances: although the frame changes, it still reflects on himself. The four – in fact independent – scenes are introduced with conjunction words (*but, so, but, i.e.*), so it is almost impossible to isolate self-enclosed structures. The return is quite similar: there is no syntactical separation. However, recoiling is typical: the subject refutes himself four times and corrects his previous statement to the opposite. The opportunity of storytelling, exploitation of timeliness, intersection or forward and reverse deictic movement does not appear.

Overall, the text is organized around the subject, it is not a "real" narrative, rather a "bouquet of self-reflections". However, structurally more complex (than the syntactically typical max. degree 2 or the degree 3 in descriptions) constructions can be found

due to the embeddings being relevant to the topic, even though they change frames sometimes.

### 3.3.3 Discourse

Thirdly, the whole interview was examined as a discourse. Our aim was to find out whether pragmatics can outplay syntax (Levinson 2013, 157) in this case: if there are higher degree embeddings (4, 5, 6 and so on) in the dialogue.

We found two types of embedding structures in the discourse organization. In the first case, a frame change occurs, so we can call it structural. The interlocutors are reaching meta-level (degree 1), e. g.: interpreting the task, talking about the solution, but do not exceed the complexity of the typical syntactic recursion. It reaches no higher degree embedding because of the dialogic (interactive) discourse.

- (5) (a) *closure* Good, thank you very much. That was the end of this session, the “mind” was still a point. Good. Okay. It went well.
- (b) *changes frame* I did not know how to write, you said it so quickly, so it’s such a luck to record it, because I know it re...
- (c) *explain herself* I’m just trying to say it slowly!
- (d) *revise herself* No! The point is to speak more and more. Do not worry about how I do it...
- (e) *answer* okay, it’s okay...
- (f) *continue* Calmly, take your time! That’s why we record it, to keep it...

The second type of embedding is thematic. Certain information from the dialogue or some kind of stimulus from the frame triggers the frame changing of conversational partners. The alternation of levels is not always continuous:

BA 0 – BT 1 – BA 2 – BT 3 – BA 4 – BT 3 – BA 5 – BT 0 – BA 4  
– BT 2 – BA 3 – BT 4 – BA 5 – BT 6 – BT 2 – BA 3 – BT 0

This also means that the levels do not close onto each other. Within the levels the typical question-answer sequences of the dialogues can be found, these have maximum degree 3 structures. However, switches between levels, returns, and referrals are not consistent. The thematic structures of the subject are rather “merging” and cannot be considered as pragmatical recursive structures: one after the other, but not related – just a string of thoughts, memories and opinions after each other. To which the partner may connects, but the patient just follows his own line of thought indefinitely.

In the case of discourse, therefore, only in the thematic discursive (partner assisted) conversation organization could we find a pragmatic central embedding recursive structures that are different from the syntactical degree 2 embedding.

#### 4. Conclusion

As a conclusion, in the case study of a person with a schizoaffective disorder we can state that in addition to certain well-maintained cognitive abilities, recursive theory of mind reasoning appears to be intact too, but at the same time, BT used significantly more recursive structures than the control group. With respect to independent textual products and discourse organization it seems that the present subject with schizoaffective disorder can create a central embedding structure, or a higher level of embedding than degree 2 only based on his memories. His pragmatic abilities and his insights regarding theory of mind are intact at the basic level. However, in the case of direct, dynamic, and context related actions, he stops at degree 3; he can only move on to another memory as if the way back would be “locked”. The time management, even if present, is not an organizing force: the time for BT is just information, one of many memories, which is more like a “calling word” than an organizing force. The recall, the text or the discourse organization is more self-centered – “as if in a photo folder the random button would be pressed”.

#### 5. Limitations and Additional Questions

The analyses of recursion are worthwhile to be extended to the text-narrative-discourse level with other patients and healthy control subjects. It may turn out to be a schizophrenia language production feature that the higher degree of pragmatic recursion is only detectable in the thematic discourse organization.

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## Appendix: Original Version in Hungarian

- (1) 6 “Hogy úgy volt-e,  
 7           ahogy a mesébe írták,  
 8                    hogy hitte a gyűrű aranyát,  
 9            azt nem tudom.”
- (2) 41 de, de remélem,  
 42    hogy egyszer sokkal jobban fogják ők is érteni azt,  
 43            hogy hogy nem egy olyan golyó vagyok,  
 44                    amit elveszítenek és akkor nincs többé.  
 45 Talán inkább egy öngyújtó.  
 46 Nem azért,  
 47    mert, mert felgyújtjuk vele a házat,  
 48 hanem  
 49    mert a tűz is egy szerszám, egy eszköz.  
 50 Valamikor volt egy olyan szó,  
 51    hogy tűzszerszám.  
 52 Ma már egy öngyújtóval lehet  
 53 egy jó öngyújtóval, egy jó zippoval, azzal simán.  
 54 Hm, édesapám?
- (3) 94 Talán valamiért még lesz,  
 95    lehet,  
 96            hogy a betegségem hozta, vagy valami más,  
 97                    hogy azt érzem,  
 98                            hogy többet érzek, érek annál,  
 99                                    hogy be, betegyenek egy ilyen hát, futottak  
 még kategóriába.
- (4) 114 Én egy kicsit inkább arra vágyom,  
 115    hogy hátra dőljek,  
 116    összekulcsoljam a kezem  
 117    s azt mondják,  
 118            hogy ok Tomi, nem tudom, mit csináltál, nem tudom, hogy  
 csináltál-e valamit, nem tudom, hogy érsz-e valamit, de látom, hogy te valamit  
 megértettél,  
 119 ami nem, a megérteni az nem jó szó.



# Word Order Typology and the Minimalist Program: What Do Parameters Belong To?

**Janusz Malak**

University of Opole, Opole, Poland

jmalak@uni.opole.pl

**Abstract:** One of the problems related with the word order and word order typology is connected with derivation obtaining in the narrow syntax and the conditions responsible for the Full Interpretation requirement at LF as well as at PF. If it is assumed that linearization as defined in Kayne (1994) is the reflexion of the asymmetric character of syntax at PF, then it is worth analysing which properties of the syntactic derivation within the narrow syntax are reflected at PF and which configurations seen on the surface are the results of PF conditions. In other words it would be interesting to determine the boundary between the factors responsible for the configuration of syntactic constituents obtained due to the derivation within the narrow syntax and the conditions obtaining at the PF responsible for a temporal sequence of syntactic constituents perceived as “string of words”.

**Keywords:** word order typology; the minimalist program; narrow syntax; multiple spell-out; phase; derivation

## 1. Introductory Remarks

The title of the present paper would imply that its contents should point to two key issues, i.e., word order, along with its typology, and parameters as the manifestation of phenotypic variation. However, because of space limitation, only constituent combinations in verb phrases will be analysed here since, for the reasons given below, it is assumed that the Head Parameter characterising the relation between the verb and its

complement should not be put on the same footing as the relation characterising prepositions and the nominal expressions to which an analogical relation is attributed. Word order is what is heard, or seen, on the surface as the unidimensional sequence of words extending in time or presented as linear strings of words extending from left to right sanctioned by the spelling convention in the majority of European cultures, or from right to left in Arabic speaking areas as well as in Hebrew or Yiddish. The problem addressed in this paper is whether or not the word sequence found in the constituent structure of the clause should be analysed only as the reflection of syntactic operations which are generally described in terms of configurations and directionality obtaining between what Vennemann (1976) terms as Operand and Operator, the two terms that correspond to, respectively, Head and Dependent in other accounts. In other words, sticking to the terminology most frequently used in the literature on word orders, the question is whether the two sequences, i.e., [Head Complement] and [Complement Head] are the result exclusively of syntactic operations or whether it would be advisable to cede the ordering function of syntactic objects to some realisational plane, e.g., PF in the minimalist program, a recent version of generative grammar with its modifications postulated and modified in Chomsky (1995, 2000, 2001, 2008).

The theoretical perspective adopted for the purpose of the analysis presented in this paper is the one based on the minimalist program presented in Chomsky (1995, 2000, 2001, 2008). The minimalist program as a theoretical project presented in Chomsky (1995) and consequently modified in Chomsky (2000, 2001, 2008) offers a very attractive perspective within which the problems concerning word order and word order typology can be viewed in new light. The strongest minimalist thesis is concerned with the human faculty of language FL as an optimal solution to “legibility conditions”. Chomsky (2001, 1) assumes that “for each language L (a state of FL), the expression generated by L must be ‘legible’ to systems that access these objects at the interface between FL and external systems-external to FL, internal to the person”. Chomsky (2001) also claims that the strong minimalist thesis, or a weaker version of this thesis, can be treated as an empirical thesis if interface conditions are determined and the notion of “good design” is fully characterised. If the syntactic derivation is characterised by a leading role in FL, then all the derivational operations which are based on External Merge and Internal Merge must be fully interpretable at two interfaces, i.e., Logical Form and Phonological Form, due to the Full Interpretability requirement. While External Merge is the operation responsible for satisfying all the lexical properties of the derivative, e.g., theta-role saturation, the function of Internal Merge is satisfying the EPP features of functional units, i.e., T and C, and disposing of uninterpretable features of syntactic objects, e.g., structural case. The results of the two types of derivative operations must be compatible with what is at LF. What is at PF is obvious. This is what is heard or seen on the surface in terms of segmental as well as suprasegmental phonology. In more recent versions of the minimalist program it is

assumed that the syntactic derivation is a piecemeal operation whose fragments, i.e., phases, are transferred to LF and PF, due to multiple spell-out. Thus, what is understood as “word order”, in light of what has been said above, could be characterised as the phonologized result of the syntactic derivation taking place within the confines of the narrow syntax which is fully compatible with LF. At this point two questions obtrude:

- (a) Are different word orders the reflections of syntactic operations only, with PF passively mapping the result of those operations?
- (b) Could the linguistic labour of forming word orders be divided between the derivation in the narrow syntax and some phonological processes affecting the whole syntactic units?

Let us term the two problems as problem A and problem B respectively. The aim of the analysis presented in the present paper is to review problem A in detail. If there is no satisfactory answer to this problem, then it is suggested that perhaps problem B may offer a more satisfactory solution from the explanatory point of view.

## 2. Word Order and Parameters

Word order, as signalled above, is a typological term and as such may be rather loosely related to the mental phenomenon described in terms of the minimalist program, namely Universal Grammar (UG) and its parameterised manifestation in form of I-language. The relation between typological patterns and UG appears to be hardly plausible, which is expressly indicated by Newmeyer (2005, 105) who claims that “[o]ur minds/brains, after all, have no clue as to the typological status of any aspect of any element of our mental grammars. The relationship between typological generalisations and I-language is therefore necessarily quite indirect.”

Despite the indirectness characterising the relation between typological patterns, which can be attributed to some realisational plane, possibly PF, and the syntactic derivation, which is a reflection of parameterised variant of UG and thus being associated with I-language, the two problems outlined in Section 1 appear to be even more worth investigating.

Parameters, as presented in Lightfoot (1991, 1999), can be tersely characterised as options available to a child undergoing the first language acquisition process between two values characteristic of one syntactic principle. For Chomsky (2008, 135) parameter setting is related to assembly of features into lexical items (LIs) which can be treated “as atoms for further computation and the locus of parameters”. In other words parameters are realisations of one of two options characteristic of a given syntactic principle acquired through the first language acquisition process. Thus, in Chomsky (2008) the setting of parameters is associated with features of LIs, theoretical concepts playing a leading role in the derivation in the narrow syntax.

When speaking about word order possibilities and parameters one can actually speak about one parameter, namely the Head Parameter. This parameter reflects the idea that in a given language L a head universally precedes or follows its complement. If one takes a wider perspective as regards this parameter, as is presented in Cinque (2013), one should rather speak about the position of the head as the central or leading constituent in relation to syntactic constituents dependent on it, either semantically or structurally or both.

However, the leading role in the typological word order patterning is attributed to the configuration in which object/complement is to the verb. Dryer (1992) claims that the sequence of pairs of certain syntactic objects is correlated with the position of the syntactic constituent functioning as the object, or complement, in relation to the verb. Thus languages featuring the OV word pattern tend to be postpositional, i.e., complements are followed by the adpositions, while languages with the VO word order tend to be prepositional. This observation, which goes back to Greenberg (1963), has resulted in the classification of word orders into harmonic and disharmonic ones which also takes into account the position of demonstrative, adjectives, and genitives in relation to modified nominal expressions, the position of adverbs in relation to the modified constituents, as well as the position of relative clauses.

It is a bit surprising that configurational analogies are searched for between the relation characterising the verb and its complement and the relation between adjectives, demonstratives, genitive marked DP, or relative clause and the noun, which should be treated as instances of attributes. Anyway, according to Biberauer and Sheehan (2013), English, as well as French, will be characterised by the consistent VO and prepositional word patterning, while Japanese and Korean are characterised by OV and postpositional word patterning, thus the word order patterning in the four languages will be characterised as harmonic. German will be an example of a language with word order patterning characterised by disharmonicity due to the presence of two word orders in the clause, i.e., VO and OV, and the nominal expressions preceded by a preposition.<sup>1</sup>

At this point a question could be posed whether verb phrases should be analysed on the same footing as prepositional phrases, as is often the case in the generative literature and the literature on the word order typology. It is actually due to X-bar syntax approach, a representational facet of Government and Binding theorising, that the verb phrase and the prepositional phrase are treated as maximum projections of the same type, i.e.,

- (1) [<sub>X<sup>v</sup></sub> Spec [<sub>X<sup>v</sup></sub> X Complement]]

1 An exception to this may be the German expression in which the nominal expression precedes the preposition, as in *meiner Meinung nach*.

where X is a head and can be realised as either V or P. In the two cases a complement will be realised by a DP which, in inflectional languages, will be additionally case marked. Despite the fact that both V and P are non-branching categories, i.e., heads, taking some kind of complementation in form of DPs, there is a difference between these two syntactic categories.

The problem with the treating prepositions as a similar, functional, category as verbs as regards the property consisting in taking complements in form of DPs is the observation that verbs form a major syntactic class. Could prepositions be treated as lexical items in the same manner? Are they characterised by the same lexical and semantic properties as verbs? One of the properties of prepositions, or postpositions, is their limited and invariable number within a given syntactic class, a property characteristic of functional elements. If prepositions are treated as lexical items characterised by their idiosyncratic sense, then it would be hard to explain why in certain languages there are cases in which one preposition may appear with DPs with two different case specifications when the verbs heading the VP are not the same but are semantically related. This property can be illustrated with such examples taken from Polish and German as:

- (2) (a) Janek           położył   książkę    na stół.  
           John-NOM   put           book-ACC   on table-ACC  
           “John put the book on the table.
- (b) Książka       leży    na stole.  
           book-NOM   lies   on table-ABL  
           “The book is lying on the table.”
- (3) (a) Hans           hat das Buch   auf   den Tisch   gelegt.  
           John-NOM   has the book-ACC on   the   table-ACC put  
           “John has put the book on the table.”
- (b) Das Buch       liegt    auf   dem Tisch.  
           the book-NOM   is lying on   the   table-DAT  
           “The book is lying on the table.”

An analysis of the two cases indicates that, in certain cases, the case specification of the DP functioning as the complement of a preposition appears to be determined by the lexical, possibly semantic, properties of the verb, not the preposition itself.

There is one more feature which makes verbs functionally different from prepositions despite the fact that the two categories are characterised by the property of forming projection through taking nominal expressions, which, in the case of verbs,

is an instance of complementation, while in the case of prepositions is only reminiscent of this structural dependency. Most verbal lexical items are characterised by two or three argument structures whose arguments will make elements of a proposition. While forming a VP the verb's sense must be completed by providing some formal material in the form of a DP or PP. Thus formed VP acquires the status of the predicate, which is a constituent that is interpretationally ascribable to its argument, which itself functions as the subject as postulated by Liebesman (2015), the observation which is not without significance in the material provided in the subsequent parts of this paper. Such semantic and functional properties appear not to be the characteristic features of prepositions. Thus, VPs consisting of DPs or PPs as their complements will function as predicates, PPs will never function as predicates when they occur on their own.

Therefore, it can be assumed that the two syntactic constituents, i.e., the VP and the PP, are interpretationally and functional distinct, i.e., they will play different roles in the interpretation of propositions on the LF side, despite the fact that they appear to share a similar structural property, i.e., heading the structure of complementation. It appears to be dubious to claim that the sense of a preposition is completed through providing some formal material in form of a nominal expression, as is the case with verbs. It could also be assumed that PPs are a kind of compensation for the lack of case marked forms in the nominal paradigm to signal certain grammatical roles, for instance, instrumental or ablative. Instrumentality in Polish, and other Slavic languages, is signalled through an instrumental case form, for instance *młotkiem* [masc. sg. instrumental] corresponds to the English form “with a hammer” with the same interpretational properties.

The above remarks would be irrelevant in the case of languages in which VPs and PP pattern in the same manner, i.e., the nominal expression follows the verb and the preposition, as is the case in English or French. However, the observations presented above may shed some light on a couple of properties characterising the word order in German, where two options, i.e., the nominal expression completing the sense of V either follows or precedes this syntactic category. This problem becomes more interesting if one takes into account the fact that the two options, i.e., VO and OV are characterised by a strict specialisation.

### 3. Head Parameter and Word Orders in the Clause

The objective of the analysis presented in this paper is not an attempt at analysing the realisations of parameters in the case of all syntactic categories and configurations. The subsequent part of the present paper will be preoccupied with the word orders characterising the structure of the clause, which is described as the configuration of three elements, i.e., S(ubject), O(bject), and V(erb) with particular regard to V and O, the two syntactic categories whose mutual configuration, as signalled above, is believed to underly all other word order combinations. As regards the convention in which word orders of clauses are described, it is usually based on the sequence of three syntactic

constituents of which two are referred to in terms of their syntactic function, i.e., S(ubject) and O(bject), and one through its lexical class specification, i.e., V(erb). It may be considered as a kind of terminological inconsistency; however, no better way of classifying the word order of clauses has been suggested so far. It seems to be also explanatorily unsatisfactory since characterising the functions of subject and object through configurational conditioning in some cases does not correspond to interpretational properties of the proposition, e.g., the case of quirky subjects in Icelandic or Polish.

The most frequently attested sequences of the three clausal constituents are SVO, SOV, VSO, which is shown in Cinque (2013, 70) on the basis of the percentages of languages with the six word order possibilities presented in Cysouw (2008), Mallinson and Blake (1981), Ruhlen (1975), and Tomlin (1979):

|                          | SOV   | SVO   | VSO   | VOS  | OVS  | OSV  |
|--------------------------|-------|-------|-------|------|------|------|
| Ruhlen (1975)            | 51.5% | 35.6% | 10.5% | 2.1% | 0.0% | 0.2% |
| Tomlin (1979)            | 45.8% | 41.5% | 11.0% | 1.5% | 0.3% | 0.0% |
| Mallinson & Blake (1981) | 41.0% | 35.0% | 9.0%  | 2.0% | 1.1% | 1.0% |
| Cysouw (2008)            | 47.1% | 41.2% | 8.0%  | 2.4% | 0.8% | 0.4% |

**Table 1:** Percentage of languages as regards word orders

Analysing the data presented in Cinque (2013), such word orders as VOS, OVS, OSV are extremely rare but not impossible. Dryer (1992) also points to the rarity of OVS and OSV word orders. Analysing the configurations most frequently found in language two things are worth noticing, i.e.,

- (a) the position of S in relation to O appears to remain invariant, i.e., in a great majority of languages it precedes O;
- (b) what does vary is the position of the object in relation to the verb. In this case, one can speak about two variants, O following V, as in SVO and VSO, in the latter case the sequence is interrupted by S, and O preceding V. These variations are manifestations of one principle pertaining to the organisation of the predicate.

At this point a question appears concerning the syntactic status of the two nominal expressions, i.e., S and O. In Jackendoff (1977) the two DPs were treated as the constituents dependent on V, since it was V that was considered to be the head of the clause. This way of analysing the relation between V and the nominal expressions reflected the arguments structure of the verb rather than the functional dependences which are responsible for the structure of the proposition. The minimalist program, which has inherited much of the GBT theorising as regards the structural dependencies between syntactic objects and the verb, treats the latter as the head of VP, which, in the case of



- (c) Myślę, że oni podziwiają swojego burmistrza. (VO)  
 I think that they-NOM admire their mayor-ACC
- (d) Myślę, że oni swojego burmistrza podziwiają. (OV)  
 I think that they-NOM their mayor-ACC admire

The inspection of the above examples shows that English, French, and partly Polish, are characterised by consistent word orders as regards the structure of the VP. In Polish, in contrast to English, French, or German, the two configurational options are licit with slightly different pragmatic, not semantic, interpretation (cf. Szwedek 1981). What is problematic for any analysis of word orders, as has been signalled above, is the case of Modern High German. The two word orders, i.e., VO and OV, are characterised by a strict specialisation, i.e., VO is found in matrix/main clauses while OV is the hallmark of the subordinate character of the clause. At this point emerge the two problems mentioned in Section 1. Namely two questions that can be posed at this point is whether one can postulate one basic word order and the other variant as the derived one, or would it be more advisable to postulate two orders of equal rank with the difference between them being the result of mechanisms external to the narrow syntax.

The explanation, or rather description, of the word order complexities presented above was pretty straightforward in terms of Government Binding Theory, the version of the generative grammar which was heavily based on the representational mode of presenting syntactic structures, especially on their configurational character. The dependencies between constituents, especially if displaced, were configurationally specified in terms of c-command, government, binding, or bounding. Such a configurational character of GBT was favourable for assumptions concerning the word order based on directionality of case assignment related to the position of the case assigning element, i.e., head. This may have been responsible for the head-initial and head-final typologies.

Lightfoot (1991) speaks about word orders as the result of pushing the switch on the figurative switchboard either to the position “yes” or “no”. Moreover, in this publication Lightfoot (1991) points to SOV as the basic word order, which is substantiated by the claim that this word order is attested more frequently in Old English subordinate clauses. This basic character of SOV in Old English is related to its archaic provenance. Subordinate clauses should then be treated as fossilised formations that make their appearance in children’s language at a later period of the first language acquisition process. However, this claim cannot be treated as a satisfactory proof that SOV is basic, since subordinate clauses rarely make the Primary Linguistic Data available to children acquiring their first language. According to Crain and Lillo-Martin (1999) during the five stages of the first language acquisition process, it is at the beginning of stage V, i.e., 3.5 to 4 years, that children begin to produce multi-clause sentences. If it is

assumed that the age of three years is the period in which children start producing their own utterances, which implies that children have almost fully developed their linguistic capacities, then their ability to produce sentences with embedded clauses making its appearance at a slightly later time appears to indicate that the relation between the archaic provenance and the basic character of embedded clauses, as claimed in Lightfoot (1991), has nothing to do with the issue of embedded and subordinate clauses.

The theoretical tenets of GBT point to the syntactic character of parameters. Haider (2000) in his publication entitled “OV Is More Basic than VO” totally subscribes to the configurational approach to the problem of word order. He contrasts his branching constraint with Kayne’s (1994) linear correspondence axiom (LCA). According to Biberauer and Sheehan (2013), Kayne’s (1994) LCA can be comprehensively presented as follows:

- (8) [For a given phrase marker  $P$ , where  $d$  is the non-terminal to terminal dominance relation,  $T$  the set of terminals, and  $A$  the set of ordered pairs  $\langle X_j, Y_j \rangle$  such that for each  $j$ ,  $X_j$  asymmetrically c-commands  $Y_j$  – TB/MS],  $d(A)$  is a linear ordering of  $T$ .

Haider’s (2000, 47) postulate concerning word order conditioning is termed Branching Constraint and is to the following effect:

- (9) Branching Constraint: Projection-internal branching nodes on the (extended) projection line follow their sister node.

It must be borne in mind that Haider’s (2000) analysis pertains only to Germanic languages as such, and it stands in contrast to Kayne’s (1994) LCA, which is claimed to be of universal character. Both approaches raise certain problems as regards word order variants. The basic word order call for the explanation of the existence of its variants through displacing one constituent of the VP, or part of it as is the case presented in Taraldsen (2000), to some higher position. Taraldsen (2000) postulates, on the basis of the distributional properties of verb particles as a diagnostic, that VO order in the case of English and Scandinavian is the result of remnant VP preposing. This would nicely account for examples (4a, b) and (6a, b). The cases presented in (5) and (7) remain unaccounted for. A similar explanation concerning the relation between SOV and SVO word orders is offered in Cinque (2013).

We are not going to revise and evaluate the two accounts of deriving VO or OV orders from one basic word order. The aim of this brief presentation is to show the place of the Head Parameter as regards the word order of the predicate, and two ways of accounting for the divergence between the basic word order and its derived variants. In such cases the Head Parameter, which is inherent in the head-initial vs. head-final distinction, are the point of departure for further speculation and analyses

pertaining to variations in word orders. These two proposals imply that the locus of parameters should be syntax, or rather syntactic representations, which is graphically presented in form of the so-called phrase markers. It appears that the idea standing behind such phrase markers is an attempt at presenting in the graphical way the relation between what is found on the realisational, phonic plane, as perceived and interpreted by the parser with all the temporal attributes, such as, e.g., temporal sequence of linguistic units, and certain, still poorly understood, mental and intensional, in the Carnapian sense, algorithm which underlies the formation of proposition. Thus the parameter as a value which is set on the “switchboard” seems to be related exclusively to the syntax, and its manifestation is reflected in the linear sequence of syntactic objects.

In the early version of the minimalist program, as presented in Chomsky (1995), with the shift from the generation of structures forming DS and SS representation to monotonic operation termed derivation, the phonic realisation is still treated as the whole-sale mapping of the derivative to the PF. Uriagereka (2000) compares this mapping to a mobile thrown onto a certain plane with the sequencing of the elements of this mobile reflecting the hierarchical and, to certain extent, directional relations obtaining between these elements. However, this mode of presenting the relation between the syntactic derivation and the realisational PF plane as well as Kayne’s (1994) LCA or Haider’s (2000) Branching Constraint, are too categorical and deterministic. As will be presently indicated, the minimalist program does not fare any better as regards the derivation of the SOV word order in German. In other words, it could be assumed that the categorical and deterministic character of the accounts presented above is connected with confining parameters and all the transformations exclusively to syntax, or the narrow syntax with the features of LIs involved in the derivation playing the decisive role in determining the value of a parameter, as postulated in more recent versions of the minimalist program, such as Chomsky (2008). If this is so, then parameters operating in syntax only appear to be observational facts and their *raison d’être* does not exceed the descriptive level of adequacy.

#### 4. Word Order, PF, and LF

If one speaks about such word orders as SOV, SVO, it would be worth pondering on what actually is the essence of those word orders presented as sequences of three syntactic objects in relation to two interpretational interfaces. Language or languages primarily manifest themselves in the spoken guise, i.e., the form of utterances/clauses is phonic. As has been already mentioned, the phonic plane presupposes the temporal sequencing which in spelling is graphically presented as linear sequencing extending from left to right in our culture, or in the opposite direction in the Arabic culture. Let us concentrate on the phonic plane with the temporal sequencing which is sometimes termed “parsing”. The two variants of the word order indicate that what comes earliest/first

in the utterance is the nominal expression functioning as the subject. The object of the analysis presented in this paper comes next. In the case of SOV, it is the other nominal expression functioning as the complement of the verb LI closing the sequence. In the case of the other sequencing, i.e., SVO, after the nominal subject expression comes the verb LI, which is followed by the other nominal expression functioning as its object. What is the function of the two nominal expressions is determined by a certain fragment of the linguistic ability which is stored in the C-I component, i.e., beyond LF, which organises the senses of verb LIs and the nominal LIs presupposed by its sense into propositions. It could be tentatively termed “propositional template”.

This assumption is important because what is analysed in this paper is the sequencing of two syntactic constituents which form a part of proposition, i.e., the predicate, the fragment of the proposition that is, according to Liebesman (2015), ascribed to the expression functioning as the subject. This hypothetical remark is insignificant as regards examples presenting English, French, or Polish. What is of interest is the case of German. Ignoring VSO, which occurs in German in the case of topicalization (V-2 property) mentioned earlier, SVO occurs in the matrix clause whose variant SOV is the only possibility as regards the subordinate clause. It is worth mentioning that in temporal sequencing subordinate clauses occur in the later portions of utterances. Thus, SOV could be treated as the earliest temporal exposition of the nominal material determined by the lexical properties V within the confines of this subordinate clause. If it is assumed that it is so, then one must ask whether it is justified to claim, as presented in Section 3, that the OV configuration is the result of setting the parameter, thus placing parameters in the syntax, and if that is so, whether one can speak about the basic or canonical word order.

As mentioned earlier, the perspective in which the word order parameters can be viewed changes with the advent of the minimalist program. First, it must be kept in mind that verbs are specific heads since the senses of the majority of verb lexical items are characterised by a kind of incompleteness which must be completed, or saturated using Frege’s philosophy as presented in Geach and Black (1952), through providing nominal expressions. If one assumes the derivative character of the operations obtaining within the narrow syntax, then the assumption that a verb LI appears first in Lexical Array (LA) is obvious. It is this non-branching category that will lend its label to the whole syntactic constituent. What comes next is a syntactic object, a DP which saturates the sense of this verb LI<sup>3</sup>. The question should be posed at this point; should this saturation be characterised by any directionality and configuration or is it the matter of semantics?

In order to answer this question one should have a short look at the architecture of the minimalist program. The minimalist program is not a theory but a project that

3 The issue of ditransitivity will be ignored in this paper because of the paucity of space.

still keeps evolving. The workspace termed “narrow syntax” plays the central role in this project, functioning as a mediator between two interfaces, i.e., LF, an interface to the C-I module of human mind and PF, the interface to the A-P module of human mind. Lexicon is the inventory of LIs that are, in the case of major lexical categories, the aggregates of features. The features are of three types, phonological, logical, and formal. The third type of features is responsible for the behaviour of a given LI within the confines of the narrow syntax. The number of representational levels has been reduced from four in the GBT to two in the minimalist program. In this project the only representations are LF and PF. Syntactic objects, i.e., phrases and clauses, are derived through the monotonic operation on the basis of External Merge.

(10) [ $\alpha$   $\beta$ ]

The crucial moment of the analysis presented in this paper is the first Spell-Out, i.e.,  $v^*P$ , in contrast to  $vP$  characteristic of unaccusative and passive predicates, since it is in this fragment where the relation between the verb and its nominal complement is established and sent to PF and LF. According to Uriagereka (2012), this fragment of the derivation is supposed to be squeezed into PF. Thus, it would be interesting to find out whether the “squeezed” material is [V DP] in English and French, and [DP V] in German. The outcome of the derivation must be fully legible at the two interfaces to the C-I and A-P modules due to Full Interpretation requirement. While the outcome of “queezing” is the result of the full legibility at PF, the legibility at LF is not so straightforward. It has not been satisfactorily specified yet what lies beyond LF, i.e., in the C-I module. Possibly, the above hypothesised “propositional template” could be an element of this module. Suffice it to say that in the two cases under consideration, i.e., [V DP] and [DP V], will be recognised and interpreted as predicates ascribable to a DP functioning as the subject, the two nominal expressions being determined by the argument structure related to the sense of the verb LI.

One of the prerequisites of the legibility of the derivatives at the LF is the disposal of the uninterpretable features whose presence in the derivative renders the logical interpretation impossible. The only formal features which are held to be uninterpretable is Case, i.e., the category relevant to the problem under analysis, and nominal features on Probes, i.e.,  $v^*$  and T. The mechanism responsible for disposing of this uninterpretable feature according to Chomsky (2001) is valuing and matching the corresponding features on Probe and Goal. In some cases the disposal of uninterpretable features is achieved due to displacement, i.e., Internal Merge, of syntactic objects, usually to higher positions, an operation visible at PF and reflected in the linear order of words. Almost always the displacement of syntactic objects to higher positions is reflected at PF as the elements of the initial portions of the linearised product in form of an utterance or a written sentence.

Thus the first step in the derivation (3a,b), and possibly (4a, b) would be E-Merge of V *admire* and already derived DP *the mayor*. It is assumed here after Chomsky (2008) that the two syntactic objects when taken from LA and E-Merged in the narrow syntax workspace make an unordered set presented as  $\{. . .\}$ . The presence of the DP *the mayor* is justified by the lexical specification of LI *admire* which is a two argument verb. The moment light verb  $v^*$  occurs in the derivation, it functions as a Probe with an interpretable feature which must be valued and checked against the feature of DP. This is achieved through I-Merge of DP *the mayor* in the second Spec  $v^*P$  since the first Spec  $v^*P$  is occupied by the DP *they*, which makes its appearance through E-Merge. If the DP *the mayor* is overtly I-Merged in the 2nd Spec  $v^*P$  is a dubious solution. The complex  $v$ -V does not leave the  $v^*P$  projection and is associated with T due to “understood I-Merge”, not visible at PF. As regards this complex, in Modern English it does not overtly associate with T and it is worth remembering that T is the place where finiteness or non-finiteness of the clause is determined, as well as the place where modals are E-Merged in Modern English. Thus, the result of such a derivation as:

(11)  $[_{v^*P} \text{ the mayor}_i [_v \text{ they}_j [_v \text{ v-admire } \{t_v \ t_i\}]]]$

after *they* heads for Spec TP, would be a phase  $[_{v^*P} \text{ the mayor admired}]$  and in this form it would be delivered to LF and PF with the undesired phonetic realisation . . . *the mayor admired*. Moreover, the moment a fragment of a derivation is delivered to the two interfaces it becomes inaccessible for other computational operations in the remaining parts of the derivation due to Chomsky’s (2001) Phase-Impenetrability Condition.<sup>4</sup>

It is worth mentioning at this point that the particulars of the derivation and the multiple spell-out are postulated in Chomsky (2000, 2001). The derivational operations are modified in Chomsky (2008).

Therefore there appears to be a discrepancy between what is “understood” and what is “heard”. In order to obviate this undesired effect, it could be postulated that V associated with  $v^*$  and DP remain *in situ* and the valuation as well as checking features are achieved via LF.

In French (4a, b) the V is associated with  $v^*$  and DP *le maire* is allowed to leave VP and be I-Merged in the 2nd Spec  $v^*P$ . It is possible because the complex  $v$ -V is later associated with T and this is achieved through overt movement to T leaving the DP *le maire* within  $v^*P$ .

The case in German is a bit complicated. Assuming the first step of the derivation is the same, i.e., V and DP complement form after E-Merge an unordered set. The

4 The Phase-Impenetrability Condition is defined in Chomsky (2001,13) as follows: “The domain of H is not accessible to operations outside HP; only H and its *edge* are accessible to such operations.”

predicate starts being derived the moment *v* appears in the narrow syntax. Just like in French, *V* is associated with *v* and the Spec *v*\*P is the locus of the DP *sie*. It could be assumed that the DP *den Buergemeister* leaves its original location and is I-Merged in the 2nd Spec *v*\*P for valuation and checking of the uninterpretable features. Due to the analogy with (10), this fragment for German would be:

- (12)  $[_{v,sp} \text{ den Buergemeister}_i [_v, \text{ sie}_j [_v, v\text{-bewundern } \{v, t_v, t_i\}]]]$

which, when “squeezed” into PF would be *den Buergemeister bewundern*, the word order found in subordinate clauses. In main clauses the word order SVO, i.e., *Sie bewundern den Buergemeister* would be the PF reflection of the second stage of the derivation with the E-Merge of *C* and associating *v*-*V* complex with *T* and I-Merging *sie* in Spec TP.

Let us take stock of what can be said about the PF reflex of the *v*\*P derivation. The PF word orders VO, i.e., V DP, are reflexes of the following derivational steps:

- (13) (a)  $[_{v,sp} t_j \text{ admire } \{_{VP} t_V \text{ the mayor}\}]$  English  
 (b)  $[_{CP} [_{TP} \text{ ils}_j [_T \text{ T- admirent } [_{v,sp} \text{ le maire}_i [_v, t_j t_{v,v} \{_{VP} t_v t_i\}]]]]]$  French  
 (c)  $[_{CP} [_{TP} \text{ sie}_j [_T \text{ T-bewundern } [_{v,sp} \text{ den Buergemeister}_i [_v, t_j t_{v,v} \{_{VP} t_v t_i\}]]]]]$  German

Thus, the V DP word order is the result either of LF feature checking, as is the case with English, or the DP left at the periphery of *v*\*P with the verb being associated with *T* and the other DP I-Merged in Spec TP. The problem is the order DP V, i.e., OV. It could be postulated that in German subordinated clauses it is *v*\*P, i.e.,  $[_{v,sp} \text{ den Buergemeister}_i [_v, t_j [_v, v\text{-bewundern } \{v, t_v, t_i\}]]]$  is moved to *T en bloc*, a proposal postulated in Roberts and Biberauer (2004) as well as in Cinque (2013) in a slightly different theoretical setting. However, the problem with this proposal is that *v*\*P is a phase, and the moment all the uninterpretable features are valued and matched it is passed to LF and PF, and thus it becomes inoperative and inaccessible to other operations due to PIC. Thus the movement of the whole *v*\*P to any higher projections would be impossible due to the phase assumption of the minimalist program and PIC. Even if it were possible for one reason or another, then it would not be known which formal conditions would determine the I-Merge of one constituent or of the whole *v*\*P or a part of this. The lack of any answer to the question what is responsible for what Cinque (2013) terms raising of via pied-piping of the *whose*-picture type, in the case of initial-head languages, and pied piping via the picture-of-*whom* type, in the case of final-head languages, makes the explanation of the word order variation explanatorily unsatisfactory and parameters remain merely observational facts.

It has been mentioned above that the derivation particulars change slightly in Chomsky (2008). In this publication it is postulated that features that are to be matched

and valued are inherited by V and T. In the former case the feature donor is  $v^*$ , in the latter C. If this assumption is viable then the uninterpretable features would be valued and matched in Spec VP and Spec T respectively. In such cases the explanation of SVO orders in English and French, as well as in Polish would be straightforward. If these assumptions are adopted, then the unordered set must be redefined. In the case of (11), (12), and (13) it is VP. However, if the uninterpretable features are to be valued and checked within VP and TP, then in the case of the former, Spec must be postulated with the status of  $\{. . .\}$  being  $V'$ . Thus, the derivation of the predicate, i.e.,  $v^*P$  in English and in French as presented in (4a, b) and (5a, b) could be presented as follows:

- (14)  $[_{v^*P} \text{ they/ils } [_{v^*} \text{ admire/admirent } [_{v^*V} [_{VP} \text{ their mayor/le maire}_i \{t_V, t_{DPi}\}]]]]]$

The DP sitting in Spec  $v^*P$  heads for Spec T to perform the operation analogical to that performed by the DP moved from within  $V'$  to Spec VP. Thus, what is sent to PF and LF is *admire their mayor/admirent le maire*. The English formation is not accessible to other computational properties of the derivation due to PIC and thus transferred to LF and PF. In the case of the French example the verb moves to T, which is indicated in Pollock (1989).

Similar derivational steps could be postulated for the German example in (6a) presented as (15):

- (15)  $[_{v^*P} \text{ sie } [_{v^*} \text{ bewundern } [_{v^*V} [_{VP} \text{ den Buergermeister}_i \{t_V, t_V, t_{DPi}\}]]]]]$

After *sie* is I-Merged in Spec TP what is delivered to PF and LF is *bewundern den Buergermeister*. The problem now is how to account for the phase  $v^*P$  in which DP object linearly precedes the verb LI. A solution to this problem could be postulating an edge feature of  $v^*$  which would make it possible to move the DP E-Merged in  $V'$ , i.e., and unordered set which having been I-Merged to Spec VP to dispose of the uninterpretable case feature is further I-Merged to the edge of  $v^*P$ , i.e., 2nd Spec  $v^*P$ . After *sie* being moved to Spec TP the phase delivered to PF and LF would be *den Buergermeister bewundern*. However, this solution appears to have weak points if one looks at it from the point of view of the minimalist program, phase, and multiple spell-out. Firstly, if it is assumed, after Chomsky (2008), that the locus of the parameters are the formal features of units retrieved from the lexicon, it is not clear what feature of  $v^*$  would be responsible for moving of the complement DP from Spec VP to the 2nd Spec  $v^*P$ . Secondly, assuming that the  $v^*P$  is a phase and after sending it to PF and LF it is inaccessible for further computational steps, it would be hard to account for the observation that, in the case of subordinate clauses, what is moved to T to establish the finiteness in German is  $v^*P$ , i.e., phase, which is inaccessible to further derivational processes. Thus accounts postulated in Taraldsen (2000) and Cinque (2013) appear to be incompatible

with the tenets of the minimalist program and are merely descriptive accounts. Taking above into consideration, we are left with nothing if we associate the parameter with the syntax, actually the narrow syntax. Thus problem A remains a problem. Perhaps an alternative for this problem would be, for the time being, problem B, i.e., explaining the intricacies of the word order on the basis of realisational conditions.

## 5. Concluding Remarks

Summarising what has been presented above, adopting the minimalist program approach, especially the recent version based on phase and multiple Spell-Out, one basic or canonical word order appears to be arguable because the derivation carried out within the narrow syntax is meant to satisfy PF and LF conditions, and OV as well as VO should be logically valued in the same way, i.e., they are predicates. As regards the latter, being an interface to C-I module of the human mind, the derivation should reflect the properties of “propositional template”, i.e., hierarchical organisation of the lexical material inherent in verb LIs and the syntactic expressions, either syntactically realised as DPs or PPs, saturating the sense of verb LIs. The word orders VO and OV are two different sequences of the syntactic material rendering VP or possibly  $v^*P$  which corresponds to the predicate, i.e., a part of the “propositional template”.

Taking into account what is presented in (13a, b, c) it could be postulated that parameters responsible for the sequencing the verb and its complement are related to the way in which the uninterpretable features on Probes are valued and checked in the derivation, i.e., either through the covert, i.e., understood, movement to Spec  $v^*P$ , as is the case in English, or through the overt movement to Spec  $v^*P$  as is the case in French or German in the case of matrix clause. The problem, which seems to be unresolved, is the sequencing of V and DP object in German subordinate clauses. If one takes into account the Polish material presented in (7), where either word order is licit irrespective of the status of the clause, i.e., main or subordinate, it could be postulated that parameters should not be exclusively associated with syntax and could possibly be related to PF. This proposal gains more plausibility if one takes into account Chomsky’s (2005) third factor of the language design connected with, among others, computational conditions not related to the linguistic capacity.

Thus, in light of what has been presented and proposed above, problem A appears to have a couple of weak points as regards the question of variation in word orders. While the displacement of syntactic constituents to higher positions, i.e., those that occur earlier in the utterance, is determined by the necessity of disposing of uninterpretable features of Probe and Goal, the problem with the size of the displaced constituent remains still unaccounted for, which makes problem A still unresolved. However, taking into account the data from Polish it could be assumed that the word order characterising the predicate could be determined by the communicational needs of language users, namely giving more emphasis to nominal expressions through placing them as

early as possible in the utterance. This claim could be corroborated on the basis of data coming from diachronic linguistics, especially from the history of the English language. In Old English SVO and SOV were two word orders that were not characterised by a strict distribution characteristic of Modern High German. In Old English, SVO was the word order very frequently attested in main clauses but it is found also in subordinate clause but with a lesser frequency. SOV is not impossible in Old English main clauses but it was more frequently attested in subordinate clauses. Thus, one can speak about tendencies in, not deriving, but using the sequence of V and O in Old English with the frequency of SOV decreasing during Middle English and almost disappearing in early Modern English. Could it be the issue of parameters related to the narrow syntax? For the time being the answer to this question is negative if one takes into account the data from Polish or the Old and Middle English data. Thus, it could be suggested that the answer to the problem posed in Section 1 could be related to problem B, i.e., ceding a part of the derivational labour to the phonological realisation.

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# The Syntax behind the Concealed Question

Taisuke Nishigauchi

Kobe Shoin Women's University, Kobe, Japan

gauchi@shoin.ac.jp

**Abstract:** The present paper argues that the specificational sentence (SPC) and the concealed question (CQ) derive from what we call the Functional Noun Phrase (FuncNP) which has the specific structure in which the head FuncN denotes a relation between its two arguments, where the outer argument delimits the semantic domain (range) of FuncN R, and the inner argument exhaustively specifies the semantic domain of FuncN delimited by the outer argument. With the inner argument moved to SpecFocP, we obtain the SPC. The present paper derives the CQ in a fashion strikingly parallel with the derivation of the SPC: We posit Op as the inner argument of the FuncNP, which is moved to SpecDP.

**Keywords:** concealed questions; specificational sentences; island violations; connectivity

## 1. Introduction

The present article considers the linguistic expressions such as the following.

- (1) (a) the capital of Japan
- (b) the cause of the riot
- (c) John's dream

These expressions can form specificational sentences with expressions denoting the *value* as their focus.

- (2) (a) Tokyo is the capital of Japan.  
 (a') The capital of Japan is Tokyo.
- (b) A picture on the wall was the cause of the riot.  
 (b') The cause of the riot was a picture on the wall.
- (c) To better himself is John's dream.  
 (c') John's dream is to better himself.

In (2a), for example, *Tokyo*, the focus of the whole sentence, can be considered as the *value of the capital of Japan*, if the latter is considered as some kind of function.

The expressions in (1) can be interpreted as concealed questions in the complement position of verbs like *figure out*.

- (3) We finally figured out  $\left\{ \begin{array}{l} \text{(a) the capital of Japan} \\ \text{(b) the cause of the riot} \\ \text{(c) John's dream} \end{array} \right\}$ .

The central idea of the present paper is that the specificational sentence and the concealed question are closely related phenomena. This idea itself is not new, already emphasized in such work as Romero (2005). The idea that we would like to put forth in the present work is that the specificational sentence and the concealed question are isomorphic in their *syntactic structures*, not just in terms of their semantics. We start with the analysis of the specificational sentence.

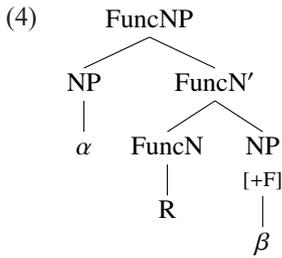
## 2. Functional Nouns

### 2.1 Structure

We hypothesize in the present work that the head nominals of (1) have specific properties. Firstly, the head nominals in (1) take two arguments, denoting *relations* between two linguistic items of various kinds.<sup>1</sup> Thus, *capital* denotes the relation between (the name of) a certain country and (the name of) a certain city of that country. *Cause* denotes a causal relation between an event (*the riot*) and an event (the presence of *a picture on the wall*) which brought about the consequent event. So, for convenience sake, we refer to the nominals in (1) as *Functional Nouns* (FuncN).

Furthermore, we hypothesize that FuncNPs have a specific structure indicated by the following.

<sup>1</sup> Caponigro and Heller (2007, 261–262) claim that it is what they call “functional nouns”, nouns whose interpretation depends on an additional argument that allow for the interpretation of concealed questions. However, their proposal as to the nature of “functional nouns” is not specific.



The outer argument  $\alpha$  of FuncN R delimits the semantic domain (range) of FuncN R, and the inner argument  $\beta$  of FuncN R exhaustively specifies the semantic domain of FuncN delimited by  $\alpha$ .

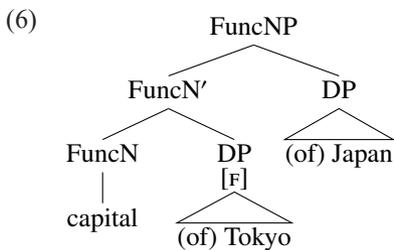
The semantic function of FuncN is more precisely indicated by R of the following representation.

$$(5) \text{Max}(\lambda x.R(\llbracket \alpha \rrbracket, x)) = \llbracket \beta \rrbracket$$

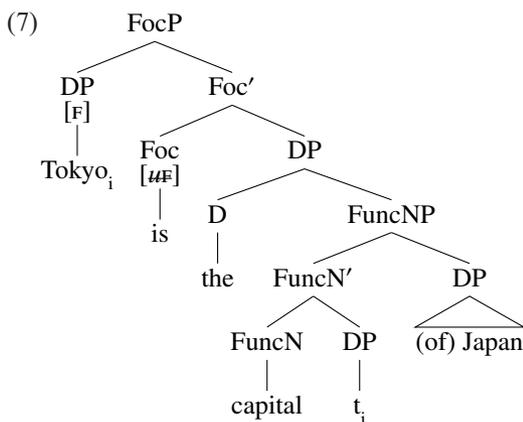
The Max operator yields the maximal value of the domain in its scope; cf. Sharvit (1999). Why do we need the Max operator? We need this to indicate the idea that FuncN has the specific property as a function in such a way that the function delimited by a certain argument must EXHAUSTIVELY SPECIFY the value yielded by that function.

## 2.2 Derivation

The present analysis proposes that a specificational sentence is derived, starting with the FuncNP:



With the inner argument of this FuncNP moved to SpecFoc(us)P in the manner of Hiraiwa and Ishihara's (2012) analysis of the cleft construction in Japanese, a specificational sentence is derived.



### 3. The Concealed Question

#### 3.1 Structure and Derivation

In this section, we show how our syntactic derivation of the concealed question proceeds.

- (3) We figured out  $\left\{ \begin{array}{l} \text{(a) the capital of Japan} \\ \text{(b) the cause of the riot} \\ \text{(c) John's dream} \end{array} \right\}$ .

Take (3a). Let us start with a sentence that contains an interrogative complement clause with an explicit *wh*-phrase.

- (8) We figured out what is the capital of Japan.

We can say that the complement clause is a specificational sentence deriving with the following FuncNP as the core.

- (9)  $[_{FuncNP}[_{FuncN'}[_{FuncN} \text{capital}] \text{what}] \text{ (of) Japan}]$   
[F,WH]

With the inner argument *what*, which is the value of *the capital of Japan*, raised to Spec- FocP, we obtain a specificational clause.

- (10)  $[_{FocP} \text{what} [_{Foc'} \text{is} [_{DP} \text{the} [_{FuncNP}[_{FuncN'}[_{FuncN} \text{capital}] \text{what}] \text{of Japan}]]]]]$   
[F,WH] [tF]

With the *wh*-phrase subsequently moved to SpecCP, the complement clause of (8) is obtained.

Our derivation of (3b) starts with the following FuncNP.

- (11)  $[_{\text{FuncNP}}[_{\text{FuncN}'}[_{\text{FuncN}} \text{capital}] \text{Op}] \text{ (of) Japan}]$   
 $[\text{F,WH}]$

We assume that this Op element bears [WH] feature and moves to SpecDP.

- (12)  $[_{\text{DP}} \text{Op}_{[\text{WH}]} \text{D}_{[\text{tWH}]} [_{\text{DP}} \text{the } [_{\text{FuncNP}}[_{\text{FuncN}'}[_{\text{FuncN}} \text{capital}] x] \text{ of Japan}]]]$

The Op element is translated in the semantic representation as  $\lambda$ -operator binding the variable created in the inner argument position, the effect of which is to yield a set of values  $y$  such that  $y$  is related to *Japan* by the relation of being the capital of  $y$ .

- (13)  $\cap \{p : p = [\exists y. \text{Max}(\lambda x. \text{capital}(\llbracket \text{Japan} \rrbracket, x)) = y]\}$

It is not standard practice to attribute the [WH]-feature to D, but this is our way to implement the idea, put forth by Frana (2017), that the concealed question is syntactically a DP and semantically a question. Frana (2017, 16) cites Grimshaw (1979), who argues in terms of selection that the concealed question is not allowed with just any predicate that takes *wh*-complements. The concealed question is selected only by predicates which select DPs.

- (14) (a) I {know / remember / guessed} what answer he gave.  
 (b) I {know / remember / guessed} the answer he gave.  
 (c) I {wonder / inquired / don't care} what answer he gave.  
 (d) \*I {wonder / inquired / don't care} the answer he gave.

Pesetsky (1981) provides an alternative account in terms of case-assignment, so sentences in (14d) are ungrammatical because the verbs used there are incapable of assigning case. Sentences in (14d) become grammatical with the addition of a preposition, which assigns case to the constituent immediately following it.

- (15) I {wonder / inquired / don't care} about the answer he gave.

However, Frana (2017, 16) observes that sentences of (15) are different in meaning from the meaning expected of a concealed question. For example, Frana (2017, 16) observes, "I wonder about the answer he gave." can have, in addition to the meaning induced by the concealed question, a meaning asking about the truth or appropriateness of the answer, which is absent from the concealed question in (14b). This indicates that what

the preposition *about* does not in (15) just assign case, but add some meaning which is otherwise absent from the concealed question.

This shows that the concealed question is syntactically a DP with a specific meaning as a question. In the next subsection we show that the concealed question is *syntactically* a question, not just semantically a question, as Frana (2017) argues.

### 3.2 The Concealed Question Forms an Island

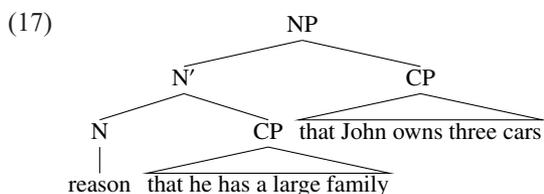
In this subsection, we show that there is evidence that the Operator that moves in the derivation of the concealed question as in (12) bears the feature [WH].<sup>2</sup>

For this purpose, we consider constructions involving the noun *reason*, which Higgins (1973, 136–138) characterizes as “one of a small number of nouns allowing two complement sentences.”<sup>3</sup> From our point of view, *reason* is a FuncN that takes a propositional expression that denotes a resulting situation as the outer argument (delimiter) and the proposition or property that constitutes the *reason* as the inner argument (value).

The noun *reason* can be part of specificational sentences as in the following.

- (16) (a) The reason that John owns three cars is that he has a large family.  
 (b) That he has a large family is the reason that John owns three cars.

These specificational sentences derive from the following FuncNP.



With the inner CP focalized, we obtain the specificational sentence (16b). On our analysis, the following sentence with the concealed question is obtained with the inner CP replaced by a null Op, which is moved to SpecDP.

- (18) Mary is investigating the reason that John owns three cars.

<sup>2</sup> Consideration in the present subsection was triggered by a question asked (independently) by Alec Marantz and Heizo Nakajima.

<sup>3</sup> Higgins (1973, 136–138) also points out *proof*, *indication*, *effect* as nouns taking two complement clauses.

Now, if the expression *three cars* is replaced by a *wh*-phrase, which undergoes *wh*-movement, what we get is an ungrammatical sentence.

- (19) (a) \*How many cars is Mary investigating the reason that John owns?  
 (b) ??How many cars is Mary confirming the allegation that John owns?

The grammatical status of (19a) is considerably lower than that of (19b). The derivation of (19b) involves movement of *how many cars* across the complex NP headed by *allegation*, and this type of *wh*-movement is known to result in “mild” violation. On the other hand, (19a) contains the concealed question DP, which on our analysis is of the following structure.

- (20)  $[_{DP} \text{Op}_i [_{D'} \text{D} [_{NP} [_{N'} [_{N} \text{reason}] t_i] ]_{CP} \text{that John owns } \textit{how many cars}]]]$

Movement of *how many cars* to the matrix SpecCP crosses DP, which in itself causes a “mild” violation as in (19b), as well as Op, which our analysis claims bears the [WH]-feature. A *wh*-phrase in SpecCP is also known to constitute an island with respect to *wh*-movement.

- (21) ?\*What<sub>i</sub> is Mary investigating where John lost t<sub>i</sub>?

Thus, on our analysis, *wh*-movement out of the concealed question structure (20) involves two violations, one crossing DP and another crossing Op[WH], accounting for the ungrammaticality of (19a).

### 3.3 The Head of the Concealed Question

So far the type of concealed question that we have observed is those examples in (3).

- (3) We figured out  $\left\{ \begin{array}{l} \text{(a) the capital of Japan} \\ \text{(b) the cause of the riot} \\ \text{(c) John's dream} \end{array} \right\}.$

We have discussed so far that these sentences can be understood as concealed questions by virtue of the nature of the head FuncNs. Now consider the following.

- (22) We figured out  $\left\{ \begin{array}{l} \text{(a) the book which Mary is reading} \\ \text{(b) the girl who caused the trouble} \\ \text{(c) the car that John drives to work} \\ \text{(d) the bacteria that Mary is analyzing} \end{array} \right\}.$

These expressions can be interpreted as concealed questions. But unlike those in (3), what makes the concealed question interpretation possible in (22) is not the head of the definite descriptions used in these. We cannot say that *book*, *girl*, *car*, and *bacteria* are FuncNs. Rather, the real heads of these definite NPs are not what their pronounced forms suggest. One piece of evidence for this idea comes from the use of the pronoun.

(23) We finally figured out [the girl who caused the trouble]<sub>i</sub>. {It<sub>i</sub>/\*She<sub>i</sub>} wasn't Mary.

If the real head of the NP in the brackets were *girl*, the pronoun referring to it should have been *she*. That the pronoun used here is *it* suggests that the real head of the definite NP is something else.

We can think of each sentence of (22) as involving a silent head FuncN, which could as well be pronounced as in the following.

(24) We figured out  $\left\{ \begin{array}{l} \text{(a) the **title** of the book which Mary is reading} \\ \text{(b) the **name** of the girl who caused the trouble} \\ \text{(c) the **make** of the car that John drives to work} \\ \text{(d) the **kind** of the bacteria that Mary is analyzing} \end{array} \right\}.$

Here again, we have corresponding specificational sentences, with the bold-faced FuncNs pronounced or silent.

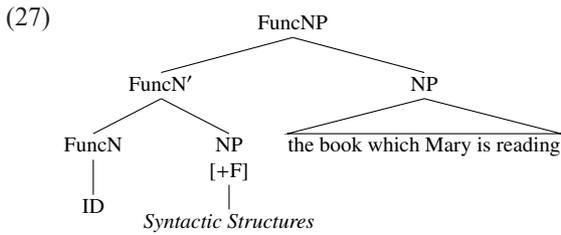
(25) (a) *Syntactic Structures* is (the **title** of) the book which Mary is reading.  
 (b) Liza Jane is (the **name** of) the girl who caused the trouble.  
 (c) Lexus is (the **make** of) the car that John drives to work.  
 (d) Spirochete is the (**kind** of) bacteria that Mary is analyzing.

The baseline underlying the bold-faced items in these sentences is the notion of *identifying*. A book that someone is reading can be identified by mentioning its title, an individual can be identified by his or her name, etc. Following up on this, we posit a class of FuncNs labeled ID.

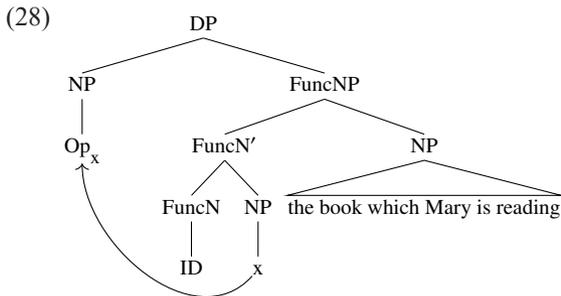
(26) ID = {name, title, make, kind,  $\emptyset$ , . . . }

*Name* relates an individual with his or her name, *title* relates a book that someone is reading with its title (name), etc. Thus, ID is a FuncN that relates X with something that X is identified as.

Let us start with the specificational sentence (25a). This sentence derives from the following FuncNP.



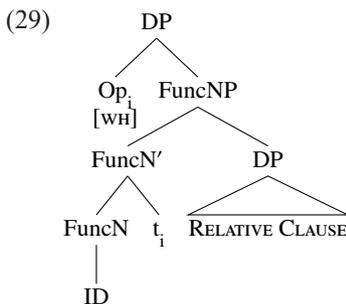
With the inner argument focalized, we obtain the specification sentence (25a). Now if we put Op in the inner argument position of the same FuncNP and move it to SpecDP, we get what we take to be the syntactic structure of the concealed question of (22a).



With the Op translated in the semantic representation as  $\lambda$ -operator, we obtain the set of values  $x$  such that the book which Mary is reading is identified as  $x$ .

### 3.4 More on the Island

Is it possible to provide evidence that the Op whose movement is involved in the derivation of the concealed questions in (22a–d) bears the feature [WH], just as we observed the effect of the *wh*-island in section 3.2? This is not as straightforward as in the observations made in section 3.2, because the concealed questions in (22a–d) are of the form:



The method we employed in section 3.2 was to try extracting a *wh*-phrase in the outer argument of the FuncNP out of the concealed question DP. Since this extraction exhibited island violations as in (19a), we decided that Op in SpecDP was itself a *wh*-phrase.

However, the outer argument of the FuncNP in (29) is a relative clause, and the extraction of a *wh*-phrase out of a relative clause incurs a strong violation, irrespective of whether the relative clause is part of the concealed question or not.

- (30) (a) \*Who did Mary read the book that John gave to  $t_1$ ?  
 (b) \*Who did Mary figure out the book that John gave to  $t_1$ ?

However, if we look at corresponding cases in Japanese, a *wh*-in situ language, it is possible to detect a difference between a relative clause and a relative clause as part of a concealed question. The reason is that a relative clause does not constitute an island for (covert) movement of *wh* in Japanese.

- (31) Mary-wa John-ga nan-nin-ni okut-ta hon-o  
 Mary-Top John-Nom how-many-Dat send-Past book-Acc  
 {a. yomi-tagat-te iru no? / b. ?\*siri-tagat-te iru no?}  
 read-want is Q know-want is Q  
 “For how many x, Mary wants to {a. read / b. know} the book that John sent to x?”

If the verb is *yom* “read”, the object DP is a regular relative clause, and (covert) *wh*-movement out of this relative clause causes no problem, while if the verb is *sir* “know”, the relative clause is part of the concealed question, asking for the identity (or title) of the book. There is considerable difference in acceptability between the two cases, where the low acceptability of the b. case in which the verb is *sir* “know” and the object DP is a concealed question is explained in terms of its derivation where (covert) *wh*-movement out of the relative clause crosses Op[WH] in SpecDP.

#### 4. Shades of Connectivity

##### 4.1 Specificational Sentence = (Concealed) Q + Answer

The ambiguity of the following sentence involving a concealed question has been discussed at length by Romero (2005), who attributes it to Heim (1979).

- (32) John knows the price that Fred knows.

Romero (2005) characterizes the ambiguity of this sentence as having Readings A and B (Romero 2005, exx. (23), (24)).

(33) **Reading A:** “John knows the same price that Fred knows.”

**Reading B:** “John knows what price Fred knows.”

Romero’s (2005) proposal to account for this ambiguity is, treating the intensional verb *know* in such a way that she allows its intensional argument to arise either from the extension of the NP or from its intension, reading A results when the extension of the complement NP is used and reading B obtains when the intension of the NP is used.

Romero (2007) considers that the ambiguity of (32) is reflected on the two different ways in which pronoun-as-variable connectivity is realized. To consider the two sentences provided by Romero (2007), we need to bear in mind the scenario set by Romero (2007, 273–4, (37)). Here I have modified the story, to avoid the use of the quantificational expression *no girl* as is used in Romero’s (2007) example sentences and to stick to the expression *every girl* throughout.

(34) A group of 2-year-old girls from the Ukraine were given in adoption to several families in Barcelona. The director of the adoption program encouraged the biological relatives of each girl to keep in touch with her by writing letters, telling them though that they should not identify themselves using their name, family relationship or address. After a couple of years, the girls have developed some hypotheses about who every secret writer may or may not be. For example, every girl thinks that the one who writes to her most often must be her mother. In fact, they are all wrong about that, since, for every girl, the one who writes to her most often is her uncle.

With this background story, let us consider the two sentences provided by Romero (2007):

(35) Reading A:

The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is (in fact) her<sub>i</sub> uncle.

(36) Reading B:

The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is the one who writes to her<sub>i</sub> most often.

Romero (2007) considers that (35) is related with Reading A of (32) because the description in the post-copular position designates the extension (denotation) of the individual, and that (36) is related with Reading B because the post-copular element designates the intension.

To cope with the Reading B sentence first, the following represents Romero’s (2007) explication of (36), leaving out her semantic analysis based on this. (Romero 2007, 297, ex. (127)).

(37) Reading B:

- (a) The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is the one who writes to her<sub>i</sub> most often.
- (b) The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is  
 [<sub>IP</sub> every girl<sub>i</sub> thinks the one who writes to her<sub>i</sub> most often must be her<sub>i</sub> mother]

This idea is similar to the analytical apparatus that we will present shortly except for the very important respect in which Romero (2007) derives the post-copular focal element by applying deletion on IP, eliding non-constituent elements.

It has been pointed out by authors including Romero (2007) that a specificational sentence consists of a concealed question and an answer to it, where deletion takes place in the answer part under identity with the constituent forming the concealed question. Now following up on this idea, we can think of (36) as a composite comprising the following dialogue in a single sentence.

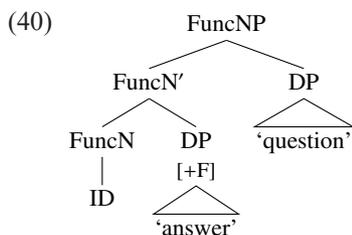
- (38) Q: Tell me the anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother?  
 A: The one who writes to her<sub>i</sub> most often.

The answer is a *fragment*, which has been claimed in such work as Merchant (2005), Nishigauchi (2011), etc. to be derived by ellipsis to account for the connectivity effect involving the pronoun-binding.

In the present analysis, we explore the possibility that the specificational sentence (36) is derived from FuncNP with ID as its head. Notice that the following, in which ID is spelled out as *identity* is tolerable.

- (39) The **identity** of the anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is the one who writes to her<sub>i</sub> most often.

The outer argument of this FuncNP delimits the range of ID, so that this argument, together with ID, counts as a question, and the inner argument provides the value, viz. the answer to the question.

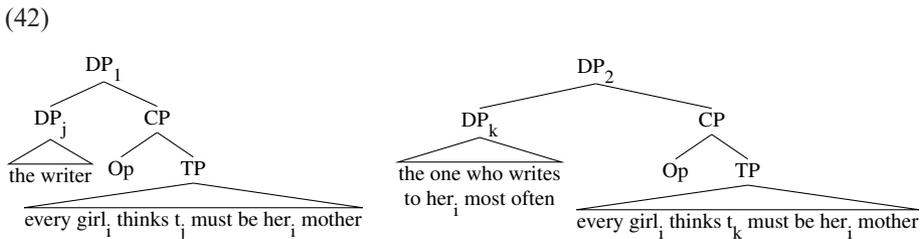


The claim that we make here is that the answer part that occupies the inner argument of the FuncNP comes in the form of a DP, not IP, parallel in form to the DP that occupies the outer position, viz. the question part. More specifically, our claim is that the concealed question containing a relative clause (the outer argument) and the answer, also a relative clause (the inner argument), start out being derived in a parallel fashion, then they get merged forming a FuncNP with ID as its head, and then the relative clause CP gets deleted, leaving only the head DP behind.

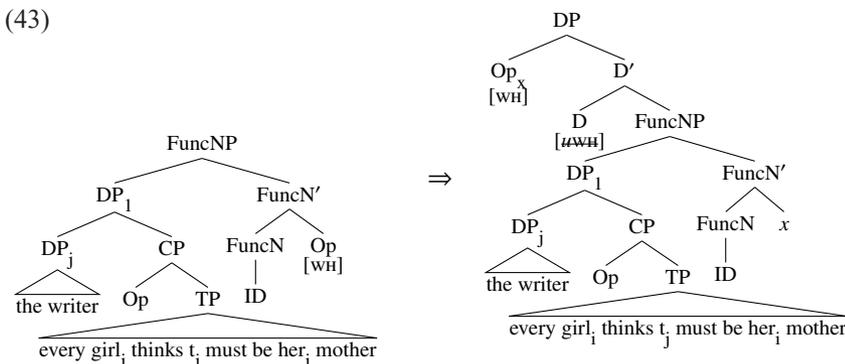
The present analysis starts out with the two clauses deriving independently of each other, one of which derives into a concealed question via relativization, the other of which derives to be an answer to it, also via relativization.

- (41)  $[_{TP} \text{every girl}_i \text{ thinks that } [_{DP} \text{Op anonymous writer}] \text{ must be her}_i \text{ mother}]$   
[REL]
- $[_{TP} \text{every girl}_i \text{ thinks that } [_{DP} \text{Op one who writes to her}_i \text{ most often}] \text{ must be her}_i \text{ mother}]$   
[REL]

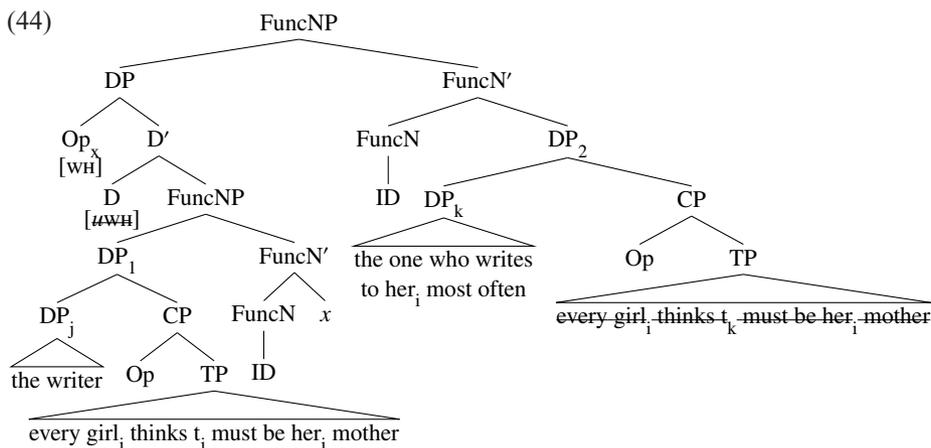
At this point, all the relevant pronouns are c-commanded by the quantificational expression, accounting for the connectivity effect seen in (36). Then relativization via head-raising occurs on both parts.



DP<sub>1</sub> thus formed in (42) takes part in the formation of a concealed question.



The Op[*wh*] binding the variable *x* provides a set of values of the identity of *the writer*. Next FuncNP is formed, with the DP thus formed as the outer argument, and with DP<sub>2</sub> formed in (42) as the inner argument.



The relative CP of DP<sub>2</sub>, now c-commanded by the concealed question CP occupying the outer argument position, gets elided under identity. With this DP<sub>2</sub> focalized, we obtain a specificational sentence:

(45) The one who writes to her<sub>i</sub> most often is the anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother.

With the post-copular constituent (concealed question) topicalized, we arrive at Romero’s (2007) Reading B sentence (36).

(36) Reading B:  
The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is the one who writes to her<sub>i</sub> most often.

Now let us turn our attention to Romero’s (2007) Reading A sentence (35).

(35) Reading A:  
The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is (in fact) her<sub>i</sub> uncle.

In fact, this is tougher of the two problem sentences posed by Romero (2007). As Romero (2007, 275) observes, it is simply wrong to consider the post-copular constituent is

anyway related with the following, which Romero (2007, 275) posits as a potential D-structure or LF somehow related with (35).

(46) Every girl<sub>i</sub> thinks her<sub>i</sub> uncle must be her<sub>i</sub> mother.

In our analysis, if we simply applied the same analytical procedure used for the Reading B sentence, we would derive a relative clause in the post-copular position, using (46) as a starting point.

(47) The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is (in fact) her<sub>i</sub> uncle [that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother].

Although this does secure the required connectivity, since (46) is wrong from semantic viewpoints and does not correctly capture the meaning of (35), this approximation cannot possibly be right.

In her analysis of (35), Romero (2007, 300) invokes a dyadic predicate *writer of with those characteristics*, where *those* refers to the content of the pre-copular portion of (35).

(48) The anonymous writer that every girl<sub>i</sub> thinks must be her<sub>i</sub> mother is [~~every girl's writer with those characteristics~~ her<sub>i</sub> oldest uncle] (Romero 2007, ex. (134b), 300)

Romero (2007, 300) attributes the idea of using a dyadic predicate in this connection to Schlenker (2003). Although the post-copular portion of (48) is rather awkward, the idea I think is well-taken in that this is an attempt to show that there was a point in syntactic derivation in which *her<sub>i</sub> oldest uncle* was c-commanded by *every girl*, where the two expressions are connected by a relational (dyadic) predicate which means “x being a letter- writer, or a correspondent of y”.

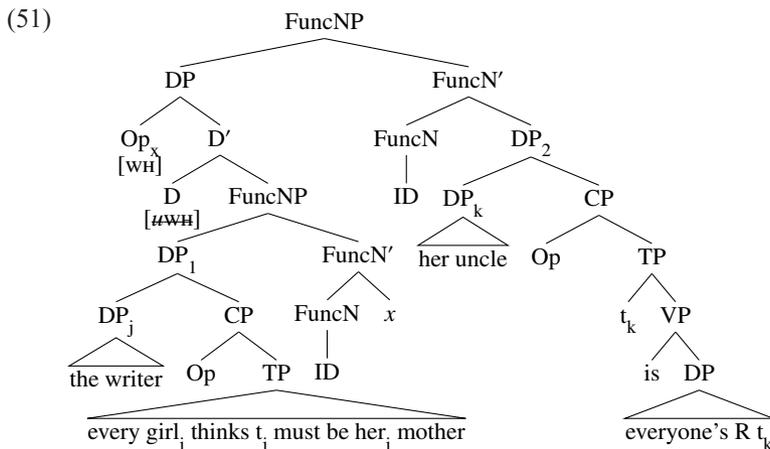
Romero's (2007) idea as seen in (48) can be implemented in the present analysis by positing a FuncN R, which denotes a salient property or relation that is established in the discourse context, borrowing from Cooper's (1979) analysis of Donkey sentences and discourse referents. Pursuing this line of thought, we posit the following FuncNP.

(49) [<sub>FuncNP</sub>every girl] [<sub>FuncN'</sub>R] [uncle of her(s)]]

In this FuncNP, the head R stands for a relation of “x being a letter-writer, or a correspondent of y”. With *uncle of hers* focalized and then moved to the head position, we obtain the following relative clause.

(50) [<sub>DP</sub>her uncle]<sub>i</sub> [<sub>CP</sub>Op t<sub>i</sub> is [<sub>DP</sub>every girl's]<sub>j</sub> [<sub>FuncNP</sub>t<sub>j</sub> [<sub>FuncN'</sub>[<sub>FuncN</sub>R] t<sub>j</sub>]]]

Continuing to hypothesize that the pre-copular portion of the Reading A sentence is a concealed question, formed with the same relative clause that we constructed in the derivation of the Reading B sentence, the structure of the Reading A sentence is derived from the following FuncNP with ID as its head.



#### 4.2 “Partial Connectivity”

What is common in Romero’s (2007) analysis and the present analysis is that, while we both consider that connectivity is fully respected in the analysis and syntactic derivation of the Reading B sentence—recall, in our structure (44), both the constituents ending up as the pre-copular constituent and the post-copular constituent contain the identical TP, we both consider that, in the analysis and derivation of the Reading A sentence, connectivity is only partially respected, to the extent that the post-copular portion derives from a structure in which the pronoun finds its binder in a minimal way.

That this is on the right track can be seen by looking at the relevant data in Japanese. In Japanese as well, what corresponds to the Reading B sentence exhibits full observance of connectivity.

(52) Reading B:

Dono-ko-mo<sub>i</sub> {sono-ko<sub>i</sub>-no / zibun<sub>i</sub>-no} hahaoya da to omot-te-iru buntuu-aite-wa  
 every-kid that-kid-Gen self-Gen mother Cop that think-be letter-partner-Top  
 {sono-ko<sub>i</sub>-ni / zibun<sub>i</sub>-ni} itiban takusan tegami-o kai-ta hito da  
 that-kid-Dat self-Dat most many letter-Acc write-Pst person Cop  
 “The letter-writer who every kid thinks is {her / self}’s} mother is the person who wrote  
 most letters to {her / self}.”

In this sentence, both the pronominal *sono-ko* “that child” and the reflexive *zibun* “self” can be understood as being bound by the quantificational subject *dare-mo* “everyone”. Connectivity is fully respected, so we can maintain that derivation of (52) proceeds essentially the same way as in the corresponding sentence in English (36).

On the other hand, the following is what corresponds to the Reading A sentence in Japanese.

(53) Reading A:

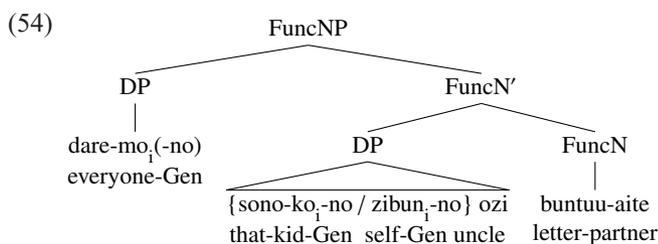
Dono-ko-mo<sub>i</sub> {sono-ko<sub>i</sub>-no / zibun<sub>i</sub>-no} hahaoya da to omot-te-iru  
 every-kid that-kid-Gen self-Gen mother Cop that think-be  
 buntuu-aite-wa zitu-wa {sono-ko<sub>i</sub>-no / ??zibuni-no} ozi da.  
 letter-partner-Top in-fact that-kid-Gen self-Gen uncle Cop  
 “The letter-writer who every kid thinks is {her / self’s} mother is in fact {her /  
 ??self’s} uncle.”

What is remarkable about this sentence is that, while both the pronominal *sono-ko* “that child” and the reflexive *zibun* “self” are possible in the pre-copular portion (by which I mean the portion to the left of the topic marker *wa*), only the pronominal, and not the reflexive *zibun* is possible in the post-copular portion.

The crucial difference between a pronominal and the reflexive *zibun* is that the latter’s binding requires not only the structural relation of c-command but also some semantic factors which have to do with “point of view” or logophoricity. For a recent consideration of such factors with reference to syntactic structure, see Nishigauchi (2014). Thus, the fact that the reflexive *zibun* is possible in the post-copular portion in the Japanese sentence corresponding to the Reading B sentence indicates that there was a point in the derivation of the post-copular portion of this sentence in which what may be identified as a “logophoric agent” was present. On the other hand, the fact that the Japanese sentence corresponding to the Reading A sentence does not allow the occurrence of *zibun* indicates that there is no presence of a “logophoric agent” in the derivation of the post-copular portion of this sentence. In other words, while it can be understood in such a way that both the pre-copular and post-copular portions of the Reading B sentence represent the girls’ point of view, which is reflected on the fact that *zibun* can be used in the both positions, there is a split of points of view in the Reading A sentence in such a way that while the pre-copular portion can represent the girls’ point of view, if *zibun* is used there, the post-copular portion represents the speaker’s point of view, which leads to the extensional interpretation. And just this point is made observable by looking at the corresponding sentence in Japanese.

And this insight can be captured if derivation of the post-copular portion of (53) proceeds in the same way we derived the corresponding portion of (35). The post-copular

portion of (53) derives from the following FuncNP, in which we make the head explicit, rather than the contextually determined R:



If we make a relative clause, just as we made (50) in English, using this FuncNP as the core, the result is the following.

- (55) dare-mo<sub>i</sub>-no buntuu-aite de-ar-u {sono-ko<sub>i</sub>-no / \*zibun<sub>i</sub>-no} ozi  
 everyone-Gen letter-partner be-Pres that-kid-Gen self-Gen uncle  
 “{her<sub>i</sub> /??self<sub>i</sub>’s} uncle who is everyone<sub>i</sub>’s letter-writer”

Remarkably, the reflexive *zibun* as part of the head of this relative clause is low in acceptability, while the pronominal *sono-ko* “that child” is acceptable. This is in conformity with the pattern observed in (53), and it is a reasonable possibility that the derivation of the post-copular portion of (53) goes through this structure. This derivation captures just the degree of connectivity required by the post-copular portion of (53)—pronoun-as-variable connectivity is warranted because of the quantifier c-commanding the pronominal in the derivation of (55), while no logophoric agent is involved in the derivation of (55), which accounts for the unacceptability of *zibun* in (53).

Notice once again that these fine shades of connectivity, which required Romero’s (2007) insight to be brought to light on an intuitive basis, can be made observable by looking at corresponding examples from Japanese.

## 5. Conclusion

The central idea of the present paper has been that the specificational sentence and the concealed question are closely related phenomena. The idea that we have put forth in the present work is that the specificational sentence and the concealed question are isomorphic in their *syntactic structures*, not just in terms of their semantics.

We have argued that the specificational sentence and the concealed question derive from what we call the Functional Noun Phrase (FuncNP) which has the specific structure in which the head FuncN denotes a relation between its two arguments, where the outer

argument delimits the semantic domain (range) of FuncN R, and the inner argument exhaustively specifies the semantic domain of FuncN delimited by the outer argument. With the inner argument moved to SpecFocP, we obtain the specificational sentence. The present paper derives the concealed question in a fashion strikingly parallel with the derivation of the specificational sentence: We posit Op as the inner argument of the FuncNP, which is moved to SpecDP.

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# EPP Variation: Locative Inversion in English and Spanish

Ana Ojea

University of Oviedo, Spain

aojea@uniovi.es

**Abstract:** This paper analyses the structural properties of locative inversion, a construction where the UG intentional feature [DI] (*discourse intention*) is valued by a locative phrase, thus obtaining an event-reportingthetic statement which describes an eventuality framed in some spatio-temporal coordinates. I argue that the differences between Spanish and English in the construction can be explicitly accounted for in terms of the different locus of [DI] in each language: in Spanish, [DI], an edge feature in C, is inherited by T and this makes locative inversion one of the unmarked possibilities for EPP-satisfaction; in English, on the contrary, [DI] remains in C, and this makes locative inversion a context-dependent operation heavily restricted by pragmatic factors. I also discuss some implications of the analysis, particularly the conflict between computational economy and interface economy in certain derivations and the empirical predictions which follow from this fact.

**Keywords:** locative inversion; discourse intention;thetic statement; parametric variation; EPP

## 1. Introduction

One of the programmatic assumptions of the Minimalist Program, as defended in Chomsky (1995) and subsequent work, is that languages incorporate a computational mechanism that generates a number of expressions which are transferred for interpretation to two interfaces: the sensory-motor system and the conceptual-intentional system. This way, the linguistic mechanism generates usable structures, i.e., expressions which are pronounceable, make a contribution to the LF (i.e., they are interpretable) and are

discourse-legible (i.e., they are intentionally adequate). One of the goals of the linguistic theory is then to explain how the formal system connects with the systems of use and which possibilities of variation across languages are opened in the relevant interfaces.

Along these lines, this paper explores a possible source of linguistic variation which involves not a formal feature, but an interface feature which is informational in nature: the core intentional feature [DI] (*discourse intention*). I first define core intentional features in general and the feature [DI] in particular, and I describe the process of valuation of this feature; for this, I summarize my proposals in Ojea (2017). In Section 3 I use the process of locative inversion (LI) in English and Spanish to explore the structural consequences which follow from a parametric difference in the locus of the feature [DI]. In doing so, I address the tension between computational economy and interface economy in LI, and the mechanisms that the two languages employ to compensate for it. Section 4 offers some conclusions.

## 2. Core Intentional Features

In Ojea (2017) I proposed that all sentences have an intentional structure which necessarily includes at least two so-called core intentional features: [DI] (*discourse intention*), which marks the point of departure of the proposition and [IF] (*intentional focus*), which marks its intentional focus in the sense of what É. Kiss (1998) termed *informational focus* (i.e., the nonpresupposed information marked by one or more pitch accents; cf. É. Kiss 1998, 246).

Core intentional features (CIFs), though informational in nature, should be distinguished from standard pragmatic features such as *topic* or *focus*, even though both types interact in a crucial way (see below). While pragmatic features are optional and strictly context dependent, CIFs are part of our grammatical competence and, as such, they belong to the inventory of UG and are subject to parametric variation. The implication is that CIFs have the same status in the derivation than formal features: both of them co-operate to obtain a fully convergent object and both of them determine linguistic variation. As for their placement, the assumption is that CIFs sit in the relevant phases, which means, if one adopts the static approach to phases in Chomsky (2008), that there will be (at least) one CIF in CP and one in v\*P. Here I will focus on the CIF in CP, the feature [DI], which marks the *intentional base* of a proposition (i.e., its point of departure) and serves to organize the intentional structure so that it fits one of the two points of view from which a state of affairs can necessarily be regarded:<sup>1</sup>

1 The idea that statements must necessarily be categorical orthetic started with the philosophers Brentano and Marty in the 19th century and gained syntactic relevance after the work of Kuroda (1972). This categorical/thetic distinction is cross-linguistically reflected in the grammatical component, either structurally (syntactically or morphologically) or phonologically (see Sasse [1987], Ladusaw [2000], and Breul [2004] for references and discussion).

- a) as a categorical statement, an intentionally bipartite structure where an entity is named (the logical subject) and something is predicated about it (the logical predicate);
- b) as an event-reportingthetic statement, a single intentionally-unstructured complex which merely expresses a state of affairs located in some spatio-temporal coordinates.

Since [DI] marks the point of departure of the proposition, we expect a categorical statement to obtain when [DI] is valued by a category which embodies an entity (i.e., a referential DP) and athetic statement to follow when [DI] is valued by some locative category which frames the event in place or time.<sup>2</sup> Any attempt to formalize the role of core intentional features in the derivation must then determine what forces one category over the other to be the intentional base and how exactly this process of valuation is effected.

## 2.1 Valuation of [DI]

The proposal in Ojea (2017) is that valuation of [DI] is always done on prominence conditions, but these conditions are different when the sentence is context-free than when it is context-sensitive.

In the former case, that is, in sentences which inaugurate the discourse or constitute a discourse in themselves (*d-sentences*), valuation of [DI] will be regulated by the computational mechanism, only attending to the particular output of external merge: the most prominent constituent structurally after E-merge will be targeted to value [DI] i.e., will be the intentional base of the sentence. Valuation of [DI] in *d-sentences* is then a matter of computational efficiency, an optimal way to link the structure obtained after E-merge with the intentional module.

On the contrary, in those sentences which are integrated in a particular communicative situation, valuation of [DI] will be regulated by the pragmatic component: the most prominent constituent pragmatically will be targeted to value [DI]. As is standardly assumed, when a sentence is in context, constituents are endorsed with pragmatic features that signal them as some type of [topic] or [focus], activated by previous discourse conditions. With respect to topics, here I adopt the classification in Frascarelli and Hinterhölzl (2007) and Bianchi and Frascarelli (2010), where a distinction is made among A(boutness-shift) topics, C(contrastive) topics and G(iven) topics. As defined there, A-topics and C-topics pertain to the dimension of CG management (Krifka 2007), that is, they mark the sequence of conversational moves that condition the development of the common ground (i.e., the part of the information state shared by the speaker and the hearer at a given point); on the contrary, G-topics relate to the dimension of CG content, that is, the truth-conditional information accumulated up to a given point in the conversation. Thus understood, G-topics do not affect the conversational dynamics and show the highest degree of connection with the

<sup>2</sup> The need for the DP to be referential in categorical statements follows from the presuppositional status of the intentional base in this type of judgements (see Ojea [2017] for details).

common ground; actually, Bianchi and Frascarelli (2010) contend that they are always contextually entailed and co-refer with a salient antecedent. If a constituent is labelled as a [G-topic] this constituent will therefore be the most prominent pragmatically, prominence understood here as explicit connection with the common ground.

## 2.2 Parametric Variation

As argued above, [DI] is an UG feature which guides all derivations (i.e., all sentences must have a discourse intention), and, as expected, is subject to parametric variation. It must be treated as an edge feature which sits in a phasal functional category and makes it a probe. In Chomsky's standard models, TP is not a phase but can inherit (some) edge features from C. In this respect, Jiménez-Fernández and Miyagawa (2014) proposed that languages can be classified as agreement prominent or discourse prominent on the basis of which type of features—formal features or discourse features—are inherited by T from C. The term *discourse feature* in Jimenez-Fernandez and Miyagawa's (2014) system means *pragmatic feature*, that is, *topic* and *focus*. Their theory therefore predicts that any constituent annotated as some type of topic or focus may eventually sit in [Spec, TP] in discourse-prominent languages.<sup>3</sup>

I adopt their proposal here but restricting the discourse features that may constitute a source of parametric variation to core intentional features, the only obligatory ones. Therefore, parametrically, T can inherit only formal features, only core intentional features or both.

Spanish is, in this respect, a language in which TP inherits both, the formal features in C and the core intentional feature [DI]. Adopting standard vocabulary, I will call EPP features those edge features which force internal merge in TP. As standardly assumed in the relevant literature (cf. Contreras 1991; Olarrea 1996; Ayoun 2005; Villa-García 2018, among others), the formal features inherited by T in Spanish are not EPP-features: they attract the verb but only establish an Agree relation (with no further attraction) with the DP subject, that is, the DP bearing Case, person and number features in its local c-c domain.<sup>4</sup> Therefore the DP subject can remain postverbally and value its  $\phi$ -features and Nominative Case in its underlying position in the verbal projection (cf. Eguzkitza and Kayser [1999] for a discussion of the structural Case of postverbal subjects in Spanish). On the contrary, the core intentional feature [DI] inherited from C is an EPP feature in Spanish

3 In the theory of core intentional features defended here, on the contrary, only referential DPs or locative constituents, when they constitute an adequate intentional base (i.e., when they are the most prominent in the relevant sense), can occupy this position; as for topics different from G-topics and foci, they must be merged in some functional projection in the CP space (see Rizzi [1997] and related work for the articulation of the left periphery of the sentence).

4 The term subject with no further specification is used here to refer to the DP which displays morphological agreement with the inflected verb.

(i.e., the EPP is informational in nature in this language) and T must therefore probe an adequate goal to value it: as argued, the goal for [DI] must be either a DP expressing an entity (a categorical statement following) or a locative category framing the event in place or time (athetic statement being obtained in this case):<sup>5</sup>

- (1)  $[_{CP} [_{TP} [DI] \quad DP / XP[loc]$   


In the case of d-sentences, it is structural prominence that determines which category (nominal or locative) will be targeted as the intentional base. This means that the order of the constituents in d-sentences in Spanish will heavily depend on the type of predicate which heads the sentence. If one assumes that the VP projection is organized in terms of thematic prominence, the external argument (projected in the specifier of v\*P) is structurally the most prominent constituent in the verbal phrase, given that it is the first potential intentional base in the closest c-c domain of T. As a result, with verbs which have an argument structure such as that in (2) (i.e., transitive [3] and unergative [4] verbs), the DP external argument will be targeted to [Spec, TP] to value [DI], and the sentence will unmarkedly have a SV order and a categorical reading:

- (2)  $[_{CP} [_{TP} [DI] \quad [_{v^*P} DP [_{VP} V PP[loc]. \dots]]]$   


- (3) (a) Irene ha publicado su libro en Anagrama.  
 Irene have-PRS.3SG publish-PTCP.PRF her book in Anagrama

- (b) #En Anagrama ha publicado Irene su libro.  
 In Anagrama have-PRS.3SG publish-PTCP.PRF Irene her book  
 “Irene has published her book in Anagrama.”

- (4) (a) El mendigo ha dormido en el parque.  
 The beggar have-PRS.3SG sleep-PTCP.PRF in the park

- (b) #En el parque ha dormido el mendigo.  
 In the park have-PRS.3SG sleep-PTCP.PRF the beggar  
 “The beggar has slept in the park.”

5 This latter option also includes the verb when it enters the numeration in the perfective (*escribió* “wrote”/ *ha escrito* “has written”) or the progressive aspect (*está escribiendo* “is writing”), given that the aspectual morphology in these cases can be said to add a [loc] feature to the lexical structure of the verb (cf. Ojea [2017] for details).

Note that (3a) and (4a) are d-sentences and, therefore, they display the canonical order of constituents; (3b) or (4b), on the contrary, are clearly context-dependent, and can only be used in a communicative situation where the locative is understood as a contrastive focus (projected, then, in one of the categories of the CP domain).

A subset of verbal predicates in Spanish, such as *faltar*, *sobrar*, *ocurrir*, *haber*, etc., have a locative external argument (cf. Fernández Soriano 1990); this locative will then necessarily be the intentional base in d-sentences, which, as a result, will unmarkedly have a VS order and a thetic reading:

(5) [<sub>CP</sub> [<sub>TP</sub> [<sub>DI</sub> [<sub>v\*<sub>p</sub></sub> PP [<sub>VP</sub> V DP . . ]]]]]

(6) (a) En esta lista falta mi libro.  
In this list lack-PRS.3SG my book

(b) #Mi libro falta en esta lista.  
My book lack-PRS.3SG in this list  
“My book is missing on that list.”

As before, a sequence such as (6b) can only be the result of focalization of the DP under specific contextual conditions (i.e., cannot be an all-new sentence).

Finally, if the verb lacks an external argument (i.e., in unaccusative structures), all the constituents in the verbal phrase are in the same minimal domain, which means that the DP and the locative PP are structurally equidistant for the external attractor T and can therefore serve as the intentional base to be targeted into TP (cf. Chomsky 1995; Collins 1997; Rizzi and Shlonsky 2006, among others):<sup>6</sup>

(6) [<sub>CP</sub> [<sub>TP</sub> [<sub>DI</sub> [<sub>VP</sub> V DP PP . . ]]]]]

In Spanish, d-sentences with unaccusative verbs can therefore have a more flexible word order, with both orderings, SV as in (7a) and VS as in (7b), being equally unmarked:

6 Unaccusative verbs have customarily been defined as semantically light verbs which have no external argument (cf. Perlmutter 1978; Burzio 1986; Levin and Rappaport 1995; De Miguel 1999; Irwin 2012, among others). The class is not uniform, though, and here I restrict to those unaccusatives which denote existence and inherently directed motion, since they pattern together with respect to locative inversion.

- (7) (a) Los rosales no florecen en mi jardín.  
 The rosbushes not flourish-PRS.3PL in mi garden
- (b) En mi jardín no florecen los rosales.  
 In my garden not flourish-PRS.3PL the rosebushes  
 “Rosebushes do not flourish in my garden.”

Examples (3), (4), (6) and (7) show that, in Spanish, structural prominence after the numeration determines the particular intentional base (DP or PP[loc]) to be targeted and thus both, the word order and the intentional structure of those sentences which are not inserted in a particular communicative situation.

English, on the contrary, is an agreement prominent language where T only inherits formal features from C, i.e., the EPP is formal in nature and always forces a DP bearing person and number features into [Spec, TP], no matter its structural prominence. Word order in d-sentences in English is, as a result, fixed, which means that derivations whose numerations are equivalent to those in (3), (4), (6) and (7) above will necessarily result in an SV order:

- (8) Irene has published her book in Anagrama.
- (9) The beggar has slept in the park.
- (10) My book is missing on this list.
- (11) Rosebushes do not flourish in my garden.

As for [DI], it remains in C in English and is therefore accessed at the interfaces. In particular, it is unmarkedly valued in the phonological component, with pitch reflecting the double (categorical) or single (thetic) intentional structure of the sentence: in categorical statements (12a), both, the subject and the predicate in VP, receive high pitch; in thetic statements (12b), only the subject does (cf. Sasse 1987):

- (12) (a) [PEter] has [SMILED]  
 (b) [PEter] has died

Significantly, the phonological properties in (12) correlate with the type of verb which heads the sentence, similarly to the way in which word order in Spanish does: with transitive and unergative verbs—that is, with verbs which have an external argument—the sentence has a double pitch and the reading is unmarkedly categorical, whereas with

unaccusatives—light verbs with no external argument—the sentence has a single pitch and the reading is unmarkedlythetic.

### 3. Locative Inversion

Under this approach, Locative Inversion (LI) can be analyzed as a syntactic operation, motivated for convergence with the intentional interface, where a locative phrase is targeted to value [DI] and obtain athetic statement. I will provide a principled account of its structural properties along these lines, showing how the relevant contrasts between English and Spanish basically follow from the fact that LI is an (unmarked) option of EPP-satisfaction in Spanish but not in English.<sup>7</sup>

Most accounts of LI agree on the discourse value of this construction, which involves the anticipation of a locative setting more familiar in discourse terms than the DP subject which is (re)introduced in the scene. There have been, though, competing hypotheses about the landing site of the locative (TP or CP) and about the structural position of the subject (whether it remains in its underlying position or not).<sup>8</sup>

The predictions my theory makes in this respect are straightforward:

- a) The landing site of the locative will vary parametrically depending on whether the language is agreement prominent, and therefore [DI] remains in CP, or discourse prominent, and thus [DI] is inherited by TP and constitutes an EPP feature. With respect to the two languages at stake here, English belongs to the former group and Spanish to the latter, and therefore the locative will end up in CP in English but in TP in Spanish.
- b) The position of the subject will also depend on this parametric option: if the language is agreement prominent and the EPP formal in nature, the [Spec, TP] position needs be occupied by a DP category which values the formal features of T (i.e., the DP subject must necessarily be connected to this position); on the contrary, if the language is discourse prominent and the EPP informational in nature, the [Spec, TP] position can be unmarkedly occupied by a DP or PPloc (i.e., the DP subject will only be connected to this position if it is the most prominent of the two). Again, English belongs to the former group and Spanish to the latter.

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7 As will be made clear below, the construction does not involve a process of inversion as such, but a process which forces the subject to remain in its underlying position within the verbal phrase (from where it can be eventually extraposed to a sentence-final position; cf. Culicover and Levine 2001); I will nonetheless use the traditional term locative *inversion* for convenience.

8 For different analyses of locative inversion, see Coopmans (1989), Bresnan (1994), Birner (1996), Levin and Rappaport (1997), Culicover and Levine (2001), and Rizzi and Shlonsky (2006), among others.

The main contrasts between Spanish and English in the construction are therefore expected to follow from the different properties of the core intentional feature [DI] in each language. In particular, the fact that [DI] is an EPP feature in Spanish makes locative inversion less restricted here than in English: LI in Spanish is not context-dependent, it is compatible with all type of verbs and it is not a root phenomenon (i.e., it is compatible with all types of clauses); English LI, on the contrary, will be more constrained in these three aspects.

### 3.1 LI Is Possible in D-sentences in Spanish but Not in English

In Spanish the EPP, put bluntly, forces all sentences to have an intentional base in the narrow syntax and, therefore, LI is but one of the options available in the grammar to satisfy this principle and obtain athetic reading. A locative phrase is actually the unmarked option to value the [DI] EPP feature in Spanish when it is the most prominent constituent structurally, that is, the external argument of the verb as in (6a) above, or equally prominent than the DP subject as in (7b); these sentences, repeated here for convenience, can therefore be d-sentences and, as such, proper answers to the question *What's happened?*, standardly taken as an indicative that they are all-new:

(13) En esta lista falta mi libro.  
 In this list lack-PRS.3SG my book  
 "My book is missing on that list."

(14) En mi jardín no florecen los rosales.  
 In my garden not flourish-PRS.3PL the rosebushes  
 "Rosebushes do not flourish in my garden."

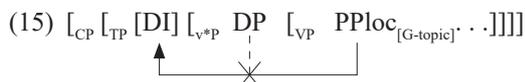
As expected, this is not an option in English, where the [DI] feature remains in C and is only accessed at the interfaces, that is, after the sentence has been pragmatically annotated in relation with the particular communicative situation in which it is inserted. The sentences equivalent to (13) and (14) will then never be possible as all-new utterances, as the English paraphrases show.

Since LI is a mechanism which forces a particular intentional reading of the clause, we expect it to be more productive in context-annotated sentences than in context-free ones. In this respect, one should bear in mind that, when in context, certain constituents are labelled as (some type of) topic and/or focus, and that these pragmatic features have a crucial role in the corresponding derivations, to the extent that valuation of the CIF [DI] is effected on pragmatic prominence in this case. As argued above, G-topics are pragmatically more prominent than the rest and, therefore, if a DP or a locative phrase is annotated as [G-topic] it will be targeted to value [DI] even if the necessary derivation is costly in computational terms. In other words, when the sentence is in context

derivations must be evaluated on the basis not only of computational economy but also of interface economy (on the notion of interface economy, see Reinhart 2006). As I will show next it is precisely the tension between the two that brings about another important difference between the two languages.

### 3.2 LI Is Possible with All Verbs in Spanish but Just with Certain Verbs in English

In Spanish, [DI] is an EPP feature and, therefore, as shown in (15), if a locative G-topic is targeted to be the probe with verbs which have an external argument (i.e. transitive or unergatives verbs) there can be an intervention problem:

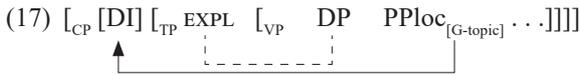


Given that computational economy and interface economy clash here, we expect the construction to be allowed only if it constitutes an indispensable means to make the sentence fit in context, something that happens when the locative is d-linked through deixis to a contextual antecedent which the speaker wants to retake as the file card under which to organize the rest of the information (cf. Reinhart 1981). LI will then be possible in Spanish with any verb (including unergatives and transitive verbs, such as *conocer* “meet” in [16]), provided the prepositional G-topic contains some explicit deictic mechanism, such as the demonstrative *esa* “that” in (16a) or the adverb *precisamente* “precisely” in (16b); a sequence as (16c), on the contrary, will only be possible if the locative is understood as a contrastive focus in CP (i.e., it is not a case of LI):

- (16) (a) En esa biblioteca conoció María a su marido.  
 In that library meet-PST.3SG Mary at her husband  
 “In that library, Mary met her husband.”
- (b) Precisamente en la biblioteca conoció María a su marido.  
 Precisely in the library meet-PST.3SG Mary at her husband  
 “Precisely in the library, Mary met her husband.”
- (c) #En la biblioteca conoció María a su marido.  
 In the library meet-PST.3SG Mary at her husband  
 “In the library, Mary met her husband.”

In the case of English, targeting a locative G-topic into CP to value [DI] will be, in principle, computationally unproblematic if the derivation ensures that the (formal) EPP principle is satisfied. For reasons of space I cannot get into the specifics of the analysis

here but suffice it to say that the need to satisfy the EPP in English forces a computationally-costly (c)overt expletive *there* in [Spec, TP], so that the formal features of T are valued whilst the DP subject stays in a VP-internal position, a requirement for it to be read as discourse new:<sup>9</sup>



Therefore, LI will only be possible in English with verbs which are compatible with expletive *there*, that is, with copulative verbs, certain unaccusatives and unergatives which have been pragmatically emptied of semantic content, along the lines in Guéron (1980) (see Irwin [2012] for details).<sup>10</sup>

### 3.3 LI Is a Root Phenomenon in English but Not in Spanish

Finally there is a third difference between English and Spanish which determines the productivity of the construction and follows straightforwardly from the locus of [DI] in each language. In English, [DI] is in CP and thus LI is a root phenomenon disallowed in clauses which do not have an independent illocutionary force (i.e., infelicitous in the same structures which disallow embedded topicalization; cf. Stowell 1981):

(18) \*That on that chair was sitting your brother is undeniable.

(19) \*If on that chair is sitting your brother, why don't you sit in the sofa?

(20) \*I regret that on that chair had sat your brother.

On the contrary, in Spanish [DI] is an EPP-feature present in every sentence. Therefore the construction can be found in all kind of contexts, including non-assertive ones:

<sup>9</sup> Expletive *there* is a locative category which has traditionally been understood as a place holder in [Spec, TP] to satisfy the EPP in certain constructions; see Chomsky (2008) for the assumption that this expletive can be null in LI. Recent analyses of *there*-structures argue that the expletive is initially placed in the verbal phrase, where it is sensitive not only to the argument structure of the predicate but also to its lexical structure; this would, for example, serve to capture the (in)compatibility of certain classes of unaccusatives with *there* (cf. Deal 2009; Irwin 2012 and references therein).

<sup>10</sup> Levin and Rappaport (1997) exemplify different cases of LI inversion with unergative verbs, all of which are semantically light in the particular contexts in which the sentence is inserted.

- (21) Que en esa silla estaba sentado  
 that in that chair be-PST.3SG sit-PTCP.PFV  
 tu hermano es innegable.  
 your brother be-PRS.3SG undeniable  
 “That your brother was sitting on that chair is undeniable.”
- (22) Si en esa silla está sentado tu hermano,  
 if in that chair be-PRS.3SG sit-PTCP.PFV your brother  
 ¿por qué no te sientas en el sofá?  
 why not you sit-PRS.2SG in the sofa  
 “If your brother is sitting on that chair, why don’t you sit in the sofa?”
- (23) Lamento que en esa silla se  
 regret-PRS.1SG that in that chair himself  
 hubiera sentado tu hermano.  
 have-SBJV.PST.3SG sit-PTCP.PFV your brother  
 “I regret that your brother had sat on that chair.”

Again, the parametric difference between English and Spanish with respect to the feature [DI] serves to explain the different possibilities of distribution of LI in both languages.

#### 4. Conclusions

I have approached locative inversion as a mechanism cross-linguistically available to obtain athetic statement where the subject is presented just as a participant in a situation framed by a locative constituent (i.e., not as the logical subject). This intentional reading requires a locative phrase to be targeted to value the core intentional feature [DI], understood here as a UG feature subject to parametric variation. I have shown that most of the differences between locative inversion in English and Spanish actually follow from a parametric difference between the two languages with respect to the placement of [DI]: it is an EPP feature inherited by T in Spanish, but not in English (where it remains in CP), and this determines the structural properties of the construction and its distributional restrictions. The proposal defended here in terms of the core intentional feature [DI] thus makes it clear the role of information structure as an integral part of the grammar, with no need to resort to a discourse-based articulation of the sentence (i.e., the focus structure in Erteschik-Shir [1997] or Breul [2004]), something which eventually serves to maintain the programmatic distinction between grammatical and pragmatic competence even when dealing with the intentional articulation of the sentence.

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# Towards Describing the Extremely Multifunctional Hungarian Discourse Marker *hát*

Anna Szeteli

University of Pécs, Pécs, Hungary

anna.szeteli@gmail.com

**Abstract:** This paper presents the findings of an experimental research on five frequent functions of the Hungarian spontaneous speech specific discourse marker *hát*. As a first step, the five categories were established based on the initial results of a pilot study – a read-aloud experiment involving nine female native speakers of Hungarian – and were defined in a representationalist, dynamic pragmasemantic framework called *ReALIS*. The present paper is an extension of the former pilot study, now involving data from fifty-three participants, including both females and males. Since the usage of the discourse marker *hát* can only be adequately interpreted in whole utterances or, better, in discourse context, data collection was built around test situations. The analysis identifies important suprasegmental characteristics, namely, durational ones, of the different uses of the discourse marker in question.

**Keywords:** pragmasemantics; discourse markers; Discourse Representation Theory; PRAAT

## 1. Introduction

Section 1 gives a brief introduction to Hungarian discourse marker research in the context of the investigated marker *hát*. Section 2 is devoted to the pragmasemantic framework for the analysis of the discourse marker. Section 3 describes the research methodology and the test situations. Section 4 presents the results of the statistical analysis, on which the main conclusions of the paper are based in Section 5.

### 1.1 The Hungarian Discourse Marker *hát*

As part of the recent growth of interest in research on Hungarian discourse markers, the investigation of *hát* has been a central topic both in pragmatics (Schirm 2011, Alberti 2016) and in spontaneous-speech-corpus based suprasegmental phonology (Dér and Markó 2017) over the past few years.

The issue of the usage of *hát*, however, in Hungarian spontaneous speech, had long been a topic of discussion – although not from a linguistics perspective. The sentence-initial *hát*, which can indicate uncertainty or hesitation, has long been stigmatized in Hungarian language use, and its usage is still often advised against, especially by teachers in public education (Schirm 2011).

Similar to other discourse markers, *hát*, which shares its adverbial origin with *tehát* “so/thus”, went through a decategorization process over time (Schirm 2011). As Schirm (2017) describes the linguistic history of *hát*, before being used as a discourse marker, it was used as a conjunction with inferential-conclusional functions (similarly to *tehát*). It is this function of *hát* that can now be considered as its “core meaning” (Bell 1998).

The reason why it is extremely difficult to account for the meaning or function of *hát* is because it has several different interpretations depending on the mental state of the speaker who utters it. It can indicate strong-mindedness and hesitation, and it can carry complex suprasegmental tones such as teasing, for example.

The first research to investigate the functions of *hát* with relation to its prosodic realization was that of Dér and Markó in 2017. In their study, the authors set out to give account of the suprasegmental characteristics of four observed monofunctional uses of the marker, sidelining the fact of its otherwise extreme multifunctionality. The authors concluded that further investigation on a larger amount of data was necessary to differentiate between the various usages, however, at the same time, they rejected the possibility of such research – in lack of an adequate method for the automatic identification of monofunctional uses of *hát* in corpora (Dér and Markó 2017, 11).

As opposed to Dér and Markó’s (2017) corpus-based study of *hát* “well/so” in spontaneous speech, in our experimental research we were able to point out significant differences in the temporal characteristics of the different usages – “we” stands for the authors of the former pilot study (Szeteli and Alberti 2017). Nevertheless, there is no conflict between their results and ours. This is due to the fact that the functions they examined from the point of view of their prosodic characters were (essentially) distinct turn positions. They identified a turn-initial, a turn-medial and a turn-final position, and they also had a fourth, purely pragmatic category for *hát* indicating judgment. From these four categories, only the turn-medial *hát* proved to be significantly longer than the others.

In our research, we embedded the monofunctional uses in short dialogues, and we built very explicit contexts around them. We examined five different (but uniformly) turn-initial positions, out of which four were sentence-initial ones, and one was sentence-final. The difference between the various usages lies with what Alberti (2016) calls the “semaphore

effect” of certain discourse markers. According to this idea, discourse markers can signal how easy/difficult it will be for the listener to digest the message at hand. This semaphore effect can be regarded as a peripheral attribution of *hát* (cf. core/periphery model of Bell 1998) to the message.

In the test, various scenarios were described (see 3.2.1 and 3.2.2, e.g.), at the end of which, different alternatives were given as answers to the problem presented in the test situation. These answers were designed to represent the following alternatives: (i) a straightforward answer, (ii) an uncertain answer, (iii) an answer which the speaker considers uneasy or embarrassing, (iv) a teasing response, and (v) a confirmation with a sentence-final *hát*. The differences between the answers are described in the pragmasemantic framework *ReALIS* (Alberti 2011, Alberti and Nöthig 2015, Alberti et al. 2014, 2016) in the following section.

## 2. Dynamic Representationalist Framework *ReALIS*

The scientific antecedents of the applied framework *ReALIS* (Reciprocal and Lifelong Interpretation System) are, on the one hand, Montagovian formal semantics with its external truth-evaluation process (Dowty et al. 1981), and, on the other hand, the most classical achievements of pragmatics (Cooperative principle of Grice 1975, Works of Austin (1962/1975) and Searle (1979)), cognitive linguistics (Nuyts 2017) and The Theory of Mind (Wimmer and Perner 1983).

There have been other formal theories developing from the Montagovian tradition with a Gricean perspective on language use (e.g.: The Dynamic Pragmatics of Lauer (2013)). Nevertheless, these advocate an eliminative reduction of possible worlds and have preserved the antipsychologist and antirepresentationalist tradition (Groenendijk, Stokhof and Veltman 1996). *ReALIS*, however, belongs to the family of discourse representation theories (DRT: Kamp et al. 2011, Maier 2016) and as such, it can be regarded as the representationalist counterpart of these theories. While the antirepresentationalist Amsterdam school strives to eliminate the level of discourse representation, in *ReALIS* such a conflict is non-apparent. In the ontology of this framework, the level of discourse representation is embedded in the world model, realized through possible-wordlet-representations treated as mental states of the communicating interlocutors in the world.

In that way, *ReALIS* is a formal semantics-based approach, which is able to give a cognitive description of mental states, while applying the one and the same formal apparatus to both linguistic representations and to representations of the mind. Furthermore, the approach makes it possible to consider that the speaker and the listener take the role of the addresser and the addressee while articulating and perceiving a message (Oishi 2017). In this sense the linguistically encoded and conventionalized intensional profile of an utterance and the mental state of the interlocutors can be differentiated from each other and evaluated via a generalized Montagovian pattern-matching mechanism.

We use a finite structure called worldlet to represent some important properties of the mental states, as follows. The holder of the information is given  $\langle i, u, o \rangle$ , which can stand for

the speaker (I), the listener (you) or another (o) entity. Furthermore, referent  $r$  stands for an underspecified holder of the information or an attitude. The holder has an attitude toward the fact  $e$ , which can be a sensorial experience (E), or belief (B), or a desire (D), or an intention (I), or the interlocutor makes a hypothesis about him/her being authorized to achieve the fulfillment of the proposition  $e$ . Attitudes can also be embedded in each other recursively. The interlocutor's authority, for instance, can be another interlocutor's knowledge or desire. We are using an 11-degree scale  $\langle -5, -4, -3, -2, -1, 0, +1, +2, +3, +4, +5 \rangle$  to capture the grades of epistemic modality (cf.: Leiss 2014, 53; Nuyts 2017). The original triplet  $\langle +1, 0, -1 \rangle$  expressed three degrees as per true, false and unspecified (0). The third characters mark point of time relative to the utterance time 0 as follows: “+” refers to a later one, and “-” to a previous one. Every worldlet label contains this temporal “stamp” to capture various phenomena, such as the one referred to by the epistemic verb *think* in the past tense in the sentence *Mary thought that I know that fact e does not hold*.

## 2.1 Conventionalized Intensional Profiles

As striving for explanatory adequacy, it is worth hypothesizing from the perspective of language acquisition that children – on the basis of the meagre data set available to them – should understand the system of intensional profiles of sentence types via guided by certain operations. Only “generator values” should be set and keep in mind, which appear with a black background in the tables. Other values in the profiles are decided by means of general constraints requiring certain values to equal or to stand in complementary distribution. We attempt to base the current model of the profile system on the assumption that the  $iB$ -value (“what I know about the truth status of the given eventuality”) always serves as a generator. The  $iBuB$ -values (“the knowledge I attribute to you”) in the general target-oriented mentalization, for instance, are assumed to coincide with the  $iB$ -value or to be its opposite ( $\alpha^*$  is defined as the set consisting of the scale values which are not in set  $\alpha$  or  $\{\alpha\}$ ).

| Target-oriented mentalization                                         | Declarative              | Imperative                    | Interrogative                                                                                                       |
|-----------------------------------------------------------------------|--------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <i>For e</i> : $iB$                                                   | $iB \in +S_\alpha$       | $iB \in -S_\gamma$            | $iB \in \gamma \bullet \beta$ ( $-5 \bullet \pm 5$ )<br>→ $iB \in "0"$                                              |
| $iBuB \in \bullet +5$ ,<br>$iBuB \in iB$ or $iB^*$                    | $iBuB \in \alpha^*$      | $iBuB = \gamma$               | $iBuB \in \beta$ ( $" +5 \bullet \gamma' \bullet \pm 5$ )<br>→ $iBuB \in \bullet +5 \bullet \bullet +5 \bullet "0"$ |
| <i>For e</i> : ... $\bullet W$ ,<br>$r \in R \subseteq \{i, u, o\}$ , | $W = uB+$                | Default:<br>$e' = res_\alpha$ | $W = iB+$                                                                                                           |
| $(\Sigma iB: rD) / SR \in \bullet +5$                                 | $iBrDuB \in \pm S_\beta$ | <i>For e</i> : $iBrD$         | $iBrDiB \in \beta$                                                                                                  |
| $iBuA \in \bullet +5 \bullet \bullet +5$                              | $iBuAuB \in \beta$       | <i>For e</i> : $iBuA$         | $iBuAiB \in \beta$<br><i>A factor</i> : $iBuB \in \beta$                                                            |
| <i>For e</i> : $iIuI \in \bullet +5 \bullet +5$                       | $iIuI + uB \in \alpha$   | <i>For e</i> : $iIuI +$       | $iIuI + iB \in \beta$                                                                                               |
| $iAiIuI \in \bullet +5$                                               | $iAiIuI + uB \in \alpha$ | <i>For e</i> : $iAiIuI +$     | $iAiIuI + iB \in \beta$                                                                                             |

**Table 1.** The Three Basic Conventionalized Intensional Profiles and Their Shared Basis (essentially based on Alberti and Kleiber 2014)

This general conception is presented in a formalized way in Table 1 as an under-specified intensional profile with the name “target-oriented mentalization”. This fictive profile serves as the shared basis for the intensional profiles which define the three major sentence types (to be regarded as well-formalized Gricean felicity conditions and as other social rules), primarily in the process of constructing our comprehensive mental system of conventionalized intensional profiles. Supposing intensional profiles rests on the idea that in the course of language acquisition infants obtain so meagre data, at least compared to the high complexity of the system, that its acquisition requires that they often have recourse to such general methods of creating (lacking) truth values in profiles as compositionality (in the Fregean/Montagovian sense), opposition, and transferring values.

The profile of target-oriented mentalization describes a person concentrating on a state-of-affairs  $e$ , whose  $[-5,+5]$  scale in the  $iB$ -dimension is exactly distributed into three disjoint intervals by the three major sentence types. Value  $-5$  provides profile for the speaker who, aware of the fact that  $e$  does not hold, intends to change that state of things, by calling the listener for help using an imperative sentence. The situation in which  $iB \in +5$  may stimulate readiness for cooperation: as information is valuable, supplying the listener with  $e$ , which the speaker knows to be true, is likely to serve the listener’s interest. The situation in which  $iB \in [-4,+4]=“0”$  can be construed as follows: the speaker is not in a position to carry out the former two types of action so their obvious aim can be to reach one of these states ( $iB \in +5$  or  $iB \in -5$ ); this can be initiated by taking the addresser role of a yes-or-no question.<sup>1</sup>

The second step in the profile of target-oriented mentalization concerns the addressee. The knowledge that belongs to the addressee role can be either the same as, or the opposite of, the knowledge of the addresser. The imperative will specify the background in the former way: it is on this – shared negative – basis that the speaker can call for joining forces in order to change the (unwanted) state of things. As for the latter way, what makes sense of the declarative type is exactly the listener’s uninformedness:  $iBuB \neq +5$ , with a speaker informed.<sup>2</sup> A similar opposition makes sense of the interrogative type, too: now it is the listener who is assumed to be informed:  $iBuB \in \pm 5$ , with the speaker uninformed. The informed status of  $u$  can mean both knowing that  $e$  is true or that it is false. The  $iB$  component in label  $iBuB$  is responsible for mentalization (“What I think about you is that . . .”). Its value is “ $+5$  (i.e., the left half of a bell-shaped distribution), in

1 The symbols ‘ $n$ ’ and ‘ $n$ ’ denote a narrow and a broader interval around  $n$  in the following precise sense: the former symbol means a (bell-shaped) normal distribution over interval  $[n-2, n+2]$  while the latter one a flatter normal distribution over interval  $[n-4, n+4]$ . Symbols ‘ $n$ ’, ‘ $n$ ’, ‘ $n$ ’ and ‘ $n$ ’ denote the left/right half of the corresponding normal distributions.

2 The given value pertains to the underlined part of the complex label in question (but underlining is omitted if this can cause no misunderstanding). If a pair or triplet belongs to a complex part of a label, the corresponding values are connected by the symbol ‘•’.

the case of worldlets  $iBuD$  and  $iBuA$ , too. That is, the speaker's ideal position is to have sure knowledge on the listener's given attitude (+5). The worst (still acceptable) case can be formulated as follows: it arises in the speaker's mind as a possibility ( $iBuX=+1$ ) that the given attitude  $X$  is such that is prescribed in the given intensional profile as the value of  $iBuX$ .<sup>3</sup>

The next question is as to what desire moves the speaker to the given speech act. It can generally be claimed that this desire pertains to an eventuality  $e'$  which has to be construed on the basis of  $e$ . Hence, in worldlets  $iD$  and  $iBuD$ , it is  $e'$  that is there to be evaluated. As for authority, the listener has entire authority (+5) over  $e'$  in an ideal case while in the worst case (+1) they might be able to execute  $e'$  ( $iBuAe'+5$ ). In the case of an imperative,  $e'$  essentially coincides with  $e$ ; only the truth value of  $e$  should be reversed. As declaration and interrogation aim at transmitting some knowledge on  $e$ ,  $e'$  should be defined on the basis of output information states  $uB+$  and  $iB+$ . If, for instance,  $e$  is the state that someone is vegan, then  $e'$  is the event that [the appropriate interlocutor learns that s/he is vegan].

It has not been discussed yet which interlocutor's interest is to be served in the case of the major sentence types. It is hypothesized that the "discourse-markerless" basic case is when the decision has not been made but the speaker enforces some kind of summarized interest by using the major intensional profiles. In the table, the formula with summation is devoted to the formulation of this approach.

The general formulation of addresser's intention should be related to an eventuality  $e''$ , also to be calculated on the basis of  $e$ , whose achievement is assumed to require the addressee's aid ( $iIuI+$ : [I intend you to intend  $e''$ ]). In the imperative the ultimate intention will pertain to the resetting of the truth value of  $e$  in the external world, whilst declaratives and interrogatives serve the purpose of resetting the generalized truth value of  $e$  in certain interlocutors' output information states.

Another generalization formulates when a speaker can take the addresser role of an intensional profile. They are in a position to take it if their intention to influence the partner does not violate any criterion of authority ( $iAiIuI+=+5$ ), or at least they think to have some argument for having this authority ( $iAiIuI+=+1$ ).

### 3. The Experiment

#### 3.1 Research Methodology

The data for the present research came from 53 voluntary participants (28 women and 25 men), all native speakers of Hungarian, and all university students at the same institution, aged between 18–24. The data were elicited through short pre-written dialogues that the

3 This approach to mentalization is very permissive and uniform; it expresses our experiences gained so far in the course of our research activity in framework  $\mathfrak{ReALIS}$  which offer no support for the idea that the speaker should monitor the attitudinal dimensions  $uB$ ,  $uD$  and  $uA$  differently.

participants had time to get familiar with before the recording. Each situation was read out loud in the form of a dialogue between each participant and the author of the present paper. The dialogues were recorded with a dictaphone (44,1 kHz/16 bit). The relevant data (extracts from the recordings) were analyzed in PRAAT.

Before the recordings were made, the participants had around ten minutes to read and comprehend the instructions and the situations. Then the leader of the experiment read out every situation again and began to act out role **A**. The 53 participants were asked to play role **B** in the situations. They were prompted to read out every single word and to act out their role, refraining from monotonous speech. The written texts did not contain any punctuation so as to not influence the intonation patterns of the participants.

### 3.2 The Five Functions Embedded in the Situations

The story had the following common frame with four different outcomes, depending on the answer of character **B**:

**A** and **B** are twenty-year-old university students in love with each other, who have been going to the cinema for a year on a weekly basis. They take turns in choosing the movies. They know each other's tastes quite well. This time it is **B**'s turn to make a decision. This is an excerpt from their dialogue. **B** has already browsed the cinema program and she has already made her decision, but she has not told **A** yet, who is eagerly waiting for the "announcement of the result". There are the following three movies competing:

- an English detective story nothing out of the ordinary,
- an Icelandic drama which seems depressive,
- an American comedy presumably full of dirty jokes.

The first movie stands as an expected answer. The speaker thinks that they have a common ground with the listener, as it will be explicated in the next two sections. The Icelandic drama is the test for the uneasy answer, detailed in section 3.2.3, with the speaker thinking that the listener does not want to see it. The last movie represents a generous-kind decision on the speaker's part, inasmuch s/he knows that the listener thinks that they have different preferences. Here the speaker will even have to give confirmation.

#### 3.2.1 *Straightforward Answer (Hát)*

**B** is sure that s/he has made the single good decision and even **A** could not have made a better one. This opinion becomes clear from **B**'s argumentation itself which consists of true facts without any lies, distortions or pleasantries.

- (1) (a) A: Na, melyik filmet választottad?  
 A: So, which movie.ACC select.PAST.2SG  
 "A: So, which movie have you opted for?"

- (b) B: Hát a krimi  
 B: Well/So the detective-story. ACC  
 “B: The detective story, surely!”

- (c) Az mindkettőnknek be szokott jönni  
 Az ízléstelen vígjátékokból a múltkor végképp elegünk lett  
 a nyomasztó északi drámákért pedig még én sem rajongok  
 bár én alapjában véve kedvelem a komolyabb műfajokat

“That (kind of movie) works for both of us.  
 Last week we got utterly fed up with these tasteless comedies.  
 As for depressive dramas, even I am not very keen on them.  
 Although I am fundamentally fond of serious genres.”

### 3.2.2 *Uncertain Answer* (Háát)

**B** is not sure if s/he has made the best decision. S/he feels that based on the current cinema program there is no decision which could be argued for enthusiastically. S/he thinks that their mutual experience is such: In the past, several detective stories proved boring but acceptable. **A** tends to choose comedies, but last week even s/he himself/herself was shocked by the tastelessness of the movie s/he had opted for. Finally, **A** cannot tolerate dramas.

- (2) (a) A: Na, melyik filmet választottad?  
 “A: So, which movie have you opted for?”

- (b) B: Hát a krimi  
 B: Well/So the detective-story.ACC  
 “B: Well, the detective story . . . ”

- (c) Az azért többé-kevésbé mindkettőnknek be szokott jönni  
 Az ízléstelen vígjátékokból a múltkor már neked is eléged lett  
 a nyomasztó északi drámákért pedig még én sem rajongok  
 Vagy nagyon unod már a krimiket?

“That more or less works for both of us.  
 Last week even you got utterly fed up with the tasteless comedies.  
 As for depressive dramas, they do not enthuse even me.  
 Or are you very tired of watching detective stories?”

At this point another important difference between this study and the previous corpus based one by Dér and Markó (2017) should be mentioned. Dér and Markó were looking for monofunctional uses of the discourse marker *hát* (Dér and Markó 2017, 11), as it was mentioned in the introduction. One of my most important arguments for using experimental data instead of corpus data in the investigation of the prosodic features of discourse markers is that it is impossible to obtain sufficient data if we want to control or synchronize as many variables as are generally needed in pragmatics research. More specifically, in this experiment based on a representationalist theoretical framework, Uncertainty could be controlled in the sense that it was not directed at the proposition but at the choice, which is a performative speech act (Austin 1975): the speaker makes a decision about the movie to watch. In this experimental case *hát* cannot be a hesitation element of the speech processing, which is a frequent ambiguity in corpus data. If the uncertain type is pronounced significantly longer than the straightforward one, it is only a marker of the difficulty of making a choice, but not that of processing. In spontaneous-speech-corpora, however, *hát* can be the marker of uncertainty about the propositional content of the sentence (e.g., “How old is your grandmother?” – “Well . . . she was born in 1928, sooo . . . – in which case the speaker is thinking while speaking, but it sounds the same as an uncertain *hát*).

### 3.2.3 Anxiety (Hátöö)

A further difficulty for corpus-data analysts comes from the fact that it is very difficult to separate the following two types of uncertainty in spontaneous speech: uncertainty with a common ground about the judgment of the proposition, and uncertainty resulting from the other one’s opinion (see example 3). In the situations mentioned above (3.2.1 and 3.2.2), the speaker and the listener shared the (un)satisfaction about the chosen movie, at least as far as the speaker could see.

**B** feels that detective stories are getting more and more boring. As for comedies, even **A** has recognized that they are no longer funny but rather disgusting; but what s/he (**A**) truly and deeply hates are depressive Northern dramas. **B**, however, has heard about this Icelandic drama from a university friend, a philologist. **A** is jealous of the guy, maybe not without a reason. **B** finally decides to exercise his/her right but with a deep concern . . . What if **A** wants to know who suggested that movie . . .

- (3) (a) A: Na, melyik filmet választottad?  
 “A: So, which movie have you opted for?”
- (b) B: Hát a drámát  
 B: Well/So the drama.ACC  
 “B: Well . . . the drama.”

- (c) Tudom, hogy nem nagyon rajongsz ezért a műfajért  
de mintha ezt az izlandi filmet valahol nagyon dicsérték volna  
Asszem valami díjat is nyert valahol  
A krimiket már kissé unom  
a mostanában futó vígjátékok alpáriságából pedig a múltkor már neked is  
eleged lett, úgy emlékszem

“I know that you are not very keen on this kind of movies  
but this Icelandic one was praised . . . somewhere . . .  
and I also think it received some kind of award.  
I’m getting a little bored with detective stories  
and as far as I can remember, last time even you got fed up with the  
disgusting comedies.”

Again, the considered kind of uncertainty can be confused with uncertainty deriving from other difficulties in attempt to produce a formally ideal utterance. In our experiment, the anxiety of the speaker due to the listener’s contrary desire was considered, as an idealized basic case. In real discourse, however, this type of *hát* can be used even when the speaker is only anxious about word choice or concept usage, or the informativeness of the answer (cf. Gricean cooperative principle). Let us consider, for instance, the sentence “Why are places near the sea cooler in summer and warmer in winter than farther inland?” In the Hungarian version of the answer “Well . . . because of the specific heat capacity of water,” the pronunciation of *hát* (*Hátöö*) tends to coincide with that of the anxious *hát* discussed here. In which case the speaker is anxious about the concepts used and/or informativeness.)

| “I assume that we qualify the decision in the same manner:<br>both of us find it either straightforward (+5) or not (‘0’);<br>and we know this about each other.” |                        |                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. straightforward<br>answer                                                                                                                                      | 2. uncertain<br>answer | 3. answer which the speaker considers<br>uneasy or embarrassing                                                                                                                                 |
| $iBuB+ = iBuB+iB$ , and its value is in<br>negative correlation with the duration of<br>the vowel in the discourse marker <i>hát</i>                              |                        | $iBuD+ = ''+5, -5'$<br>“I am aware of the fact that my choice<br>will not make you happy (-5).”<br>“I am sure that you will realize whose interest<br>(r) will be served by this choice (“+5).” |
| '5                                                                                                                                                                | '0'                    | $iBuB+rD = ''+5, ''+5 \quad r \in R$<br>“I want you to know (instead of pretending<br>naiveté) that I am aware of the fact that my<br>choice will not make you happy”                           |
| $iBuB+ = ''+5, \iota$ ; $iBuB+iB = ''+5, ''+5, \iota$                                                                                                             |                        | $iIuB+iBuD+=+5, +5, '5, -5'$                                                                                                                                                                    |
| with values of $\iota$ the same (synchronizing minds)                                                                                                             |                        |                                                                                                                                                                                                 |

**Figure 1.** The pragmasemantic analysis of the first three types of *hát*

### 3.2.4 Teasing and Confirmation (HáÁáÁát and hát!)

**B** feels that detective stories are getting more and more boring but what **A** truly hates are depressive Northern dramas. S/He would get depressed, and s/he would probably badger her/him the whole evening that the freaking movie had been recommended by the hot friend from the university, the charming philologist. Therefore, **B** decides to choose the comedy (it cannot be as tasteless as last week's one), but now s/he (**B**) can afford to tease her/him (**A**) in exchange for her generous decision.

Her/him (**B**'s) goal is as follows: At first, **A** should not believe that s/he is prepared to watch a comedy after last week's nightmare. This should make **A** even happier and the evening will be great.

- (4) (a) A: Na, melyik filmet választottad?  
 "A: So, which movie have you opted for?"
- (b) B: Hát a vígjátékot  
 B: Well/So the comedy. ACC  
 "B: Why, the comedy!"
- (c) A: A vígjátékot?!  
 A: The comedy. ACC  
 "A: Have you opted for the comedy?!"
- (d) B: A vígjátékot Hát  
 B: The comedy. ACC well/so  
 "B: The comedy, for sure!"
- (e) Tudom, hogy mennyire szereted ezt a műfajt és úgy szeretem, ha vidám vagy este  
 "I know how much you enjoy Hollywood comedies, and you know how much I like it when you are happy in the evening."

| 4. teasing/badinage                                                                                                                                                                                 | 5. confirmation, sentence-finally                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| iBuD+= '5,+5                                                                                                                                                                                        |                                                                                                                                                                                     |
| ↑ "I am sure that my choice will make you happy."<br>↓ "At first, you will not believe that I have factually opted for the given version."<br>↓↓ "Later you will accept my choice (with pleasure)." | ↓ "I am sensing that at the moment you are not absolutely sure that I was serious when I have opted for the given version."<br>↓↓ "I want you not to have doubts as to the choice." |
| iBuB+=''+5, '3-3''                                                                                                                                                                                  | iBuB='+5 (and I also happens to be different from 0)                                                                                                                                |
| iLuB++ = +5,+5                                                                                                                                                                                      | iLuB+ = +5,+5                                                                                                                                                                       |

**Figure 2.** The pragmasemantic analysis of the last situation types of *hát*: the generous-kind decision and the confirmation

## 4. Statistics

### 4.1 Normal Distribution

From the duration of the five measured categories of *hát* for all 53 participants, only the sentence-final category turned out to have a normal distribution (see Table 2). Since the sentence-initial types stood in the same position in the sentence, the aim was to investigate for any statistically significant difference in their prosodic characteristics – especially concerning duration (measured in milliseconds), a reliably measurable property. The lack of normality reduces the range of tests which can be applied.

|           | Kolmogorov-Smirnov* |    |         | Shapiro-Wilk |    |       |
|-----------|---------------------|----|---------|--------------|----|-------|
|           | Statistic           | df | Sig.    | Statistic    | df | Sig.  |
| <b>h1</b> | 0.205               | 53 | 0.000   | 0.784        | 53 | 0.000 |
| <b>h2</b> | 0.147               | 53 | 0.006   | 0.928        | 53 | 0.003 |
| <b>h3</b> | 0.186               | 53 | 0.000   | 0.845        | 53 | 0.000 |
| <b>h4</b> | 0.268               | 53 | 0.000   | 0.653        | 53 | 0.000 |
| <b>hf</b> | 0.077               | 53 | 0.200** | 0.976        | 53 | 0.368 |

\* Lilliefors Significance Correction

\*\* This is a lower bound of the true significance.

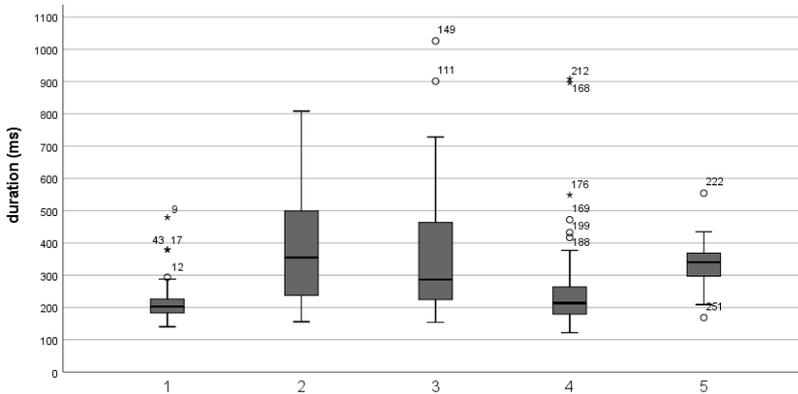
**Table 2.** Tests of Normality

### 4.2 Exploratory Data Analysis

Table 3 and Figure 3 show that the two uncertain answers (h2, h3) were longer in respect of *hát* than the straightforward and the teasing one (h1, h4).

|          |                       | <b>h1</b> | <b>h2</b> | <b>h3</b> | <b>h4</b> | <b>hf</b> |
|----------|-----------------------|-----------|-----------|-----------|-----------|-----------|
| <b>N</b> | <b>Valid</b>          | 53        | 53        | 53        | 53        | 53        |
|          | <b>Missing</b>        | 0         | 0         | 0         | 0         | 0         |
|          | <b>Mean</b>           | 217.607   | 394.016   | 358.946   | 259.941   | 336.032   |
|          | <b>Median</b>         | 203.038   | 355.018   | 286.802   | 213.670   | 340.233   |
|          | <b>Std. Deviation</b> | 61.0431   | 173.61    | 188.327   | 154.78902 | 65.876    |
|          | <b>Range</b>          | 338.16    | 652.546   | 871.811   | 786.615   | 385.419   |
|          | <b>Minimum</b>        | 140.465   | 156.071   | 154.184   | 121.728   | 168.856   |
|          | <b>Maximum</b>        | 479.281   | 808.617   | 1025.995  | 980.343   | 554.275   |

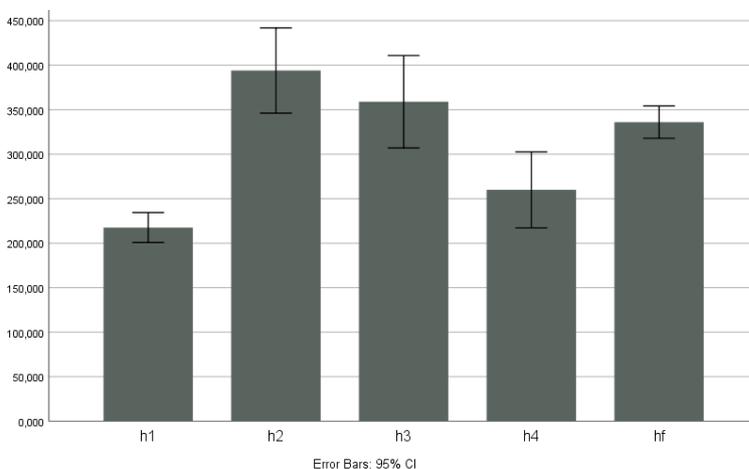
**Table 3.** Descriptive Statistics of the five measured categories of *hát*



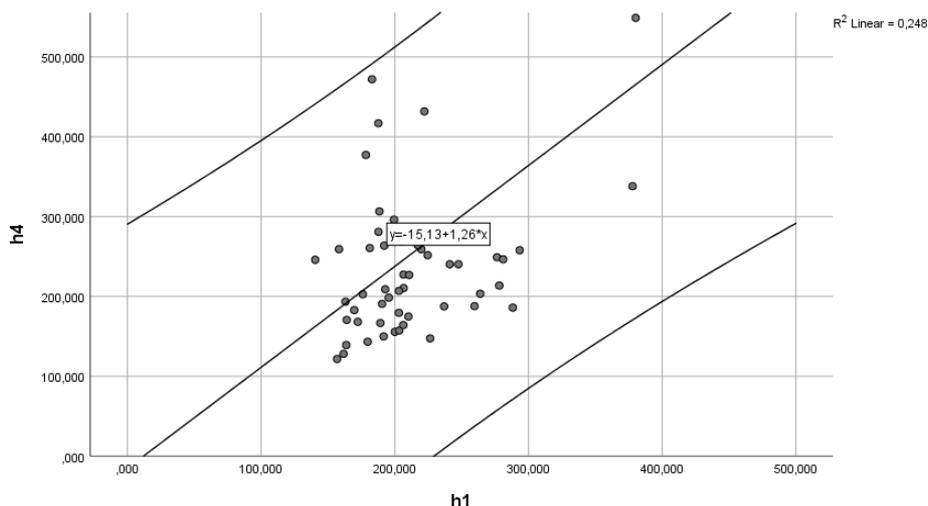
**Figure 3.** Simple boxplot of five measured categories of *hát*

The confidence intervals in Figure 4 show that h2 and h3 are hard to separate so the hypothesis that they have different distributions is to be rejected. Variants h1 and h4 are also very similar in respect of their means; the radically different standard variants, however, suggest that they have also different distribution functions (see also Table 3). Our interpretation is that it is only for a subgroup that h4 serves as the holder of the teasing intonation in the experiment. Many participants put the teasing intonation on the other part of the sentence. This leads to a binominal distribution with a high standard deviation in the case of h4.

This phenomenon is shown also in Figures 5 and 6, which illustrate the relation of h1 and h4, and the relation of h1 and h2. In the first case some participants who produce a regular, very short h1, produce then a longer h4, which stands for teasing, which is, however, is not the typical case, because a lot of them teased instead while saying the sentence fragment *a vígjátékot!* “the comedy”.

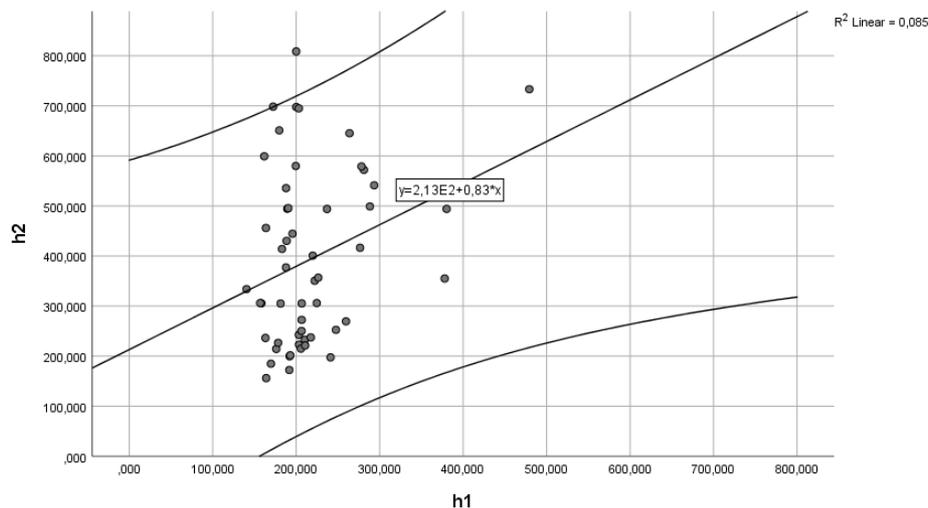


**Figure 4.** Bar charts with 95% confidence intervals



**Figure 5.** The duration of h4 in the function of that of h1

In contrast, the uncertain *hát* (h2), as present in Figure 6, functions as the regular holder of the uncertainty marker in the sentence: it was produced spectacularly longer by the participants than the short h1 values.



**Figure 6.** The duration of h2 in the function of that of h1

### 4.3 Significance Tests

Because of the lack of normal distribution except for the sentence-final *hát*, Friedman's ANOVA was used, which is essentially the non-parametric version of the one-way repeated-measures ANOVA. Also, commonly z-score method was used to identify justifiable outliers. Friedman's test proved the significant difference between the groups by 46 interlocuters, without 7 outliers, so the exact differences were pointed out through Wilcoxon's post hoc test with Bonferroni's correction that the data sets were significantly different in the case of the pairs  $h2 - h1$ ,  $h4 - h2$ ,  $h4 - h3$  and  $h3 - h1$ .

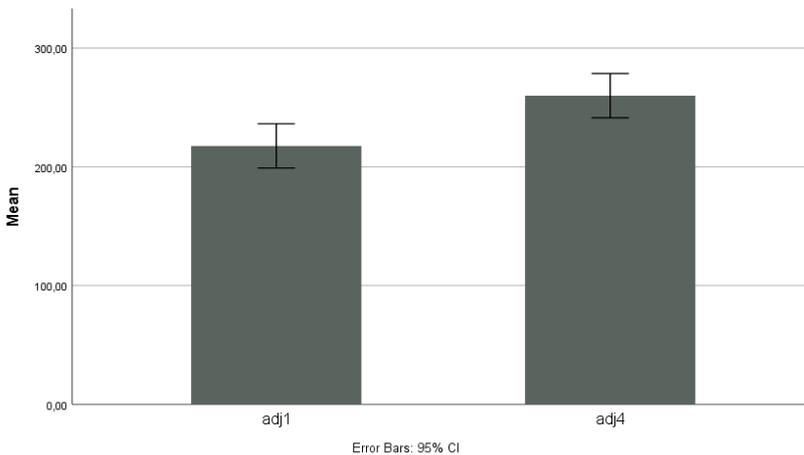
|                        | h4 - h1            | h2 - h1             | h3 - h2             | h4 - h2             | h4 - h3             | h3 - h1             |
|------------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Z                      | -,366 <sup>b</sup> | -5,610 <sup>b</sup> | -1,983 <sup>c</sup> | -4,529 <sup>c</sup> | -4,190 <sup>c</sup> | -4,998 <sup>b</sup> |
| Asymp. Sig. (2-tailed) | ,714               | ,000                | ,047                | ,000                | ,000                | ,000                |

**Table 4.** Wilcoxon Signed Ranks Test (b. Based on negative ranks; c. Based on positive ranks)

### 4.4 The Problematic Pairs

Two pairs were not significantly different according to Friedman's ANOVA, so the method of Loftus and Masson (1994) was used to equalize the means between participants. The new error bars were created in consideration of this factor, and  $h1$  and  $h4$  turned to have different confidence intervals, as shown in Figure 7.

Furthermore, the variance of homogeneity was also significantly different for the pairs  $h1 - h4$ ,  $h5 - h2$  and  $h5 - h3$ .



**Figure 7.** Adjusted confidence intervals for  $h1$  and  $h4$ , based on the method of Loftus and Masson (1994)

Finally, concerning the difference between the properties of the uncertain and the anxious type of *hát* (h2 and h3), it was problematic to pinpoint a sharp difference between the two functions. Only a tendency was found for the anxious type of the discourse marker to be pronounced shorter and to have a longer pause following it. Although we could identify this difference in the pilot-study, we found no significant difference in this respect across the data in the present research. Nevertheless, another qualitative tendency first explored in the pilot-study could be observed in the big sample. Filled pauses were often found to follow the anxious type of *hát*, while these were not a typical property of the uncertain type. Further research is needed in this direction.

## 5. Conclusions

As for the research methodology employed in the study, it can be concluded that the read-aloud protocol is a useful method to elicit and imitate the general functions of the Hungarian discourse marker *hát* – at the same time, it eliminates the annoying effects of spontaneous speech processing where monofunctional uses of *hát* are very hard to find.

The findings of the present study point to the same kind of differences that were identified by Dér and Markó (2017). There is a measurable function of the discourse marker – with the inferential-conclusional core meaning – which indicates uncertainty, but the filled pause after it may belong to another type, one that indicates that the speaker is anxious.

Furthermore, the results confirmed that the discourse marker *hát* is able to express complex attitudes such as, for example, teasing. Based on the two strategies identified in the research (teasing by using *hát* and/or using the last syllable of the sentence), it should be noted, however, that *hát* does not obligatorily carry such attitudes; it is a rather peripheral phenomenon when it does.

According to my claim, the same applies for the anxious function of *hát*. Here, the filled pause following the discourse marker is the main indicator of the anxiety, while the extremely multifunctional discourse marker *hát* – or any discourse marker, in general – tends to consider their core meaning more while being multifunctional.

The suprasegmental characteristics pointed out by this research can be useful to explore later even by auto-segmented corpus-data, though the data of my experiment was segmented manually.

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**Part IV. Empirical Approaches  
to Contrastive Linguistics  
and Translation Studies**



# “The temperature varies from nice-warm-bath to ouch-that’s-a-bit-hot.” Some Considerations on Complex Hyphenated Words in English and German and Their Translatability

Bettina Fetzera and Anne Weberb

Heidelberg University, Heidelberg, Germany

<sup>a</sup>bettina.fetzer@iued.uni-heidelberg.de; <sup>b</sup>anne.weber@iued.uni-heidelberg.de

**Abstract:** There seem to be two basic kinds of word-formation mechanisms using three or more hyphens in both English and German: phrasal compounds, such as Engl. *an all-consuming I-will-do-anything-for-you passion* (BNC:1991:FICTION:CF\_JLL), and sentence/clause derivatives (mostly nominalisations), such as Engl. *American “you-can-do-it-ism”* (INT:2011). In addition, there are other complex hyphenated words not complying with standard grammatical word-formation rules. For the present pilot study, we first extracted 100 examples each for English and German from different corpora and then manually annotated them with regard to different characteristics. In a second step, we discuss such structures in terms of a specific challenge within the translation process, all whilst taking into consideration the Romance languages. The present contribution aims to give a first contrastive overview of complex hyphenated words in German and English and to show with a qualitative approach how translators deal with such structures.

**Keywords:** hyphenation; compound; derivative; translation studies; contrastive corpus linguistics

## 1. Introduction

Non-native speakers are often surprised by the ease with which new words can be formed in English and German, such as Ger. *mein ernstes Kannst-du-mir-ruhig-glauben-Gesicht* (LIT:2011:RC\_F13–14; for a gloss, see below ex. (27)), a simple phrasal compound, or Engl. *The temperature varies from nice-warm-bath to ouch-that's-a-bit-hot* (NEWS-GB:2004:NEWS:SK), where two hyphenated structures are used creatively instead of ordinary adjectives. Since they look very similar, we can expect such complex hyphenated words not to pose a major problem for translation between English and German; meanwhile, the opposite is likely the case for the Romance languages, where such structures can't usually be imitated due to their typological properties. The study of complex hyphenated words seems even more important if we keep in mind that word-formation in general is rarely considered in Translation Studies, even though it can represent a veritable challenge in translation practice (cf. Weber 2016b, 34, passim; Weber and Wurm, forthcoming).

After a theoretical discussion of compounding and derivation as well as of the use of hyphens in grammatical and “expressive” word-formation (Section 2), we will in Section 3 present the results of a tentative corpus analysis comparing English and German in order to identify the specific characteristics of complex hyphenated words in both languages. In Section 4, we will discuss the translatability of such structures into French and Italian as well, before finishing the paper with some concluding remarks (Section 5).

## 2. On the Notions of Compound and Derivative

In this part of our contribution, we will briefly discuss compounding, derivation and conversion and explain the use of hyphens in English and German complex words.<sup>1</sup>

### 2.1 Differentiating between Compounding and Derivation

German native speakers with basic linguistic knowledge will usually be able to differentiate between noun phrases, compounding and derivation, not least because the orthography in itself is an indicator (cf. Wolf 1990, 20, 24). For English, the situation

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1 Although the notion of *word* is highly disputed (cf. Bußmann 2008, 794), we decided to talk about “complex hyphenated words”: the orthographic criterion (preferred in statistical linguistics, cf. Herbermann 2002, 17f.), is applicable to all our German examples (for possible exceptions, cf. Eisenberg 2011, 318; Altmann and Kemmerling 2005, 34) and to all derivatives in English; the syntactic criterion (cf. Fuhrhop 2008, 193) applies to all examples. More generally speaking, the (German) items are “prototypical words” (in the sense of Römer and Matzke 2005, 32), and they are most probably “psychological units” in the sense of Gardani (2008, 396f.) (cf. however also the critical remarks in Weber 2016b, 8).

is less clearly defined, and a comparison of both languages may even lead to complete confusion.<sup>2</sup>

### 2.1.1 *Compounding in English and German*

Though the basic principle of *compounding* is the same in English and German – the combination of free morphemes to form new lexical items (cf. König and Gast 2012, 260) – we find some examples that are classified differently in the grammar books:

- (1) (a) Engl. *business communication*  
 (b) Ger. *Unternehmenskommunikation*
- (2) Engl. *a power-sharing agreement*

While (1b) is unmistakably a nominal compound ( $[[N+N]_N]$ ), (1a) is considered a noun phrase (premodifier + noun) in Berry (2012, 15). The same goes for (2), which is seen as a noun phrase with a compound premodifier (cf. *ibid.*), but could easily be translated as a single compound Ger. *Machtbeteiligungsabkommen*.

Differentiating between compounds and “normal” noun phrases in English clearly remains a problem:

As a general rule the stress in compounds is on the first component, while in phrases the second component tends to be stressed. Compare **blackboard** (“a board fixed to the wall, used in schools for teaching”) with *black board* (“a board which is black”), where in both cases the stress is indicated by the boldface type. Individual cases can remain tricky. For example, . . . I have listed *white-collar* in *white-collar staff* as an Adj-N compound, but we might equally say that in this particular case the Head noun *staff* is modified by the NP *white collar*. (Aarts 2011, 36; highlighted in the original)

It can be concluded that “left-hand stress is only a sufficient, but not a necessary condition for compounding in English, i.e. all N-N-combinations with left-hand stress are compounds but not all compounds have left-hand stress” (König and Gast 2012, 267).<sup>3</sup> Since “nominal compounds in German are a well-defined class, while English does not make a clear-cut distinction between compounds and syntactic phrases” (*ibid.*), we will

2 Interestingly, in many English grammar books aimed at German-speaking learners, the focus lies on topics where the differences are most obvious (such as tense and aspect), and word-formation remains unmentioned (as in Sammon 2002 and Hellyer-Jones et al. 1995; in König and Gast 2012, in contrast, this subject was added in the third edition).

3 In his further examples we see that Aarts (2011, 36) counts as phrasal compounds such structures that will be considered here as “expressive use of hyphenation” (cf. Section 2.2.2).

consider as compounds all English items where the last constituent is clearly the head of the word as a whole and where the German literal equivalent would almost certainly be a compound.<sup>4</sup>

### 2.1.2 *Derivation and Conversion in English and German*

Derivation can roughly be defined as „a word-formation process involving suffixation or prefixation” (Aarts 2011, 31); we will focus here on suffixation, where a bound root is added to a free morpheme (or morpheme combination), thus creating a new word which will in most cases belong to a different word class than the original lexeme (cf. Römer and Matzke 2005, 88ff.).

In German linguistics, conversion is often considered to be a special case of derivation (also called *zero suffixation* or *suffixation without formal changes*, cf. Donalies 2005, 95, 124; Erben 2006, 50, 79f.), whereas for most other languages, it is usually considered a separate word-formation mechanism, though sometimes described as “involving a silent derivational suffix or ‘zero morpheme’” (König and Gast 2012, 260), just as in German. This process denotes the creation of a new lexeme out of another without any formal change (cf. *ibid.*), though inflectional variation may occur, and a change of word class is always involved (cf. Aarts 2011, 37).<sup>5</sup>

As for the differentiation between derivation and conversion, this will be based on the classic criterion, i.e. whether there is a (visible) suffix involved (= derivation proper) or not (= conversion).

### 2.1.3 *Borderline Cases between Compounding and Derivation*

It can sometimes be hard to differentiate between some special types of compounding and derivation, not least in the context of phrasal word formation, the use of which is on the increase in modern German (cf. Lawrenz 2006, 4).

- (3) Ger. die *Zu-spät-Kommer*  
the too-late-comers  
“Those people who are always late.”

The example above (from Lawrenz 1996, 1f.) will be considered as a synthetic compound by some researchers, yet others will prefer a different interpretation.

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4 From a purely linguistic point of view, this method is far from impeccable, yet within Translation Studies it can sometimes be necessary to take into consideration what Albrecht (2013, 108) calls “standard equivalents” to word-formation products in a specific language (cf. Section 4.1).

5 While for lexicalised items it is sometimes difficult to determine the direction of conversion (cf. König and Gast 2012, 261), our examples will always be based on the corresponding non-hyphenated syntagma.

At least, three possible analyses have been suggested to account for the simultaneous double operation traditionally labeled synthesis:

- Incorporation, i.e. lexical derivation via suffixation of a verb;
- Lexical derivation and subsequent composition;
- Lexical derivation via suffixation of a word group. (Gaeta 2010, 221)

We agree with Elsen (2009, 59) who points out that whenever a suffix is added to a syntactic group, as is the case here – *Kommer* is not an existing German noun –, we need to identify the example as a “Zusammenbildung”, which specifically denotes derivatives on the basis of syntactic groups (cf. Elsen 2011, 25; cf. also Altmann and Kemmerling 2005, 31; for a more detailed discussion of phrasal word formation – realised as compounding, derivation or conversion – cf. Lawrenz 2006). Another point which hinders the interpretation as a compound in the narrow sense is the fact that we don’t find here the binary structure which is characteristic of (determinative) compounds (we can’t interpret “Zu-spät-Kommer” as a specific kind of “Kommer”).

## 2.2 Hyphenation: Grammatical or Expressive Means?

In many cases complex hyphenated words are used with the aim of linguistic economy, i.e. to express complicated circumstances as concisely as possible, with the meaning often remaining implicit (cf. Matussek 1994, 36). Moreover, such words can be used as a stylistic means, running contrary to the recipients’ expectations in some way (cf. Ortner and Ortner 1984, 167 as well as Krieg 2005, 89), lending a hint of irony (cf. Elsen 2011, 88) or creating “mysteriousness” (cf. Wildgen 1982, 250f.); yet it is often hard to identify the exact reason why a hyphenated (and mostly non-lexicalised) word has been used.

### 2.2.1 Grammatical Hyphenation in Phrasal Compounds and Other Word Formations

While compound spelling is possible and widespread for all “normal” determinative compounds independent of their complexity, hyphenation<sup>6</sup> is exceptionally common for phrasal compounds as an indicator of the internal structure and to facilitate understanding (cf. Donalies 2005, 56).

Free syntactic structures as constituents – resulting in *phrasal compounds* – are rather frequent in both English and German (cf. Meibauer 2003 & 2007). In her corpus-based study of similar English and Czech items, Ryšavá (2014) uses the term “quotational compound”, which hints at a very frequent underlying process, where an utterance (either actually made by the speakers themselves/others or fictitious,

6 In German, hyphenation is generally supposed to emphasise the individual constituents of a given formation, while simple juxtaposition is excluded by the orthographic norm (cf. Eisenberg 2011, 318).

cf. ex. (4)) is used as the first constituent. Since the main priority of the present paper is to give an overview of mainly formal characteristics, we will refrain here from taking the aspects of “quotation” or “use” and “mention” into consideration.<sup>7</sup> Yet, as we will see in Section 4.2, in the case of quotational compounds, the quotation can be rendered as such especially in the Romance target texts.

- (4) Ger. Und schließlich das ultraharte *Wer-jetzt-nicht-mitsingt-hat-was-*  
 and finally the ultra hard Who now not sings along has something  
*an-den-Ohren-Lied* von Dschingis Khan (LIT:2003:VKI\_H220)  
 with their ears song by Dschingis Khan  
 “And finally the ultra-hard ‘whoever is not singing along now must have  
 some problem with their ears’ song by Dschingis Khan”

As for English, where it is often hard to differentiate between noun phrases and compounds, it first has to be said that “[t]here is no absolute limit to the number of premodifiers in one noun phrase” (cf. 5a) (Berry 2012, 16), yet a hyphen may indicate an object-verb relationship in compound premodifiers (5b).

- (5) (a) Engl. the *great big British breakfast* tradition  
 (b) Engl. a *flesh-eating* virus (both Berry 2012, 16; highlighted in the original)

In Aarts (2011, 33), though it is not explicitly pointed out, it becomes clear that phrasal compounds also use hyphenation in English, yet only in the determinative part (cf. 6).

- (6) Engl. A weird, freaky, *threesome-with-a-ghost* date (LIT:2009:KS\_TG126)

### 2.2.2 Expressive Hyphenation

In our analysis, we will differentiate between hyphenation that complies with grammatical rules (cf. 7a) and purely expressive hyphenation, where there is no grammatical need for the use of hyphens, and where the underlying syntagma might – from an orthographic point of view – just as well be written as such. We can only suppose that in these cases, the speaker wants to label a certain number of words as belonging together, as being meant in a specific sense and/or as referring to a specific extralinguistic item (cf. 7b). Thus, the basic criterion for an example to be considered as “expressive” is the lack of a grammatical/orthographic need for hyphenation.

<sup>7</sup> As Wiese (1996, 188) points out, “[q]uotation is . . . an act of both using and mentioning a (verbal or nonverbal) sign.” However, the question of the non-head being a quote or not clearly illustrates the heterogeneity of the seemingly uniform category of “phrasal compounds” (cf. Pafel 2017, 235).

- (7) (a) Engl. That *what-d'you-call-'em* (BNC:1990:FICTION:HT\_ACEC96-216)
- (b) Engl. picking out some *cock-for-the-night* from the stud line  
(BNC:1990:FICTION:YJ\_KT9-152)

In the first case, the determiner *that* shows that a noun must follow (sentence converted into a noun), while the second item might just as well be spelled out as a normal syntagma.

### 2.2.3 On the Notion of “Complexity”

Complex words seem to be of particular interest in Translation Studies since they are usually not listed in (monolingual or bilingual) dictionaries and therefore can be hard to translate in practice; moreover, even in English and German acceptability may decrease with increasing complexity (cf. Motsch 1981, 97; Wilss 1985, 279), and compounds comprising four or more constituents are seen as rare (cf. Elsen 2009, 58; Weber 2016b, 42f.). Consequently, we considered as “complex” all word formations comprising four or more constituents since they can be deemed as formally unusual or even “creative” (Weber 2016b, 240). Although compound spelling or a reduced number of hyphens is generally possible – as in Ger. *Metallnachtischschublade* (“the drawer of a bedside cabinet made from metal”; LIT:2011:RC\_F182) or Ger. *Fichtennadelöl-Badewasser* (“bath water with spruce needle oil (as an additive)”; LIT:2003:VKI\_H88) – we focus on words which feature hyphenation as a formal particularity.

## 3. Corpus Analysis

This section presents the method and the results of a pilot study in which we analysed 100 examples each in order to identify similarities and differences between English and German. For annotations, we used the UAM Corpus Tool.<sup>8</sup>

### 3.1 Corpora, Query Method and Annotation Scheme

#### 3.1.1 Corpora

We obtained our German examples from the *DWDS Core Corpus of the 21st Century (2000–2010)* (15 469 000 tokens). All texts are lemmatised, part-of-speech tagged and can be searched with the DDC (Dialing DWDS Concordancer), a linguistic search engine, on the project’s website. The *DWDS Core Corpus of the 21st Century* contains different text genres (fiction books, functional texts, scientific publications, and journalistic prose). The construction of the corpus is ongoing and texts from all genres continue to be added (cf. Geyken 2007, 1–3).

<sup>8</sup> <http://www.corpustool.com/>, accessed September 7, 2018.

For the English examples, we queried the *British National Corpus (BNC)* and the *British News Corpus (NEWS-GB)* created by the translation department at the University of Leeds.

The *British National Corpus (BNC)* contains 100 million words. Its texts date back to the second half of the 20th century. We find both spoken and written British English. The corpus also contains different text genres: spoken texts, fictional texts, magazines, newspapers, and academic texts. It is lemmatised, part-of-speech tagged and metadata are added according to the Guidelines of the Text Encoding Initiative (TEI).<sup>9</sup>

The *British News Corpus (NEWS-GB)* is a monolingual journalistic corpus containing texts from the year 2004. News stories from each of the four major British newspapers (*Guardian/Observer*, *Independent*, *Telegraph* and *Times*) were included into this corpus, which contains 200 million words. Metadata, such as the name of the newspaper, author, date and title of the article, can be found in the search results, which are obtained by querying the corpus via IntelliText.<sup>10</sup>

### 3.1.2 Query Method

We considered two text genres that are supposed to be rich in complex hyphenated words: newspapers and fiction books. The DWDS corpora have their own query language, which is mainly based on regular expressions. The expression used for our query was `/(?:\-.*){3,}/`.<sup>11</sup> It looks for all tokens with at least three hyphens and at least one character between two hyphens.<sup>12</sup>

For the analysis of the English corpora, we used the interface IntelliText 2.6,<sup>13</sup> which was created within a project conducted by the Centre for Translation Studies (CTS) at the University of Leeds, and the search interface developed by Brigham Young University (BYU-BNC).<sup>14</sup> For the query, we were able to use the CQP query language (*corpus query processor*), which generates a fast corpus query based on

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9 “What Is the BNC?”, British National Corpus, accessed September 7, 2018, <http://www.natcorp.ox.ac.uk/corpus/index.xml?ID=intro>.

10 “Use of Corpora in Translation Studies“, Centre for Translation Studies, accessed September 7, 2018, <http://corpus.leeds.ac.uk/list.html>.

11 Special thanks to Dr. Zakharia Pourtskhvanidze (University of Frankfurt) who gave the talk “Kurt Hustle alias Retrogott erklärt Satzhypostase” and introduced the expression at the 58th StuTS conference in 2016.

12 The number of hyphens can be set at a certain value or an unspecified number of hyphens. `/(?:\-.*){5}/` searches for all tokens with exactly five hyphens and `/(?:\-.*){4,}/` finds all tokens with at least four hyphens.

13 <http://corpus.leeds.ac.uk/itweb/htdocs/Query.html>, accessed September 7, 2018.

14 <https://corpus.byu.edu/bnc/>, accessed September 7, 2018.

regular expression syntax. We used `*-.*-.*-.*` for the NEWS-GB corpus, which led to word combinations with at least three hyphens.

Since the BYU interface delivers better metadata and has a feature which allows users to select a specific text genre, we queried the BNC via this interface by choosing the genre “fictional texts”. We used the KWIC search option and the following query expression: `*-.*-.*-.*`.

Results were checked, and hyphenated numbers (*4-2-3-3-4-4-3-5-5-(33)*), hyphenated characters (*g-g-g-g-got, t-o-t-e*) or onomatopoeia (*chaka-chaka-chaka-chaka-chaka, Tick-tack-tick-tack-tick-tack*) were sorted out. Repetitions of the same expression, already lexicalised words (*state-of-the-art, out-of-the-way, jack-in-the-box, three-and-a-half year, Mund-zu-Mund-Beatmung*) and Named Entities (*Les-Entre-Deux-Monts, Kaiser-Franz-Joseph-Spital*) were also removed.

For each genre, we exported the first 50 correct hits. Examples in this contribution are presented in the form in which we found them in the corpora but with the hyphenated word in question highlighted in italics.<sup>15</sup>

### 3.1.3 Annotation Scheme

With a corpus-driven approach taking into consideration the examples exported from our corpora, we developed an annotation scheme with five categories.<sup>16</sup> The results revealed the following interesting aspects:

- there are examples with many more than three hyphens;
- phrasemes can serve as a basis for long hyphenated formations;
- there are different word-formation mechanisms involved. Some of the examples follow common grammatical rules, while others will be considered here as “expressive” (cf. Section 2.2.2 above).

Table 1 shows the complete annotation scheme with all categories and the corresponding values:

<sup>15</sup> NB: our German sample is a random sample, whereas the English samples (BNC and NEWS GB) are non-probabilistic ad-hoc samples (cf. Meindl 2011, 132f.) because the search interfaces do not display the results in a random order. Consequently, the analysed examples are not representative, yet sufficient for the purpose of a pilot study. For further studies we will have to find a way to extract random samples also from English corpora.

<sup>16</sup> Our first category (Language & Annotator) exclusively serves the purpose of comparing the annotators’ decisions in a first step and the two languages in a second.

|                          | 1st layer                                                      | 2nd layer                               | 3rd layer                  | 4th layer                                |
|--------------------------|----------------------------------------------------------------|-----------------------------------------|----------------------------|------------------------------------------|
| Language & Annotator     | en-1<br>ge-1<br>en-2<br>ge-2                                   |                                         |                            |                                          |
| Number of constituents   | 4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15 |                                         |                            |                                          |
| Part-of-speech           | noun<br>adjective-adverb<br>other                              |                                         |                            |                                          |
| Basis                    | phraseme<br>non-phraseme                                       |                                         |                            |                                          |
| Word-formation mechanism | grammatical                                                    | compound                                | phrasal compound           | phr_phrasal<br>phr_other<br>phr_sentence |
|                          |                                                                | derivative                              | der_phrase<br>der_sentence |                                          |
|                          |                                                                | conversion                              | con_phrase<br>con_sentence |                                          |
|                          | expressive                                                     | exp_phrase<br>exp_sentence<br>exp_other |                            |                                          |

**Table 1.** Annotation scheme

The category **Number of constituents** provides information about the length of the hyphenated words. Instead of counting the hyphens, we count the constituents, because in English the last constituent of a compound is separated from the hyphenated words by a white space.

The third category **Part-of-speech** contains only the values “noun”, “adjective/adverb”<sup>17</sup> and “other” since we considered verbs and other word classes as not being frequent enough to merit defining a specific value for them.

The two last categories **Basis** and **Word-formation mechanism** serve to analyse the frequency of phrasemes<sup>18</sup> as the basis for hyphenated words and the word-formation mechanism used. First, we differentiated between “grammatical” and “expressive” (cf. Section 2.2.2). Within the grammatical type, we differentiated between the three main word-formation mechanisms, i.e. compounding, derivation and conversion. Compounds can be categorised further according to the type of compound (phrasal or non-phrasal compound). For every mechanism, we also defined the basis of the word-formation as “phrase”, “sentence” or “other”.

The following examples (8a–d) illustrate some grammatical and one expressive uses of hyphenation.

- (8) (a) Ger. eine *Jetzt-oder-Nie-Frage* (DWDS:2004:FICTION:DJV\_H38)  
     a    now or never question  
     “a question of whether to do something ‘now or never’”
- (b) Ger. kein *Sich-drinnen-gehen-Lassen* (DWDS:2004:FICTION:HB\_EKL25)  
     no   oneself inside go letting  
     “you don’t let yourself go at home”
- (c) Engl. he’s not so much *off-with-the-fairies* (NEWS-GB:2004:NEWS:HJ)
- (d) Engl. Freddie’s initial *take-it-or-leave-it attitude* had simply fuelled her determination (BNC:1990:FICTION:SP\_GP)

In (8a) we have a grammatical type (compounding), in which a phrase is combined with a noun; *Frage* is clearly the head of the phrasal compound. (8b) is also a

<sup>17</sup> We aggregate these two word classes for the present study. For German adjectives and adverbs there is often no morphological difference and you have to take into consideration syntactical and pragmatical criteria to determine the word class. For further studies with bigger samples, it would be preferable to observe them separately.

<sup>18</sup> We consider as phrasemes polylexical, stable and more or less idiomatic expressions (cf. Burger 2007, 14–5).

grammatical type (conversion), in which a phrase is converted into a noun: the verb phrase – not just the infinitive *lassen* – is nominalised as a whole and without explicit affixation (cf. Fleischer and Barz 2011, 274f.; cf. also the examples in Lawrenz 1996, 8); the initial part of the verb phrase, *sich drinnen gehen*, can't stand alone, and it can only be used in combination with *lassen*.<sup>19</sup> In the English examples, we have one expressive type (8c), where a phrase (*to be off with the fairies*) serves as the basis. The last example (8d) is a phrasal compound based on a complete sentence with the head noun *attitude*.

### 3.2 Analysis and Interpretation

In our analysis, we primarily considered differences between the two languages for each of our annotation categories. For this reason, we always compared the two datasets (en and ge) for each of the categories. In the first category we have count data and an interval scale which is a metric scale; all the other categories have nominal scaled data (cf. Hatzinger 2014, 40f. and Meindl 2011, 69f.). For significance analysis we used the multidimensional chi-square test to the condition that the criteria were met.<sup>20</sup> That was the case for “Basis” and some of the data of “Word-formation mechanism” (see significance levels below).

We did not rely on the significance levels provided by the tool because the calculations were not all transparent. Therefore, we calculated chi-square ourselves. The results of the category “Number of constituents” are given in Table 2.

Within our sample, the German examples mostly comprised four constituents (63%) (9) followed by five constituents. We also found very long examples with eight constituents (10).

- (9) Ger. Statt            dessen dieses lange, scheinbar  
           instead        of        this long, apparently  
           abwesende *In-den-Zähnen-Pulen* . . . (DWDS:2006:FICTION:AJ\_CM83)  
           absent        between the teeth picking  
           “Instead, someone keeps picking their teeth for some time and apparently  
           absent-mindedly.”

<sup>19</sup> NB: according to Lawrenz (2006, 99f.), such formations can be interpreted either as nominal derivatives on the basis of a verbal phrase (base form) or as conversions of the verbal phrase including the infinitive ending; we agree here with the second interpretation.

<sup>20</sup> For the expected values (e):  $e > 5$  in at least 80% of the value fields and  $e > 1$  in the other 20% (cf. Meindl 2011: 166). For count data, the chi-square test is possible but with a loss of information. In our case, the expected values of the Number of constituents category didn't fulfil the requirements. A bettersuited model for count data is a Poisson regression model.

- (10) Ger. *Großvaters-um-vier-Uhr-am-Donnerstag-schellender-Uhrensammlerfreund!*  
 Grandpa's at four o'clock on Thursdays ringing watch collector friend  
 "Grandpa's friend who collects watches and rings at four o'clock on Thursdays."  
 (DWDS:2000:FICTION:KJ\_PSU253)

| Feature                | en-1  |         | ge-1  |         |
|------------------------|-------|---------|-------|---------|
|                        | N     | Percent | N     | Percent |
| Total Units            | 100   |         | 100   |         |
| Number of constituents | N=100 |         | N=100 |         |
| 4                      | 22    | 22.00%  | 63    | 63.00%  |
| 5                      | 38    | 38.00%  | 21    | 21.00%  |
| 6                      | 25    | 25.00%  | 8     | 8.00%   |
| 7                      | 8     | 8.00%   | 1     | 1.00%   |
| 8                      | 3     | 3.00%   | 5     | 5.00%   |
| 9                      | 2     | 2.00%   | 1     | 1.00%   |
| 10                     | 0     | 0.00%   | 0     | 0.00%   |
| 11                     | 1     | 1.00%   | 0     | 0.00%   |
| 12                     | 0     | 0.00%   | 0     | 0.00%   |
| 13                     | 0     | 0.00%   | 0     | 0.00%   |
| 14                     | 0     | 0.00%   | 1     | 1.00%   |
| 15                     | 1     | 1.00%   | 0     | 0.00%   |

**Table 2.** Number of constituents. Results for English (en-1) in BNC/NEWS-GB and German (ge-1) in DWDS

Within the English sample, most of the words had five constituents (11) and a quarter of the examples had six constituents. In general, the English examples were longer than the German ones, such as example (12) with nine constituents.

- (11) Engl. In the US they tend to be more generous – both individually and corporately – but they also favour *end-of-the-pipe solutions*. (NEWS-GB:2004:NEWS:SW)
- (12) Engl. I'm a *take-me-as-you-find-me sort of guy*, know what I mean?  
 (BNC:1993:FICTION:RR\_TSBD103-264)

Table 3 shows the results for the “Part-of-speech” category:

| Feature          | en-1  |         | ge-1  |         |
|------------------|-------|---------|-------|---------|
|                  | N     | Percent | N     | Percent |
| Total Units      | 100   |         | 100   |         |
| Part-of-speech   | N=100 |         | N=100 |         |
| Noun             | 81    | 81.00%  | 96    | 96.00%  |
| Adjective-adverb | 15    | 15.00%  | 1     | 1.00%   |
| Other            | 4     | 4.00%   | 3     | 3.00%   |

**Table 3.** Part-of-speech. Results for English (en-1) in BNC/NEWS-GB and German (ge-1) in DWDS

In both languages, as expected, there is a high number of nouns (examples 13 and 14). In the English corpora, we also identified some adjectives or adverbs (15) (15%). At first glance, example (15) may seem to be a phrasal compound with the head noun *boathouse*, but the word-formation mechanism (phrasal compounding) refers only to the adjective, which pre-modifies the noun *boathouse*. (16) is a German example for the value “other”. In this example, the individual words were marked as belonging together without using any word-formation mechanism and without changing the word class of any of the constituents.

- (13) Ger. Diesen Umstand sollten die Verfechter des  
 this fact should the advocates of the  
*Small-is-beautiful-Prinzips* genauso ehrlich bewerten wie  
 small is beautiful principle equally honest evaluate as  
 die Tatsache, dass . . . (DWDS:2000:NEWS:SG\_MDNE87)  
 the fact that  
 “The advocates of the small-is-beautiful principle should evaluate this fact  
 just as honestly as the fact that”
- (14) Engl. I remember Mandy well; her tapered nails, the fragrant neck, that  
*just-in-out-of-the-cold-feel* to her fingers, . . . (BNC:1993:FICTION:HAL\_D1-125)
- (15) Engl. She hurried forward with her head down so as not to see the *diesel-and-hemp-smelling* boathouse . . . (BNC:1993:FICTION:NB\_PDS59-179)

- (16) Ger. sie fragten mich stundenlang aus und  
 they questioned me for hours and  
 wollten *Wer-wann-wo-mit-wem-was* erfahren . . .  
 wanted who when where with whom what know  
 “they questioned me for hours and wanted to know who did what with  
 whom, when and where” (DWDS:2004:FICTION:HB\_KML93)

In Table 4 we see the results for the “Basis” of the analysed hyphenated words:

|              | en-1  |         | ge-1  |         | $\chi^2$ |
|--------------|-------|---------|-------|---------|----------|
| Feature      | N     | Percent | N     | Percent |          |
| Total Units  | 100   |         | 100   |         |          |
| Basis        | N=100 |         | N=100 |         | 8.589    |
| Phraseme     | 23    | 23.00%  | 8     | 8.00%   |          |
| Non-phraseme | 77    | 77.00%  | 92    | 92.00%  |          |

**Table 4.** Basis. Results for English (en-1) in BNC/NEWS-GB and German (ge-1) in DWDS

At a *significance level* ( $\alpha$ ) of 0.05 and a *degree of freedom* ( $df$ ) of 1, we have a critical value for chi-square of 3.841 (cf.  $\chi^2$  tables as e. g. in Meindl 2011, 274). Our calculated value (8.589) is higher than this value and the null hypothesis can be refuted. We can observe significant differences for this category between the German and English samples.

Most of the examples in both languages are not based on phrasemes. In the English corpora (en-1), phrasemes were more frequent than in the German corpora (ge-1). We provide two examples of hyphenated words based on phrasemes in German (17) and English (18).

- (17) Ger. Ich sah, wie der sogenannte Genannte blass wurde . . . und  
 I saw how the so-called mentioned pale turned and  
 wie ihm das beabsichtigte lässige *Da-steh-ich-doch-drüber-Lächeln*  
 how him the intended nonchalant there am I anyway above smile  
 zu einem hilflos-verzerrten Grinsen geriet . . .  
 to a helpless-distorted smile turned  
 “I saw how the so-called mentioned person turned pale and how the intended  
 nonchalant smirk which says ‘I’m above such things anyway’ changed into  
 a helpless and distorted smile” (DWDS:2000:NEWS:AM\_AK48)
- (18) Engl. This is a *strictly-for-the-birds version* of poker in which anything can happen  
 and frequently does. (NEWS-GB:2005:NEWS:SN)

Finally, Table 5 gives the results for the last category “Word-formation mechanism”:

| Feature                         | en-1  |         | ge-1  |         | $\chi^2$ |
|---------------------------------|-------|---------|-------|---------|----------|
|                                 | N     | Percent | N     | Percent |          |
| <b>Total Units</b>              | 100   |         | 100   |         |          |
| <b>Word-formation mechanism</b> | N=100 |         | N=100 |         | 5.838    |
| <b>Grammatical</b>              | 88    | 88.00%  | 97    | 97.00%  |          |
| <b>Expressive</b>               | 12    | 12.00%  | 3     | 3.00%   |          |
| <b>Grammatical</b>              | N=88  |         | N=97  |         |          |
| <b>Compound</b>                 | 76    | 76.00%  | 67    | 67.00%  |          |
| <b>Derivative</b>               | 1     | 1.00%   | 0     | 0.00%   |          |
| <b>Conversion</b>               | 11    | 11.00%  | 30    | 30.00%  |          |
| <b>Compound</b>                 | N=76  |         | N=67  |         |          |
| <b>Phrasal-compound</b>         | 76    | 76.00%  | 59    | 59.00%  |          |
| <b>Non-phrasal</b>              | 0     | 0.00%   | 8     | 8.00%   |          |
| <b>Phrasal-compound</b>         | N=76  |         | N=59  |         | 8.645    |
| <b>Phr_phrase</b>               | 50    | 50.00%  | 31    | 31.00%  |          |
| <b>Phr_other</b>                | 2     | 2.00%   | 10    | 10.00%  |          |
| <b>Phr_sentence</b>             | 24    | 24.00%  | 18    | 18.00%  |          |
| <b>Derivative</b>               | N=1   |         | N=0   |         |          |
| <b>Der_phrase</b>               | 0     | 0.00%   | 0     | 0.00%   |          |
| <b>Der_sentence</b>             | 1     | 1.00%   | 0     | 0.00%   |          |
| <b>Conversion</b>               | N=11  |         | N=30  |         | 16.132   |
| <b>Con_phrase</b>               | 3     | 3.00%   | 27    | 27.00%  |          |
| <b>Con_sentence</b>             | 8     | 8.00%   | 3     | 3.00%   |          |
| <b>Expressive</b>               | N=12  |         | N=3   |         |          |
| <b>Exp_phrase</b>               | 11    | 11.00%  | 1     | 1.00%   |          |
| <b>Exp_sentence</b>             | 1     | 1.00%   | 1     | 1.00%   |          |
| <b>Exp_other</b>                | 0     | 0.00%   | 1     | 1.00%   |          |

**Table 5.** Word-formation mechanism. Results for English (en-1) in BNC/NEWS-GB and German (ge-1) in DWDS

The following chi-square values can be calculated:

- Distribution of grammatical vs. expressive word-formation mechanism: 5.838
- Distribution of the basis of phrasal compounds: 8.645
- Distribution of the basis of conversions: 16.132

The same conditions as before apply ( $\alpha=0.05$  and  $df=1$ ), and the calculated values are higher than the critical value of 3.841. Again, the null hypothesis can be refuted and we can observe significant differences for these three sub-categories between the German and English samples.

For the grammatical word formations, the most frequent type is compounding (in both languages). Examples (19) and (20) are phrasal compounds based on complete sentences. We observed more examples of conversions – mainly from verb to noun – for German (21 and 22), yet not a single derivation. Example (21) is a conversion of a complete sentence (in this case a loan sentence), with none of the constituents showing any formal changes. In (22) we see the conversion of a phrase, in which the final verb *einlassen* is converted into a noun.

There was only one derivation among the English examples (23), though we expected to find more derivations with the suffixes *-ism* or *-ness*.

There were fewer expressive word formations than grammatical ones. Thus, we only identified three expressive word formations for German. Example (24) is an expressive type in English.

- (19) Ger. Kaum etwas interessierte mich im  
 hardly something interested me at the  
 Moment weniger als irgendein neuer  
 moment less than any new  
*Chen-haßt-die-Welt-Erguß . . .* (DWDS:2006:FICTION:AJ\_CM46)  
 Chen hates the world outburst  
 “Hardly anything interested me less at the moment than another Chen-hates-the-world outburst”

- (20) Engl. To be fair, the Vectra is just one of many too-technical, beep-infested modern cars in which *we-can-so-we-will technology* goes far enough beyond usefulness to get in the way. (NEWS-GB:2005:NEWS:SJ)

- (21) Ger. Motel, Pool, Wüste, Jogger, *Nice-to-meet-you*, Frühstück,  
 motel, pool, desert, joggers, nice to meet you, breakfast,  
 Freundlichkeit, How-are-you, Bäume mit Prophetenarmen  
 friendliness, how are you, trees with prophet arms  
 in der Wüste, alles zum Staunen.  
 in the desert, all to astonish  
 “Motel, pool, desert, joggers, nice-to-meet-you, breakfast, friendliness, how-are-you, trees with prophet arms in the desert – all things to amaze you”  
 (DWDS:2001:FICTION:KIJ\_LL180)

- (22) Ger. Gleich nach der Wende sattelte Dagmar –  
 immediately after the Wende switched Dagmar  
 in der DDR als Leistungssportlerin getrimmt –  
 in the GDR as top athlete trained  
 auf die Kunst des *Sich-empfangend-auf-die-Welt-Einlassens* um.  
 to the art of herself receivingly in the world engaging  
 “Immediately after the collapse of the GDR, Dagmar, who had been trained to become a top athlete in the GDR, switched to the art of welcoming the world with open arms” (DWDS:2000:NEWS:SC\_KLF83)
- (23) Engl. Mrs Khalid had a soft expression and lively eyes but a *never-say-die-ishness* that quite reminded Ellen of Rhoda. (BNC:1991:FICTION:WF\_DU)
- (24) Engl. For one of the chief glories of John Cage Uncaged was the proof it provided that there is a large audience out there, not only for the *fun-for-all-the-family* of Musicircus, but also for such difficult endeavours as Cage’s Atlas Eclipticalis. (NEWS-GB:2004:NEWS:PK)

This first contrastive overview of complex hyphenated words in English and German represents the main characteristics of such structures (length, part-of-speech, basis, and word-formation mechanism) comparing them for both languages. The distribution of the number of constituents shows that we mainly found between four and six constituents within our samples in both languages. The most frequent word class is “noun”, and most hyphenated words aren’t based on phrasemes (both German and English samples). We can observe more grammatical uses than expressive ones, and most of the formations we analysed are compounds. Due to the composition of our data, the requirements for the chi-square test weren’t always fulfilled, and therefore we considered the significance for selected categories and sub-categories only. Significant differences between both languages can be observed for the bases of complex hyphenated words, for grammatical vs. expressive word formations, the bases of phrasal compounds and the bases of conversions. By incorporating a higher number of examples, the criteria for chi-square could be met in future research.

#### 4. On the Translatability of Complex Hyphenated Words

In this paragraph, we will first briefly discuss basic word-formation rules for the Romance languages in general and point out some differences and similarities on the *Langue* level. Second, we will discuss the (non-)translatability of complex hyphenated words in English, German, French, and Italian.

#### 4.1 Some Theoretical Remarks

In modern French, there is very little variation in word-formation – not just compared with German but also with Italian as a closely related language (cf. Wunderli 1989, 99). Nevertheless, Wilss (1986, 253) supposes that the exceptional variability of German word formation is not that exceptional after all, and that other Indo-Germanic languages use similar tools in communication – or at least they *could*.

Derivation, and especially suffixation, is generally seen as the most important word-formation mechanism in the Romance languages (cf. Weber 2016a, 277ff.). Since the process is very similar to English and German (see Section 2.1.2 above), we will refrain from going into any more detail here.

As for compounding, many French linguists only accept lexicalised items in compound spelling (= asyndetic) as “compounds proper” (e.g. Fr. *gentilhomme* “gentleman”), while German Romanists often also take into consideration what they call syndetic compounds (e.g. Fr. *temps d’attente*, Ital. *tempo d’attesa* “waiting time”) and adjectival compounds (e.g. Fr. *examen final*, Ital. *esame finale* “final exam”). Albrecht (2013, 108) points out that in Translation Studies it can sometimes be necessary to include structures which would usually be excluded in a study of just one language; he calls the aforementioned types of formations “standard equivalents” of German and English word-formations, which as such have to be included in translation-oriented research. A typological difference between Germanic and Romance languages, as can be seen in the aforementioned examples, is the fact that while modifiers usually precede the noun in the former, they follow the noun in the latter, i.e. the order of the constituents is inverted in Germanic and Romance compounds (cf. Noailly 1990, 24 for French) – which normally is a translation problem at beginners’ level only (cf. Weber 2016a, 285). However, this problem might become more sophisticated where hyphenation comes into play.

Hyphenated words exist in the Romance languages as well, as lexicalised items such as Fr. *va-nu-pieds* “poor people who ‘walk on bare feet’” or Ital. *Non-ti-scordar-di-me* “forget-me-not” show (both phrasal conversions in the understanding of the present contribution). Yet they are usually rather short (the aforementioned French example is not even *complex* according to our understanding) and only comprise two to three hyphens, and they cannot simply be formed at will by any language user (cf. Albrecht 2013, 110). In French especially, due to the generally more restricted perception of word formation, the use of such words is generally limited to lexicalised items.

#### 4.2 Example Discussion

Using examples from an English original with its German, French, and Italian translations as well as from a German source text (ST) with its English and Romance target texts (TTs), we will now discuss complex hyphenated words in terms of a specific translation challenge.

Words using “expression”, “face” or “look” as a second constituent are frequently used in our originals. In examples (25) and (26), we see that they can easily be imitated in the respective German and English translation. As for the Romance languages, we find that Italian translators actually attempt to imitate these unusual structures, while French translators prefer a “normal” syntagmatic solution:

(25) (a) Engl. her grave, *this-is-no-laughing-matter expression* (LIT:2009:KS\_TG39)

(b) Ger. ernsten *Das-ist-kein-Spaß-Miene* (LIT:2011:KS\_CG39)  
serious this is no fun face

(c) Ital. la sua stessa *espressione grave del tipo “qui-c’è-poco-da-ridere”*  
the her same expression grave of the kind here there is little to laugh  
(LIT:2010a:KS\_LRF33)

(d) Fr. son regard scrutateur avec le plus grand sérieux  
her look critical with the utmost seriousness  
(LIT:2010b:KS\_TCS41)

(26) (a) Ger. mein ernstes *Kannst-du-mir-ruhig-glauben-Gesicht* (LIT:2011:RC\_F13f.)  
my serious can you me calmly believe face

(b) Engl. my serious *you-can-trust-me face* (LIT:2009:RC\_W7)

(c) Ital. la mia consueta *espressione da “mi-puoi-credere-tranquillamente”*  
the my usual expression of me you can believe calmly  
(LIT:2008:RC\_ZU15)

(d) Fr. mon *air sérieux du genre tu peux me croire à fond*  
my air serious of the kind you can me believe deeply  
(LIT:2010:RC\_ZH16)

One reason for the French translators’ reluctance to imitate the ST structures is a difference in language use: “Im Französischen kommt die Bemerkung *ce n’est pas dans le dictionnaire* . . . einem Verdammungsurteil gleich” (Albrecht 2013, 110; highlighted in the original), i.e. while French native speakers rarely accept new and creative words, Italian is known to be more flexible (cf. *ibid.*).<sup>21</sup>

21 NB: when confronted with long and/or hyphenated word formations, French translators often opt for a linguistically economical and idiomatic solution – even where a precise (syntagmatic)

Another second constituent typical of English alone is “thing”, where an imitation of the ST structure seems to be excluded in all our target languages:

(27) (a) Engl. I don’t have to think about the *where-does-my-career-go-now? thing*.

(LIT:2009:KS\_TG330)

(b) Ger. Ich muss mich nicht fragen, *was mit meinem Job wird*.  
I need myself not ask what with my job becomes  
(LIT:2011:KS\_CG379)

(c) Ital. Non devo pormi interrogativi come “*Che lavoro farò?*”  
not must ask myself questions like what work will I do  
(LIT:2010a:KS\_LRF300)

(d) Fr. Je n’ aurai pas le temps de penser à  
I not will have [not] the time to think about  
*ma future carrière* (LIT:2010b:KS\_TCS369)  
my future career

While in German and French we find a normal syntagmatic structure, the Italian translator opts for quotation marks.

The same English structure is chosen in example (28), though the German ST contains a complex hyphenated derivative, which is imitated in the Italian solution and again rendered in a normal sentence structure in French:

(28) (a) Ger. Dann ist dieses *Zu-nah-am-Kopf-Sitzen* also  
then is this too close to the head sitting so  
eine Berufskrankheit. (LIT:2011:RC\_F14)  
a occupational disease

(b) Engl. So this *sitting-too-close-to-my-face thing* is an occupational hazard.  
(LIT:2009:RC\_W7)

(c) Ital. Ecco spiegata la *sedia-all’altezza-della-testa*. (LIT:2008:RC\_ZU16)  
here explained the seat at the level of the head

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translation would be possible – whenever this does not lead to major semantic losses (cf. Weber 2017, 202, 205f.). However, when asked about ex. (26d), native speakers of Italian state that the hyphenation looks weird and they would prefer a solution using only quotation marks.

- (d) Fr. J' y suis: *s'asseoir tout près de quelqu'un*  
I there am sitting down all close to someone  
c' est une déformation professionnelle. (LIT:2010:RC\_ZH16)  
that is an occupational disease

We also find expressive hyphenation in our examples:

- (29) (a) Engl. There was real-life Josh and there was *Josh-in-my-head*.  
(LIT:2009:KS\_TG287)
- (b) Ger. Es gab einen echten Josh und einen *Josh-in-meinem-Kopf*.  
there was a real Josh and a Josh-in-my-head  
(LIT:2011:KS\_CG328)
- (c) Ital. C' erano il Josh vero e il *Josh-nella-mia-mente*.  
there were the Josh real and the Josh-in-my-head  
(LIT:2010a:KS\_LRF260)
- (d) Fr. Il y a le vrai Josh et le *Josh-dans-ma-tête*.  
there is the real Josh and the Josh-in-my-head  
(LIT:2010b:KS\_TCS320)

Interestingly enough, this eye-catching hyphenation is imitated in all our TTs, even in French. This potentially means that whenever translators perceive an item as something unusual in the ST, they will dare to copy it in their TT (cf. already Weber 2016b, 129).

Yet in some cases, expressive hyphenation seems to be just a little bit too complex for translators to imitate, leading them to render the original “word” as a normal “sentence”:

- (30) (a) Engl. “The dragonfly necklace,” I say. “*Do-you-know-where-it-is?*”  
(LIT:2009:KS\_TG272)
- (b) Ger. “Die Libellen-Kette”, sage ich. “*Weißt du, wo sie ist?*”  
the dragonfly necklace say I know you where it is  
(LIT:2011:KS\_CG310)
- (c) Ital. “La collana con la libellula” ribadisco. “*Sai dov'è?*”  
the necklace with the dragonfly I repeat. you know where it is  
(LIT:2010a:KS\_LRF245)

- (d) Fr. Le collier avec la libellule? Tu sais où il est?  
 the necklace with the dragonfly you know where it is  
 (LIT:2010b:KS\_TCS303)

Here the hyphenation in the ST might indicate either a very fast utterance (the hyphens meaning that the words are hardly separated in speech) or the accentuation of every single word (in this case the hyphens would, on the contrary, indicate a slight pause).<sup>22</sup> Either way, we find some kind of emphasis in the ST, which is omitted in all three TTs.

To sum up, we can conclude that the challenge for translators regarding complex word formations does not just consist in typological differences, but more precisely in a language-specific combination of restrictions on the *Langue* level and an intuitive understanding of idiomaticity. While the imitation of an original structure is often – not always – possible between the closely related English and German languages, we find a striking difference between the Romance languages, which for their part are closely related, yet turn out to differ in use: Italian translators tend to imitate an original structure even where native speakers deem this solution to be rather unusual or even unidiomatic; it seems that they trust their readers “will to understand” (cf. for this concept Koller 2004, 177). In contrast, French translators seem to only imitate structures which are peculiar even in the ST, and this is probably because the French attitude towards neologisms is often described as negative or even “hostile”, with the use of non-lexicalised words being regarded as a kind of “sacrilege” (Corbeil 1971, 136). It can be supposed that similar word formations would be understandable in French just as well,<sup>23</sup> yet the problem remains that here a creative use of the language is only permitted to “important intellectuals” (Albrecht 2013, 110) – a cultural difference which has to be taken into consideration in translation as well.

## 5. Conclusions

As the corpus analysis showed, complex hyphenated words exist in variable forms in English and German. In our sample, phrasal compounds were even more frequent in English than in German; yet we found a high number of conversions in German, mostly the prototypical verb-to-noun type, which disproves the assumption that conversions are more frequent in English (postulated in König and Gast 2012, 262). Surprisingly, we found hardly any examples of derivation, while the expressive use of hyphenation was common in both languages.

22 Thanks to Francis Bond (Nanyang Technological University, Singapore) for pointing out this latter possible interpretation to us.

23 Especially since for (non-lexicalised) ad hoc compounds featuring a proper name as the first constituent in German, translators almost systematically opt for a simple juxtaposition (cf. Weber 2017, 200).

This goes to show that even in typologically closely related languages, there seem to be different preferences for specific word formation mechanism. Moreover, we hope it has become clear how even basic corpus analyses can be a useful tool in Translation Studies, even though rather often traditional qualitative discussions are preferred in this field. However, for future studies of complex hyphenated words, samples should be representative and big enough for more reliable significance tests.

The discussion of just a few examples in Section 4.2 should have made clear that neither the knowledge of typological differences nor a purely statistical analysis is indeed sufficient for a thorough understanding of this phenomenon on a *Parole* level with regard to translation.

Another important point which will have to be considered in future research is the fact that, in both languages, hyphens are often left out in just-too-complex words (though orthographically incorrect in German):

(31) (a) Engl. One more strand of this “*just leave me alone*” consumer tendency might be . . . (INT:2015)

(b) Ger. Mag dieses “*was hast du denn für unterirdische Stats*” *Geschwafel* auch nicht. (INT:2014)

“I don’t like this ‘how can your stats be so pathetic’ gibberish either.”

The problem remains, however, of how to research this alternative spelling using quotation marks in the corpora. For such examples, it might also be useful to add a specific category for quotational word formations, not least to find out whether the use of quotation marks is restricted to instances of “mention”.

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# Adverbials of Immediate Posteriority in French and German: A Contrastive Corpus Study of *tout de suite*, *immédiatement*, *gleich* and *sofort*

Volker Gast<sup>a</sup> and Vahram Atayan<sup>b</sup>

<sup>a</sup>Friedrich-Schiller-University Jena, Germany, and Palacký University, Olomouc, Czech Republic; <sup>b</sup>Heidelberg University, Germany

<sup>a</sup>volker.gast@uni-jena.de; <sup>b</sup>vahram.atayan@iued.uni-heidelberg.de

**Abstract:** In this contribution we provide a contrastive analysis of four adverbials of immediate posteriority in French and German, *tout de suite*, *immédiatement*, *gleich*, and *sofort*. The analysis is based on data from the Europarl corpus (representing formal language) and the OpenSubtitles 2016 corpus (representing informal language). A sample of 712 examples was annotated by a team of five annotators for a number of pragmatic, semantic, and morphosyntactic variables. The results show that the adverbials under investigation vary primarily in terms of the reference point (deictic, chronological), the illocutionary force of the utterance (commissive, directive, representative), and the person/number features of the “controller” of the action. We show that by carrying out multivariate analyses of richly annotated data we cannot only determine the distribution of the individual adverbials under investigation but also compare systems of encoding immediate posteriority and understand the underlying semantic ecologies, e.g. in terms of markedness relations.

**Keywords:** temporal adverbials; contrastive linguistics; rich annotation

## 1. Introduction

The timeline can be subdivided in various ways, minimally into a past time sphere and a future time sphere, separated by the moment of utterance (e.g. Klein 1994, 2009a, 2009b). More fine-grained distinctions have been made, for instance, by Declerck (2006), who assumes a “pre-present” sphere between the moment of utterance and the

past. The future time (or “post-present”) sphere can also be subdivided according to degrees of distance from the moment of utterance. Hoffmann (1997) and Ehrich (1992a) distinguish three sub-domains within this sphere, a “distal” one (*I will do that later*), a “proximal” one (*I will do that soon*), and an “immediate” one (*I will do that immediately*). It is the “immediate” domain that constitutes the subject matter of the present study. “Immediate posteriority” stands for a relation of temporal succession within the immediate domain thus conceived.

The linguistic means of expressing immediate posteriority have mostly been examined within the broader context of temporal relations or connectives.<sup>1</sup> Analyses of this category as a whole can only be found in Panova (2000) on Russian and in Atayan et al. (2018) on German, English, and three Romance languages (cf. also the older study by Blass 1960). The terminology used for this class in previous literature is quite diverse and ranges from very general terms such as *avverbi pseudodeittici* in Bertinetto (1997) to specific theory-dependent terms such as “mixed context-relative observational time-adverbs” (Fabricius-Hansen 1986) or “adverbs of the immediately adjacent distal future domain” (Hoffmann 1997).

In this study we will deal with the four most common adverbials of immediate posteriority of French and German, i.e. *immédiatement*, *tout de suite*, *gleich*, and *sofort*, as illustrated in (1) and (2) (cf. also Gast et al., forthcoming).<sup>2</sup>

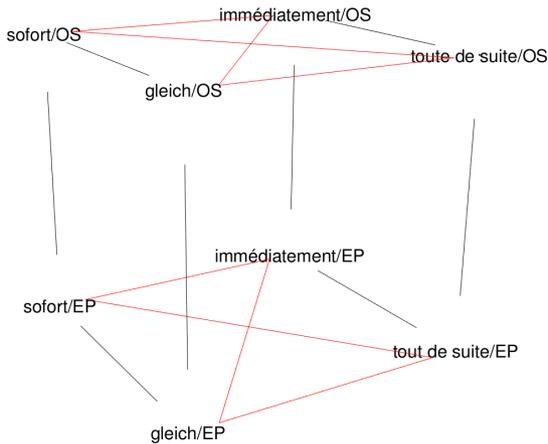
- (1) Je vais l’envoyer tout de suite [immédiatement].  
 “I’ll send it in a minute / immediately.” [OS]
- (2) Bin gleich [sofort] wieder da.  
 “I’ll be back right now / immediately.” [OS]

We address the following questions:

- What factors determine the distribution of *immédiatement* and *tout de suite* in French, and of *gleich* and *sofort* in German?
- What relationships of equivalence and what contrasts can be identified between French and German in the domain of investigation?

1 See for instance Ehrich (1992a, 1992b); Fabricius-Hansen (1986); Hoffmann (1997) and Breindl (2014) on German; Nøjgaard (1993), Borillo (2002) and Le Draoulec (2005) on French; Bertinetto (1991, 1997) on Italian; Harkness (1985) on English, and Carbonero Cano (1979) and Sonntag (2005) on Spanish.

2 Sources for examples from corpora are indicated in brackets: [OS] for the OpenSubtitles 2016 corpus (Lison and Tiedemann 2016) and [EP] for the Europarl corpus (Koehn 2005, Cartoni and Meyer 2012).



**Figure 1:** A three-dimensional comparison of adverbials of immediate posteriority

We investigate the distribution of the elements under study relative to the categories of tense, aspect and mood as well as five semantic or pragmatic variables: (i) the reference point, (ii) intentionality, (iii) the “controller” of the action, (iv) modality and illocutionary force, and (v) information structure. In order to identify register differences, we use two corpora, the Europarl corpus representing (more) formal language (Koehn 2005, Cartoni and Meyer 2012), and the OpenSubtitles 2016 corpus representing (more) informal language (Lison and Tiedemann 2016). The study is comparative in a three-dimensional way, as is illustrated in Figure 1. It implies:

- language-internal comparison: *gleich* vs. *sofort* and *immédiatement* vs. *tout de suite*;
- register comparison: Europarl vs. OpenSubtitles; and
- contrastive comparison: French vs. German.

We start in Section 2 with a brief description of the data, including the annotation process. Section 3 contains a survey of the parameters of variation potentially determining the distribution of adverbials of immediate posteriority, as well as some descriptive statistics for each variable. In Section 4, the results are presented and discussed. Section 5 contains some concluding remarks.

## 2. Data and Annotation

### 2.1 The Data

We used data from the Europarl corpus (Koehn 2005; Cartoni and Meyer 2012; Cartoni et al. 2013) and from the OpenSubtitles 2016 corpus (Lison and Tiedemann 2016). These corpora represent different registers: the Europarl corpus contains scripted political speech

and thus counts as a “formal” register, while the OpenSubtitles corpus contains scripted conversation and is thus more informal than the Europarl corpus.

With the exception of Germ. *gleich*, the adverbials under investigation exhibit a high degree of semantic specialization, and a corpus search will deliver only few false positives. For *gleich*, however, we had to distinguish the temporal adverb from the adjective *gleich* “identical”, and the temporal uses of the adverb from non-temporal/modal uses as illustrated in (3) (cf. König et al. [1990, 124ff] for uses of *gleich* as a particle).

- (3) Vorzugsweise Chicago oder Los Angeles, oder gleich Honolulu!  
 “Preferably Chicago or Los Angeles or (even) Honolulu!” [OS]

Modal uses of *gleich* do not have an equivalent in English. Roughly speaking, *gleich* is associated with high values on a scale (e.g. of unlikelihood), and is thus akin to scalar particles such as Engl. *even* (cf. Gast and van der Auwera 2011). These uses convey an element of immediacy because they suggest that some values on a scale  $\langle a, b, c \dots z \rangle$  are “skipped” (such as *Chicago* or *Los Angeles* in (3)). Modal uses of *gleich* are thus semantically related to temporal uses of this element, but have to be kept apart as they relate to another semantic domain.

Given the imbalance in polyfunctionality – and, hence, identifiability in a corpus – between *gleich* and the other adverbials, we started by extracting three random samples of 80 occurrences of *gleich*:

- a sample of from the Europarl corpus where *gleich* was used in the original;
- a sample from the Europarl corpus where *gleich* was used in a translation;
- a sample from the OpenSubtitles corpus where *gleich* was used in the original.

In each case, the French version of a sentence – the French translation in cases of original instances of *gleich*, and the French original in cases of translated instances of *gleich* – was also extracted. In order to distinguish temporal uses of *gleich* from non-temporal uses, the data was filtered manually. Adjectival uses were easy to identify, but the differentiation between temporal and modal uses required group annotation. This left us with 75 occurrences of *gleich* in original sentences from the Europarl corpus, 68 occurrences in translated sentences from this corpus and 55 examples of *gleich* in original sentences from the OpenSubtitles 2016 corpus.

In a second step we extracted samples of comparable size for the other markers, again manually filtering out examples which could not be used for some reason, e.g. because there was no translation, or the translation was misaligned. The data constituting the sample is shown in Table 1 (the arrow indicates whether the marker in question occurred in originals  $[x \rightarrow]$  or in translations  $[\rightarrow x]$ ).<sup>3</sup>

3 The data can be downloaded at <http://www.uni-jena.de/~mu65qev/data/index.html>.

|                    | <i>gleich</i> | <i>sofort</i> | <i>tout de suite</i> | <i>immédiatement</i> | $\Sigma$ |
|--------------------|---------------|---------------|----------------------|----------------------|----------|
| EP $x \rightarrow$ | 75            | 65            | 56                   | 63                   | 259      |
| $\rightarrow x$    | 68            | 70            | 52                   | 62                   | 252      |
| OS $x \rightarrow$ | 55            | 48            | 55                   | 43                   | 201      |
| $\Sigma$           | 198           | 183           | 163                  | 168                  | 712      |

**Table 1:** The sample used for the present study

## 2.2 The Annotation of the Data

The data was annotated by a team of five annotators using a web-interface (PHP) feeding into a relational database (MySQL). In this way each annotation decision was recorded separately. Annotators could log in and revise their annotations at any time during the annotation process, which took several weeks. A screenshot of the annotation interface is shown in Figure 2.

The screenshot shows a web-based annotation interface. At the top, there is a login section with a dropdown for 'Select annotator: logout', a password field, and a 'submit' button. Below this, the main interface is divided into two columns: 'original' and 'translation'. The 'original' column contains the French sentence: 'D'abord, on a l'habitude d'entendre dire que la PAC a atteint les objectifs d'autosuffisance fixés par le Traité. On songe alors immédiatement à la surproduction, aux retraits, à la jachère, à la chute des cours agricoles et pointants. Il faut bien le dire, tout cela ne reflète pas vraiment la réalité. L'Union est déficitaire pour certaines productions qu'elle pourrait très bien assumer elle-même.' The 'translation' column contains the German sentence: 'Man denkt dann sofort an Überproduktion. Zunächst einmal heißt es immer wieder, daß die GAP die im Vertrag festgelegten Ziele der Sicherung der Versorgung erreicht hat. Man denkt dann sofort an Überproduktion, an Stilllegungen, an Brechen, an den Verfall der Agrarpreise, doch muß hervorgehoben werden, daß das nicht unbedingt die Realität widerspiegelt. Bei bestimmten Produkten, die die Union durchaus in stärkerem Maße erzeugen könnte, wird der Bedarf nämlich nicht gedeckt.' Below the sentences, there is a section 'Can the example be annotated?' with radio buttons for 'y' and 'n'. The main part of the interface is a grid of dropdown menus for selecting grammatical features. The columns are labeled: 'alter', 'mod-fr', 'temp-fr', 'modal', 'pers', 'ref', 'int', 'modifiziert'. The rows are labeled: 'orig' and 'trf'. Each dropdown menu contains a list of grammatical categories and their corresponding forms. For example, 'alter' includes 'indicatif', 'subjonctif', 'conditionnel', 'impératif', 'infinitif', 'participe-présent', 'participe-passé'. The 'trf' row has a similar set of options. At the bottom right, there is a 'submit data set.' button.

**Figure 2:** The annotation interface

The annotation guidelines were gradually developed during separate pilot studies on the two corpora (Europarl and OpenSubtitles, cf. Atayan et al. 2018; Gast et al., forthcoming). During the annotation process there were regular meetings for the discussion of difficult annotation decisions.

## 3. The Variables

The previous research mentioned in Section 1, as well as our own pilot studies (Atayan et al. 2018; Gast et al., forthcoming), has shown that adverbials of immediate posteriority are sensitive to parameters of variation from various levels of linguistic analysis. First,

there may be associations with specific tense, aspect, and mood categories (cf. Atayan et al. 2018). For example, in the Europarl corpus, *gleich* tends to cooccur with indicative verb forms whereas *sofort* is more prone to be used in combination with infinitives and non-indicative mood forms. These morphosyntactic variables were not annotated jointly but by only two annotators, who reached a consensus about their annotation decisions. We used the traditional categories of French and German grammar, such as (the French) *passé composé*, (the German) *Präteritum*, etc.

As far as semantics and pragmatics are concerned, the following parameters have been shown to be potentially relevant to the distribution of adverbials of immediate posteriority in previous work (cf. Atayan et al. 2018, Gast et al., forthcoming):

- the reference point (Section 3.1);
- intentionality (Section 3.2);
- the “controller” of the action (Section 3.3);
- modality and illocutionary force (Section 3.4); and
- information structure (Section 3.5).

### 3.1 The Reference Point

Adverbials of immediate posteriority locate a situation in the immediate vicinity of another situation, or another point in time. Following Wunderlich (1970, 76), Fabricius-Hansen (1986, 176ff.) distinguishes between a deictic reference point, which coincides with the moment of utterance, and an anaphoric reference point, which is explicitly mentioned, or can be inferred from the context. The former type of reference point is illustrated in (4).<sup>4</sup>

- (4) deictic reference point  
 – Kommst du?  
 – Ja, gleich/sofort/bald/\*anschließend/\*daraufhin.  
 “Are you coming? – Yes, in a minute / immediately / soon / \*subsequently.”

An example of an anaphoric reference point is given in (5). The knocking event functions as a point of reference for the event of opening the door. We will call such cases “chronological”.

- (5) anaphoric reference point/event  
 Ich klopfte und er öffnete mir sofort die Tür.  
 “I knocked and he opened the door immediately.”

<sup>4</sup> Examples without an indication of the source are constructed.

Points in time can also function as anaphoric reference points for an event, cf. (6).

(6) anaphoric reference point / point in time

Gleich nach 9.30 Uhr verläßt der spanische Sozialist Manuel Medina Ortega den Plenarsaal.

“... just after 9.30 a. m. the Spanish socialist, Manuel Medina Ortega, leaves the floor of the Chamber.” [EP]

In some examples there are reference points that imply shifted deixis (“Deixis am Phantasma”, cf. Bühler 1934). In (6), for example, the action in question is proposed to take place *immédiatement*, relative to the moment of reported speech.

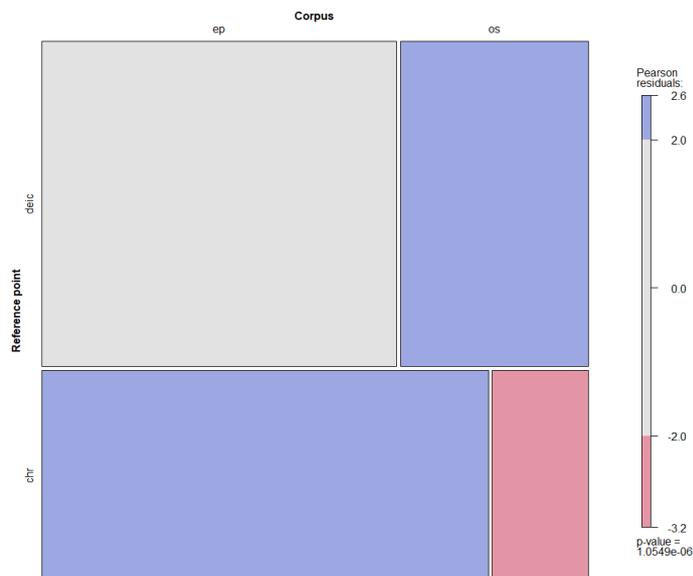
(7) shifted deixis

En France, par exemple, Jean-Marie Le Pen avait proposé d’assimiler immédiatement le régime des victimes du terrorisme à celui, rodé depuis longtemps, des victimes de guerre.

“In France, for example, Jean-Marie Le Pen had proposed to place, from the outset, the scheme for victims of terrorism in the same category as the long-established scheme for victims of war.” [EP]

The inter-annotator agreement for the variable “reference point” varied minimally with the corpus, with  $\kappa$ -values of 0.6 and 0.58 for the OpenSubtitles and the Europarl corpus, respectively. These values are located at the borderline of “weak” and “moderate” agreement, according to McHugh (2012). As a general tendency, deictic contexts are relatively easy to identify, and it is the differentiation between the two types of chronological contexts, and the (relatively rare) cases of deictic shift, that pose major challenges. We therefore decided to subsume cases of deictic shift under “chronological”. Note that it might be surprising that we subsume deictic shifts under the chronological, rather than the deictic cases, as their name suggests otherwise. However, deictic shifts – at least in the context of the corpora that we used, specifically in the Europarl corpus – mostly imply indirect speech and are hence linked directly to an event, the event of speaking. It was also noticeable that disagreement between annotators with respect to such cases was mostly between deictic shift and chronological cases, rather than (direct) deictic ones. After releveling the data in this way, the  $\kappa$ -value rose to 0.71, well in the range of “moderate” agreement, which we consider acceptable.

The mosaic plot (cf. Friendly 1994) in Figure 3 shows the frequencies of deictic and chronological cases in the two corpora. Both corpora exhibit a tendency towards deictic uses, but these uses are significantly more prevalent in the OpenSubtitles corpus than in the Europarl corpus ( $p < 0.01$ ).



**Figure 3:** Distribution of major reference point categories over the corpora

### 3.2 Intentionality

Adverbials of immediate posteriority may exhibit restrictions relating to the degree of intentionality associated with a predicate. For example, Germ. *sofort* and Fr. *tout de suite* seem to be compatible with intentional actions only when occurring with a deictic reference point, cf. (8).<sup>5</sup>

- (8) Oh, Gott! Es explodiert gleich [/\*sofort]! Lauf!  
 “Oh my God! It’s gonna blow! Run!” [OS]

In non-intentional actions, adverbials such as *sofort* can occur only if the context suggests intentional control over a non-intentional event (e.g., the generator is ready for operation in (9)):

- (9) – Turner, wieso läuft das Ding noch nicht?  
 – Bin gerade eingetroffen, Sir. Der Generator ist gleich [/sofort] betriebsbereit.  
 “– Turner, why is this thing not running? – I only just arrived, Sir. The generator will be operational in a moment.” [OS]

In anaphoric contexts, *sofort* can be used in combination with non-intentional predicates. In this respect it differs from other comparable adverbials, such as *unverzüglich*, cf. (10).

<sup>5</sup> In corpus examples, material in brackets has been added by us.

(10) Zuerst werden sie die Kanonen kontrollieren und mein Zeug finden. Sie sind nicht dumm. Wenn sie allerdings beim Entfernen unvorsichtig sind, knallt es sofort [/\*unverzüglich].

“They will first control the cannons, and find my stuff. They’re not stupid. But if they’re not careful removing the stuff, the thing will blow up immediately.” [OS]

We coded the host predicates of adverbials of immediate posteriority in a binary way. Coders only had a choice between TRUE (intentional) and FALSE (non-intentional). The inter-annotator agreement was surprisingly low, with  $\kappa = 0.46$ , even after repeated adjustments of the annotation guidelines.

The difficulties of determining the intentionality of an action can be illustrated with (11). To what extent the action is intentional or not depends on what is coded – the burglar’s breaking into the house, or the resident’s experiencing that action.

(11) Sie kriegen gleich Besuch von einem Einbrecher.

“You’re going to get a visit from a burglar in a minute.” [OS]

Given that releveling was not an option (as the variable was binary already), we decided to discard “intentionality” as a factor for our study. We believe that this will hardly influence the results, for two reasons. First, contexts of the type illustrated in (8) occurred very rarely in our data; and second, the variable “controller”, discussed in the next section, captures similar information.

### 3.3 Controller of the Action

In using the term “controller” we refer to the argument with the highest position on the Thematic Role Hierarchy (or “Actor-Undergoer Hierarchy”) as assumed by Van Valin (1990, 226), cf. (12).

(12) Thematic Role Hierarchy

Agent > Effector > Experiencer > Location > Theme > Patient

Note that the controller is not necessarily identical to the subject referent. In some cases, there is no subject referent to begin with, cf. (13).

(13) – Morgen hab ich keine Zeit.

– Jetzt gleich?

“– I have no time tomorrow. – What about (right) now?” [OS]

Secondly, in other cases, there is a syntactic subject, but it is not the controller. This situation is obviously found in passive sentences, cf. (14).

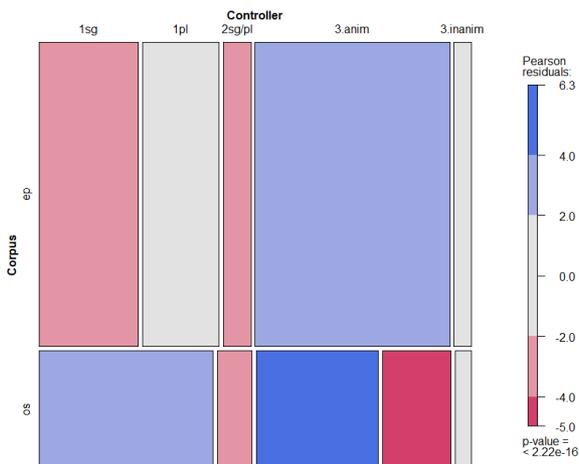
- (14) Ich finde es bitter, wenn man Reformvorschläge macht, dass die gleich immer so abgeblockt und mit etwas anderem in Bezug gebracht werden.  
 “It is a bitter experience, when one makes reform proposals, to find that others are constantly blocking them with reference to something else.” [EP]

In such cases, when the Agent is not specified, it has to be inferred. In (14) the action can probably be attributed to other members of the European Parliament.

We used the whole range of person/number combinations as levels of the variable “controller”, plus three types of third person forms, “animate-impersonal”, “animate-unspecified”, and “inanimate”. With a  $\kappa$ -value of 0.69, the inter-rater agreement was reasonable. Because of the relatively low number of some of the levels, we lumped the data into five categories, however:

- first person singular;
- first person plural;
- second person singular or plural;
- third person animate; and
- third person inanimate.

After releveling the data in this way, the inter-rater agreement was even higher, at  $\kappa = 0.77$ . The distribution of the person/number categories over the two corpora is shown in Figure 4. As the diagram shows, the Europarl corpus contains a comparatively high number of third person controllers, whereas in the OpenSubtitles corpus the first and the second person are more prominent.



**Figure 4:** Distribution of the controller categories over the corpora

### 3.4 Modality and Illocutionary Force

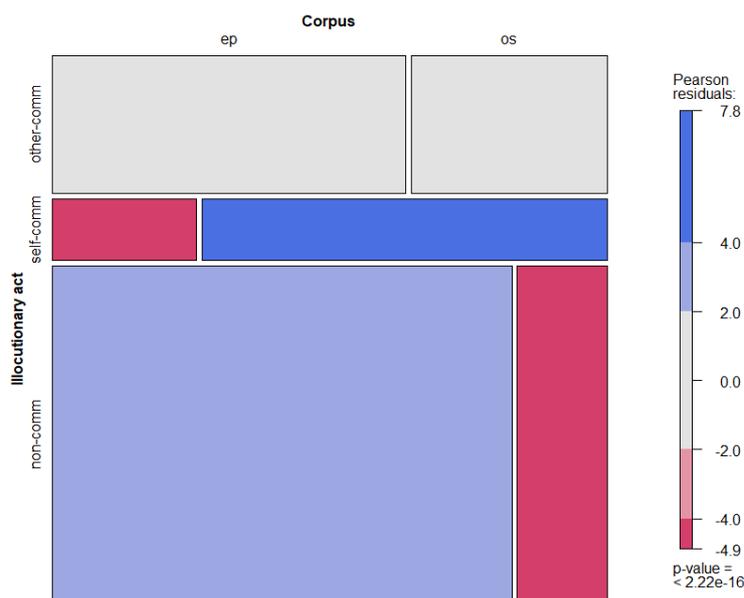
Our pilot studies (Atayan et al. 2018, Gast et al., forthcoming) have shown that adverbials of immediate posteriority are sometimes sensitive to modality and the type of illocutionary act carried out in the relevant utterance. As we were interested in context features, rather than morphosyntactic categories, the two dimensions – modality as a property of propositions, and illocutionary force as a property of utterances – were hard to keep apart, and we started with a somewhat impressionistic coding scheme comprising the following levels:

- directive/request
- commissive/threat
- warning
- representative:
  - o possibility/ability
  - o inference/supposition
  - o necessity
  - o non-modal

Moreover, there were cases where no value could be determined for modality or illocutionary force, e.g. in elliptic sentences such as exclamations.

Coding utterance type/modality was obviously non-trivial, as these categories leaves some room for interpretation. With all levels taken into consideration, the inter-rater agreement was at the borderline between “weak” and “moderate” ( $\kappa = 0.59$ ). Moreover, inspection of the data revealed that the main sources of disagreement were speech act related, rather than being located at the propositional level. We therefore decided to focus on the distinction between three types of illocutionary acts. These illocutionary acts were distinguished depending on whether or not a “commitment” is established, and on what participant that commitment is imposed: (i) Searle’s (1976) “directives” (including requests), also called “other-commissive” by us, (ii) Searle’s (1976) “commissives” (including threats and warnings), also called “self-commissive” by us, and (iii) Searle’s (1976) “representatives”, also called “non-commissive” by us. The two other major categories distinguished by Searle (1976), declarations and expressives, did not occur in our data (and they are hardly compatible with the semantics of immediate posteriority). After releveling the data in this way, the  $\kappa$ -value rose to 0.63. While this value is not particularly high, is at least located in the range of “moderate” agreement, according to McHugh (2012), which we consider acceptable.

Figure 5 shows the distribution of the illocutionary force categories distinguished above over the two corpora. Not unexpectedly, the OpenSubtitles corpus contains more instances of self-commissives, whereas the Europarl corpus is largely non-commissive, in comparison to the OpenSubtitles corpus.



**Figure 5:** Illocutionary force and corpus

### 3.5 Information structure

Information structure has been shown to be a relevant factor in the use of adverbials of immediate posteriority, cf. for instance Blumenthal (1975, 306, 315) and Schrott (1997, 393) with respect to the tendency for *tout de suite* to be rhematic, in contrast to other relevant elements (e.g. *après*, which is always thematic, and *bientôt*, which does not exhibit any distributional preference along this dimension). Similarly, German *sofort*, unlike *gleich*, seems to be invariably rhematic, cf. (15) (cf. also Atayan et al. 2018; Gast et al. forthcoming).

- (15) Zehn Sekunden, ja? Letzter Satz. Und das war Britney Spears! Und gleich [/\*sofort] kommt die Happy Hour mit Knut vom Tower.  
 “Ten seconds, ok? Last sentence. And that was Britney Spears! And next up is the Happy hour with Knut from the Tower.” [OS]

Again, there are interactions between the variables. The restriction of *sofort* to rhematic contexts applies only to the deictic use of this element, while in anaphoric contexts thematic uses are available, cf. (16).

- (16) Das ist aber viel Geld. Damit könnte ich mir jetzt ein Bein brechen und sofort in den Ruhestand gehen.  
 “That’s a lot of money. I could break a leg with that and retire immediately.” [OS]

For French *tout de suite* similar uses can even be found in deictic contexts – see (17).

(17) Et tout de suite Gilles Halais avec les dernières informations.

“And now, Gilles Halais with the latest news.”

[heard by V. Atayan on Radio France Info]

Even though (specific) adverbials of immediate posteriority are thus sensitive to matters of information structure, such effects are relatively marginal on the whole, specifically in our data. Thematic uses of adverbials of immediate posteriority are very rare overall. Moreover, our pilot studies showed that the annotation of information structural categories is rather unreliable (cf. Gast et al., forthcoming). We therefore excluded this variable from the quantitative analysis.

#### 4. Results

As mentioned in Section 2.2, the data was annotated by five annotators. Some annotation decisions were subjective. Rather than regarding these variables as categorical, we therefore used proportions as the data underlying our analysis. For example, if four of five annotators coded a given observation as having the value “chr” (chronological) for the category “ref” (reference), while one annotator coded it as having the value “deic”, this observation was treated as being to 80% “chr”, and to 20% “deic”. Technically, the relevant variables were transformed into dummy variables. The data is thus not structured as shown on the left hand side of Table 2, it has the structure shown on the right hand side of this table.

|               | ref  | ref:chr | ref:deic |
|---------------|------|---------|----------|
| observation 1 | chr  | 0.8     | 0.2      |
| observation 2 | chr  | 1.0     | 0.0      |
| observation 3 | deic | 0.2     | 0.8      |

**Table 2:** Structure of annotated data (hypothetical observations)

##### 4.1 Identifying the Most Important Predictors

In order to determine what (semantic, pragmatic, morphosyntactic) variables correlate most with the distribution of adverbials of immediate posteriority – in order to determine the best predictors – we fitted a random forest model using the R-package partykit (Zeileis et al. 2008). We fitted a model for each language/corpus combination separately, as the predictors may of course vary between languages, and between corpora. We used a sample size of six for each iteration (there are thirteen predictor variables) and 2,000 iterations. The results are shown in Figures 6 and 7.

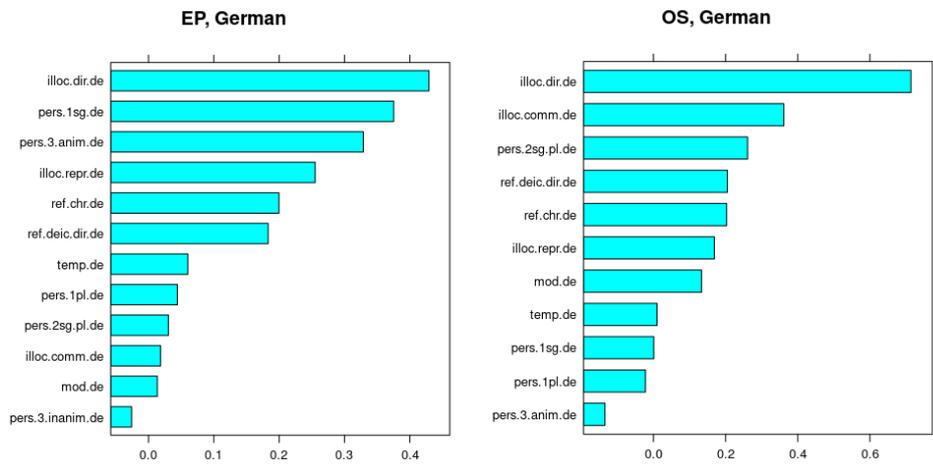


Figure 6: Random forests for the Europarl data (variable importance)

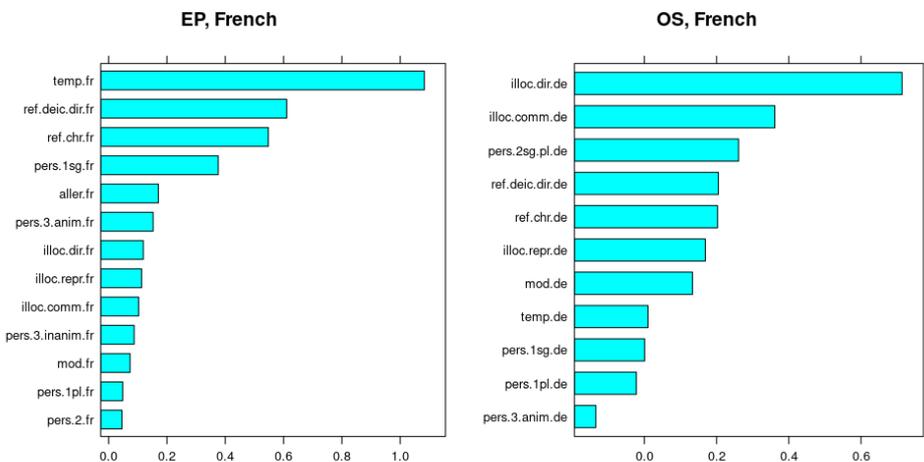
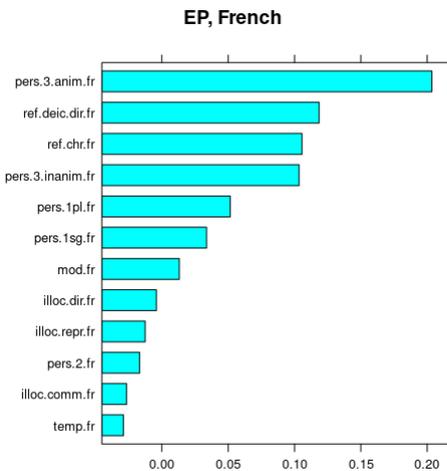


Figure 7: Random forests for the OpenSubtitles data (variable importance)

The most striking fact about the influence of variables on the choice of a given adverbial of immediate posteriority is that the French Europarl data differ from both German datasets, and from the French OpenSubtitles dataset, in that the category of tense is the strongest predictor. For the other language/corpus combinations, tense (as well as mood) has hardly any influence. In order to get an idea of the associations between French tense forms and adverbials of immediate posteriority in the Europarl corpus, we inspected the data, finding a strong association between one specific marker, *tout-à-l'heure*, and the future tense. As

this seems to be a fact about *tout-à-l'heure* rather than the French system of expressing immediate posteriority, we decided to disregard markers like *tout-à-l'heure* and used only *immédiatement* and *tout de suite* for the identification of good predictors (remember that adverbials other than these are only represented in the sample of original data because we also extracted instances of Germ. *gleich* and *sofort* in translations from French; the overall frequencies of elements other than *immédiatement* and *tout de suite* are relatively low). The influence of tense on the choice of French adverbials disappears when we fit a random forest model with *immédiatement* and *tout de suite* only, see Figure 8.



**Figure 8:** Variable importance for French/Europarl (*immédiatement* and *tout de suite*)

Given that the random forest models show the reference point, illocutionary force, and the controller to be the most important predictors, we focus on these variables in the following.

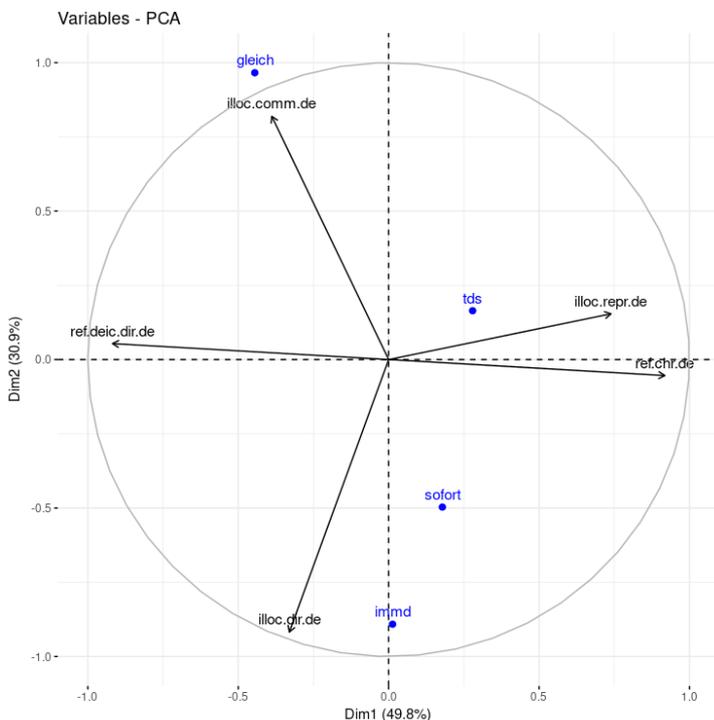
## 4.2 Determining Associations Between Variables

In order to understand the associations between the variables under analysis, we will apply Principal Component Analysis as implemented in the R-package FactoMineR (Lê et al. 2008) and the additional package factoextra (for visualizations, Kassambara and Mundt 2017). Given that the variable importance values are, by and large, comparable for French and German, we will map all adverbials to the same distributional space. We will keep the two corpora separate, however. As we want to locate the adverbials under analysis relative to an independently determined semantic space, the distributional variables will be active, while the adverbials will be treated as supplementary variables, i.e. they have no effect on the constitution of the (semantic) space. Only data from originals has been used for this analysis.

We will consider models with only two active variables in Sections 4.2.1–4.2.3 before looking at the joint influence of the three factors “reference point”, “illocutionary force” and “controller” in Section 4.2.4.

#### 4.2.1 Reference Point and Illocutionary Force

The result of the Principal Component Analysis with the two active variables “reference point” and “illocutionary force” for the OpenSubtitles corpus is shown in Figure 9. As we only extracted original examples containing one of the four markers under analysis from this corpus, these markers are the only items on the map.<sup>6</sup>

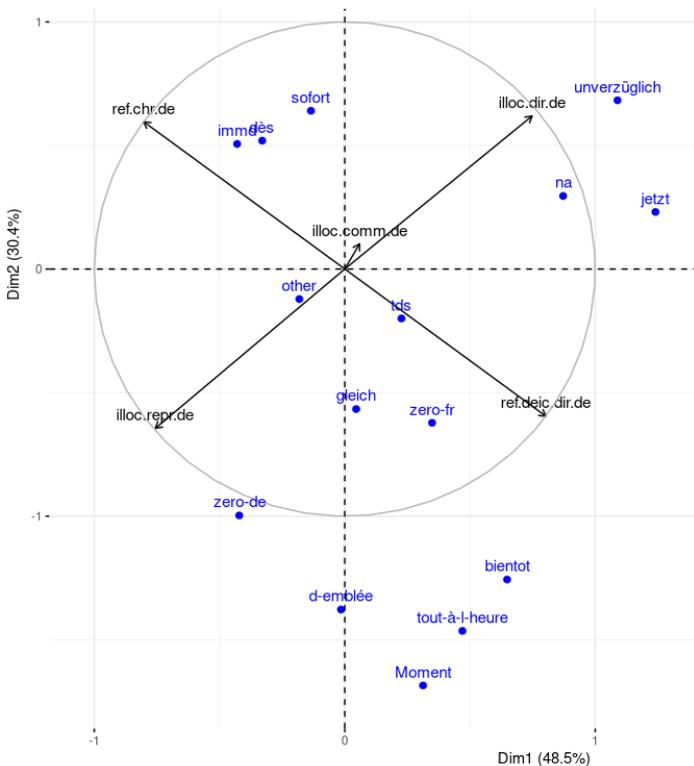


**Figure 9:** Principal Component Analysis: Illocutionary force and reference point as predictors [OS]

6 The semantic/pragmatic variables carry a suffix “.de” because we annotated the German and French sentences independently. The annotations were mostly identical, but in cases of substantial reformulation, there may be discrepancies. For the Principal Component Analyses, we (arbitrarily) used the annotations of the German data. The format of the variables and their values is thus “variable.value.language”. *Tout de suite* is abbreviated as “tds”, *immédiatement* as “immd”.

The distribution of the four adverbials under study relative to the two variables “illocutionary force” and “reference point” is very clearly differentiated. *Gleich* is strongly associated with (self-)commissive illocutionary force. *Immédiatement* and *sofort* lean towards directive (other-commissive) illocutionary force, *immédiatement* to a greater extent than *sofort*. *Tout de suite* is relatively neutral, with a certain affinity to representative (non-commissive) illocutionary force.

Compare the OpenSubtitles data displayed in Figure 9 to the distribution of the adverbials in the Europarl corpus as shown in Figure 10. This plot contains more adverbials because we extracted both original and translated sentences from the Europarl corpus (cf. Section 2.1). In addition to original examples containing *tout de suite*, *immédiatement*, *gleich* and *sofort*, those adverbials occurring in the originals of the translated sentences with *gleich*, *sofort*, *immédiatement* and *tout de suite* enter the picture. For example, if *gleich* was used in a translation of a French sentence containing *bientôt*, the latter adverbial will appear in the sample of French originals.



**Figure 10:** Principal Component Analysis: Illocutionary force and reference point as predictors [EP]

(Self-)commissive illocutionary force hardly plays any role in the diagram in Figure 10. *Immédiatement* and *sofort* are located in the upper half of the plot, which is associated with directive (other-commissive) illocutionary force and chronological reference points, but they are both much closer to “chronological” than they are to “directive”. *Gleich* is on the opposite side of the x-axis, attracted by representative (non-commissive) illocutionary force and deictic reference points. *Tout de suite* is, again, relatively neutral, being located more or less in the centre of the plot.

There is an additional observation worth mentioning about Figure 10. In addition to the “overt” markers of immediate posteriority, there are also “zero”-strategies for both languages. This is, again, a result of the method of data extraction, as originals translated using one of the adverbials under analysis may contain no overt indicator of immediate posteriority at all. Such “zero marking” is comparatively prominent in French, where the zero strategy covers approximately twelve percent of the entire dataset. It shows a strong association with deictic reference points. In some cases where German uses an adverbial of immediate posteriority while French does not we find a periphrastic tense form with *aller*, cf. (18). In other cases there is no overt indication of immediacy at all, cf. (19).

(18) a. Ich danke Ihnen für die Debatte, und ich hoffe, wir haben gleich eine gute Abstimmung.

b. Je vous remercie pour ce débat et j’espère que le résultat du vote qui va avoir lieu sera positif.

“I thank you for the debate and I hope that the vote which is about to take place will go well.” [EP]

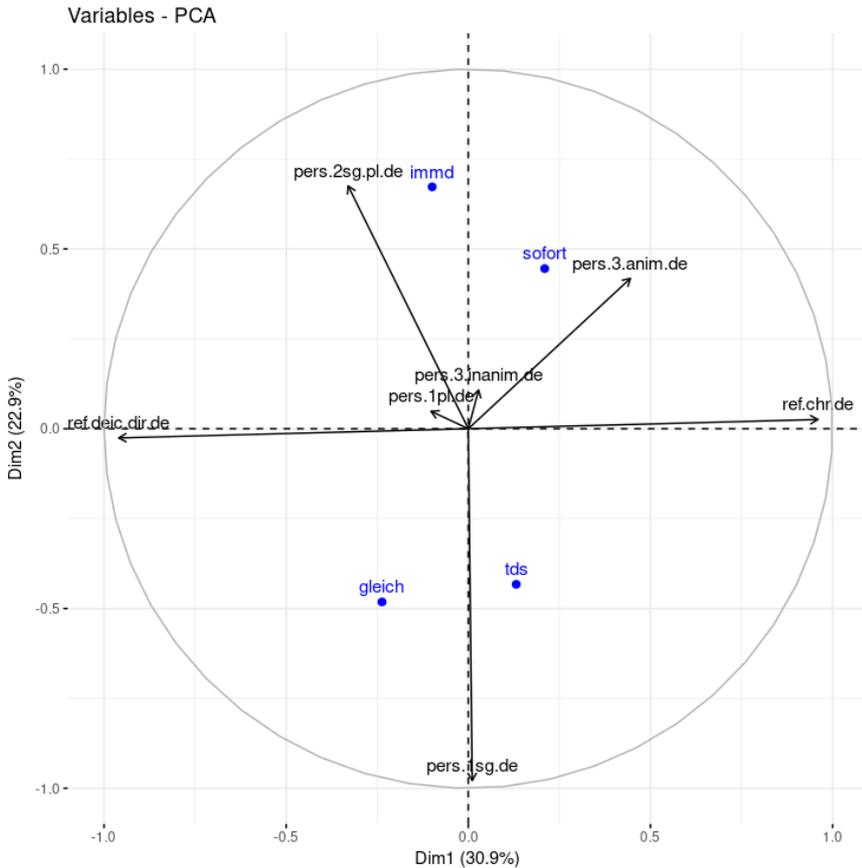
(19) a. Ich komme gleich nochmal darauf zurück.

b. J’y reviendrai.

“I’ll return to this point in a minute.” [EP]

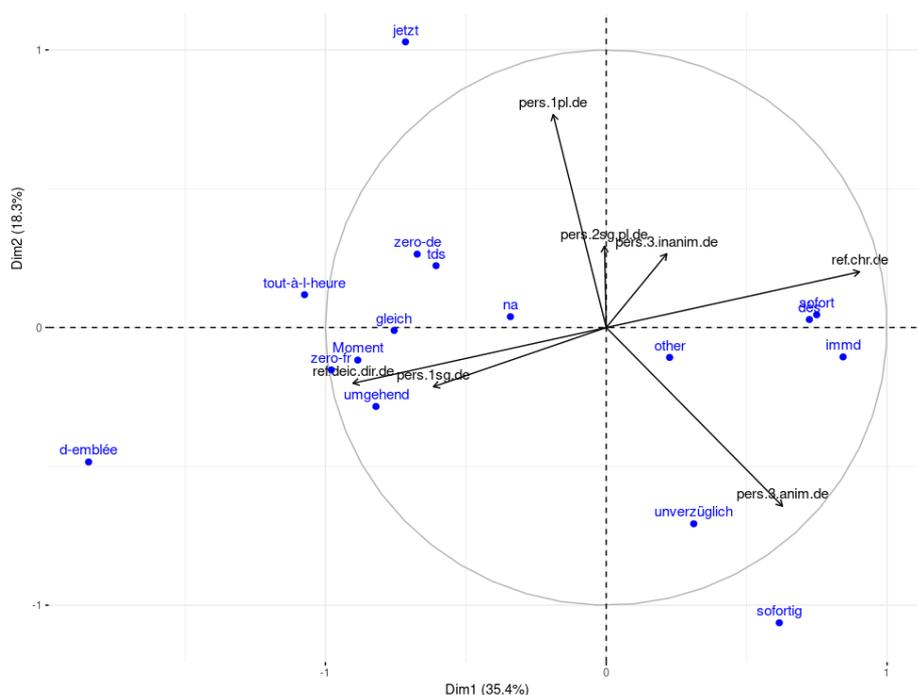
#### 4.2.1 Reference Point and Illocutionary Force

The results of the Principal Component Analysis for the OpenSubtitles data is shown in Figure 11.



**Figure 11:** Principal Component Analysis: Controller and reference point as predictors [OS]

*Gleich* und *tout de suite* are located in the lower half of the diagram in Figure 11, both attracted by the first person singular. *Gleich* is pulled in the direction of a deictic reference point; *tout de suite* is somewhat closer to the chronological uses. The two markers in the upper half are attracted by different types of controllers – *immédiatement* by the second person, *sofort* by the third person (animate). This is not too different in the Europarl data, see Figure 12.

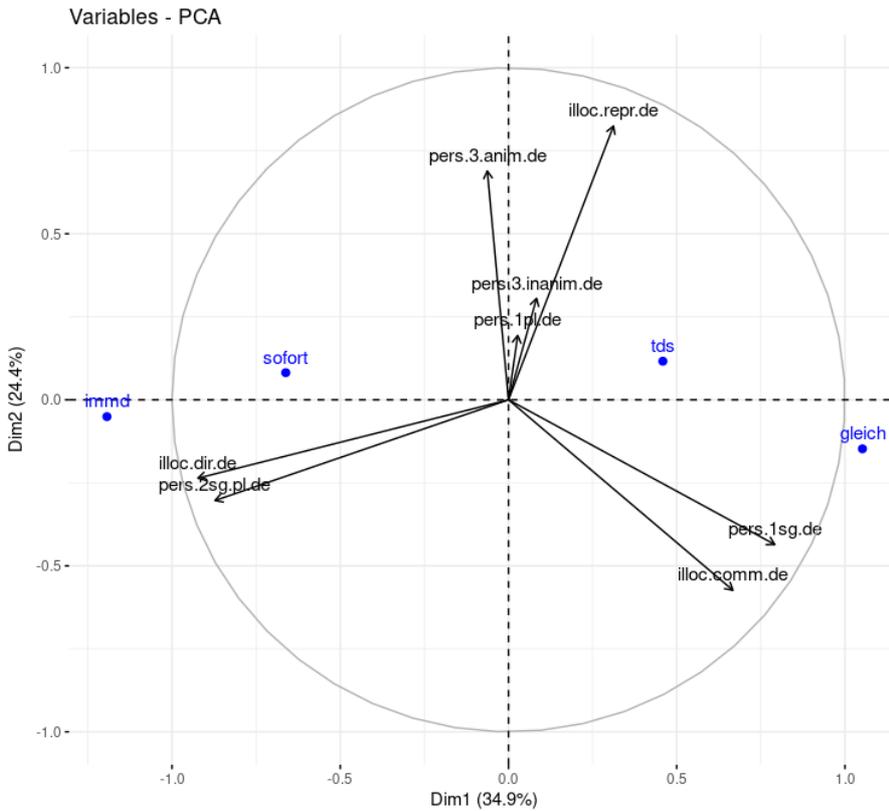


**Figure 12:** Principal Component Analysis: Controller and reference point as predictors [EP]

*Gleich* and *tout de suite* are close to the first person in Figure 12. However, *immédiatement* and *sofort* behave differently than in the OpenSubtitles data. They are both strongly associated with chronological uses and do not seem to be attracted significantly by any person category, though they are diametrically opposed to the first person. The zero strategy of French is strongly attracted by deictic reference points and the first person.

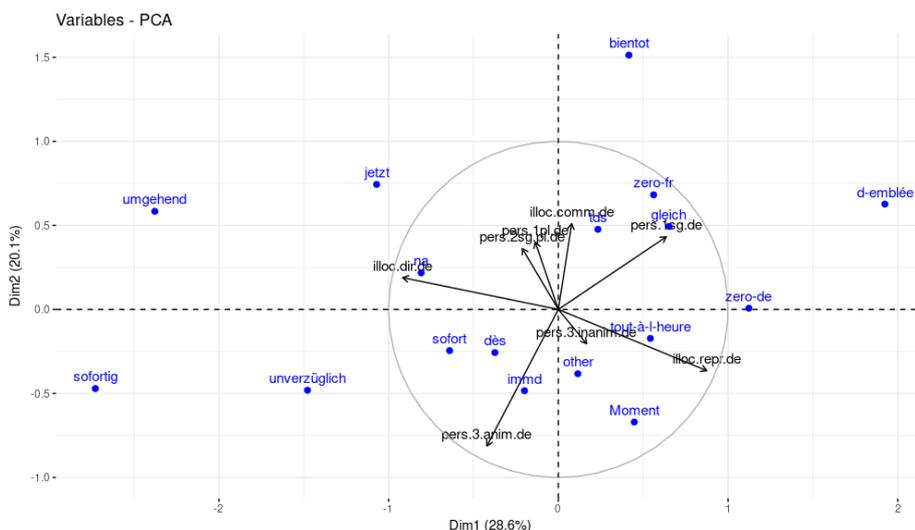
#### 4.2.1 Controller and Illocutionary Force

Figure 13 shows the associations between the levels of the variables “controller” and “illocutionary force” and the choice of an adverbial of immediate posteriority. The plot confirms the association between *gleich* and the first person as well as commissive illocutionary force pointed out above. *Immédiatement* and *sofort* are located in the directive / second person corner, *immédiatement* more so than *sofort*; and once again, *tout de suite* is relatively centrally located, i.e. semantically neutral.



**Figure 13:** Principal Component Analysis: Controller and illocutionary force as predictors [OS]

The situation in the Europarl corpus is, again, comparable as far as *gleich* and *tout de suite* are concerned, but *immédiatement* and *sofort* behave a bit differently, insofar as they are attracted by the third person and directive illocutionary force (cf. Figure 14). The French zero-strategy is close to *gleich*, showing a certain affinity to the first person.



**Figure 14:** Principal Component Analysis: Controller and illocutionary force as predictors [EP]

#### 4.2.1 Reference Point, Illocutionary Force and Controller

As the final step of this investigation, we will inspect two PCA-plots with three active variables, one for the Europarl data and one for the OpenSubtitles data. This will allow us to determine the joint influence of the three variables. Figures 15 and 16 visualize the distributions for the OpenSubtitles corpus and the Europarl corpus, respectively.

Both diagrams confirm the strong tendency observed above for *gleich* to be attracted by the first person. In the OpenSubtitles corpus *gleich* is moreover associated with commissive illocutionary force. Both diagrams show a relatively central position for *tout de suite*, though it is located in different sectors of the plots. In the Europarl data, *tout de suite* looks like a “weaker” version of *gleich*, with a certain affinity to the first person and deictic reference points. In the OpenSubtitles data it is also comparatively close to the first person, but quite remote from deictic reference points.

*Immédiatement* and *sofort* show more differences in their distribution relative to the two corpora. In the OpenSubtitles corpus, *immédiatement* is associated with directive illocutionary force and, accordingly, second person controllers. *Sofort* looks like a less extreme version of *immédiatement*. Both adverbials have rather different profiles in the Europarl corpus, where they are both primarily associated with chronological reference points and third person controllers – *immédiatement* being located more in the chronological region, *sofort* being closer to the third person controllers. The zero strategy of French is attracted by the first person.

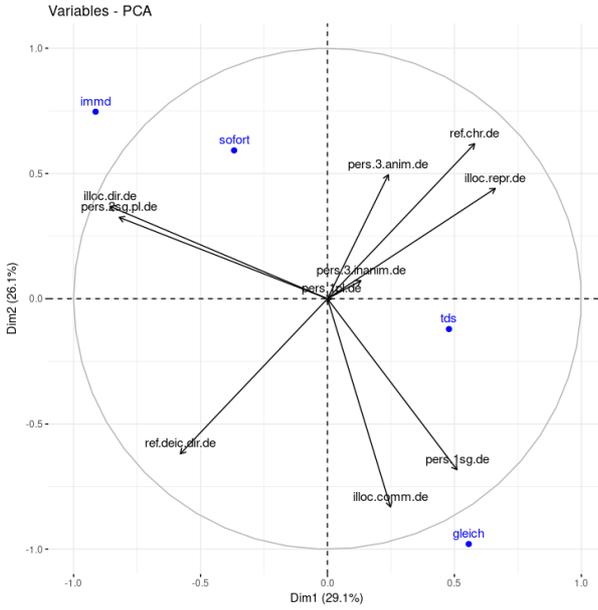


Figure 15: Principal Component Analysis: All predictors [OS]

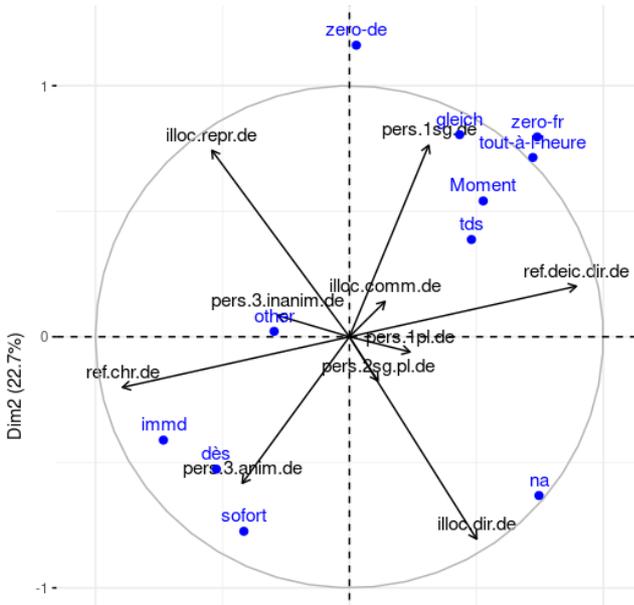


Figure 16: Principal Component Analysis: All predictors [EP]

#### 4.1 Summary and Discussion

Let us begin by summarizing some observations that seem to be more or less independent of the variable “corpus” and, hence, independent of questions of register or style.

*Gleich* was shown to be invariably attracted by the first person. In the OpenSubtitles corpus this often comes with commissive illocutionary force, while in the Europarl corpus there does not seem to be a positive association with any particular illocutionary force. This difference is certainly related to the relative overall rarity of commissive speech acts in the latter corpus. Like *gleich*, *tout de suite* showed relatively weak register effects. In both corpora under analysis, it has a comparatively neutral distribution, which is reflected in its often being located in the centre of the plots. Like *gleich*, *tout de suite* shows an association with the first person, which seems to be weaker than that of *gleich*, however. This difference may be related to the more frequent use of the zero strategy in French, which often comes with the first person and deictic reference points, thus being even closer to German *gleich* than *tout de suite*.

Turning to the two markers showing stronger register effects, *immédiatement* is primarily associated with directive illocutionary force in the OpenSubtitles corpus, while in the Europarl corpus it is primarily used in combination with chronological reference points and the third person. A similar tendency can be observed for *sofort*. This relatively clear-cut differentiation is particularly interesting in view of the distributional restrictions pointed out in Section 3.2. Remember that *sofort* cannot combine with non-intentional predicates when relating to a deictic reference point, while this is possible in chronological uses. The question arises to what extent there are two “versions” of *sofort*, and perhaps of *immédiatement* – an “interactive” use and a “narrative” one. Given our data it seems not unlikely that the two uses are associated with different registers, the interactive use with a more informal register and the narrative use with a more formal register.

We have seen that the zero-strategy deserves some attention, specifically in French. A significant number of instances of *gleich* were not rendered using an explicit marker of immediate posteriority in French. One way of looking at this contrast between French and German is to relate it to the generally greater tendency of German to use particles, which sets it apart from other Western European languages. The difference may also be related to other properties of the linguistic systems, such as the marking of aspect and perhaps the lexical encoding of actionality (aktionsart). A form such as *j’arrive* “I’m coming” may convey more telicity than the German (near) equivalent *ich komme*, and telicity itself can be regarded as a cue of immediacy. This hypothesis would have to be considered in the broader context of tense and aspect marking and has to remain a suggestion for future research at this point.

A final remark should be made about the different “ecologies” of the French and German systems of marking immediate posteriority. German combines one highly specific adverbial – *gleich*, which tends to co-occur with the first person – with the somewhat more generic *sofort*, which exhibits two more or less independent distributional

preferences, directive illocutionary force in interactive contexts and chronological reference points in narrative contexts. In French, the situation is reversed insofar as the more interactive marker – *tout de suite* – has a broader distribution, whereas *immédiatement* seems to be more specialized, again with a certain differentiation into interactive and narrative uses. The apparent absence of a “first person” adverbial such as Germ. *gleich* in French may be misleading, however, as the zero strategy seems to cover exactly that ground, and perhaps the widespread use of that strategy – potentially related to more general properties of the aspectual system of French – in turn, restricts the use of *tout de suite*. We should mention, however, that we only have relatively little information about the zero strategy, as it only came into the picture in those cases where a German marker was present in the translation and we coded the corresponding expression used in the original sentences. Moreover, we do not have any data on the zero strategy from the OpenSubtitles corpus. A more comprehensive investigation of this strategy is one of the major desiderata emerging from our study.

## 5. Concluding Remarks

Adverbials of immediate posteriority represent a complex problem of language description and analysis, as they are located at the interface of denotational meaning and interactive function. With the present study we have intended to shed some light on the quantitative distribution of these elements. The comparison between French and German not only leads to some relevant contrastive observations but also opens up new perspectives on each individual language.

The quantitative study of language in use, to the extent that it refers to aspects of semantics and pragmatics that are not encoded “at the surface”, requires “rich” manual annotations. The complexity and sometimes subjectivity of such annotations, in turn, require ways of making sure that some level of reliability is reached – for example, through regular meetings with the annotators and the discussion of individual annotation decisions. While this may be a considerable investment, it seems to us that the process of annotation itself has some interesting side effects, e.g. insofar as it requires us to analyse individual examples at a high level of granularity, which often, in itself, leads to new insights and changes our perspective on the phenomenon under study.

Beyond the more specific observations concerning the expression of immediate posteriority reported in Section 4, we thus hope to make a methodological contribution with the present study. The increasing availability of computational methods allowing us to deal with large datasets is a great asset for linguistic research which has led to fascinating results; we should not, however, underestimate the potential of “high-resolution” research, which we regard as standing in a complementary, and mutually beneficial, relationship to the “big data” approaches relying on large, but mostly unannotated datasets.

As a final remark, we should mention that we have only partially analysed the dataset so far. Specifically, we have not addressed the question of specific translation

equivalences in this study, though some steps towards the analysis of immediate posteriority in translation have been taken in Atayan et al. (2018) and Gast et al. (forthcoming). This item is, obviously, on our agenda for the near future.

### Acknowledgements

We thank the audience of the Thematic Session on “Empirical approaches to contrastive linguistics and translation studies” at the Olinco conference 2018 (Palacký University Olomouc, June 7–9, 2018) as well as the editors of this volume for valuable comments and suggestions. Any inaccuracies are of course our own responsibility.

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# “Argumentation Signals” as a Tough Translation Task. Translation of the Connector *zumal* and of the Phrase *da ja* from German to Czech in Argumentative Texts

Marie Krappmann

Palacký University, Olomouc, Czech Republic

marie.krappmann@upol.cz

**Abstract:** The paper will use a comparative approach to focus on two linguistic argumentation signals: the causal connector *zumal* and the phrase *da ja* composed of the causal connector *da* and the particle *ja* in German and their counterparts in Czech. The analysis is based on two assumptions: a) The linguistic construction of arguments has an essential impact on their identification and potential (Anscombe 1983; Ducrot 1993; Atayan 2006); b) The argumentation structures are one of the parameters of equivalence in translation (Atayan 2007). The function of *zumal* and *da ja* as argumentation signals and the possibility of their transfer from German to Czech will be examined in three subsequent partial analyses to which the methodological approaches are adapted.

**Keywords:** Argumentation Structures; Translation; Equivalence; Connectors; Particles

## 1. Introduction

In the following analyses I would like to focus on one parameter of equivalence,<sup>1</sup> namely the structures of argumentation. Although the structures of argumentation have been

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1 For the definition and function of the parameters of equivalence cf. Gerzymisch-Arbogast (2001).

intensively examined from different perspectives<sup>2</sup> and discussed in the context of Translation Studies as well,<sup>3</sup> they rarely have been considered as a candidate for a parameter of equivalence in the process of translation. The slightly growing interest in this eventual parameter might be seen as a result of the increasing interconnection between Text Linguistics, Argumentation Studies and Translation Studies (cf. Eggs 1994, 2000; Adam 2004, 2005; Atayan 2006, 2007). In my paper I would like to examine two German connectors with regard to their argumentative potential and analyze the shifts which the argumentative value undergoes while translated into Czech. I will analyze the function of *zumal* and *da ja* as argumentation signals<sup>4</sup> and the possibility of their transfer from German to Czech in three partial analyses which are based on the following questions:

i. What argumentation structures are signaled by the two linguistic devices in the source text? I assume that the use of the two signals in argumentations causes the reduction (shortening)<sup>5</sup> of the superficial linguistic structure of the argumentation. In the case of *zumal*, the shortening is carried out by the connector, while in the case of *da ja*, it is rather the particle *ja* that could be interpreted as the minimal argumentation form. *ja* tends to connect with causal connectors in argumentative texts. I have selected the connector *da*, as it shows certain specifics<sup>6</sup> and it is often presented simply as a synonym of *zumal*.<sup>7</sup>

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2 For a detailed survey on the development of the analysis models within Argumentation Studies cf. Wohlrapp (2008, 22–42); Kienpointner (1992, 187–230); van Eemeren Frans H. et al. (1996, *passim*).

3 This has been done in different contexts, e.g. within the research on: the macrostructures of argumentation (cf. Atayan 2006); the microstructures of argumentation (cf. Negroni 1995); the new rhetorical models (cf. Grote, Lenke and Stede 1997); the research on particular argumentation signals such as particles (Settekorn 1977; Rinas 2006; Müller 2018).

4 In literature on argumentation, these linguistic devices are usually termed as “argumentation signals” or “argumentative indicators” (cf. e.g. Rudolph 1983; Bayer 1999; Brun and Hirsch Hadorn 2014). These terms are actually not really accurate, since the connector *zumal* and the phrase *da ja* not only “signalize” the argument but also specify its value (cf. the notion of “minimale Argumentationsformen” introduced by Settekorn 1977).

5 Argumentations in authentic texts often are essentially shortened in comparison to their underlying logical patterns (cf. e.g. Bayer 2007, 199f.). This idea can already be found in Aristotle’s work, in his conception of enthymeme that he defines as an abridged conclusion/syllogism (1999, 15f.). In this study we perceive as “shortening” of the argumentation of the situation, when one part of the argumentation (mostly the premise) is not verbalized explicitly, but expressed implicitly by means of a linguistic construction.

6 It implies e.g. (unlike the connector *weil*) that the argument is already known to a certain extent, and thus self-evident.

7 Cf. Duden, s.v. *da*, [https://www.duden.de/rechtschreibung/da\\_Konjunktion\\_weil](https://www.duden.de/rechtschreibung/da_Konjunktion_weil).

ii. In what ways are these signals transferred into the target language, i.e. Czech? This partial analysis aims to verify, based on corpus data, whether the argumentation structure, or else the argumentation potential of the expression undergoes any changes. This part of the analysis draws on the data from the InterCorp Parallel Corpus.

iii. Which strategies are developed by students of Translation Studies translating the analyzed connectors? Based on a test with 22 respondents, students of translation and interpreting, I will focus on the strategies developed by translators (beginners) during the translation of these argumentation signals, or else on whether they are aware of the possible shifts in the equivalence of the argumentation structures. The aim of the final part of the analysis is to ascertain to what extent such signals are also relevant for the didactic approach to the translation of argumentative texts.

## 2. Two Initial Theoretical Assumptions

Before I start answering the first question, I would like to outline two theoretical assumptions which are the basis for the following analyses: 1. The linguistic realization of arguments has an essential impact on their identification and potential. This assumption is based on a theory formulated by Anscombe (1983), Ducrot (1993) and Carel (2011). They presume that the argumentative potential of sentences and expressions is – at least in some cases – independent of their referential value. In this respect, the term “argument” is perceived as support (or a reason) for a claim, with the reasoning reaching various degrees of transparency and force depending on the linguistic function carried out. The following example demonstrates that even a simple shift of focus may dramatically change the argumentative orientation of a sentence.

- (1) (a) (Claim) Langsam SCHMILZT der Schnee, der Schneemann geht bald kaputt.  
[The snow slowly MELTS away, the snowman won’t make it for long.]
- (b) ??? Der Schnee schmilzt LANGSAM, der Schneemann geht bald kaputt.  
[???The snow SLOWLY melts away, the snowman won’t make it for long.]

In the sentence (1a), the link between the main and the subordinate clause is unblocked because of the focus lying on *schmilzt*. In the sentence (1b), the link is blocked in consequence of the focus shift, even though the referential value of the components remains the same. It would be necessary either to alter the conclusion (2a) or to add a concessive adverb and (optionally) explain the contradiction (2b).

- (2) (a) Der Schnee schmilzt LANGSAM, der Schneemann wird noch ein paar Stunden überleben. [The snow melts away only SLOWLY, the snowman will survive a couple of hours.]

- (b) Der Schnee schmilzt LANGSAM, der Schneemann geht dennoch bald kaputt, (denn Thomas hat es auf ihn abgesehen).  
[The snow melts away only SLOWLY, yet the snowman won't make it for long, (because Thomas is keen on destroying it).]

The first theoretical assumption implies the second theoretical assumption: The linguistic realizations of argumentations generate argumentative values on the surface structure whose adequate transfer is essential in the process of establishing equivalence.<sup>8</sup> In my analyses I would like to follow the categorization of shifts proposed by Atayan (2007) who defines three types of transfer of argumentative structures in the target language (TL): i. both the argument structure and the linguistic realization are preserved in the TL; ii. the argument structure is preserved in the TL whereas the linguistic realization changes; iii. both the argument structure and the linguistic realization change in consequence of the translation process. In this case we have to deal with the modification of the argument structure.

### **3. The Connector *zumal* and the Phrase *da ja* as Argumentation Signals**

#### **3.1 The Preliminary Description of the Argumentative Potential of *zumal* and *da ja* in German**

The following analyses are partly based on the linguistic studies dealing with the connector *zumal* and with the particle *ja* from different perspectives. The connector *zumal* has been analyzed mainly with regard to its syntactic properties and the possibility of focusing it (Blühdorn 2011; Ravetto and Blühdorn 2016; Pasch et al. 2003). The particle *ja* has been discussed in several studies dealing in general with the semantic and pragmatic potential of German particles (Brausse 1986; Thurmaier 1989; Rinas 2006; Müller 2018 et al.).<sup>9</sup>

While there is a very broad spectrum of the meanings and pragmatic functions of the isolated particle *ja* and of diverse combinations of *ja* with other particles (cf. Rinas 2006), the semantic, pragmatic and argumentative function of the phrase *da ja* seems to be much more restricted (Rinas 2006, 436). Drawing inspiration from the mentioned studies I will describe the connectors as “argumentation signals”. I chose these two signals since there are striking correspondences in their structure and argumentative

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8 I am aware of the discussions and problems related to the notion of “equivalence” in the translation. Yet I agree with Albrecht (2005, 5) that equivalence is an indispensable prerequisite for the description of translation processes, especially for the description of local argumentation structures.

9 For the development of the rich scientific discussion on the modal particles in German and in Czech in the contrastive perspective cf. Rinas (2006, 72–80).

potential. They both not only provide support<sup>10</sup> for a claim but they even make the support stronger, each in a slightly different way. The connector *da* accompanied by the particle *ja* implies that a) the argument is generally known (it has a commonplace quality) or b) the argument has been mentioned earlier or c) the argument is self-evident in the given context. If the phrase *da ja* signals the commonplace quality or the self-evidence of the argument, it has two actually contradictory consequences: the cogency of the support is accentuated, however, at the same time, the surprising (and thus persuasive) effect decreases – a common or self-evident argument is not really a strong support.

The connector *zumal* implies that the support realized in the subordinate clause is of particular relevance in relation to the conclusion. This also implies that there are several other supports which are less relevant and that only one of them is emphasized by the connector. Based on a preliminary analysis, I assume the following structures in the examined signals:

*da* [. . .] *ja*

C(onclusion) –<sub>expl.</sub> A(rgument) 1, 2 . . . –<sub>impl.</sub> specification of the quality of A 1, 2 . . .  
[A 1, 2 . . . has/have a commonplace quality; A 1, 2 . . . has/have been already mentioned, A 1, 2 . . . is/are self-evident in the given context].

*zumal*

C –<sub>expl.</sub> A 1 –<sub>impl.</sub> A2, A3 . . . [showing less relevance than A1]<sup>11</sup>

Assumed limitations: The subordinate clause introduced by the connector *zumal* does not precede the clause in which the conclusion is carried out. In the subordinate clause

10 The discussions about the speech acts and linguistic phenomena that can serve as “support” for a claim is still going on. Within applied linguistics the differentiation is usual between “Begründung” (justification), “Rechtfertigung” (defence) and “Erklärung” (explanation) (cf. Klein 2011, 134–164). Especially the first two speech acts can serve as supports for a debatable claim, even though the boundary to explanation is often vague (cf. Morek et al. 2017). In this paper the term “argument” indicates communicative acts within a minimal argumentation (cf. Atayan 2006, 41) that support in some way (in form of justification or defence) the claim.

11 The corpus data indicate that the arguments following the argument introduced by *zumal* are rarely accompanied by linguistic markers of relevance such as *vor allem*. Just for this reason *zumal* is rarely combined with other indicators for relevance (such as *vor allem*, *hauptsächlich* etc.) in the same argument, since it probably causes redundancy (The search for the phrase *zumal vor allem* in DeReKo showed 130 occurrences, for the phrase *zumal hauptsächlich* five occurrences).

introduced by *zumal*, one argument is realized. If there are more arguments initiated by *zumal*, the second/third one is typically in a subordinate relation.<sup>12</sup>

### 3.2 The Transfer of *zumal* and *da ja* from German into Czech

This part of the analysis aims to verify, based on corpus data, whether the argumentation structure, or else the argumentation potential of the utterance containing the examined signals, undergoes any changes. The analysis draws on the data from the InterCorp Parallel Corpus (German-Czech) which is a part of the Czech National Corpus. As a basis for the analysis I created a subcorpus defined by the text group “Core” for fiction and non-fiction literature and with the specifying settings “source language” (German) and “translator”.

In this subcorpus I found 123 examples of the use of the connector *da* with the particle *ja* in a causal function. Besides the subordinate clauses initiated directly by the phrase *da ja* I examined the clauses opened by the connector *da* with the particle *ja* placed in different positions. The highest number of lexemes between the connector and the particle was six.<sup>13</sup> As for the lemma *zumal*, I found 456 hits in my subcorpus, but only about half of them in the function of a causal connector. I examined the first 123 examples. The results summed up in the following two tables reflect the general tendencies in the translation of the two argumentation signals.

| Type of Linguistic Realization [C[ategory] +/-causal; etc.]                                                       | Occurrence |
|-------------------------------------------------------------------------------------------------------------------|------------|
| C1 [+causal; –commonplace-quality; –self-evidence; –familiarity]                                                  | 72         |
| C2 [+causal; +correctness of the statement; (+commonplace-quality; +self-evidence; +familiarity) <sup>14</sup> ]  | 27         |
| C3 [+causal; +modality]                                                                                           | 6          |
| C4 [+causal; +self-evidence; +correctness of the statement; (+commonplace-quality; +self-evidence; +familiarity)] | 5          |
| C5 [–causal; –commonplace-quality; –self-evidence; –familiarity]                                                  | 5          |
| Zero transfer                                                                                                     | 8          |

**Table 1.** The categories of Czech equivalents for *da ja* examined in 123 argumentative sequences from InterCorp.

12 The corpus data indicate that if *zumal* introduces two arguments – which is a rather rare situation – the second one depends upon the first one. Constructed example: “Peter sollte hier bleiben, zumal Maria kommt und ihre Freunde mitbringt.” [Peter should stay here, especially because Maria will come and bring her friends along.]

13 The condition was that the scope of *ja* reached the whole argument, not only a part of it.

14 The qualities listed in the round brackets can be implied secondary by the particle *přece* (C2) and by the connector *vždyt'* (C4).

Table 1 depicts the results of the research based on the corpus data for the phrase *da ja*. In 72 cases the translators decided to use simple causal connectors<sup>15</sup> without expressing the commonplace quality of the argument/reason, its self-evidence or the familiarity with it. In 27 cases, they did so by the connection of a causal connector and the particle *přece*, which, however, often implies in Czech that the speaker stresses the correctness of the statement in order to prevent a counter-argument rather than pointing out the commonplace quality or self-evidence of the argument.<sup>16</sup> A similar function has the causal connector *vždyt'* that occurs in five cases.<sup>17</sup> In six cases, the reference to the commonplace quality of the argument has been expressed in the TL by evidential adverbs and their alternatives – marking different degrees of obviousness (*pravděpodobně* “probably”, *jistě* “surely”, *určitě* “certainly”). In five cases, the translators opted for other connectors and expressions rather than causal connectors so that even the basic relation between the argument and the claim has been altered. Finally in 8 cases, the transmission of the support/causal relation has been omitted completely.

| Type of Linguistic Realization [+/- relevance; +/- modality; etc.]     | Occurrence |
|------------------------------------------------------------------------|------------|
| C1 [+causal ( <i>kdýž</i> ); +relevance <sup>18</sup> and correctness] | 60         |
| C2 [+causal; +relevance/+modality]                                     | 18         |
| C3 [+causal; -relevance]                                               | 15         |
| C4 [-causal; +relevance]                                               | 11         |
| C5 [+causal ( <i>kdýž</i> ); -relevance and correctness]               | 11         |
| C6 [-causal; -relevance]                                               | 5          |
| Zero transfer                                                          | 3          |

**Table 2.** The categories of Czech equivalents for *zumal* examined on 123 argumentative sequences from InterCorp.

The results for the translation of the connector *zumal* which seemingly has a similar meaning and argumentative value as the causal phrase *da ja* differ strikingly from the results in the first analysis. The results in Table 2 show that in the 123 examples

15 The connectors with the highest occurrence: *protože* (35), *neboť* (22).

16 Constructed example: “Neomluvím se, *protože* to *přece* není moje chyba.” [I won’t apologize, because it is *přece* not my fault.] In this case *přece* indicates rather the uncertainty of the speaker who expects a counter-argument rather than argument-qualities such as self-evidence or common-place-quality.

17 For the function of *vždyt'* in comparison to *přece* cf. Rinas (2006, 293–348).

18 The relevance in the examined argumentations was expressed by additional adverbs such as *zejména* and *zvláště* “particularly, especially”. These two showed the highest occurrence (45 out of 60).

examined it was the Czech connector *když* in the causal function that showed by far the highest occurrence as an equivalent for *zumal*. In 60 cases, the connector has been accompanied by an adverb expressing the relevance of the argument or stressing the correctness of the statement. Only in 11 cases did this connector occur without any further specification (C 5). In 15 cases, the translators decided to use another causal connector without any specification; in 18 cases the connectors were accompanied by different adverbs expressing obviousness or modality. In 11 cases the causal relation has been not expressed explicitly, but the translators tried to express the relevance by particles such as *dokonce* "even". In five cases, *zumal* has been translated with other causal connectors without pointing out the relevance. In three cases, the transfer of the support/causal relation and of the argument quality has been omitted completely.

The corpus-based analysis revealed the general tendencies in the translation of the two signals. In the case of the signal *da ja* the results indicate the following processes: i. The translators clearly tend to omit the reference to the commonplace quality, to the self-evidence of the argument or to the familiarity with it using causal connectors without further specification in the TL (72 cases out of 123). ii. When the causal relationship has been specified, it was either by the adverb *přece* implying often rather a reaction to a hidden counter-argument or by various evidential adverbs expressing modality.

The results for the signal *zumal* showed a much different situation: i. The translators tend to somehow express the prominent argumentative value (cf. 3.1) of the argument/reason signaled by the connector *zumal* (89 cases out of 123). Causal connectors without further specification in the TL occur only in 26 cases – in contrast to the 77 cases observed in the translation of the signal *da ja*. ii. The lexeme *když* used – rather untypically – as a causal connector accompanied by different expressions for relevance or modality occurs as the clearly dominant equivalent in the TL.

This is interesting for two reasons:

1. This causal connector includes a conditional feature, which is not the case with the German connector *zumal*.
2. The stylistic level is affected as well: The German connector clearly marks the formal/high style, whereas the Czech equivalent *když* is classified as non-standard Czech.

### 3.2.1 *Two Examples of Shifts in the Argument Structure.*

After summing up the general tendencies in the translation of the two signals, I would like to give two examples of shifts in the argumentative structure that occur in consequence of their translation into the TL. The examples (3) and (4) demonstrate the shifts caused by the translation of the argument signal *da ja*.

In the argumentation below the translator decided for a transgressive as an equivalent for this signal.

- (3) SL: (Claim) Die kulturelle Evolution kopiert, wie wir bereits ausführten, in vielem die biologische, (explicit causality) *da* (context-bound evidence=Strengthening) *ja* (Argument) analoge Selektionsbedingungen vorliegen. [The cultural evolution copies, as we already explained, in many aspects the biological, since – as it is evident within the context – there are analogous conditions of the selection.]
- (4) TL: (C) Kulturní evoluce, jak jsme již rozvedli, kopíruje v mnohém evoluci biologickou, (A) podléhající podobným podmínkám selekce. [The cultural evolution copies, as we already explained, in many aspects the biological, obeying similar conditions of the selection.]

In the extract above the thesis is formulated so that the cultural evolution copies the biological evolution. The following argument is introduced by a reference to the argumentation process in the foregoing text. This is an indication that *da ja* will signalize rather the context-bound evidence rather than the commonplace quality of the argument. The English paraphrase would be a sentence such as *as it is evident within the context*. In the target language (TL) the connector was omitted and the support is introduced by a transgressive form of the verb. This change of the linguistic realization has an impact on the structural level: The causality is expressed in an implicit way and there is no reference to the evidence of the argument within the context. The parts crossed out in the formalized structure of the argumentation expressed by *da ja* are missing in the target text in consequence to the transfer.

C(onclusion) – ~~expl.~~ A(rgument) 1, 2... = ~~impl.~~ specification of the quality of A 1, 2 ... [A 1, 2... is/are a commonplace or it follows from the context that A 1, 2... supports C].

The modification has an impact on the stylistic level as well. In this case the translator obviously tried to preserve the “high style” since in Czech the transgressive forms of verbs belong to an almost archaic style.

The examples (5) and (6) demonstrate the shifts caused by the translation of the argument signal *zumal*.

- (5) SL: Cesarini, der die Massen zunächst aufgehetzt hatte, mußte nun in Verkleidung fliehen, um nicht gelyncht zu werden; die päpstliche Fahne, die Kreuzbulle und der Kardinalsmantel Cesarinis fielen in die Hände der Hussiten, die viele Geschütze und Wagen erbeuteten und das Pulver in die Luft sprengten, während die Kreuzfahrer den mit Geld und Kostbarkeiten beladenen Wagen des Kardinals plünderten, (Reconstructed A) dessen Zuversicht, man werde die Ketzer ausrotten, nun gebrochen war, (Relevance) *zumal* (RA1) er den Ausgang der Schlacht selbst als Gottesurteil bezeichnet hatte. (RC) Fortan trat Cesarini für eine friedliche Lösung des

Hussitenproblems ein. [Cesarini, who initially stirred the masses, had to escape in disguise in order to prevent being lynched. The pontifical flag, the bull of the Cross and the cardinal cloak fell into the hands of the Hussites, who seized many rifles and carriages and exploded the black powder while the crusaders plundered the cardinal's carriage loaded with money and valuables. The cardinal's belief that it would be possible to wipe out the heretics was broken, especially because he perceived the outcome of the battle as God's judgement. From that time on Cesarini urged a peaceful solution of the problem with the Hussites.]

- (6) TL: Cesarini, jenž oddíly zpočátku povzbuzoval, musel nakonec sám utéci v přestrojení, aby zachránil holý život. Papežský prapor, bula o vyhlášení křížové výpravy i Cesariniho kardinálský plášť padly do rukou husitů. Ti ukořistili i množství děl a vozů a podpálili zásoby střelného prachu, zatímco křižáci plenili kardinálův vůz, naložený penězi a skvosty. Víra křižáků, že kacíři budou vyhlazeni, byla podlomena. Od této bitvy, označované za boží rozsudek, se Cesarini zasazoval za mírové vyřešení husitského problému. [. . . while the crusaders plundered the cardinal's carriage loaded with money and valuables. The crusaders' belief that it would be possible to wipe out the heretics was broken. Since this battle, (generally) perceived as God's judgement, Cesarini urged a peaceful solution of the problem with the Hussites.]

In the source text the connector *zumal* occurs in a mediated argumentation process.<sup>19</sup> The author of the book reconstructed the argumentation by cardinal Cesarini after the battle of Domažlice as follows. Argument: The heretics (the Hussites) are unbeatable; Claim: There is no choice but peace talks. The argument is supported primarily by Cesarini's assumption that the catastrophic outcome of the battle was God's judgement. In the target text several shifts have taken place: 1. The whole argumentation is attributed to the Catholic crusaders generally, not to the cardinal (*Víra křižáků. . .*); 2. The causal relation is expressed not explicitly, but implicitly by the expanded attribute (. . . , *označované za boží rozsudek, . . .*) Consequently Cesarini disappeared completely as the performer of the argumentation. 3. There is no explicit reference to the relevance of the argument in the target text.

C(onclusion) – <sub>expl. impl.</sub> A(argument) 1 – <sub>impl.</sub> A2, A3. . . [showing less relevance than A1]

<sup>19</sup> If argumentation is defined primarily as the process of forming reasons and drawing conclusions, then reconstructed argumentations that occur within primarily descriptive texts should be understood as argumentations too.

### 3.3 Strategies Developed by the Students of Translation Studies

Finally I would like to present the results of the third part of my research which was a test with 22 test takers (TT) focused on the strategies that the students developed during the translation. The task was to translate two sentences – ex. (7) and (8) – containing the signals *zumal* and *da ja* in argumentative positions.<sup>20</sup>

- (7) Ich muss betonen, (C) dass die von den konservativen Regierungen stark unterstützte Sparpolitik höchst ungerecht und auch demagogisch ist, (Relevance=Strengthening) zumal (A1) die Wirtschaftskrise nicht durch die einfachen Bürger verursacht worden ist. (A2) Die Krise wurde hauptsächlich durch die Institutionen des Finanz- und Bankenwesens verursacht, (A21) die ein übermäßig liberales Konzept des Finanzsystems vertreten haben.
- (8) Entweder (A1) ist die Kernenergie schlecht und (C1) sollte verboten werden. Oder (A2) sie ist sicher, da ja (A21+Indisputability/General Knowledge=Strengthening) die Technologie und die Wissenschaft Fortschritte gemacht haben. (C2) Dann sollte sie nicht verboten werden und wir alle sollten von ihrer Produktion profitieren.

The test takers translated each sentence twice: First they worked without any aids within a time limit of 20 minutes. After having handed in the first version they worked on the same sentences, this time with a dictionary and with all the aids usually available to translators.

Test I pursued the following aims: 1. I tried to find out to what extent the future translators are sensitive towards the argumentative potential of the connectors and particles. 2. I asked if and to what extent the basic translation aids such as dictionaries and CAT tools contribute to the increase of sensitivity towards these signals. 3. Finally I confronted the results of the test with the corpus data.

Let us start with the first question: How sensitive are future translators towards the argumentative potential of the analyzed signals? Within the first translation attempt – without any aids – only seven TTs tried to specify the quality of the argument/reason expressed by the connector *zumal*. Nine TTs opted for various causal connectors without specification; two for non-causal connectors and expressions, and in four cases the translation failed.

In the case of the signal *da ja*, only four TTs tried, within the first round, to specify the quality of the argument/reason by the connection of a causal connector and the particle *přece*, one TT did so by the connection of a causal connector and an evidential adverb. The rest of the TTs opted for causal connectors without specification (eight TTs) or non-causal connectors (two TTs). In seven cases the translation failed.

<sup>20</sup> In the texts the students worked with the abbreviations marking the structure were not included.

What is striking – with the results of the test concerning the connector *zumal*– is the extremely high rate of translation failures (7).

| Test Per. | Test 1                            | Type of solution | Test 2 with dictionary and CAT    | Changes <sup>21</sup> in Test 2 |
|-----------|-----------------------------------|------------------|-----------------------------------|---------------------------------|
| 1         | <i>o to víc, že</i>               | CC +Q            | <i>neboť přece</i>                | –                               |
| 2         | <i>zvláště když</i>               | CC +Q            | <i>zvláště když</i>               | CC +Q   CC +Q                   |
| 3         | <i>a také že</i>                  | CC –Q            | <i>a také že</i>                  | –                               |
| 4         | translation fail                  | TF               | translation fail                  | –                               |
| 5         | <i>jelikož</i>                    | CC –Q            | <i>jelikož</i>                    | –                               |
| 6         | translation fail                  | TF               | translation fail                  | –                               |
| 7         | translation fail                  | TF               | translation fail                  | –                               |
| 8         | <i>totiž</i>                      | CC –Q            | <i>totiž</i>                      | –                               |
| 9         | <i>jelikož</i>                    | CC –Q            | <i>jelikož</i>                    | –                               |
| 10        | <i>protože</i>                    | CC –Q            | translation fail                  | CC –Q   TF                      |
| 11        | <i>jelikož</i>                    | CC –Q            | <i>zvláště když</i>               | CC –Q   CC +Q                   |
| 12        | <i>navíc</i>                      | NCC +Q           | translation fail                  | NCC +Q   TF                     |
| 13        | <i>tím spíš, že</i>               | CC +Q            | <i>zejména, když</i>              | CC +Q   CC +Q                   |
| 14        | <i>a k tomu</i>                   | NCC –Q           | <i>hlavně</i>                     | NCC –Q   NCC +Q                 |
| 15        | translation fail                  | TF               | <i>poněvadž</i>                   | TF   CC –Q                      |
| 16        | <i>hlavně když</i>                | CC +Q            | <i>hlavně když</i>                | –                               |
| 17        | <i>neboť</i>                      | CC –Q            | <i>především proto, že</i>        | CC –Q   CC +Q                   |
| 18        | <i>jelikož</i>                    | CC –Q            | <i>především proto, že</i>        | CC –Q   CC +Q                   |
| 19        | <i>protože</i>                    | CC –Q            | <i>protože</i>                    | –                               |
| 20        | <i>navíc</i>                      | NCC +Q           | <i>navíc</i>                      | –                               |
| 21        | <i>přičemž</i>                    | NCC –Q           | <i>a také. . . rozhodně</i>       | NCC –Q   NCC +Q                 |
| 22        | <i>jelikož... ani v nejmenším</i> | CC +Q            | <i>jelikož... ani v nejmenším</i> | –                               |

**Table 3.** Results of the test aimed at evaluating the translation of the argument signal *zumal* from German into Czech. CC=causal connectors; NCC=other than causal connectors; +Q=the quality of the argument [relevance, commonplace quality etc.] has been expressed in some way; –Q=the quality of the argument has not been expressed; TF=translation fail.

21 The formula xxx | xxx marks the changes. E. g. the formula CC –Q | CC +Q means that in the second round of the test the TT replaced a causal connector without further specification of the argument by a connector accompanied by a specifying expression [e.g. *jelikož* | *zvláště když*]. The formula CC +Q | CC +Q means that the TT only varied the same type of solution [e.g. *protože přece* | *neboť přece*].

| Test Per. | Test 1                          | Type of solution | Test 2 with dictionary and CAT | Changes in Test 2 |
|-----------|---------------------------------|------------------|--------------------------------|-------------------|
| 1         | <i>neboť přece</i>              | CC +Q            | <i>neboť přece</i>             | –                 |
| 2         | <i>protože přece</i>            | CC +Q            | <i>neboť přece</i>             | CC +Q   CC +Q     |
| 3         | <i>díky</i>                     | CC –Q            | <i>díky</i>                    | –                 |
| 4         | translation fail                | TF               | <i>díky</i>                    | TF   CC –Q        |
| 5         | <i>protože</i>                  | CC –Q            | <i>protože</i>                 | –                 |
| 6         | <i>protože přece</i>            | CC +Q            | <i>protože [ . . . ] přece</i> | CC +Q   CC +Q     |
| 7         | translation fail                | TF               | <i>když</i>                    | TF   CC –Q        |
| 8         | <i>a</i>                        | NCC –Q           | <i>neboť</i>                   | NCC –Q   CC –Q    |
| 9         | <i>neboť</i>                    | CC –Q            | <i>neboť</i>                   | –                 |
| 10        | translation fail                | TF               | <i>protože</i>                 | TF   CC –Q        |
| 11        | translation fail                | TF               | <i>jelikož</i>                 | TF   CC –Q        |
| 12        | translation fail                | TF               | translation fail               | –                 |
| 13        | translation fail                | TF               | translation fail               | TF   TF           |
| 14        | <i>protože [ . . . ] určitě</i> | CC +Q            | <i>když</i>                    | CC +Q   CC –Q     |
| 15        | translation fail                | TF               | <i>poněvadž</i>                | TF   CC –Q        |
| 16        | <i>protože</i>                  | CC –Q            | translation fail               | CC –Q   TF        |
| 17        | <i>protože přeci</i>            | CC +Q            | <i>protože samozřejmě</i>      | CC +Q   CC +Q     |
| 18        | <i>díky</i>                     | CC –Q            | <i>díky</i>                    | –                 |
| 19        | <i>protože</i>                  | CC –Q            | <i>protože</i>                 | –                 |
| 20        | <i>protože</i>                  | CC –Q            | <i>protože</i>                 | –                 |
| 21        | <i>s tím, že</i>                | NCC –Q           | <i>poněvadž</i>                | NCC –Q   CC –Q    |
| 22        | <i>jelikož</i>                  | CC –Q            | <i>protože</i>                 | CC –Q   CC –Q     |

**Table 4.** Results of the test aimed at evaluating the translation of the argument signal *da ja* from German into Czech.

At this point I would like to continue with answering the second question:

Do the basic translation aids such as dictionaries and CAT tools contribute to the increase of sensitivity towards these signals?

Let us start with the correction processes concerning the connector *zomal*. In the second round, ten TTs changed the translation.

Ten TTs changed the translation. In five cases, they corrected a non-specified causal connector or a non-causal connector into a connector or a phrase accompanied by an expression stressing the relevance of the argument or varied the expressions for relevance. In two cases, the TTs only varied the component expressing the relevance.

The results of the second round of the test aiming at the translation of the signal *da ja* look much different. Fourteen TTs changed the translation. But even after the

correction process only three TTs tried to somehow express the specific quality of the argument. Moreover, all of them varied their solutions only slightly. While in the case of the signal *zumal* the sensitivity towards the value of the argumentative signal increased distinctly, in the case of *da ja* the aids did not particularly contribute to an increase of sensitivity.

Finally I would like to concentrate on the third question: Are there some correspondences/differences in comparison to the corpus data?

In the translation of the connector *zumal* it was the causal connector *když* accompanied by the expressions for relevance and correctness of the statement which showed by far the highest frequency in the corpus data. In the test with students of Translation and German Studies, only two TTs out of 22 opted for this solution in the first round and four in the second round. However, in general, the tendency to specify the value of the connector in some way is evident both in the corpus data and in the – at the latest – second round of the test.

In the translation of the signal *da ja*, the solutions with the highest occurrence in the TL were the causal connectors without further specification. Far behind were the causal connectors accompanied by the particle *přece* which rather expresses the affirmation of the statement to prevent a counterargument.

Approximately the same results followed from the test: in the first round, eight TTs opted for causal connectors without further specification. In the second round, five out of seven translation failures had been corrected in some way and had been replaced by simple causal connectors. In general, the tendency to omit the specific argumentative value of the connector in the TL is evident both in the corpus data and in the first and second round of the test.

#### **4. Conclusions**

In my paper I have argued that the argumentation structures carried out by the connector *zumal* and the phrase *da ja* undergo considerable changes in consequence of their transfer from German into Czech. The analysis was based on the general assumption that the argumentation structures are one of the parameters of equivalence in translation (cf. Atayan 2007). Since I decided for a restricted, largely manually processed analysis aimed at the qualitative description of two argumentation signals, it is not possible to provide a complex answer.

To draw more general conclusions about this assumption it would be necessary to carry out a far broader quantitative analysis based on larger collection of data. Nevertheless the results of the analysis indicate that the transfer of argumentative values on the surface structure plays an important role in the process of translation.

The analysis of the corpus data showed that indeed the specific argument value expressed by the signal *da ja* was omitted completely in more than half of the examined argumentations while in other cases it was altered in different ways. The argument value

expressed by the signal *zumal* was omitted in a little more than a quarter of the analyzed argumentations and the equivalent with the highest occurrence shows specifics which have impact on the argument structure in the TL. Tests with students of Translation Studies showed that the sensitivity towards the specific argument quality expressed by the two signals is extremely low. The results of the second round of the test indicate that dictionaries and CAT tools make only a very limited contribution to the increase of sensitivity towards the potential of the argumentative signals. The results of the analysis imply the following desiderata:

1. It would be necessary to look for further linguistic phenomena in German and in Czech which could have impact on the construction of argumentative structures within the translation process.
2. It would be interesting to ask what the correlation is between the text type and the argumentation signals and what impact this correlation has on the translation process.
3. Finally, seen from the didactic perspective, the question arises how to increase the sensitivity towards the argumentation signals and how to train the future translators to deal with them.

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## Corpora

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# General Extenders in English and Czech

Tomáš Novotný<sup>a</sup> and Markéta Malá<sup>b</sup>

Faculty of Arts, Charles University, Prague, Czech Republic

<sup>a</sup>tomas.novotny@ff.cuni.cz; <sup>b</sup>marketa.mala@ff.cuni.cz

**Abstract:** General extenders (GEs) are vague multiword expressions (e.g. *or something (like that)*, *and stuff (like that)*, *nebo něco (takovýho)*, *a tak(ový věci)*) that have been shown to fulfil a number of communicative functions, ranging from ideational to interpersonal. While the English extenders have received a lot of attention in nearly four decades of research, the corresponding Czech constructions remain largely overlooked. Drawing on comparable corpora of informal spoken conversation (Spoken BNC2014 and ORAL2013) and relying on functional frameworks introduced in previous research, this contrastive corpus-based study confirms what has been known about English GEs and investigates the degree of applicability of the approach to the Czech extenders. A close qualitative analysis of some of the collected GE forms (in total, 188 and 132 types of forms were extracted for English and Czech, respectively, using the method of collocational frames) revealed that English and Czech GEs have a similar functional load.

**Keywords:** general extenders; vague language; ideational/interpersonal functions; collocational frames; spontaneous informal dialogue

## 1. Introduction

### 1.1 Aims & Goals

General extenders (hereinafter GEs) are clause- or phrase-final vague multiword expressions, such as *and stuff (like that)* / *a tak(ový věci)*, *or something (like that)* / *nebo něco (takovýho)*. While the GEs have been studied extensively in English, following Dines' (1980) pioneering study, the Czech counterparts have received little systematic attention (cf. Tárníková 2009, Hoffmannová 2013, Novotný and Malá 2018)

despite their pervasiveness in spoken discourse. This study aims to remedy that by (1) exploring the formal variability of English and Czech GEs and (2) applying the functional framework used to describe the English extenders to their Czech counterparts to see whether the functional load differs across the two languages. In this study, we thus propose a catalogue of GEs in English and in Czech, and classification based on both formal and functional properties.

## 1.2 A Note on Vagueness in Conversation

Before examining general extenders in more detail, let us briefly consider the place of vague expressions in natural languages. Williamson (1994, 4869) asserts that “[v]ague words often suffice for the purpose in hand, and too much precision can lead to timewasting and inflexibility.” Moreover, vague expressions convey instructions to the recipient as to how to interpret the utterance: while “precise expressions imply to the listener that more individuation and focus is needed, . . . less precise expressions imply that a referent can remain in the background and that processing resources should be directed to other elements of the situation” (Jucker et al. 2003, 1743). Vague expressions, including GEs, thus serve an important function especially in face-to-face interactions between familiars, where the conversation participants can rely on both the situational context and common ground.

Like other pragmatic particles, GEs are functionally diverse. Moreover, they often express several functions at the same time. The individual functions and the formal types of GEs associated with the functions will be described in detail in Section 3.

## 2. Material and Method

### 2.1 Corpora of Informal Spoken Conversation

GEs appear to be most frequent in “informal, spoken conversation among familiars” (Overstreet 1999, 6; cf. also Cheshire 2007; Martínez 2011). We have therefore decided to draw on two comparable corpora of present-day informal dialogical spoken English and Czech, the Spoken BNC2014 and ORAL2013, respectively. The former consists of 11.5 million words in the form of transcripts of recorded conversations, gathered from members of the UK public between 2012 and 2016, comprising 1,251 conversations with a total of 672 speakers. The ORAL2013 corpus was built by the Institute of the Czech National Corpus, and contains 2.8 million words spread across 835 conversations (recorded between 2008 and 2011) and 1,297 speakers.

### 2.2 Collocational Frames

GEs exhibit “extensive [formal] variability” (Pichler and Levey 2011, 442), thus forming an open category of expressions. Despite the formal variability of GEs being a widely accepted fact, previous research, at least to our knowledge and in our opinion,

has not provided a sufficiently comprehensive list of types of GE forms, on the basis of which structural patterns of GEs could be assessed<sup>1</sup> (cf. for example Dines 1980, Aijmer 2013).

In order to identify as many GE forms as possible, so that we could understand better the structural properties of these constructions, we used collocational frames, as employed by Aijmer (2015). Starting from the fact that most GE forms begin with a conjunction (*and/a, or/nebo*),<sup>2</sup> this approach examines the right-hand collocates (in the span of R1-4) of the conjunctions. The log-likelihood ratio proved to yield the most relevant collocates for the formation of GEs in both languages. First, the 300 most significant collocates of each of the conjunctions *and*, *or*, *a*, and *nebo* were assessed in terms of their GE-forming potential. Second, the concordance lines of the collocates which were likely to participate in the formation of GEs<sup>3</sup> were examined closely to identify GE forms.

### 3. Results and Analysis

#### 3.1 Formal Variability and GE Patterns

We identified over 300 types of GE forms (188 for English, 132 for Czech). Although this may be the most comprehensive list of GE forms to date, it is by no means exhaustive. We believe, however, that it is sufficiently large to allow an analysis of the structural properties of GEs in both languages. Moreover, by completely disregarding the frequency of occurrence (we have collected a number of hapaxes: e.g. *and all kinds of shenanigans*, *a takový prostě jako ptákovinky*), it is possible to notice how speakers use GEs in a creative and personally involved way (Halliday and Hasan 1976).

As expected, the Czech GEs do not exhibit as fixed word order as the English forms. Consider, for example, forms such as *nebo něco takovýho* “or something like that” vs. *nebo takovýho něco* “or like that something”, *a tohle všechno* “and this all” vs. *a všechno tohle* “and all this”. In addition, various items can be inserted into the collocational frames: in Czech, these inserts include, for example, prepositions (*nebo na něco takovýho* “or on something like that”); *prostě* (*nebo prostě něco* “or just something”); *jako* (*nebo jako něco takového* “or like something like that”) or a combination

1 Following Novotný (2018, 13), “the terms ‘pattern’ and ‘form’ are used to refer to different phenomena: ‘pattern’ is essentially a collocational frame, that is, a generalised structural description of a number of unique ‘forms’ (e.g. the pattern of ‘[connective] + [demonstrative] + [comparative] + [generic]’ matches various forms, such as *and that kind of thing*, *and this kind of thing*, *and this sort of stuff*, *and that sort of thing*, etc.)”.

2 Although GEs can omit the initial conjunction, such forms are sufficiently infrequent (cf. Overstreet 1999; Cheshire 2007; Novotný 2016) to be disregarded in the initial step of the extraction process.

3 Items of particular interest have been vague noun phrases and pronouns as they participate in the formation of GEs most often (cf. Overstreet 2014).

of more items (*a takový prostě jako ptákovinky* “and like that just like silly things”); in English, these are *just* (*or just something like that*) and *like* (*and like stuff like that*) (Novotný 2018, 36).

In the analysis, a distinction between two basic types of GEs was made: adjunctive (those beginning with *and/a*) and disjunctive (those beginning with *or/nebo*) (Overstreet and Yule 1997). For each group of GEs, i.e. Czech adjunctive/disjunctive and English adjunctive/disjunctive GEs, we propose three or four structural patterns. These patterns, highlighted with different colours along the greyscale, match various unique forms (highlighted with the same colour in Tables 1 and 2; see the Appendix) that were collected from the respective corpora.

The suggested GE patterns below feature a lot of optional slots to account for the high formal variability. The relatively unique forms that share formal properties with few other forms were left in white in Tables 1 and 2: these include forms with reduplicated conjunctions (*a tohle a tamto* “and this and that”, *and bits and bobs*), fixed forms (*a kdesi cosi* “and somewhere something”, *and whatnot*) or formally unique GEs (*a bla bla bla*, *and blah blah blah*) (Novotný 2018, 36).

Czech adjunctive GEs (cf. Table 1 in the Appendix)

- a. [a] + ([demonstrative]) + ([demonstrative/particle]) + [všec.\*] + ([adjective/adverb]) + ([NP/demonstrative])
- b. [a] + [particle] + ([adverb])
- c. [a] + [demonstrative] + ([demonstrative]) + ([premodifier]) + [NP] + ([postmodifier])

Czech disjunctive GEs (cf. Table 1 in the Appendix)

- a. [nebo] + ([particle]) + [indefinite pronoun]  
[nebo] + ([indefinite pronoun]) + [particle]
- b. [nebo] + ([particle]) + [indefinite pronoun] + [demonstrative]  
[nebo] + ([particle]) + [demonstrative] + [indefinite pronoun]
- c. [nebo] + [interrogative pronoun] + [\*]

English adjunctive GEs (cf. Table 2 in the Appendix)

- a. [and] + [all] + ([of]) + ([determiner]) + [kind(s)/sort(s) of] + ([premodifier]) + [NP]
- b. [and] + [all] + ([of]) + [determiner] + ([premodifier]) + [NP]
- c. [and] + ([just]) + ([premodifier]) + [NP] + ([else]) + ([like that/this])
- d. [and] + [that] + ([sort/kind of]) + [NP]

English disjunctive GEs (cf. Table 2 in the Appendix)

- a. [or] + [indefinite/interrogative pronoun] + ([postmodifier]) + ([else]) + ([like that])
- b. [or] + [some] + ([kind/sort of]) + [NP] + ([like that])
- c. [or] + [whatever] + [NP] + [VP]

### 3.2 Interpreting the GE Communicative Functions

As is commonly the case with pragmatic markers, the GE functions are context dependent, and they often combine and overlap, i.e. one GE form can perform more than one function at once, and one function can be realized with a number of various forms. Overstreet (1999) divides GE functions (and this study uses this division as well) on the basis of Halliday's (1970) basic metafunctions of language into two main areas: ideational functions (i.e. the referential potential of GEs, or category identification; explored in Section 3.2.1) and interpersonal functions (i.e. communicative functions in the interactive speaker-hearer context, including approximation (3.2.2), explicit and implicit evaluation (3.2.3 and 3.2.4, respectively), and politeness strategies (3.2.5 and 3.2.6)).

Furthermore, functional analysis of GEs is always subject to a certain degree of subjective interpretation, as we can never grasp the full extent of the situational context (this being a corpus-based study), or the background shared by the interlocutors.

#### 3.2.1 GEs as Category Identifiers – The Role of Context and Lexicalization

One of the most frequent functions of GEs (especially adjunctives) is their ability to mark the item to which the GE is appended as a representative member of a larger category; hence category identifiers.<sup>4</sup> Categories can be of two types: lexicalized categories are “named common categories” (Channel 1994, 123), such as *zelenina* “vegetable” in (2), while non-lexicalized (or “spur of the moment” (ibid.)) categories are “often created spontaneously for use in specialised contexts” (Barsalou 1983, 211), which makes them “less familiar and less central to cultural knowledge” (ibid., cf. Novotný 2016, 15). It is the latter type of categories which is much more frequently identified by GEs; in fact, GEs identifying lexicalized categories are extremely rare (cf. Overstreet 1999, Novotný 2018).

We may argue that the GEs in exx. (1), (3), (5) and (6) identify non-lexicalized, spur-of-the-moment categories as there are not any well-established superordinate notional category labels (in other words, hyperonyms of the listed items) available. In contrast, in exx. (2) and (4), the GEs seem to identify lexicalized categories of “vegetable” (*rajčata a takový věci* “tomatoes and things like that”) and “pub games”

4 Given the prominence of this function, some linguists refer to GEs as “set-marking tags” (Dines 1980; Ward and Birner 1993; Stubbe and Holmes 1995; Winter and Norrby 2000). The term “vague category identifiers” was used by Channel (1994).

(*fotbálek a kulečnick a takový věci* – “a table soccer and a billiard table and stuff like that”), respectively.<sup>5</sup>

The interpretation of lexicalized and non-lexicalized categories is closely connected with the hypothetical contextual scale (Figure 1) that goes from *global* contexts (Bazzanella 2011, 32; emphasis added) that are “easily interpretable by most people anywhere in the world” (Evison et al. 2007, 145), through contexts that are shared by a particular *discourse community* (Swales 1990; emphasis added), to “*local* contexts that are shared only by a few people [who] have something in common (e.g. family, classmates)” (Novotný 2018, 40; emphasis added). The types of context are exemplified in (1)–(6).



**Figure 1.** Types of context (Novotný 2018, 40)

- (1) yeah it's so I suppose there's more chance of misinterpretation (.) whe- you know in general with things like *Facebook* around and *Twitter* and your *phones and things like that* (*Spoken BNC2014*)<sup>6</sup>
- (2) veškerá *zelenina* je . prostě . strašnej shit ... to nevidělo slunko víš? .. *rajčata a takový věci* (*ORAL2013*)<sup>7</sup>  
 “all vegetables are . just . terrible shit [...] *tomatoes and things like that*”
- (3) A: and also of uh of um of the BBC as well he he's always hated the BBC  
 B: yeah  
 A: uh and he's claimed to have hated the you know the sort of posh uh  
 B: yeah  
 A: english people who dominated the BBC in the olden days  
 B: >> *Fleet Street and stuff*  
 A: uh the *Old Boys and everything*

5 It should be noted that Tárnayiková (2009, 124) differentiates between “identifying” and “associative” tags (GEs): when the GE clearly refers to the superordinate notional category, such as in (2), the GE *identifies* the existing category, whereas when no such superordinate term is available, such as in (1), (3), (5), (6), the GE merely initiates “the ‘scenario’ of pragmatically *associated* items” (ibid.; emphasis added), thus the term “associative” GE would seem more apt. In this study, however, we use the term category identifiers for both categories (cf. also Channel 1994; Overstreet 1999).

6 All English examples were extracted from the Spoken BNC2014 corpus.

7 All Czech examples were extracted from the ORAL2013 corpus.

- (4) tam byl takovej bar a takový prostě . sezení . a . měli tam *foťbálek a kulečník a takový věci*  
 “there was this bar with just . seats . and . they had *a table soccer and a billiard table and stuff like that*”
- (5) A: I was thinking about would --ANONnameM have any of his friends? He’s not fussed about --ANONnameM **or people like that** is he?  
 B: er probably not
- (6) tehdy . já sem nevěděl *tu pointu* co dneska .. eee neco mně manželka říkala znala Jitku jako manželku jeho *co a jak ohledně tych dětí a to všecko*  
 “back then . I didn’t get *the point* that I now understand .. ah my wife told me something she knew Jitka as his wife *what with the kids and all that*”

The interpretation of the GEs in (1) and (2) as category identifiers relies on the globally shared categories of communication channels (1) and vegetable (2). In (3) and (4), the ability to infer the categories rests on the knowledge of *the BBC in the olden days* and of the kind of games usually played in bars or pubs which is shared by a particular discourse community. In the case of (5) and (6), we have no way of knowing what *other people like that* and *a to všecko* “and this all” may refer to as the context necessary for a successful category inference is local, i.e. shared only by a handful of people with common background knowledge.

Finally, it follows that as expressions “encoding shared knowledge” (Fernandez and Yuldashev 2011, 2610), GEs can be understood in terms of building solidarity with the conversational participant, and that the more we move along the contextual scale in the direction from global to local contexts, the stronger the notion of “in-group membership” and “camaraderie” (Tárnyiková 2009, 116; cf. Novotný 2018, 41).

### 3.2.2 Approximation – GEs as Hedges on Gricean Maxims

As mentioned above (3.2.1), category identification is one of the most frequent functions of GEs – the other is approximation. These two basic functions can usually be determined formally, i.e. while adjunctive GEs indicate that “there is more” but this “more” can be omitted,<sup>8</sup> the disjunctive GEs mostly indicate that the preceding part of an utterance may be inaccurate.<sup>9</sup> Although disjunctive extenders can also function as category identifying devices, as in (5), they are primarily used to imply the speaker’s “lack of commitment to the accuracy of her assertion” (Overstreet 1999, 114).

8 See exx. (1)–(4) and (6).

9 See exx. (7)–(10).

In (7)–(10), we can see that the approximation can be expressed by forms with a varying degree of specificity, and applied to various situations which often involve speakers' uncertainty, e.g. choosing a specific lexical item, as in (7) and (8), stating numbers (9) or reporting someone else's actions or speech (10) (for pragmatic reasons why people may opt for vagueness in conversation, cf. Bazzanella 2011, 22; Overstreet 1999, 111–124).

- (7) uh *perfuse* or *infuse* or *diffuse* **or whatever the word is**
- (8) pustila sem si . kriminálku to . *Vraždy v Minsdorfu* **nebo jak se to menuje**  
“I turned on . that detective drama . *Minsdorf murders* **or what it's called**”
- (9) *hundred pounds* **or something**
- (10) a .. vona mu tam napsala vzkaz eee *jestli se něco děje můžete se na mě . s klidem obratit* **nebo něco takovýho...**  
“and .. she wrote a note for him aah *if something's up feel free to contact me* **or something like that**”

The cooperative principle dictates: “Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged” (Grice 1975, 45). Category-identifying and approximating GEs can thus be interpreted as hedges on expectations arising from the Gricean Maxims of Quantity and Quality, respectively (Overstreet 1999, 2014; cf. also Novotný 2016; 2018; Novotný and Malá 2018):

Quantity hedges “give notice that not as much or not as precise information is provided as might be expected” (Brown and Levinson 1987, 166);

Quality hedges “suggest that the speaker is not taking full responsibility for the truth of the utterance” (ibid., 164).

The category-identifying and approximating functions constitute the basic functional layer of these multifunctional pragmatic markers. The additional functions that layer on top of these basic functions will be illustrated in Sections 3.2.3 – 3.2.6 below. It should also be noted that with regard to expressing category-identifying and approximating functions, no difference between Czech and English GEs was attested.

### 3.2.3 *Limiting the Vagueness of Reference and Means of Explicit Evaluation*

Given the flexibility of collocational frames of GEs, certain items can be inserted into the most basic GE construction of [conjunction + noun phrase]. Syntactically, these

inserts may be premodifiers or postmodifiers. They either help to delimit the notional category identified by the GE while carrying no attitudinal function (e.g. *and all that white goods stuff, or some sort of biscuity cake thing, a takové ty věci na zimu* “and those things for the winter”) or, in contrast, express “a particular attitude of the speaker towards the message” (Martínez 2011, 2455; cf. also Aijmer 1985; Overstreet and Yule 1997; Overstreet 1999), e.g. *and just horrible horrible stuff, or something stupid / silly / shit like that*.

The category that the GE refers to can also be specified by replacing the generic nominal or pronominal head (e.g. *stuff, things / věci*) with a name of the “notional category proper” (Tárnyiková 2009, 127; see exx. (11)–(14)).<sup>10</sup>

- (11) and on the cards are like pictures of things like *washing machine and cookers* **and** **(.) all sorts of white goods**
- (12) he’s had *Alzheimer’s* **and all sorts of other health issues** and has been going downhill steadily for a couple of years
- (13) jo to znáš takové to *Jeanny a Rock me Amadeus* **a takové ty písničky**  
“you know those *Jeanny and Rock me Amadeus* **and songs like that**”
- (14) no tak co sem viděl jako z těch filmů tak .. ten *Amsterdam* **a takový ty města**  
“... *Amsterdam* **and cities like that**”

Halliday and Hasan (1976, 276) point out that certain generic nouns can introduce “an interpersonal element into the meaning,” which is absent from personal pronouns or semantically empty nouns, such as *stuff* or *věci*. Consider, for example, the excerpts (15–18).

- (15) have you just been talking *politics* **and shit?**
- (16) man my abs today are really killing me (.) --ANONnameM had me doing *scissors kicks* **and all kinds of shenanigans** yesterday
- (17) *Kocáb* **a tydlety pitomci**  
“*Kocáb* **and those nitwits**”<sup>11</sup>

10 Novotný (2018, 47) uses the term specific extenders (as opposed to general extenders) if the GE comprises a modifier or the name of the notional category proper. For the sake of convenience and space, we refer to both as GEs here.

11 Michael Kocáb is a Czech musician and, since the late 1980s, a politician.

- (18) samozřejmě že pak někdo bude s náma ze všema vyjednávat *že nám nic nedají a že nám to budou započítávat na budoucí povinnosti a takový ty frky*  
 “then of course someone’ll tell all of us *that we’ll get nothing and that the money will be kept for our future obligations and that kind of malarkey*”

English and Czech appear to differ with respect to the means of expressing the attitudinal function: while English seems to use both modifiers (e.g. *and just horrible horrible stuff*) and expressive nouns (exx. (15) and (16)), Czech tends to rely on the latter (exx. (17) and (18)) only.

The only GE form that seems to be shared between multiple languages (if we disregard the conjunction, which is not obligatory (Overstreet 1999, 11)) is the one comprising the onomatopoeic word *bla(h)*. This form is often used to express a negative attitude towards the message (e.g. reported speech in (19)), while indicating that “there is/was more of the same”, i.e. performing the category-identifying function. In (20), the negative evaluation is made explicit by the turn-final GE *takové ty blbosti* “that kind of nonsense” without the initial conjunction.

- (19) . . . he was saying all the stuff that you know *I want you to be my girlfriend (.)*  
*I want you to commit to me and blah blah blah*
- (20) mně de o to abych měl praxi abych mohl . se nějakým způsobem prezentovat *že tohle sem dělal . tohle mám todle mám vyzkoušený tohle umim můžu vám můžu vám to nabídnout tudle práci a bla bla bla . takové ty blbosti*  
 “. . . *that I have done this . I have tried that I can do this I can offer you this kind of work and blah blah blah . that kind of nonsense*”

### 3.2.4 GEs as Intensifiers – Implicit Evaluation

In the previous section, we analyzed the explicit means that speakers can use in GEs to express the attitudinal function, i.e. context independent, evaluative modifiers or expressive nouns. In addition, certain GE forms (e.g. *and everything, or anything, a všechno* “and everything”, *nebo co* “or what”) have the potential to intensify positive and negative evaluation. The evaluative interpretation of these GEs is completely context dependent, i.e. the GEs cannot express evaluation by themselves. Consider, for example, the GE *nebo co* in (21) and (22). In (21), *nebo co* functions as a mere approximator, while the primary function of the same GE form in (22) seems to be that of evaluation, more specifically expressing irritation.<sup>12</sup>

12 We can support this interpretation by substituting the GE with another GE form that can only function as an approximator (e.g. *nebo něco takovýho* “or something like that”): whereas *I had a carbonated water or something like that* makes sense, *\*she’s avoiding me or something like*

(21) tam . sem si dal *mysim sodovku* **nebo co**  
 “there . I had *I think carbonated water* **or what**”

(22) A: ale třeba nevím jesi ses bavila s Emou  
 B: ne vona je . se mi ňák vyhybá **nebo co**  
 “A: but I dunno have you talked to Emma?  
 B: no she’s . she’s avoiding me **or what**”

Overstreet (1999, 146) claims that *and everything* is often used as an intensifier “to express an evaluation of something as remarkable, surprising, or (a maximum) extreme”. It seems that the corresponding Czech GE *a všechno* is also used in this way. Consider, for instance, the way these GEs are used to intensify a negative attitude towards a message (see (23) and (24); cf. Overstreet and Yule 2002; Novotný and Malá 2018).<sup>13</sup>

(23) A: >> well my hairdresser’s is a kind of slightly chavvy hairdresser’s where they do nails as well so it’s all these  
 B: oh yeah  
 A: >> great big bright coloured nails  
 B: yeah  
 A: >> *really awful ones* **and everything**  
 B: >> mm

(24) jo Lido já ho vobslužim dyž chodí do práce . ale dyž se furt válí doma jak svinskej hnát . *já pak po nocích meju nádobí a všechno* já ho tak nenávidím já ti nemůžu nic dělat ...  
 “yeah Lida I’ll attend to him when he goes to work . but he’s always just lying around at home like a lazy pig . *I then spend the nights doing the dishes* **and everything** I hate him so much there’s nothing I can do”

In contrast, *or anything* is often “used to express an evaluation of something as surprising, or (a minimum) extreme” (Overstreet 1999, 147). The speaker in (25), for example, informs her listener how she and her family visit their 100-old-year grandmother who *doesn’t . . . even wake up* anymore. Following Overstreet’s claim, we argue that the speaker uses *or*

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*that* does not. The Czech GE *nebo co* is a particularly interesting form because of its potential to function as a neutral approximating GE and to intensify evaluative utterances in both declarative and interrogative sentences. The English counterpart *or what*, in contrast, is hardly ever used as an approximator or intensifier in declarative sentences.

13 The examples illustrating the intensification of positive evaluation have been left out for reasons of space (cf. Novotný 2018).

*anything* to mark the act of waking up as a minimum extreme of what we could expect from the people we visit. This interpretation is supported by the intensifier *even*.

- (25) erm and of course you go and *nan doesn't speak to you or even wake up or anything*  
so it's she doesn't really know you've been . . .

While in the case of *and everything* we were able to attest that a corresponding form (*a všechno*) with a similar functional potential exists in Czech, we did not find a corresponding Czech form for *or anything*.<sup>14</sup>

### 3.2.5 GEs Used as Politeness Strategies

As noted by Tárnyiková (2009, 116), “the contribution of [vague language] to more informal and less tense communicative situations opens up space for the intersection of vagueness and politeness.” Politeness strategies, as introduced by Brown and Levinson (1987), are based on Goffman’s (1967) notion of “face” as well as Grice’s (1975) cooperative principle. In simple terms, it is in everyone’s best interest to cooperate and be polite in a conversation as our (verbal) actions reflect on our character, i.e. how we are perceived by others.

Brown and Levinson (1987) distinguish between negative and positive politeness; the former is associated with one’s need for independence, the latter with one’s need for connection. Disjunctive GEs are typically used as negative politeness devices for tentative requests, invitations and proposals (cf. Overstreet 1999; 2014). In (26) and (27), we can see how the GEs *or something* and its Czech counterpart *nebo něco* can be used in polite offers to imply that there is an alternative option, thus showing the speaker’s willingness to compromise. Significantly, the B speakers ask for something which was not explicitly offered (*coco* [*sic*], *čaj* “tea”), and they are able to do so without the risk of losing their face because the GEs licensed an alternative option.

- (26) A: yep (.) okay (.) well shall we go and make *coffee or something*?  
B: *coco*  
A: or *coco*?  
B: yes I would love a cup of *coco* tonight

14 Since *or anything* primarily occurs in negative environments (cf. Overstreet 1999, Novotný 2016), the conjunction *ani* “and not” could also be included in future research to account for examples such as *ale my nemáme vůbec žádný zvířata ani slepice ani nic takového* “but we don’t have any animals no hens or anything like that”. The question that is beyond the scope of this study is whether the GE *ani nic takového* is used to express intensification in the way *or anything* is.

- (27) A: chceš uvařit *kafe nebo něco*  
 B: si dám čaj  
 “A: you want *coffee or something*  
 B: I’ll have *tea*”

Overstreet (2014, 121) further claims that adjunctive GEs are often used to “signal an assumption of shared experience and solidarity with the addressee, thereby marking attention to the addressee’s self-image.” This can be interpreted as a positive politeness strategy, which is especially noticeable in highly interactive conversations, where the meaning is created collaboratively by the conversation participants. This is closely connected with the contextual scale in Section 3.2.1., i.e. the more local the contexts, the more solidarity with the hearer is being expressed. The cooperation of the interlocutors is particularly noticeable in (3), especially in the last two utterances with adjunctive GEs *and stuff*, *and everything*.

### 3.2.6 GEs in Formulas

Overstreet and Yule (2001; 2002) mention two formulaic constructions which include GEs: “X and everything, but Y” and “not X or anything, but Y”. The first has a “clarification function and is used by speakers/writers to anticipate and emphasize the existence of expectations intersubjectively understood in connection with certain behaviour or events (X), before they offer a justification (Y) for thinking [or acting] contrary to those expectations” (Overstreet and Yule 2002, 785).

Semantically, these utterances convey similar messages to those introduced by concessive clauses. The utterance in (28) could thus be reworded as “although she has a degree (X) + (possible intersubjective expectation indicated by *and everything* = she would do the job) + she didn’t want to do this job [Y]”, and similarly in (29), “even though they had a church wedding (X) + (possible expectation: they would be happy) + it didn’t work out (Y)”.

We can assume that given the structural complexity of concessive clauses, speakers may choose this formulaic expression as an alternative (for more examples, cf. Overstreet 1999; Novotný 2018, 57–58).

- (28) mm (.) well *she has a degree and everything but she just didn’t wanna do it didn’t wanna work*

- (29) A: přitom *měli svatbu v kostele* =  
 B: = to je pak problem no .  
 A: = **a všechno možný ale prostě . totálně to nefungovalo**  
 “A: *they had a church wedding* =  
 B: = that’s a problem .  
 A: = **and everything but it just . didn’t work out**”

The construction “not X or anything, but Y” can be described as an “impression-management” (Goffman 1959, 208) device. Considering (30), we may see that A, upon realizing that what she is about to say ( $Y = I'd\ never\ met\ anyone\ who\ was\ so\ expressive$ ) may be perceived as a problematic action (or ‘virtual offense’ (Goffman 1971, 108–9)) by B. Speaker A therefore disavows the unfavourable interpretation ( $X = don't\ take\ this\ nastily$ ) along with other possible negative interpretations (*or anything*) in advance.

Unlike with the previous formula, no corresponding construction with a GE was attested in Czech. In similar situations, however, Czech speakers seem to have at their disposal “‘response-controlling *but*-prefaces’ (Baker 1975, 37–42) . . . (of the type: not X, but Y)” (Overstreet and Yule 2001, 50), as in (31).

(30) A: and I find that quite a compliment that you say that because (.) like *don't take this nastily or anything but I'd never*

B: >> **no**

A: *I'd never met anyone who was so like expressive*

(31) *nechci otravovat ale ono to asi je za chvilu jo*

*“I don't want to be a nuisance but it is likely to start in a moment”*

#### 4. Conclusion

The aim of this paper was to apply analytical approaches used for the study of English GEs to their relatively unexplored Czech counterparts. In the first stage of the study, we collected over 300 unique GE forms, creating the first comprehensive list of Czech GE forms, while enriching the lists that exist for the English extenders. We then suggested several productive GE patterns based on the structural similarity of some of the collected forms. The second aim of this study was to explore to what extent the functional categorization of English GEs can be applied to the corresponding Czech GEs. Our results suggest that GEs in both languages share a strikingly similar functional potential in both ideational and interpersonal domain. The two languages were found to differ in the preferred means of expressing the attitudinal function, with English relying on expressive modifiers and nouns and Czech favouring nouns. Furthermore, the Czech GE *nebo co* (unlike its English counterpart *or what*) can function as an approximator and intensifier even in declarative sentences. Finally, it seems that while the formulaic construction “X and everything, but Y” has its counterpart in Czech (“a všechno (možný) ale”) both in terms of form and functional load, Czech does not employ any GE construction that would correspond functionally to the English formula with the GE *or anything*.

This study is essentially a broad overview of the largely unexplored Czech GEs that raises at least as many questions as it answers. More research, combining comparable and parallel corpora of English and Czech, is also needed to explore the range of means employed in Czech to render the functions of English GEs.

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## Appendix: Tables 1 and 2

| Czech general extenders |                                 |                                        |                                    |
|-------------------------|---------------------------------|----------------------------------------|------------------------------------|
| Adjunctive (a)          |                                 | Disjunctive (nebo)                     |                                    |
| 1                       | <i>a to všechno</i>             | <i>a takový ty frky</i>                | <i>nebo něco</i>                   |
| 2                       | <i>a to všechno možný</i>       | <i>a takové ty srandy</i>              | <i>nebo tak něco</i>               |
| 3                       | <i>a všechno možnýho</i>        | <i>a takové ty věci na zimu</i>        | <i>nebo něco tak</i>               |
| 4                       | <i>a to všechno</i>             | <i>a takovýdle věci</i>                | <i>nebo prostě něco</i>            |
| 5                       | <i>a všechno možné</i>          | <i>a takovýdle ty věci</i>             | <i>nebo tak</i>                    |
| 6                       | <i>a tak všechno</i>            | <i>a takovýdle ty hovadiny</i>         | <i>nebo tak nějak</i>              |
| 7                       | <i>a všechno</i>                | <i>a takové věci</i>                   | <i>nebo nějak tak</i>              |
| 8                       | <i>a všechno úplně</i>          | <i>a takové ty věci</i>                | <i>nebo tak ňák</i>                |
| 9                       | <i>a podle všechno</i>          | <i>a taďy takové věci</i>              | <i>nebo ňák tak</i>                |
| 10                      | <i>a taďy toto všechno</i>      | <i>a tydle věci</i>                    | <i>nebo takle</i>                  |
| 11                      | <i>a všechno todle</i>          | <i>a takový tydle věci</i>             | <i>nebo něco takle</i>             |
| 12                      | <i>a takový ty všechny věci</i> | <i>a taďy tydle ty věci</i>            | <i>nebo ňák takle</i>              |
| 13                      | <i>a všechny možný věci</i>     | <i>a takovýhle věci</i>                | <i>nebo někde</i>                  |
| 14                      | <i>a takové všechny věci</i>    | <i>a tyhle věci</i>                    | <i>nebo někdo</i>                  |
| 15                      | <i>a všechno</i>                | <i>a tydlety věci</i>                  | <i>nebo něčeho</i>                 |
| 16                      | <i>a tohleto všechno</i>        | <i>a taďy tydlety věci</i>             | <i>nebo někam</i>                  |
| 17                      | <i>a všechno ostatní</i>        | <i>a tak ňák</i>                       | <i>nebo ňákou</i>                  |
| 18                      | <i>a tamto všechno</i>          | <i>a takový</i>                        | <i>nebo takhle</i>                 |
| 19                      | <i>a tak</i>                    | <i>a takový prostě jako ptákovinky</i> | <i>nebo takhle ňák</i>             |
| 20                      | <i>a tak dále</i>               | <i>a todle</i>                         | <i>nebo cosi</i>                   |
| 21                      | <i>a tak podobně</i>            | <i>a vůbec všeho</i>                   | <i>nebo něčím</i>                  |
| 22                      | <i>a takle</i>                  | <i>a podobně</i>                       | <i>nebo taklenc</i>                |
| 23                      | <i>a takhle</i>                 | <i>a něco takovýdleh</i>               | <i>nebo něco takovýho</i>          |
| 24                      | <i>a takhle různě</i>           | <i>a něco takovýho</i>                 | <i>nebo takovýho něco</i>          |
| 25                      | <i>a takový věci</i>            | <i>a žádný takovýdle věci</i>          | <i>nebo prostě něco takovýho</i>   |
| 26                      | <i>a takový ty složitý věci</i> | <i>a takové prostě věci</i>            | <i>nebo něco takového</i>          |
| 27                      | <i>a takový ty serepetičky</i>  | <i>a všechny tydle věci</i>            | <i>nebo něco takovýdleh</i>        |
| 28                      | <i>a takový ty kecy</i>         | <i>a různý věci</i>                    | <i>nebo něčeho takovýho</i>        |
| 29                      | <i>a takový blbosti</i>         | <i>a prostě takhle</i>                 | <i>nebo prostě něčeho takovýho</i> |
| 30                      | <i>a takový ty věci</i>         | <i>a bla bla bla</i>                   | <i>nebo cosi takového</i>          |
| 31                      | <i>a takový různý věci</i>      | <i>a kdesi cosi</i>                    | <i>nebo cosi takovýho</i>          |
| 32                      | <i>a takové ty písničky</i>     | <i>a todleto</i>                       | <i>nebo takového cosi</i>          |
| 33                      | <i>a takový ty města</i>        | <i>a todle a tamto</i>                 | <i>nebo něčím takovým</i>          |
|                         |                                 | 66                                     | 66                                 |

Table 1. Collected Czech GE forms

| English general extenders                |                                     | Disjunctive (or)                      |
|------------------------------------------|-------------------------------------|---------------------------------------|
| Adjective (and)                          |                                     |                                       |
| 1 and all sorts of stuff                 | and all of this kind of thing       | or some bullshit like that            |
| 2 and all this kind of stuff             | and all of this kind of stuff       | or some crap                          |
| 3 and all sorts of bits and pieces       | and all of that sort of thing       | or some kind of science               |
| 4 and all sorts of different colours     | and all of that sort of stuff       | or some rubbish                       |
| 5 and all sorts of diseases              | and all of + similar forms as above | or some shit                          |
| 6 and all sorts of other health issues   | and all the stuff                   | or some shit like that                |
| 7 and all sorts of things                | and all that stuff                  | or some sort of drug                  |
| 8 and all sorts of white goods           | and all this stuff                  | or some sort of fish                  |
| 9 and all that kind of stuff             | and all this other stuff            | or whatever it is/was                 |
| 10 and all that kind of shit             | and all that other stuff            | or whatever the phrase is             |
| 11 and all that kind of thing            | and all that bollocks               | or whatever the word is               |
| 12 and all these kind of things          | and all that bullshit               | or something or other                 |
| 13 and all this kind of bollocks         | and all that business               | or whatever the hell                  |
| 14 and all this kind of shit             | and all that dirt                   | or thereabouts                        |
| 15 and all this kind of thing            | and all that fucking shit           | or some kind of shared music          |
| 16 and all kinds of stuff                | and all that fucking bullshit       | or some sort of biscuity cake thing   |
| 17 and all that sort of business         | and all that nonsense               | or some stupid arbitrary figure       |
| 18 and all that sort of shit             | and all that shit                   | or some such whatever                 |
| 19 and all that sort of stuff            | and all that rubbish                | or any of that kind of stuff          |
| 20 and all that sort of thing            | and all that lot                    | or any of that rubbish                |
| 21 and all them sort of people           | and all of that                     | or any of that sort of thing          |
| 22 and all them sort of things           | and all of that spy stuff           | or people like that                   |
| 23 and all these sort of jobs            | and all of that flapping around     | or stuff like that                    |
| 24 and all these sort of clean-up things | and all of that stuff               | or things like that                   |
| 25 and all this sort of shit             | and all of this stuff               | or this or that                       |
| 26 and all this sort of stuff            | and all that plastic stuff          | or just something like that           |
| 27 and all this sort of thing            | and all that white goods stuff      | or all that sort of stuff             |
| 28 and all those sorts of things         | and all this stupid stuff           | or all that kind of thing             |
| 29 and all kinds of malarkey             | and all of these things             | or all that kind of stuff             |
| 30 and all kinds of shenanigans          | and all of those things             | or all that kind of thing             |
| 31 and all kinds of shit                 | and all the other things            | or all that kind of thing             |
| 32 and all kinds of things               | and all these different things      | or that kinda thing                   |
| 33 and all of those sorts of things      | and all these stupid things         | or that or the other                  |
| 34 and all of that kind of thing         | and all these things                | or any of those things                |
| 35 and all of that kind of stuff         | and all those things                | or any other mass entertainment thing |

Table 2. Collected English GE forms



# Expressing Time in English and Czech Children's Literature: A Contrastive N-gram Based Study of Typologically Distant Languages

Denisa Šebestová<sup>a</sup> and Markéta Malá<sup>b</sup>

Charles University, Prague, Czech Republic

<sup>a</sup>Denisa.Sebestova@ff.cuni.cz; <sup>b</sup>Marketa.Mala@ff.cuni.cz

**Abstract:** The study explores the expression of time in English and Czech children's fiction using n-gram extraction. This raises the methodological question of the contribution of n-gram based approaches to language comparison. We extract 2-5-grams (i.e. continuous sequences of 2–5 words) from comparable corpora of English and Czech children's fiction. The consistently higher type/token ratios in Czech point to a higher variability of Czech, characterized by morphological variability and free word-order. The qualitative part of the analysis focuses on n-grams relating to time. While n-grams proved a useful starting point in cross-linguistic analysis, highlighting typological characteristics of the languages, the study suggests that more flexible units may be needed for exploring the means of expressing time. We propose relying on patterns which are based on partly lemmatised frequent n-grams and admit some variation.

**Keywords:** n-grams; children's literature; contrastive analysis; typologically distant languages

## 1. Introduction

### 1.1 Motivation

The present paper aims to address two issues raised by previous studies dealing with children's literature and phraseology. First, we explore how time is expressed in English and Czech children's fiction (cf. Hunt 2005; Thompson and Sealey 2007). We have opted for a contrastive approach in order to acquire a broader perspective on the genre of children's fiction. Moreover, as previous n-gram based research (Čermáková

and Chlumská 2016; Šebestová and Malá 2018) suggested, there may be differences between Czech and English within a single text type, stemming from cultural specificity.

Our approach is rooted in frequency-based phraseology, relying on the neo-Firthian phraseological tradition, “where meaning . . . is said to reside in multi-word units rather than single words” (Ebeling and Ebeling 2013, 65). By identifying recurrent multi-word patterns in texts of children’s fiction, “we are able to uncover lexical networks that contribute to the construction of literary meaning and cohesion in the text that is of specific importance for the young reader” (Čermáková 2018, 130).

The study is data-driven, based on n-gram extraction. This raises the second, methodological question of “the potential contribution” of n-gram based approaches to language comparison (Granger 2014). Judging by the outcomes of previous research, n-grams appear to be a useful starting point when comparing typologically related languages, and rather “challenging” when dealing with typologically distant ones, such as English and Norwegian, Spanish or Czech (Cortes 2008; Čermáková and Chlumská 2017; Ebeling and Ebeling 2013; Hasselgård 2017a, b). The present study focuses on two languages of very different typological characteristics: while English is predominantly analytical, Czech is a language with rich inflection and free word-order.

## 1.2 Children’s Fiction

As suggested by previous research, n-grams are highly sensitive to register (e.g. Biber et al. 2004; Gries et al. 2011). We view the category of register as “a variety associated with a particular situation of use” (Biber and Conrad 2009, 6). Particular “linguistic features tend to occur in a register because they are particularly well suited to the purposes and situational context of the register” (2009, 6). Our study is hoped to reveal such register-specific features, viz. phraseological units used to express the category of time in the register of children’s literature.

It is important to note that children’s literature fulfils highly specific functions. Being among the first texts encountered by children, it contributes to the linguistic development of its readers (Čermáková and Chlumská 2016). Crucially, it also has a didactic function and aims to assist the process of socialization. Overall, children’s literature is “culturally formative, and of massive importance educationally, intellectually, and socially” (Hunt, 1990; cited in Thompson and Sealey 2007, 4).

The delimitation of the register of children’s literature is based on an external unifying criterion, namely its intended audience, composed of young readers. It comprises a wide range of works. The present study, however, focuses merely on narrative fiction<sup>1</sup> written for children. Children’s narrative fiction can be expected “to

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1 The centrality of narrative in children’s fiction was pointed out, for instance, by Knowles and Malmkjaer (“For us children’s literature is any narrative written and published for children” [1996, 2]) or Hunt (in children’s literature “narrative dominates” [1991, 18, cited in Sunderland 2011, 3]).

contain n-grams denoting times and places where narrative events unfold” (Thompson and Sealey 2007, 11) (e.g. *for the first time, out of the window*). However, in children’s fiction, “protagonists . . . may be represented as experiencing both time and space in slightly different ways from those in adult fiction” (2007, 18).

### 1.3 Temporal Meanings in Text

First, let us outline a distinction which will be adhered to in the present study. We will differentiate between temporal meanings expressed by adverbials, as opposed to temporal localization through finite verbs. The grammatical categories of the finite verb serve to contextualize the verbal action in relation to the moment of speaking (Daneš et al. 1987, 87). They are obligatory in clausal propositions. For this reason, we disregard verb forms in our data, concentrating on adverbials only.

It is also important to note that there is a large degree of formal variety of temporal adverbials (the following examples are invented for the sake of illustration). In both Czech and English, we may find temporal adverbials realised by the following grammatical forms:

- noun phrases *tento **večer** / this **evening**,*
- prepositional phrases *o **Vánocích** / at **Christmas**,*
- adverb phrases ***nakonec** / **finally**,*
- clauses ***až** **přijdete** / **when** you arrive.*

In each form of adverbial, the temporal meaning is carried by a particular time related expression (highlighted in bold in the expressions above).

There is also a great degree of synonymy: cf. *tento večer / dnes večer; this evening / tonight / today evening*. This may be due to the linear character of temporal localization, as opposed to the many-sided character of spatial localization, leading to a greater degree of semantic differentiation in adverbials of space (Daneš et al. 1987, 89).

Grammatically, temporal adverbials represent a syntactically optional layer, i.e. they are not universally required by verb valency (1987, 87). From the functional viewpoint, they serve as temporal framing of the proposition, localising the action in time. They may frame the action with respect to an “orientator” (1987, 88), such as a period of time (*at Christmas, today*), or to an action or state during which the propositional content is valid (*at today’s meeting*).

## 2. Material

The research reported on in this article draws on two comparable corpora of children’s fiction, Czech and English, comprising almost 1 million words each (see Table 1). They were compiled as sub-corpora of the Czech National Corpus (SYN 6) and the British National Corpus, respectively.<sup>2</sup>

<sup>2</sup> The selection of the texts is based on the descriptive category of target audience age (“JUN” in *CNC*, “child audience” in *BNC*).

| Language                     | Czech   | English |
|------------------------------|---------|---------|
| Number of tokens             | 950,077 | 946,573 |
| Number of texts <sup>3</sup> | 25      | 33      |

**Table 1.** Characteristics of the corpora used

Both corpora were accessed using the same interface, KonText.<sup>4</sup>

### 3. N-gram Extraction

In the present study, n-grams will be defined as “recurring strings, with or without linguistic integrity” (Lindquist and Levin 2008, 144), such as *and what he; on the*.

English and Czech n-grams which correspond to each other semantically may be of the same or of quite different sizes (ex. (1), with corresponding English and Czech n-grams in bold).

- (1) (a) **Od té doby** se říká ... (3-gram) - **Since that time** . . . it is said . . . (3-gram)
- (b) Tom was silent **for a long time**. (4-gram) – Tom **dlouho** mlčel. (1 word)
- (c) **Od té doby** jsme spolu už pořád. (3-gram) – **Since then** we’ve been together all the time. (2-gram)

Following Granger (2014, 60), we included n-grams of several lengths, ranging from 2- to 5-grams, to “minimize these differences”. We decided to include punctuation inside n-grams longer than two words, i.e. neither as the initial nor as the final item of the n-gram. This proved quite important for Czech, where subordinators are obligatorily preceded by a comma (2a). In both languages, including punctuation highlighted the importance of direct speech in children’s literature (2b, c).

- (2) (a) Přesně od **té doby, co** se valachům roděj hříbata, pane králi.  
 “Exactly since **the time that** geldings give birth to foal . . .”
- (b) “To **mám,**” **odpověděl** princ Jeník po pravdě, . . .  
 “I have,” answered prince Jeník . . .
- (c) “Thank **you,**” **she** said, “I’ll come.”

3 The number of texts in each corpus is different because the English corpus comprises book extracts, while the Czech corpus is composed of whole books.

4 For information on the interface, see [wiki.korpus.cz/doku.php/en:manually:kontext:index](http://wiki.korpus.cz/doku.php/en:manually:kontext:index)

The total numbers of n-grams, types and tokens, for both languages are given in Tables 2 and 3 (for Czech and English, respectively). The consistently higher type/token ratios in Czech point to a higher variability of Czech. This can be explained by the typological differences between the two languages. Two primary factors may account for the variation in Czech: morphological variability due to inflection, and free word-order.

| Czech  | Tokens – total | Tokens – ipm | Types – total | Type-token ratio |
|--------|----------------|--------------|---------------|------------------|
| 2-gram | 606,158        | 638,009.34   | 349,722       | 57.7             |
| 3-gram | 541,704        | 570,168.52   | 477,820       | 88.2             |
| 4-gram | 494,958        | 520,966.20   | 477,712       | 96.5             |
| 5-gram | 458,031        | 482,098.82   | 451,891       | 98.7             |

**Table 2.** Total numbers of n-grams (types and tokens) in the Czech corpus (ipm = items per million tokens)

| English | Tokens – total | Tokens – ipm | Types – total | Type-token ratio |
|---------|----------------|--------------|---------------|------------------|
| 2-gram  | 644,530        | 680,908.92   | 210,348       | 32.6             |
| 3-gram  | 576,193        | 608,714.81   | 418,524       | 72.6             |
| 4-gram  | 522,865        | 552,367.33   | 482,576       | 92.3             |
| 5-gram  | 474,548        | 501,332.70   | 464,264       | 97.8             |

**Table 3.** Total numbers of n-grams (types and tokens) in the English corpus (ipm = items per million tokens)

The degree of variability may be reduced to some extent by lemmatization. The three most frequent lemmatized bigrams in both languages are listed in Table 4, together with the numbers and examples of unique forms<sup>5</sup> subsumed under the bigram. The high numbers of different forms pertaining to a lemmatized bigram in Czech reflect the inflectional possibilities of grammatical words, absence of articles, and lesser representation of prepositions in Czech.

<sup>5</sup> Spelling variants are listed as separate forms (e.g. *it is*, *It's*, *it's*, and *IT'S* are counted as four distinct forms).

| Rank | Czech                          |             |             |                              | English |             |             |                            |
|------|--------------------------------|-------------|-------------|------------------------------|---------|-------------|-------------|----------------------------|
|      | Lemma                          | Lemma total | Forms total | Examples                     | Lemma   | Lemma total | Forms total | Examples                   |
| 1    | TEN BÝT<br>"that be"           | 2,906       | 207         | <i>to je,<br/>toho byla</i>  | IT BE   | 4,140       | 13          | <i>it was,<br/>it's</i>    |
| 2    | BÝT TEN<br>"be that"           | 2,707       | 166         | <i>je to,<br/>Byla to</i>    | DO NOT  | 3,584       | 11          | <i>don't,<br/>does not</i> |
| 3    | BÝT SE<br>"be<br>se-reflexive" | 2,514       | 70          | <i>jsem se,<br/>byste si</i> | IN THE  | 3,089       | 4           | <i>in the,<br/>In the</i>  |

**Table 4.** The most frequent lemmatized 2-grams in Czech and in English and the forms pertaining to them (lemmata are written in capitals)

The second factor contributing to the high degree of variation in Czech, free word-order, manifests itself at the level of bigrams too – the two most frequent Czech lemmatized bigrams are positional variants. It asserts itself to a larger extent in longer Czech n-grams. The most frequent Czech lemmatized 4-gram, SE MYSLET, že (“se-reflexive think that”), for instance, occurs in four word-order alternations, e.g. *si myslel, že / myslím, že se / myslel sis, že / , že si myslíte*.

#### 4. N-gram Analysis

In the qualitative part of the analysis, we focused on 3- and 4-grams only, and classified the most frequent 250 ones for each language semantically.<sup>6</sup> The representation of the major semantic classes is given in Table 5 (with English examples). The results correspond closely with the observations on semantic classes of keywords in English children’s fiction (against the background of adult fiction) presented by Wild et al. (2012), revealing the centrality of modality, space, perception and verbs related to speaking and reporting in children’s literature. The importance of repeated clusters relating to characters, which “trigger recall of the features associated with the characters” (Toolan 2001, 113, cited in Čermáková 2018, 127), was pointed out by Mahlberg (2007) and Čermáková (2018).

While “a concern for time is striking” in adult fiction, in English children’s fiction it is space (Wild et al. 2012, 201). The category of time (even if conceived broadly to include also time/space overlaps) is indeed less prominent in our English data than that

<sup>6</sup> 2-grams are difficult to classify semantically since they comprise mostly grammatical words; 5-grams since they are often semantically complex. Another reason given by Biber et al. (1999, 990) for not including 2-grams in their analysis is that “shorter bundles are often incorporated into more than one longer lexical bundle”. The 250 most frequent 3- and 4-grams were extracted, including also those with the same frequency as the 250th n-gram, which yielded 567 n-grams for English, and 525 for Czech.

of space; in Czech, time seems to play a more important role (for similar results, cf. also Čermáková and Chlumská, 2016).

|                                     | Czech (%) | English (%) | Examples               |
|-------------------------------------|-----------|-------------|------------------------|
| <b>Time, time/space<sup>7</sup></b> | 10.7      | 5.6         | <i>the end of the</i>  |
| <b>Space</b>                        | 5.0       | 15.7        | <i>on the edge of</i>  |
| <b>Modality</b>                     | 9.0       | 12.3        | <i>I don't want</i>    |
| <b>Perception, cognition</b>        | 17.0      | 9.3         | <i>don't know what</i> |
| <b>Speaking, reporting</b>          | 4.6       | 9.7         | <i>said, "I</i>        |
| <b>Characters</b>                   | 6.5       | 1.8         | <i>the king's son</i>  |
| <b>Grammatical</b>                  | 38.9      | 25.2        | <i>if you don't</i>    |
| <b>Other</b>                        | 8.6       | 11.8        | <i>to go to the</i>    |
| <b>Total</b>                        | 100.0     | 100.0       |                        |

**Table 5.** Semantic classification of Czech and English 3- and 4-grams

Following Hasselgård (2017b, 78), an n-gram was considered a temporal one, if a) it forms a complete phrase with temporal meaning (e.g. *for the first time*, *od té doby* – “since that time”), or b) it forms an incomplete structure likely to have temporal meaning (e.g. *for the last*), or c) it contains a lexical word with temporal meaning (e.g. *she had never*, *v tu chvíli se* – “at that moment *se*-reflexive”), or d) it contains a temporal conjunction (e.g. *and when he*, *a když se* – “and when *se*-reflexive”). Prepositions with temporal meanings were not considered sufficient markers of temporal semantics due to their polysemous character. Temporal reference is also expressed by verbal categories: the verb contextualizes the predicate in relation to the moment of speaking (see Section 1.3). We did not consider the temporal properties of verbs “sufficient for marking an n-gram as temporal” (Hasselgård 2017b, 78). Fifty-six Czech types of temporal n-grams and thirty-two English ones were analysed.

The “temporal” words which identify the n-gram as a temporal one are mostly nouns in English (with the exception of one adjective, one adverb and one conjunction), while in Czech there is more variety: adverbs and conjunctions together make up 34 per cent of the n-grams, and there are also 5 examples of units whose temporal meaning arises only from the sum of the words (e.g. *než bys řekl švec* – “before you can say Jack Robinson”).<sup>8</sup>

<sup>7</sup> Some English n-grams, such as *the end of the (week/road)*, are polysemous, and can either refer to time or to space. These were included in the temporal category (17 out of the 32 n-gram types in the class).

<sup>8</sup> These are time-related idiomatic fixed expressions often typical of Czech children’s fiction: *než bys řekl švec*, *do nejdější smrti*, *v tu ránu*, *z ničeho nic*, *od rána do večera* (“before you can say Jack Robinson, as long as you live, instantly, from morning till evening”).

This may testify to the more nominal character of English, relying on temporal prepositional and noun phrases, and the more verbal expression in Czech, where n-grams with conjunctions and adverbs typically comprise verbs or reflexive verbal particles (e.g. *když jsem se* – “when I-was *se*-reflexive”, *a hned se* – “and at once *se*-reflexive”).

### 5. From Temporal N-grams to Temporal Patterns

Apart from the recurrent morphologically invariable closed-set items, such as conjunctions, prepositions or articles, the temporal n-grams often comprise recurrent lexical words: nouns, adjectives and adverbs. The most frequent unambiguously time-related nouns in English are TIME and MOMENT; in Czech, two nouns occur in 12 types of n-grams each, DOBA (“time”) and CHVÍLE (“a while”).

It is recurrent lemmata like these that can be used as starting points for moving from temporal n-grams to temporal patterns. Following Lindquist and Levin (2008, 144), the term “pattern” will be used for “meaningful, linguistically structured recurring sequences of words”. “[M]any phrases are frequent because they are conventional ways of expressing common meanings” (Stubbs 2007, 100). We will focus on patterns formed around the time-related recurrent expressions identified within the temporal n-grams, which are likely to reveal the ways in which temporal meanings are conventionally expressed in children’s literature.

The procedure of identifying patterns on the basis on n-grams can be summarized as shown in Figure 1. The lemmata pertaining to the time-related lexical words which were found to recur in the n-grams were used as search terms, or in other words “cores”. In the corpora of children’s fiction, we searched for clusters of various lengths which comprised these lemmatised “cores” at any position within the cluster. This approach makes it possible to avoid the effects of morphological variation (the “core” is a lemma) as well as word-order variability (the position of the “core” within the cluster is not fixed). Overlapping clusters were lumped together to form patterns, which allow for variable slots.

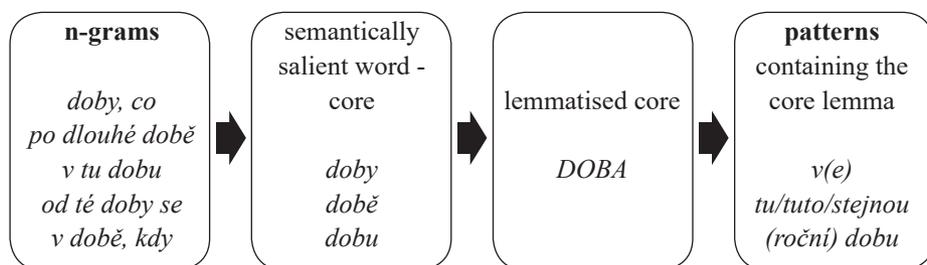


Figure 1. Identifying patterns on the basis on n-grams (*doba* – “time”)

### 5.1 DOBA (“time”)

The lemma DOBA (539 instances in total, 567.32 ipm) occurs most frequently in the following n-grams: (a) *od té doby (se); do té doby; té doby, co; v době, kdy (se); té doby se; v té době* (“(and) since that time (*se*-reflexive), till that time, that time when, at the time when (*se*-refl.), that time *se*-refl., at that time”). Apart from these, a number of time-related expressions including the lemma DOBA were identified in the corpus which were not brought to light by the n-gram extraction due to their variability and lower frequency, such as *od/z (pra-)dávných dob, (a) od těch dob, (již) za těch dob, poslední dobou, (BÝT) tou(to) dobou, (po/za) celou (tu) dobu, (již) dlouhou dobu, po nějaké době, od té doby (, co), v (té) době (, kdy), do (té) doby (, než)*.

There are several recurrent features present in the above patterns which appear to be related to the role of time in Czech children’s literature. Demonstrative pronouns precede (within a 2-word scope) the lemma DOBA in 41.6 per cent of occurrences of the lemma in the corpus.<sup>9</sup> The high frequency of demonstrative pronouns is tied to the cohesive and text-structuring function of temporal patterns (3a, b, c). The noun DOBA serves as a general noun, substituting a preceding expression with temporal reference (a prepositional phrase in (3a, c); a clause in (3b)); the anaphoric tie is explicitly indicated by the demonstrative (*té, tu* – “that”). This is often the case when two simultaneous actions are described (3b). Time is presented as text-internal, pacing the narrative and highlighting important moments (cf. also the adverb *zrovna* – “just” in (3b).

- (3) (a) *Budu na tebe do svítání čekat u brány. Nevrátíš-li se do té doby, vyřídím našemu králi, že má zas o jednoho bláznivého statečného rytíře míň.*  
 “I’ll be waiting for you at the gate till dawn. If you are not back by that time, I’ll tell the king . . .”
- (b) *Dvojobubka zůstala sedět v celé své kráse na měkkém záhonu. Zrovna v tu dobu se mladý sultán probudil a šel se podívat z okna, co se stalo s jeho nevěstou . . .*  
 “Dvojobubka remained seated, beautiful as she was, at the soft flowerbed. Just at that moment, the young sultan woke up and . . .”
- (c) *Po léta dbáme o jeho výchovu, měl nejlepší učitele, ale výsledek je hrozný. Za celou tu dobu se nenačil téměř nic.*  
 “For years we have taken care of his education, . . . , but the result is terrible. In all that time he has barely learnt anything.”

<sup>9</sup> The co-occurrence of the lemma DOBA with demonstrative pronouns is more frequent in children’s fiction than in the general SYN6 corpus (16.8% of instances of DOBA are preceded by a demonstrative in SYN6) and in fiction for adults in the same corpus (32.2%).

DOBA is often rendered as non-specific (*od/z (pra-)dávných dob* – “since/from ancient times”, *v dávných dobách* – “in ancient times”, *po nějaké době* – “after some time”, *poslední dobou* – “recently”) (4) and in some respect extreme (*(po/za) celou (tu) dobu* – “in all that time”, *(již) dlouhou dobu* – “for a long time (already)”) (3c). Inexplicitness and “distancing of the spatiotemporal stage of the story from the place and time of writing/reading” (4) allow the writer to anchor the story “in the reality of . . . one stream of time while also allowing . . . this stream of time its magic character” (Knowles and Malmkjaer 1996, 158).

- (4) **V dávných dobách** žili v malé vesnici na úpatí himálajských velehor dva přátelé.  
 “In ancient times in a small village . . . there lived two friends.”

## 5.2 CHVÍLE (“a while”)

The lemma CHVÍLE (1,208 instances, 1 271.48 ipm) displays a slightly different patterning. The noun can function as an adverbial of time on its own (*chvíli, chvílemi* – “for a while, at times”), in bigrams with prepositions (*po/za/na chvíli, před chvíli* – “in/after/for a while, a while ago”), and in the idiomatic construction *co chvíli* (“every now and then”). Like DOBA, CHVÍLE can be specified by postmodification (*od/do chvíle, kdy, ve chvíli, kdy* – “since/till the moment when, at the moment when”). Premodifiers often indicate the perception of the interval as extremely long (*drahnou/hodnou/hezkou/dlouhou chvíli* – “for a (very) long while”) or short (*v krátké chvíli, na/za malou chvíli, před malou chvílí, v malé chvíli* – “in a short while, for/in a little while, a short while ago, in a little while”) (5).

The patterns also highlighted the presence of adjectives and adverbs which indicate a dramatic twist in the narrative: *v/na poslední chvíli, zrovna/právě ve chvíli, v příští chvíli, každou chvíli, přišla jeho/její chvíle* – “in the last moment, just/right at the moment, the next moment, any minute, his/her time has come” (6a, b).

- (5) Zvíře se svalilo a **v malé chvíli** bylo mrtvé.  
 “The beast collapsed and in a little while it was dead.”
- (6) (a) Rytíř stačil jen **v poslední chvíli** uskočit a odrazit vidličku mečem.  
 “At the last moment the knight just managed to jump aside and fend off the fork with his sword.”
- (b) Sundal si tedy čelenku - a **právě v tu chvíli** se Rumburak otočil.  
 “So he took off the headband – and just at that moment Rumburak turned.”

CHVÍLE appears to signal also larger discourse-structuring patterns: *ještě chvíli* (“for another while”) indicates a gradual transition from one activity to another, often in

some way opposite to the original one (e.g. standing still for a while and spurring the horse forward in ex. (7a)). A larger discontinuous pattern can be identified here: *ještě chvíli . . . ale/a pak/potom . . .* (“for a while . . . but/and then . . .”) (7a). A change in the character’s reasoning may be indicated by a discontinuous pattern *v první chvíli . . . ale (pak/hned) . . .* (“at first . . . but then . . .”) (7b).

- (7) (a) Užaslý sedlák **ještě chvíli** stál na tom místě, *potom ale* popohнал koně a orál dále.  
 “The astonished farmer stood at the place for another while, but then he spurred the horse forward and went on ploughing.”
- (b) **V první chvíli** byl zklamáný, že není doma, v Bučině, *ale hned* si vzpomněl.  
 “At first, he was disappointed that he was not at home, in Bučina, but then he remembered.”

### 5.3 TIME

The patterns surrounding the lemma TIME (1,503 occurrences in the corpus, 1 587.83 ipm) often comprise quantifiers (*many times, two or three times, plenty/a bit of time, most of the/this time, all the time, every time, TAKE /for some time*) (8a). Some of these may be expanded into longer patterns, whose textual role is more specific, e.g. *it was the first/last time* may indicate a change that the characters and their perception of the world undergo during the narrative (8b, c).

The negative quantifier *no*, a part of the patterns *in no time, HAVE no time, there BE (almost) no time*, adds a dramatic effect of urgency to the narrative (ex. 8d). A similar effect may be associated with the pattern *HAVE time to*, which is often preceded by *before* and *scarcely* (8e).

Prepositional phrases are frequent (*at this/the/any time, by the time, for/after a long time, in/on time*), and they again contribute both to expressing chronology and creating dramatic effects (e.g. in connection with the adverb *just* in (8f)). In children’s literature, time may be “subject to regulation by others” (Thompson and Sealey 2007, 18). In (8f), the pattern (*just*) *in time* “refers to the meeting of a deadline, the accomplishment of an action that must be completed before a penalty or some other unwanted outcome should occur” (2007, 19).

- (8) (a) The game went on, but **all the time** the Queen was arguing, and shouting “Off with his head!” or “Off with her head!”
- (b) Dot was surprised. **It was the first time** she’d heard her speak.
- (c) **It was the last time** Endill would believe anything a teacher told him.

- (d) But she'd reached the kitchen door. **There was no time**; no time at all.
- (e) **Before** Keith **had time to** answer, Mrs Hollins stuck her head round the dining-room door.
- (f) Mary . . . flung herself madly into the ditch at the side of the lane. She was only **just in time** to escape being knocked down.

#### 5.4 MOMENT

Most frequently, the lemma *MOMENT* (431 instances in total, 455.33 ipm) is preceded by the preposition *for* and an indefinite article or quantifier: *for a moment*, *for a few moments*. The textual function performed by the pattern resembles that of the Czech pattern with the initial *ještě chvíli* ("for a while"). The prepositional phrase, often co-occurring with (*but*) *then/afterwards*, signals a termination of an activity or state, which is then followed by a different activity. The change is typically abrupt, with a dynamic activity following hesitation or silence. The most frequent predicates preceding *for a moment* are *HESITATE*, *THINK*, *PAUSE*, *STOP*, *NOT SPEAK*, *BE SILENT*, *STAND* (9a).

With the preposition *at* the phraseology is different. The noun phrase headed by *moment* is typically definite, comprising the determiners *the*, *that* or *this*. Like the Czech patterns *v tu dobu/chvíli* ("at that time/moment"), the clause-initial prepositional phrase *at that moment* is often used where a new course of action presents itself against the background of another ongoing action or state (9b). The appearance of the new event may be quite sudden and unexpected, enhancing the dramatic character of the narrative (cf. the co-occurrence with *but just* in (9b)).

The pattern *at this/the moment* does not appear to be associated with change; the determiner serves as an anaphoric tie to the preceding context (9c).

The noun *MOMENT* followed by an *of*-prepositional phrase indicates the limited duration of silence, achievement, feeling etc. (9d).

- (9) (a) Sheila *stood* rooted with horror **for a moment**. *Then* she sprang up and raced along the path.
- (b) All the Brownies looked sorry on hearing this, for they were all tired of travelling and longing to get to their Pack holiday house. But just **at that moment** a smart new van came into view round the bend, . . .
- (c) Slowly she sat down again in her chair. She looked **at this moment** more terrifying than ever before.
- (d) In her mind, . . . , she replayed her **moment of triumph**.

## 6. Conclusions

In this article, we aimed to explore the way a corpus-driven approach relying on n-gram extraction could be employed to investigate the expression of the semantic category of time in children's fiction. Adopting a contrastive Czech-English approach, we hope to have shown that n-grams can indeed serve as a useful starting point in this type of analysis. However, we suggest that another type of recurrent multi-word unit may reveal more about time in children's fiction, namely patterns which are based on semantically salient frequent components of the n-grams. Being partially lemmatised and allowing for relatively variable slots and positional variation, patterns are more broadly applicable as a unit of description also in a language with so high a degree of morphological and word-order variability as Czech. The patterns comprising the lemmata DOBA, CHVÍLE, TIME and MOMENT, which were explored in more detail, have shown that even though less prominent than space, time has important functions in children's literature, both textual (contributing to cohesion, e.g. TIME and DOBA used as general nouns with anaphoric reference) and ideational (e.g. signalling a change in the characters' behaviour). It is often constructed as a constraint on the characters' actions, creating dramatic effects of urgency and pending danger.

No culturally-based differences between the expression of time in Czech and in English children's fiction have been identified by our study. Further inquiry into the phraseology of children's fiction, exploring in more detail the impact of genre on the one hand, and of cultural and linguistic factors on the other, will be necessary.

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