LingBaW

A peer-reviewed online journal

czasopisma.kul.pl/LingBaW

LingBaW

Linguistics Beyond and Within

VOLUME 9 (2023)

THE JOHN PAUL II CATHOLIC UNIVERSITY OF LUBLIN KUL 1918

TYPESETTING: Karolina Hosang

COVER DESIGN: Wojciech Malec

The journal is peer-reviewed. A list of reviewers is published annually on the journal's website at: https://czasopisma.kul.pl/LingBaW/reviewers.

e-ISSN: 2450-5188

PUBLISHER:
The John Paul II Catholic University of Lublin
Al. Racławickie 14
20-950 Lublin, Poland

PUBLISHING HOUSE:
KUL University Press
ul. Konstantynów 1H
20-708 Lublin, Poland
phone: (+48) 81 454-56-78
e-mail: wydawnictwo@kul.pl

EDITORIAL OFFICE ADDRESS:
Institute of Linguistics
The John Paul II Catholic University of Lublin
Al. Racławickie 14
20-950 Lublin, Poland
e-mail: lingbaw@gmail.com

Articles

LingBaW *Linguistics Beyond And Within 9 (2023), 6-22*

Euphemisms and teacher–student interactions

Anna Bloch-Rozmej
John Paul II Catholic University of Lublin, Poland

Abstract
The quality of teacher-student interactions appears to be one of the most significant prerequisites for effective instruction. One of the factors involved in determining this quality is definitely teacher talk that should adequately correspond both to the type of knowledge the teacher intends to transfer and students' ability to absorb this knowledge. The latter we claim is directly related to the students' attitude to the subject itself and the teacher. In this article we will delve into the problem of euphemisms as part of teacher and student talk with a view to determining the extent to which they might affect teacher-student interactions. The issue of euphemism use and their role in building positive relations in the language classroom will be discussed from the perspective of teachers' experiences. To this end, we chose the research tool of an online questionnaire addressed at university teachers. The survey was administered in June 2023 and the results will be described and analyzed in the forthcoming pages. Euphemism use will also be considered as a manifestation of language creativity that should characterize good language teachers.

Keywords: euphemism, classroom interaction, creativity, teacher talk

1. Introduction

This article discusses the problem of euphemism use in university teachers' talk, both inside and outside the language classroom, with a view to determining their attitude to this language means and its role in building positive teacher-student interactions. This discussion summarizes the findings of the second part of the research whose former stage focused on language students' perceptions of the phenomenon of euphemisms (see Bloch-Rozmej 2023, in press). Hence, our teacher participants of the study were asked very similar, or in some cases even the same, questions as their students. This parallelism will enable a neat comparison of the two research groups and formulation of conclusions that will be valid for the whole process of building positive teacher-student interactions in the classroom. The research tool used in this study is an online questionnaire addressed at teachers working in the Institute of Linguistics (English Studies) at the John Paul II Catholic University of Lublin. The main research questions that we hope to answer through our study are thus as follows.

1. Do teachers recognize the significance of euphemisms in teacher – student interactions?
2. What exact functions does euphemistic language play in classroom talk?

3. Do teachers perceive euphemisms as a manifestation of language creativity?

The questions formulated above reflect the major areas of interest of this study but important facts can be learnt from teachers' answers to all of the 24 questions of the survey. The analysis of teachers' responses to individual questions will thus build the overall picture from which the final conclusions will emerge.

The article is organized as follows. We start by presenting a brief discussion of the nature of teacher-student interaction. Further, the phenomenon of euphemism is addressed and, to round up the theoretical part, we consider the problem of creativity in classroom interaction. In the research methodology section, the aims of the study, the research tools and participants are presented. Next, we report on the major research findings, obtained through the online questionnaire, which will be subject to analysis. Finally, research conclusions will be formulated.

2. Teacher-student interaction

Positive teacher-student interaction is certainly a necessary component of the language classroom if instruction goals are to be accomplished. It enables meaningful communication between the teacher and her students based on mutual understanding and respect. It also presupposes active engagement of students in classroom activities, which will take place when young people's needs and sensitivity are recognized and respected. Following Ellis (1990), we maintain that interaction is meaning-focused and carried out to facilitate the exchange of information and prevent communication breakdowns. Also Brown (2007) perceives interaction as the basis of L2 learning since it both enables learners to develop their communicative abilities and develop socially by constructing their identities through collaboration and negotiation.

Teaching itself, in its deepest sense, must be an interactive process, running continuously within the trigger-response cycle, thus leading to effective and meaningful teacher-student and student-student communication. As noted by Tickoo (2009), a productive class will be characterized by features such as those listed in (1) below.

(1) Features of the productive lesson
- Teacher interacts with the whole class
- Teacher interacts with a group and/or individual student
- Students interact with one another, either in pairs or groups
- Students work with materials, either individually, or in pairs/groups, etc.

As can be seen, interaction in the classroom can take on different forms and interpersonal configurations. Flanders and Moskowitz (cited in Brown, 2001:170) provide us with following characteristics of the teacher talk in terms of its direct and indirect influences.

Table 1: *Teacher talk (FLINT – the foreign language interaction model (Moskowitz 1968, as cited in Brown 2001: 170)*

Indirect Influence	**Direct Influence**
1. Deals with feelings: in a non-threatening way, accepting, discussing, refereeing to or communicating	5. Gives information: giving information facts, own opinion or ideas: lecturing or asking rhetorical questions.

understanding of past, present or future feelings of students. 2. Praises or encourages: praising, complimenting, telling students why what they have said or done is valued. Encouraging students to continue, trying to give them confidence, confirming that their answers are correct. 2.a. jokes: intentional joking, kidding,, making puns, attempting to be humorous, providing the joking is not at anyone's expense. (unintentional humor is not included in this category) 3. Uses ideas of students: clarifying, using interpreting, summarizing the ideas of students. The ideas must be rephrased by the teacher but still be recognized as being students' contributions. 3.a. repeats students response verbatim: Repeating the exact words of students after they participate 4. Asks questions: asking questions to which the answer is anticipated (rhetorical questions are not included in this category)	5.a. correct without rejection: telling students who have made a mistake the correct response without using words or intonations which communicate criticism. 6. Gives direction: giving directions, requests or commands that the students are expected to follow; directing various drills; facilitating whole class and small group activity 7. Criticizes student behavior: rejecting the behavior of the student; trying to change the non-acceptable behavior; communicating anger, displeasure, annoyance, dissatisfaction with what students are doing. 7.a. telling the students his or her response is not correct or acceptable and communicating criticism, displeasure, annoyance, rejection by words or intonations.

The influence types listed above reveal the great extent to which the teacher determines the effectiveness of the whole learning process.

In order to create an interactive classroom environment, the teacher needs to take into account a number od important factors, always keeping in mind that authentic communication derives from her positive interaction with the students and consisting in mutual sharing of ideas, knowledge or other valuable aspects of people's experience (Rivers, 1987). Gebhard (1998) speaks of five major conditions underlying effective classroom interaction.

(2) Conditions for good classroom interaction
- Reduction of the central position of the teacher
- Appreciation of the uniqueness of individuals
- Chances for students to express themselves in meaningful ways
- Opportunities for students to negotiate meaning with each other and the teacher
- Choices for students as to what they want to say, to whom they want to say it, and how they want to say it

Teachers should also implement a number of useful strategies that will result in building positive interaction patterns (Jia 2013). The first significant problem here is the way students are asked questions as the situation when one has to stand out and express themselves in front of the whole group can be very stressful or even produce a speaking barrier. Hence, the teacher should focus on building/improving their questioning strategies, making sure that the questions asked are adapted to the current level of students' abilities. Secondly, the teacher has to approach learners individually by attending to their linguistic level. In other words, both activities and material used during classes should offer different language level to different students. Learners' social skills should also be developed through the implementation of the cooperative learning strategy which guarantees that every member of the group is involved in performing the task.

Here, students working in a given group resolve the differences shown by different group members. Another strategy for creating positive classroom interaction is building positive teacher-learner rapport based on mutual respect and responsibility for the quality of learning. Teachers also need to reduce classroom anxiety by helping students boost their self-esteem and creating non-threatening learning environment.

3. Euphemisms and their role in human interactions

Euphemisms are effective communication devices that allow speakers to sound polite and express difficult messages by means of inoffensive language. Thanks to euphemistic expressions, speakers avoid hurting other peoples' feelings, show respect for their different worldviews, remain tactful and diplomatic. Euphemisms belong to figurative language. They replace words with negative connotations with those that are either positive or at least neutral. The use of euphemistic language is culture-specific, reflecting the norms adopted in a given country. Euphemisms are usually employed in human conversations or in texts for three main purposes: rhetoric, mitigation and avoidance. The first one appears when the expression used shifts the valence of the description, the second when we want to diminish the severity of the message and the last one to avoid words that directly denote a given object or action such as vulgarisms, names of sexual organs, etc. For instance, we achieve the purpose of mitigation when instead of talking about some drastic crime or accident openly and directly, we use milder language forms (e.g. *get rid of* instead of *kill*). When we want to avoid embarrassment or hurting people's feelings, a word such as *garden of sleep* will replace *cemetery*.

Chamizo Dominguez and Sánchez Benedito (2005: 8) specify five major functions of euphemisms. By using euphemistic expressions, speakers carry out the process of associative or conceptual engineering through which they mask the undesirable aspects of the message by exposing those that are either positive or neutral. Secondly, the authors indicate the politeness or respect function which is essential in building and sustaining positive social relations. The other functions mentioned are the dignifying function; the function of attenuating a painful evocation; and the function of naming a taboo object. Lexical items or phrases related to certain intimate parts of the human body or illnesses, either physical or mental, call for the use of euphemisms in their dignifying function. To attenuate a painful evocation, people use euphemisms which conceal such problematic and unpleasant aspects as defects in appearance, disability or death. The notion of a taboo seems to be culture-specific. Additionally, we can find taboos that are time and situation-specific and which are replaced by euphemisms at a very specific moment only and later disappear from language use (Del Teso 1988: 200). Still, across different cultures, and definitely in our western culture, sex and sexual activity seem to be one of the greatest taboos.

The discussion presented above might suggest that the role of euphemisms in human life is unquestionably positive. However, the use of such expressions can also have its downsides. Zaid et al (2018) stress the danger of confusion on the part of non-native speakers when they are exposed to euphemistic language. Such effects are likely to occur in the educational environment, for example in the case of language learners. Students, when acquiring a foreign

language, expect the meaning of the message to be as precise as possible, whereas euphemisms offer something that is beyond the obvious. In their study, the authors prove that the non-transparent nature of words, typical of euphemisms, can often lead to misunderstanding and confusion. In this sense, euphemistic language might constitute a challenge to teachers in the process of building positive classroom interaction patterns.

4. Teacher's and students' creativity in classroom interaction

Education should place creativity at the very heart of its activity (OECD, 2018). The model of education promoted by the European Union treats innovation and creativity as fundamental issues (European Union, 2010; Griffiths, 2014). Creativity is associated with such concepts as originality, diversity, breaking patterns, imagination and the ability to look at the world from different perspectives (Fazlagić, 2019). Creativity helps people recognize and produce new opportunities, ideas and alternatives which can be used in every day communication, for problem-solving, entertainment, or for many other purposes. According to Fazlagić (2019), creativity can be understood as a combination of creative skills, motivation and knowledge.

All educators will probably agree with the statement that one of the major aims of education is the creative development of pupils. Hence, whenever a teacher establishes herself as a dominant and controlling party in the teachers-student interaction domain, her influence can often be restrictive and inhibiting. Classroom interaction will benefit, on the other hand, from teacher's actions aimed at enabling the development of pupils' creative activity and promoting self-learning. Optimally, the teacher should create conditions in which students' creativity will arise spontaneously. Therefore, the style of teacher-student interaction should be characterized by subjectivity, i.e. it should take into consideration both the development of the students and the teacher, assuming that needs of both parties are significant (Brzezińska 1994). As noted by Ciechanowska (2007), the amount of teacher control should be minimized and her endeavors focused on encouraging students' activity, ranging from experimenting, through undertaking various tasks to solving problems.

The importance of creativity was also recognized in psychological literature. Torrance (1972) defined a number of principles that teachers should comply with in order to support students' creativity. Above all, they should appreciate and praise all signs of pupils' creative thinking and teach them to be open to novel experiences. Their actions should be directed towards developing in their pupils tolerance towards novelty, new ideas and concepts. Teachers should reject rigid schemes and, instead, teach students to seek and apply a variety of different solutions. They should also appreciate individual styles of work. Good educators are able to produce a creative atmosphere in the classroom whose main features are lack of fear, lack of embarrassment or total control and pupils' sense of security when doing tasks. Further, students should be encouraged to engage themselves in actions originating from their own initiative. Teachers should also develop in their students the quality of constructive criticism.

Having said that, we need to remember that the prerequisite for the development of creativity in students is that the teacher herself is creative (Eggert 1996). As Sobańska-Jędrych (2013) argues, a creative teacher demonstrates originality of thinking which manifests itself not only in the variety and diversity of tasks offered to students but also in seeing to it that each task

will increase learners' motivation, develop their language skills and make them look for new solutions to problems. Being creative also means being fully aware that not only lexical or grammatical content has to be taught but also the situational and functional use of language (Albert and Kormos 2004). In the context of language learning, creativity means not only linguistic production but also originality of thinking, fluency and flexibility.

5. Methodology

This study constitutes the second stage of a larger research project, whose first part has presented students' perspective on the problem of euphemism use both inside and outside the classroom context (Bloch-Rozmej 2023, in press). In this part, the teachers' views have been explored and analyzed. The research aims to find answers to three main questions:

1. Do teachers recognize the significance of euphemisms in teacher-student interactions?
2. What exact functions does euphemistic language play in classroom talk?
3. Do teachers perceive euphemisms as a manifestation of language creativity?

The research tool chosen for this study is an online questionnaire available under the link https://docs.google.com/forms/d/e/1FAIpQLSd70LxhZrYSaNnsnGpjiWz_vYEUz0UZ74IrzmtzUHmimBb4Mw/viewform?usp=sf_link

Overall, 25 university teachers from the Institute of Linguistics (English Studies) of the John Paull II Catholic University of Lublin agreed to complete the questionnaire. The respondents filled in the survey anonymously in June 2023. The research participants are in the overwhelming majority experienced teachers specializing in various fields of English Philology – linguistics, English and American literature, culture and language teaching. All of them have frequent contact with students during classes and office hours.

The 24 questions of the survey can be grouped into four major categories:

I. Introductory questions concerning age, seniority, etc.
II. Teachers' contact with euphemistic language and personal usage
III. Euphemism use in the context of language creativity
IV. The role of euphemisms in teacher-student interactions

The rationale behind including questions of the above types was the need to see the teachers' attitude to the use of euphemisms in a wider context of human contacts, their perception of the teachers' role in the classroom and understanding of the teacher's talk influence on teacher-student interactions. The questions were formulated in English only, despite the fact that the majority of the teachers are of Polish origin. The reason for the choice of the language was the fact that English is the language of classroom interaction the teachers are involved in.

6. Research results

In the forthcoming pages we are going to report on the results of the questionnaire described in Section 5 which was the research tool chosen for this study. Thus, the first two questions collected general information concerning the respondents' gender, and age. 40 per cent of the participants are men and 60 % declared to be women. 68% of the teachers turn out to be between 30 and 50 years of age. Only 8% are under 30 and 20% are between 51 and 60. Question 3 enquired about the kinds of words that the respondents most frequently replace with euphemisms. They were allowed to choose more than one answer. The results were as follows:

a.	vulgarisms	32%
b.	sexual organs and sexual acts	24%
c.	expressions likely to offend your interlocutors	48%
d.	words evoking fear or disgust	20%
e.	expressions that are politically incorrect	16%
f.	expressions that are socially unacceptable	20%
g.	each of the above-mentioned, depending on a situation	64%
h.	other (which?)	1%

In Question 4, the respondents were asked to give examples of unacceptable/problematic words and euphemisms that they use to replace them with. The teachers provided both English and Polish examples. The results are depicted in the table below:

Table 2: *Offensive words and corresponding euphemisms*

Offensive word(s)	**Euphemism(s)**
idiot	slow on the uptake
black, homosexual, heterosexual	no replacement suggested
pieprzyć się 'fuck'	odbywać stosunek 'have a sexual intercourse'
kurwa 'whore'	panienka lekkiego prowadzenia 'bawd'
pedał, ciota 'faggot'	gej 'gay'
swear words, sexual vocabulary	
dupa, gówno 'ass, shit'	no replacement suggested

Question 5 enquired about the reasons for using euphemistic expressions. The results are as follows:

a.	not to sound vulgar	48%
b.	to avoid hurting someone's feelings	68%
c.	to impress my interlocutor	0%
d.	to avoid being censored	12%
e.	because of political correctness	28%
f.	to hide something from some listeners (e.g. children)	44%
g.	to identify with /adapt myself to other people	24%
h.	other (what?)	4% (1)

In Question 6 we asked the respondents whether they heard any euphemisms in everyday language contacts. The results are depicted in Figure 1 below

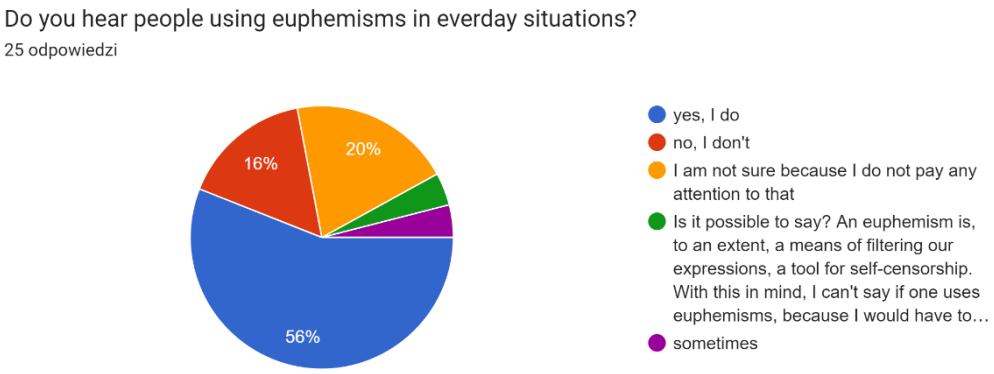


Figure 1: *Contact with euphemistic language*

As can be seen in the above picture, the majority of the teachers (56%) have everyday contact with euphemisms and only 16% declare that they do not hear any euphemisms in everyday situations. Interestingly, the same percentage of the respondents (56%) admit to having noticed euphemisms on TV, in the Internet, movies, magazines and journals, as revealed in the answers to Question 7. The number of negative responses, however, has diminished to only 8%. When asked to specify the place where they had heard euphemisms (Question 8), the teachers indicated: television (48%), internet (40%), radio (44%), newspapers/magazines (32%), movies (44%) and everyday conversations (60%).

In Question 9, the respondents were asked to indicate social groups that in their opinion would be most likely to use euphemisms. The results are as follows.

a.	parents	68%
b.	politicians	32%
c.	**teachers**	**84%**
d.	bloggers	0%
e.	people with impeccable manner	44%
f.	intelligent people	36%
g.	priests and monks	12%
h.	women	20%
i.	men	12%
j.	other (which?)	4% (strangers, students)

When asked to explain how they perceive the use of euphemisms (Question 10), the teachers responded as follows.

a.	as a lack of courage	4%
b.	as a necessity in some situations	68%
c.	as a sign of creativity	36%
d.	as a manifestation of impeccable manner	20%

e.	as a sign of fashion	4%
f.	as a way of avoiding awkward situations (or consequences)	72%
g.	as sign of empathy	44%
h.	as a manifestation of responsibility	16%
i.	other (which?)	4%

Questions 11 and 12 asked the teachers to provide specific examples of euphemisms that reflect people's being up-to-date and the need to avoid unpleasant consequences. The results are not immediately significant here. Questions 13-15 concerned the idea of creativity and its manifestation in language. The respondents, when asked to define this concept, provided the following responses:

- unexpected but easily understandable expression for the people addressed, but not necessarily for the people being talked about
- being able to create new words, phrases, sentences, being able to express new meaning in uncommon ways, being able to understand those new words and new meanings
- using new constructions, word-making. It shows when one can create new words off the cuff
- it manifests itself in the invention of new lexical items, which get your ideas across in an intelligent way
- language creativity is an intentional non-standard use of language that is universally understandable yet surprising and possibly evoking other emotions as a consequence of a mixture of these two features. Art seems to me, at least at the moment, to be the only platform for this. A good marker of language being used creatively is also that these new coinages or formulations seep to everyday language of individuals or to public discourse.
- it concerns intellectual abstract non-obvious constructions and concepts. Not euphemisms...
- finding some other way to communicate a message
- using new words for new concepts
- seeking to express new meaning, finding more expressive ways for existing forms of expressions, express words in a more polite way
- language creativity is an ability to use language responsibly and flexibly in order to communicate all sorts of information; an ability to talk about delicate topics without offending sexual, religious, etc. minorities.
- linking obvious language chunks in an non-obvious way.
- being able to manipulate language to one's benefit
- there is no single definition as there is a number of variables to consider. Likewise, creativity may manifest itself in a number of different ways and may by understood and perceived differently by different users.
- the are many aspects of language creativity but the one that is most impressive is the ability to spontaneously come up with clever and convincing metaphors and comparisons which allow to express complicated concepts in simpler, more understandable terms.
- creativity – forming new words, forms, using different languages at the same time, being open to change

- language creativity is creating new expressions at the word and sentence level.
- expressing something in a novel way
- innovative use of the already existing or newly created vocabulary items, hybrid forms or syntactic structures which allows them to refer to/denote meanings they do not carry with them in their conventional uses
- the ability to produce new, adequate, intelligent and even brilliant expressions; manifests itself in the creation of new and original phrases, new combinations of words, neologisms, euphemisms and poetry
- it is primarily the activity of making a new meaning by a speaker and the re-interpretation of meaning(s) by a receiver.
- creating neologisms
- I don't suppose there is need for everyday language creativity, unless you are a poet or newspaper columnist. Using language that's appropriate for the situation is not creativity.

20% of the respondents claim that the Covid-19 pandemic fostered the creation of new euphemisms, 12% gave the negative answer and 68% are not sure whether any link between the pandemic and euphemism creation does indeed exist.

The remaining questions of the survey (16-24) are related to the problem of teacher-student interaction and its connection with euphemistic language and language creativity. First, the teachers were asked to indicate which factors have the greatest impact on teacher-learner interactions.

a.	**Teacher personality**	**96%**
b.	Teacher pedagogical qualifications	28%
c.	Teacher knowledge of the subject	68%
d.	Classroom language (e.g. forms of address, expressing criticism, commenting on learner's mistakes, etc.)	48%
e.	Learners' attitude to the subject	48%
f.	Other (which?)…	4% (student personality)

In Question 17 we wanted to find out whether teachers considered euphemisms a necessary component of teacher talk. The answers are depicted in Figure 2 below.

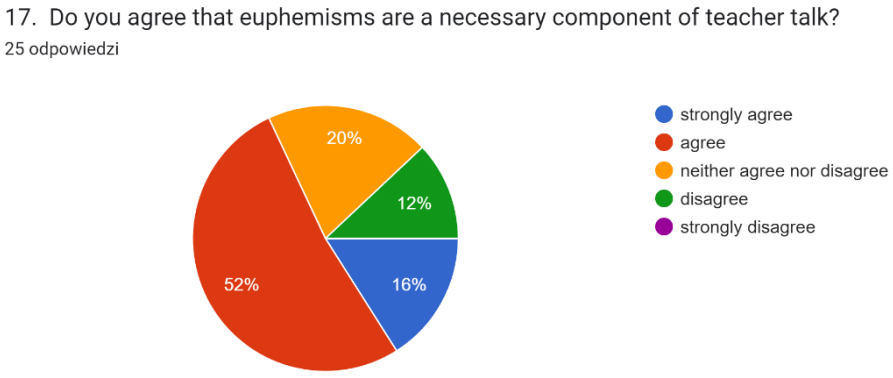


Figure 2: *Euphemisms and teacher talk*

In Question 18, we asked when the teachers would use euphemisms when talking to students. Consider the answers below.

a.	when expressing my negative emotions	32%
b.	when expressing my criticism about students' lack of knowledge or misbehavior	84%
c.	when expressing my worldview	36%
d.	when talking about controversial issues to show respect for other people's views	64%
e.	to inform students about my decisions which are difficult for them to accept	32%
f.	Other (which?)	4%

Question 19 provides us with examples of euphemisms which the teachers would use in the classroom.

Unacceptable word(s)	**Euphemism(s)**
plagiat 'plagiarism'	opinie z second-handu 'second-hand opinions'
Murzyn 'Negro'	czarnoskóry 'blackskin'
gej 'gay'	członek LGBT 'LGBT member'
Musisz lepiej się postarać 'you have to try harder'	Musisz jeszcze raz spróbować 'you have to try once again'
źle 'wrong'	prawie dobrze ale. 'almost OK. but..'
faggot	gay
poor students	underperforming/partially proficient students
	There is still some studying ahead of you
fail	not to get enough points
You have no idea or understanding of the topic	I think you should read the text assigned
Wrong/bad	this is not ideal

68% of the teachers haven't noticed any use of euphemisms in their students' talk, whereas 28% indicated the answer 'sometimes'. Only a few examples of these appeared in the respondents' answers to Question 21. These were:

1. The text was difficult for "the text was boring and I did not care to read it"
2. He's not a liar for "he's creative with the truth."

In Question 22 we asked whether linguistic creativity helps in building positive teacher-student interactions. 72 % of the respondents either agree or strongly agree and not even a single negative answer was provided. Further, we enquired what functions euphemisms perform in the classroom language. The responses here are as follows.

a.	Diminishing the existing tensions	12%
b.	Supporting mutual respect and sensitivity	28%
c.	A guarantee of teachers' neutrality	12%
d.	A way of avoiding conflict and controversy	40%
e.	Other (what?)	8% (all of the above, fun)

In Question 24 we wanted the respondents to specify three prerequisites for good teacher-student interactions. The answers are listed below.

- pasja i wiedza nauczyciela, szacunek, ciekawość ludzi i rzeczy 'passion and teacher's knowledge, respect, curiosity for people and things'
- Empatia, profesjonalizm, bezstronność 'empathy, professionalism, objectivity'
- 1) openness to communication 2) mutual respect 3) patience
- sense of humor, mutual respect, cooperation
- respect, empathy, openness
- mutual respect despite difference of outlook, adequate distance (no fraternizing with students), friendly attitude
- All parties should (1) respect one another, (2) respect what they themselves do as a part of a course and (3) try to fulfill their obligations to the best of their ability at least just for the sake if it. This survey made me think of what it means that we need to use euphemisms in certain situations. Is our default language inappropriate or disrespectful? Maybe one should speak and write so that they do not need to use euphemisms at all? (Krzysztof Zanussi seems to be a good role model for this.) Thank you for this food for thought.
- when students pay attention and divert from telephones, not into telephones bidirectional respect no fears
- positive attitude, sense of humour, flexibility
- Mutual respect
- clear rules, mutual respect, creativity
- showing respect – being sensitive to other people – showing support for minorities
- empathy, treating students as partners, involving students in the process of teaching and learning
- I know one: both sides need to stay open-minded
- mutual respect, overlapping goals (to teach/learn the material)
- Healthy boundaries, integrity, generosity
- good-manners, common interests, age
- give them good grades
- mutual respect; no preconceived opinions; ability to listen
- Mutual respect, clarity about requirements, fair play of both parties
- deep knowledge of the classroom environment, responsiveness to student need and effectiveness of communication
- mutual respect, collaborative learning, supportive mutual feedback (cf. socioconstructivism by Kiraly)
- clarity, precision, sense of humour
- Treat your students fairly, keep them engaged, don't make them doubt your ability as a teacher

7. Discussion

In this part of the article an attempt will be made to find answers to the main research questions of the study. More specifically, we will try to describe the nature of the teachers' contact with euphemistic language in their everyday life situations and inside the university context. Further,

important facts concerning the role of euphemisms in teacher-student interactions will be determined and, finally, we will consider the relationship between creativity and euphemism use, as perceived by the participants of our study.

While interpreting the data obtained through our questionnaire-based investigation, it is worth remembering that almost all of the research participants are experienced teachers of English, with 92% of them being above 30 years of age. They represent the elite of the society, all of them being highly educated. We believe this fact is of significant importance for the interpretation of the research results. As many psychological studies indicate, there is some correlation between people's IQ scores and the years of education. For example, Ritchie and Tucker-Drob (2018) in their meta-analysis based on the investigation of more than 600 000 participants, discovered that an added year of education lifted participants' IQ scores, on average: between 1 and 5 points. Some other studies show an association between low level of education and psychological distress and low sense of mastery (Dalgard et al 2007). Hence, it might be deduced that a high level of education will be correlated with less distress and higher sense of mastery. These facts might help us understand the teachers' perceptions of creativity.

Starting with the first issue indicated above, namely the teachers' contact with euphemisms, we need to observe that

- Teachers use euphemisms to replace words which are likely to offend their interlocutors
- The main reasons for using euphemisms are 1. To avoid hurting other people's feelings 2. not to sound vulgar 3. to hide something form some listeners, e.g. children
- Teachers have most frequently heard euphemisms in everyday conversation and on TV
- Teachers expect that the groups that are most likely to use euphemisms are teachers (84%), parents and people with impeccable manner.
- Teachers perceive the use of euphemisms mostly as a way of avoiding unpleasant consequences and awkward situations as well as as a necessity in some situations.

In trying to interpret the facts listed above, we believe one should confront them with the qualities of a *good teacher*. Southern New Hampshire University education faculty conducted research including university students who specified ten most significant qualities of a good teacher. These are as follows:[1]

- Good teachers are strong communicators
- Good teachers listen well
- Good teachers focus on collaboration
- Good teachers are adaptable
- Good teachers are engaging
- Good teachers show empathy
- Good teachers have patience
- Good teachers value real-world learning
- Good teachers share best practices
- Good teachers are life-long learners

[1] The source of the information is 10 Qualities of a Good Teacher (snhu.edu) (accessed July, 12 2023)

In the light of the features defined above, it becomes clear why teachers use euphemisms to avoid hurting people and show sensitivity and respect for interlocutors. These qualities characterize people with a high level of empathy. Since good teachers are adaptable, they will know how to behave in different types of situations, including those that seem embarrassing and awkward. They will simply resort to the use of euphemistic expressions to cope with potential difficulties. Good teachers listen well and hence 'hear' the message that is communicated between the lines. Thus, they quickly recognize the kind of situation and the kind of person they are confronted with. To avoid offensive language, they resort to euphemisms. As people who feel the burden of responsibility for their students, they find it necessary sometimes to use milder language forms when talking about delicate issues. Teachers also perceive themselves as models of behavior. This, in fact is a common social expectation. It is no surprise therefore, that they ascribe the use of euphemisms to people with impeccable manner.

Let us now turn to the second research question concerning the relationship between euphemisms and language creativity. When we analyze the respondents' definitions of creativity, what strikes us is their deep multi-aspectual understanding of the concept. The dictionary definition of the term provided by Cambridge Dictionary is as follows.[2]

(3) Creativity – the ability to produce or use original and unusual ideas

The teachers' definitions focus mainly on such issues as

- Creation of new words, constructing new meanings
- Innovative use of existing words and structures
- Creation of neologisms, euphemisms and poetry
- Brilliant metaphors and comparisons
- Intentional, non-standard use of language
- Flexibility and sophistication of using language to one's benefit

As can be seen, all the definitions provided by the respondents fit in neatly into the dictionary formulation. It is also noteworthy that the teachers underline not only the theoretical but also practical aspects of creativity. We can also notice that euphemisms, at least by some of the respondents, are perceived as manifestations of language creativity.

The last and most important aspect of this study is the role of euphemistic language in teacher-student interactions. When asked to indicate factors which have the greatest impact on the relations between teachers and students, the respondents chose

- teacher's personality
- teacher's expertise in a given field
- classroom language/learners' attitude to the subject

This hierarchy of factors seems to reflect the nature of the educational process, involving people and their cooperation and aimed at achieving the desired level of knowledge and skill in a given

[2] Source: CREATIVITY | English meaning – Cambridge Dictionary (accessed July 12, 2023)

domain. Thus, the quality of human relations is crucial and it considerably depends on the personalities of people involved. From the psychological perspective, it is easier to open up to what another person is trying to convey when we respect and trust her. Yet, as the respondents correctly observe, our interlocutor needs to have something to convey. Hence, the importance of teachers' knowledge of the subject. Now, when we have a positive attitude to our interlocutor who is an expert with the knowledge we need, there comes the time for the medium through which this knowledge will be transferred. As can be seen, the teachers indicated the third crucial factor influencing teacher-student relations, namely, classroom language. Interestingly, 68% of the research participants are convinced that euphemisms are a necessary component of teacher talk. This high number harmonizes nicely with the teachers' conviction concerning the importance of classroom language and the major reasons for using euphemistic language in general, and in human interactions in particular. 84% of the respondents, when talking to students, would use euphemisms to express their criticism concerning students' lack of knowledge or misbehavior. Further, 64% of them would resort to euphemisms when talking about controversial issues with the purpose of showing respect for students' views. These results are compatible with what we have already discovered, namely, the teachers' high level of empathy and the way they understand the essence of their profession. Also the examples of euphemisms, the respondents are likely to use in teacher-student interactions are connected with expressing critical remarks on the learners' lack of knowledge and worldviews, gender-related issues in particular. This last fact is not surprising both in the light of what has been said so far about teachers' use of euphemisms and reasons for doing so but also because the respondents indicated television as the second most frequent source of their contact with euphemisms. The most recent ideologies and changes affecting present-day societies are promoted in TV programs and movies. Hence, LGBT-related issues are constantly present in contemporary debate.

The teachers who took part in the research project appear to be focused on creating positive and fruitful relations with their students. This conclusion is supported by the answers they gave to Question 23 concerning the functions performed by euphemisms in the classroom language. 40% of the respondents indicated the function of avoiding conflict and controversy. 28% selected supporting mutual respect and sensitivity and another 12% a guarantee of teachers' neutrality. These results suggest that the teachers are focused on teaching the material in a student-friendly atmosphere which is conducive to effective learning.

The last question, 24th, was meant as a kind of summary of the teachers' views on the nature of teacher-student interactions. We enquired about the prerequisites of positive T-S relations. All of the respondents expressed their opinions about this issue. The most beneficial factors that shape positive interactions indicated by the largest number of the respondents were

- Mutual respect
- Openness to communication/ Effective communication
- Empathy
- Cooperation and collaborative learning

As can be seen, the quality of interpersonal communication is pretty high in this hierarchy of prerequisites. Effective communication has to be full of mutual respect and support. It can thus be inferred that euphemistic language also has its role to play in good teacher-student communication.

8. Conclusion

The aim of this study was to determine teachers' attitude to the phenomenon of euphemism and its role in teacher-student interactions. The findings of the questionnaire-based research indicate that the respondents' perception of euphemistic language is definitely positive. We have seen the link the teachers establish between euphemism and creativity, both these phenomena being able to affect the quality and effectiveness of classroom interaction. The major purpose for including euphemistic expressions in teacher-student verbal exchanges is, according to the respondents, showing mutual respect for each other's worldviews and values. The participants' use of euphemisms seems to be in harmony with the most desirable features of a good teacher, as defined by university students. Based on the research findings presented in this study, it can be maintained that euphemisms have a considerable potential of positively affecting teacher-student relations.

References

Bloch-Rozmej, A. 2023. Euphemisms inside and outside the university context in the times of the Covid-19 pandemic: The students' perspective. *Roczniki Humanistuczne KUL, Glottodydaktyka* (10), 71. In press.

Brown, D. H. 2001. *Teaching by principles: An interactive approach to language pedagogy (2nd ed.).* New Jersey: Addison Wesley Longman, Inc.

Brown, D. H. 2007. *Teaching by principles: An interactive approach to language pedagogy (3rd ed.*). White Plains, NY: Longman.

Brzezińska, A. 1994. *Czym może być aktywne uczestnictwo ucznia i nauczyciela?* In G. Lutomski (ed.) *Uczyć inaczej*, 31–40. Poznań: Wydawnictwo Fundacji Humaniora.

Chamizo Domínguez, P. J., and F. Sánchez Benedito. 2005. *Conceptual Networks of English Bawdy Euphemisms and Dysphemisms*. Unpublished manuscript.

Ciechanowska, D. 2007. *Twórczość w edukacji*. Szczecin: Wydawnictwo Naukowe Uniwersytetu Szczecińskiego.

Del Teso, M. E. 1988. Cambio semántico, impropiedad y eufemismo. *Verba*, 15: 183–204.

Dalgard, O. S., A. Mykletun, M. Rognerud, R. Johansen, and P. H. Zahl. 2007. Education, sense of mastery and mental health: results from a nationwide health monitoring study in Norway. *BMC Psychiatry* 7, 20. DOI: //doi.org/10.1186/1471-244X-7-20.

Ellis, R. 1990. *Instructed Second Language Acquisition: Learning in the Classroom*. Oxford: Blackwell.

Eggert, S. 1996. Creativity – every teacher's dream. *Deutsch Als Fremdsprache*, (1).

European Union. 2010. Joint Progress Report of the Council and the Commission on the implementation of the 'Education and Training 2010 work programme'.*Official Journal of the European Union C* 117/01.

Fazlagić, J. 2019. *Kreatywność w systemie edukacji*. Warszawa: Wydawnictwo FRSE.

Gebhard, M. 1998. A case for professional development schools. TESOL 23 (3): 501–510.

Griffiths, M. 2014. Encouraging imagination and creativity in the teaching profession. *European Educational Research Journal* 13 (1).

Jia, X. 2013. The Application of Classroom Interaction in English Lesson. Paper presented at *International Conference on Education Technology and Information System (ICETIS 2013)*. Available at http://www.atlantis-press.com/php/download_paper.php?id=7895.

Kormas, A. A., and J. Kormos. 2004. Creativity and Narrative Task Performance: An Exploratory Study. *Language Learning* 54 (2): 277–310.

Moskovitz, G. 1968. Abstracted from THE FLINT SYSTEM (Foreign Language Interaction System) An observational tool for the foreign language class. *Classroom Interaction Newsletter* 3 (2 MIRRORS FOR BEHAVIOR: An Anthology of Classroom Observation Instruments, January, 1968). Journal of Classroom Interaction: 1–5.

OECD. 2018. Pisa 2015 Results in Focus. Available at https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf Accessed 13.05.2021

Ritchie, S. J., and E. M. Tucker-Drob. 2018. How much does education improve intelligence? A meta-analysis. *Psychological Science,* 095679761877425. doi:10.1177/0956797618774253

Rivers, W. (ed.). 1987. *Interactive language teaching*. New York: Cambridge University Press. Also published online by Cambridge University Press: 28 November 2008: 299–302.

Sobańska-Jędrych, J. 2013. Warunki rozwijania kreatywności w nauce języków obcych. *Języki Obce w Szkole* 4: 53–58.

Tickoo, M. L. 2009. *Teaching and learning English: A sourcebook for teachers and teacher-trainers*. New Delhi: Orient Longman.

Torrance, E. 1972. Can we teach children to think creatively? *The Journal Of Creative Behavior*, 6(2): 114–143.

Zaid, M., F. Batool, A. Khan, and S. H. Mangla. 2018. Euphemistic expressions: A challenge to L2 learners. International Journal on Studies in English Language and Literature (IJSELL) 6 (5): 9–18. Also available at http://dx.doi.org/10.20431/2347-3134.0605002 www.arcjournals.org.

10 Qualities of a Good Teacher (snhu.edu)

Cambridge Dictionary | English Dictionary, Translations & Thesaurus

LingBaW *Linguistics Beyond And Within 9 (2023), 23-35*

Automatically generated language learning exercises for Finno-Ugric languages

Zsanett Ferenczi
Pázmány Péter Catholic University, Budapest, Hungary

Abstract
Morphologically rich languages always constitute a great challenge for language learners. The learner must be able to understand the information encoded in different word forms of the same root and to generate the correct word form to express certain syntactic functions and grammatical relations by conjugating a verb or declining a noun, an adjective or a pronoun. One way to improve one's language skills is through exercises that focus on certain aspects of grammar. In this paper, a language learning application is presented that is intended to help learners of Finnish and Hungarian (with Hungarian and Finnish L1, respectively) acquire new vocabulary items, as well as practice some grammar aspects that according to surveys are considered difficult by learners of these languages with the other Finno-Ugric language being the learner's native tongue, while alleviating the need to create these exercises manually. This application is a result of an on-going research project. In this research project, bilingual translation pairs and additional monolingual data were collected that can be utilized to build language learning exercises and an online bilingual dictionary with the help of automatic methods. Several linguistic patterns and rules were defined in order to automatically select example sentences that focus on a given part of the target language. These sentences were automatically annotated with the help of language processing tools. Due to the large size of the previously collected data sets, to date, only a subset of the analyzed sentences and the bilingual translation pairs has been manually evaluated. The results of this evaluation are discussed in this paper in order to estimate the precision of the methodology presented here. To ensure the precision of the information and the reliability of the application, only manually validated data sets are displayed. In this project, continuous data validation is planned, since it leads to more and more examples and vocabulary items that learners can benefit from.

Keywords: natural language processing, computer-assisted language learning, virtual flashcards, Finno-Ugric languages

1. Introduction

Finno-Ugric languages constitute a subfamily of the Uralic language family, Hungarian and Finnish being the ones with the highest number of speakers. Most Finno-Ugric languages, particularly Finnish and Hungarian, have rich morphology, they have extensive case systems with numerous word forms belonging to a certain verbal or prenominal root. Learning the correct usage of each grammatical case and the correct inflection or declension in the case of each root is tedious and time consuming, even for speakers of the other Finno-Ugric language.

Finnish and Hungarian possess different linguistic and grammatical characteristics that make language learning even more difficult for non-native speakers (Finnish as a foreign language (FFL) learners and Hungarian as a foreign language (HFL) learners). In the case of Finnish, for example, such characteristics include consonant gradation and the three cases that the grammatical object of a sentence can appear in. To illustrate this latter, consider the sentences in Table 1. As shown in the table, the case of the underlined objects differ.

Table 1: *Different cases that a grammatical object can take in a Finnish sentence.*

Finnish sentence	English translation	Case of the object
Minun täytyy ostaa uusi televisio.	I have to buy a new television.	nominative
Me ostamme kaksi kirjaa.	We are buying two books.	partitive
Mies maalasi talon.	The man painted the house.	accusative

According to Karlsson and Chesterman's survey (2008), the difference of Finnish vocabulary from that of any Indo-European language is one of the many surprises that FFL learners have to face when trying to master Finnish. Although Hungarian and Finnish belong to the same language family, the difference in their vocabularies also constitutes great challenges for learners. The possible cases that a Finnish object can appear in also causes some confusion. Since the rules, that define which case is used in a certain situation, are quite complex, it takes some time and practice to really understand their correct usage. Differentiating between the three past tenses (imperfekti, perfekti, pluskvamperfekti) also requires attention from speakers of Hungarian when learning Finnish, since there is only one past tense that is used in standard Hungarian. Understanding how the passive construction is formed and when it is used is also difficult, even more so, because it is often used in Finnish, but is not present in Hungarian, and it diverges from the "prototypical" passives that learners with Hungarian L1 might have encountered when learning other languages like English or German.

Máté (1999) conducted a survey and observed that learners of Hungarian often experience difficulties, when they learn about the definite and indefinite verb conjugation in Hungarian. Some of the learners also struggle while trying to learn the proper usage and meaning of verbal prefixes and when trying to understand the possessive construction.

To help learners of these languages practice these particular aspects of Finnish and Hungarian, a computer-assisted language learning (CALL) tool is presented. This tool consists of two modules: a virtual flashcard module, that helps learners acquire new vocabulary items, and a cloze exercise module, which facilitates grammar learning and focuses on the challenges observed by Máté (1999) and Karlsson and Chesterman (2008). Examples of the different grammar exercise types are selected automatically from previously obtained Finnish and Hungarian data sets (for more details, see Ferenczi (2021a)); it consists of bilingual translation pairs, synonyms, example sentences and definitions. This data set had been extracted automatically from different sources, such as Wiktionary, WordNet and OPUS with the help of one already existing and several newly created tools during this research project.

This paper is structured as follows. The Extracted Data section briefly presents the automatic methods applied to obtain data and the results of data collection. The Language Learning Application section then discusses how virtual flashcards and grammar exercises were

generated. To determine the precision and ensure the high quality of such a language learning tool, a subset of the generated examples has been manually checked by speakers of these languages. The preliminary results of this evaluation are presented in the Intermediate Results section. The paper concludes with a discussion of the obtained results, future work and briefly discusses the possibilities for further development.

2. Extracted data

As mentioned earlier, during one of the previous steps of the research project, automatic methods were applied in order to provide data for an online bilingual dictionary and language learning application. The bilingual word pairs and definitions – besides providing the contents of the dictionary – can be used to create a virtual flashcard module, while the obtained example sentences can be utilized when automatically generating cloze exercises for Finnish and Hungarian. In order to automatically collect this kind of data, several resources were used. In this section, these resources, as well as the methods that have been applied to extract data for the languages in question are briefly introduced.

2.1. Wiktionary

One of the resources used for data collection was an online dictionary project called Wiktionary, that has several language editions. The Wiktionary edition defines the target language of the dictionary, which means that the translations, explanations and definitions are given in this language. The source language, on the other hand, can be any language, and the headword of a Wiktionary article can be in several (source) languages, when it is part of the vocabulary of several languages (as can be seen in Figure 1, where the headword is *kuka*, and it is defined in both Finnish and Hungarian).

The Finnish Wiktionary edition contains 416,295 articles (which equals to the number of headwords this Wiktionary incorporates), while the Hungarian one contains 369,292. A Wiktionary article has different sections, that are either obligatory or optional to include when editing a page. To edit a page, one must accustom himself with the markup language used in the Wiktionary articles, which can differ in different language editions. In order to parse a certain Wiktionary edition, one can download a Wiktionary dump file, which has an XML structured format. Each page is tagged with the <page> node and the headword is given within the <title> tags. The content of the page appears in the <text> node, with the same markup as can be seen in Figure 1. The first section that is marked with a double equals sign (==) is the language of the headword (==*Finnish*== and ==*Hungarian*==). After this, three equals signs denote the part-of-speech of the word, such as ===*Noun*===. The translation (or definition if the language of the headword is the same as the language of the Wiktionary) appears after a # sign and a space. Another important section is the translation table that only appears when the language of the headword is equal to the language of the Wiktionary edition. This table contains equivalents of the headword in other languages, and the information is separated into different tables in case the headword has many senses (see Figure 2).

```
==Finnish==
[...]
===Pronoun===
{{fi-pron}}

# {{lb|fi|interrogative}} [[who]]
#: {{ux|fi|'''Kuka''' on ovella?|'''Who''' is at the door?}}
# {{lb|fi|relative}} [[who]] {{gloss|as an 'independent' relative pronoun; see the usage notes}}
#: {{ux|fi|En tiedä '''kuka''' sen teki.|I don't know '''who''' did it.}}
# {{lb|fi|relative|dialectal}} [[who]]
#: {{syn|fi|joka|mikä}}
[...]

==Hungarian==
[...]
====Adjective====
{{head|hu|adjective}}

# {{senseid|hu|dumb}} [[dumb]] (as a fish), [[tongue-tied]] (not saying a word)
[...]
====Noun====
{{hu-noun|pl=kukák}}

# {{senseid|hu|garbage can}} [[garbage can]], [[trash can]], [[refuse]] [[bin]] {{gloss|especially an outdoor container}}
#: {{cot|hu|szemetes|szemetesvödör|szemétkosár|szemetesláda|szemétláda}}
[...]
```

Figure 1: *Structure of the Wiktionary article `kuka` in the English Wiktionary database (Note: parts of the article have been eliminated for illustration purposes.)*

Figure 2: *Translation tables in the English Wiktionary article umbrella on the public interface*

Wikt2dict (Ács et al., 2013) is an already existing tool that extracts bilingual word pairs from Wiktionary. This tool has two functions: the first (*extract*) can collect data using the translation tables present in some of the articles, where there is any target language equivalent in the

translation tables. Another function of this tool takes advantage of the transitive property of translation. If a word in language 1 translates into a word in language 2, and the same word in language 2 translates into a word in language 3, then hypothetically, the translation relation between words in language 1 and 3 also holds. This assumption, however, must be treated with caution: homonymous and polysemous words can lead to wrong translation candidates. The language through which the connection is established is called pivot language (here language 2 is pivot). Based on this hypothesis, the *triangulate* method extracts data when it is given three languages. It looks for translations present in the translation tables where both languages 1 and 3 have equivalents in a pivot language Wiktionary article. Since English is the Wiktionary edition that contains the most number of articles, it was used as pivot to create a connection between Finnish and Hungarian. Using the *extract* method 12,731 bilingual word pairs were collected, while the *triangulate* method resulted in 294,757 Finnish–Hungarian translation pairs in total.

WiktionaryParser (Ferenczi, 2021b) is an algorithm that was created in this project to collect information present in the main body of a Wiktionary article. While translation tables are only created when the headword is a meaningful word in the language of the Wiktionary edition (i.e. in case of English headwords in the English Wiktionary) and the *wikt2dict* method only parses this section of the articles, this new algorithm parses the Finnish and Hungarian Wiktionary dumps and extracts Hungarian and Finnish headwords present in them, respectively. Since Wiktionary contains example sentences and other valuable information, too, the script extracts these from the articles and stores them. This method resulted in 9,544 Finnish–Hungarian translation pairs, 29,221 Finnish and 1,157 Hungarian example sentences, as well as 111,555 Finnish and 30,423 Hungarian definitions. The algorithm is freely available.

2.2. WordNet

WordNet is an ontology which was first created for English (Miller, 1995). It has been translated into several languages since then, for example, into Finnish by Lindén and Carlson (2010), and into Hungarian by Miháltz et al. (2008). The basic unit of this resource is a synonym set (synset) which contains lexical items belonging to the same concept. Therefore, a synset can contain one or more words or expressions. 56% of all Finnish synsets contain more than one word, and 26% of all Hungarian synsets consist of more than one word. All synsets have a synset offset (an eight digit long unique identifier) in these databases, which can be used to link the concepts from two different language editions. Based on this information, an algorithm was created during the research project (called *WordNet Connector* (Ferenczi, 2021c)) to link Finnish and Hungarian synsets. It first links the different synsets using the identifier and then extracts bilingual translation pairs by combining each element of these two synonym sets with each other. The algorithm also extracts two separate lists of synonym pairs for Finnish and Hungarian, and a list of Hungarian example sentences, since the Hungarian WordNet contains this type of data, as well, unlike the Finnish WordNet. With the help of this script, 25,419 synsets were connected, producing 98,883 Finnish–Hungarian translation pairs. 54,535 Finnish and 28,197 Hungarian synonym pairs were extracted, as well as 36,484 example sentences were collected from the Hungarian edition. *WordNet Connector* is a freely available tool.

2.3. OPUS

OPUS (Tiedemann and Nygaard, 2004) is a collection of automatically extracted bilingual data, including subtitles, documents of the European Commission, software localization and many more. This data set contains sentence alignments, as well as word alignments. Bilingual translation pairs can be extracted with the help of these Finnish–Hungarian word alignments. *OPUS Extractor* was created (Ferenczi, 2021d) to collect these pairs and clean the data with the help of a pre-defined pattern. This is done by a regular expression which filters out word pairs where at least one of the words contain characters that do not belong to the Finnish or Hungarian alphabets. This algorithm is freely available. This method resulted in more than a million translation pairs, but as expected, different forms of the same root in one language are marked as equivalents of many forms of the same root in the other language. To reduce the number of incorrect word pairs, each word was lemmatized and different occurrences of the same word pair were united. This caused an approximately 60% decrease in the number of word pairs, producing 391,136 translation pairs in total.

3. Database

During the research project, a language independent MySQL database had been developed. The collected data are saved in this database which provides the basis for the online dictionary and language learning application. To store data in a non-redundant way, one of the basic concepts of the database is that each and every linguistic data is treated as an *entity*. The Entity table stores information about lemmas, multi-word expressions (MWE) and even sentences, such as their type (lemma, MWE or sentence), their identifier, language, and in some cases the part-of-speech. Entities can have certain relations with other entities. Such a relationship is described by the identifiers of the two entities participating in it and the type of the relationship, for example, two entities can be the translations of each other, or a lemma can be connected to an example sentence that demonstrates the way the lemma is used. These relations are stored in the Relation table. The language learning application is based on the data stored in this database, although only those word pairs and sentences can be displayed in the application which have been manually checked to ensure that learners are presented with correct language data. The database is developed in a way that the learners' answers are also saved in a separate table. This way it is possible to collect useful information about the challenges and difficulties faced by learners of Finnish and learners of Hungarian, which can be used in the future by researchers who want to validate their hypotheses, without having to gather data from learners.

4. Language learning application

4.1. Virtual flashcards

A popular way to acquire new vocabulary items or memorize difficult ones is to use so-called flashcards. On one side of these cards, there is a new, so far not known item (e.g. a word in the

target language that the learner does not know yet). On the other side, there is either the translation in the source language or a target language definition of that item. Therefore, depending on the language of the explanation, the flashcards can be bilingual or monolingual. These cards can be created on paper that the learners can take in their hands and turn over to learn the target word or validate their answers, or it can be done in a digital format. There have been many studies that found that CALL has a positive effect on the learning of vocabulary items (Basoglu and Akdemir, 2010, Kilickaya and Krajka 2010). Elgort (2013) used Vocabulary Size Test which is a multiple-choice test and showed that intermediate proficiency learners of English perform significantly better when the vocabulary items are presented with their translation equivalents in the L1 (Russian). However, this observation is not so significant in the case of more advanced learners. Jo (2018) conducted an extensive experiment regarding vocabulary and also noticed that learners achieved higher scores on posttests when the L1 definitions were used instead of L2 definitions. Another useful feature that might be added to flashcards is pronunciation. Hungarian and Finnish, however, have very similar rules of pronunciation (Weöres, n.d.), e. g. the main stress is always on the first syllable. Another phonetical similarity between the two languages is vowel harmony. According to Korhonen (2012), among the surveyed Hungarians who learn Finnish, the majority agreed that pronunciation is not a difficult part of Finnish language learning. Since this application is intended for Hungarians learning Finnish and Finns learning Hungarian, pronunciation is not included in the flashcards in this phase of the project.

In the web application presented in this paper, learners are given the options to use the L1 equivalent or L2 definition of the new vocabulary items they are about to learn. After choosing an option, and selecting the target language the learners want to practice, the flashcard module is divided into two phases: in the first phase (practice phase), the learners need to get acquainted with the new items, they can turn over the cards as many times as needed, while in the second phase (test phase), the learners' active–productive knowledge (Laufer et al., 2004) is tested. They need to recall the newly acquired items by typing in the expression they just learnt, when a given L1 equivalent or L2 definition appears on the screen.

In Figure 3, the two sides of a monolingual Finnish virtual flashcard are shown: the target word (*lapsi* = *child*) is given on one side of the card, and its L2 definition is given on its other side. Note, that while on the figure, the sides of the flashcard are shown side by side, on the web interface, the learners can only see one side at a time, and turn it over (make its other side appear) by clicking on it.

Figure 3. *Example for a Finnish flashcard*

In the test phase, when the learners submit their answers, feedback is given immediately by the system. It is important to note that the application only accepts the original word or expression as correct answer. Synonyms are not accepted, although they might be correct translations of a

given L1 expression. Nevertheless, this limitation can be addressed in the future phases of the project.

4.2. Grammar exercises

CALL methods can have a positive impact on grammar learning when compared to non-CALL methods (Aslani and Tabrizi, 2015). One type of task that can be implemented with computers is cloze exercises (otherwise known as fill-in-the-blank exercises) which aims to help with grammar learning. The task is to reconstruct the missing parts of a sentence or paragraph of an L2 text. In some cases, the lemma of the missing word is given and the only task is to fill in the blank with the correct form, in other cases, it is completely up to the learners to guess what lexical item fits in the context. It is also possible to evaluate the performance of the learners automatically after the answers are submitted.

In this CALL application, several cloze exercises are included for different aspects of Finnish and Hungarian grammar. For Finnish, the following three grammar issues were considered: the different cases of the object, the three past tenses, and the passive verb conjugation. For Hungarian, exercises were built to help practice the definite and indefinite verb conjugation, the usage of verbal prefixes, and the possessive construction. In this section, the linguistic patterns, that were used to select an appropriate subset of sentences from the database, and the structure of the exercises are described.

To automatically build cloze exercises, some kind of target language text or corpus is needed. As mentioned before, numerous Finnish and Hungarian example sentences were collected from different sources. They were extracted using the tools presented above in the previous phase of the project. These sentences can be utilized in an application where one of the words is hidden and the learners are asked to reconstruct the original sentence. After observing the data, it was noticed that the sentences vary in length and quality. Since only grammatical, complete sentences should be used in these tasks, a condition is applied to filter out unwanted data. Only those example sentences are considered complete which contain at least 3 words, which start with a capital letter and end with a punctuation (full stop, exclamation mark, question mark, etc.), and which do not contain special characters, such as <, >, = or $.

These conditions decrease the number of sentences that can be used in the exercises, in the case of Finnish to 18,043, and in the case of Hungarian to 17,450. Manually selecting which sentences can be utilized in a certain grammar exercise is time-consuming. However, it is possible to automatize this process with the use of SQL queries that look for certain linguistic patterns in the database, and select a subset of sentences to include them in specific tasks. For this, the sentences need to be tokenized and lemmatized, as well as morphologically analyzed and dependency parsed. To achieve this, three tools were used: the Hungarian *emtsv* pipeline (Indig et al., 2019), *omorfi* (Pirinen, 2015) for tokenization, lemmatization and morphologic analysis of Finnish sentences, while the dependency parsing was conducted with the help of *uralicNLP* (Hämäläinen, 2019). The output data from the analyzers are stored in the same database where the linguistic data can be found, and this database is queried when the data need to be loaded for a certain exercise type.

Finnish exercises. In the CALL application, three types of cloze exercises were implemented that help language learners practice different aspects of Finnish grammar.

Finnish objects can appear in 4 cases: nominative, partitive, accusative and genitive. To create a fill-in-the-blank exercise to practice which one of the four cases to use in a particular sentence, first a subset of the data needs to be queried from the database, and then, the object needs to be removed. Sentences containing a noun, adjective, pronoun or numeral with the *DOBJ* dependency tag are selected, when one of the four possible cases (*Case=Nom*, *Case=Par*, *Case=Acc*, *Case=Gen*) can be found among morphological codes of the object. This word is replaced by an input field, and the learners are asked to put the given lemma in the correct case. The lemma of the missing word is given in parentheses after the input field, as can be seen in Figure 4.

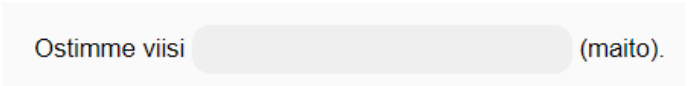


Figure 4. *Example task to reconstruct the missing word form (the correct case for a Finnish object)*

Another grammar issue that FFL learners face is the existence of three past tenses in Finnish. These are: simple past (imperfekti), present perfect (perfekti) and past perfect (pluskvamperfekti). The two latter is composed of the auxiliary verb *olla* (in either present or simple past) and the past participle of the second verb. Knowing which past tense to use in a certain environment requires a lot of practice. For this, an exercise was created where sentences containing any of the three past tenses appear, while the verb gets replaced by a text input field. The learners need to decide which is the correct past tense and conjugate the given verb into the correct form. One of the following two conditions must be met by a Finnish sentence to be part of this exercise: it either needs to contain a verb in simple past form (*Tense=Past*), or its main verb has to be *olla* (in either present or simple past tense) and there must be an active past participle form (marked by the *Connegative=Yes* and *Tense=Past* morphological codes) in the same sentence. These words are replaced by text fields on the interface, so that learners can reconstruct the correct verb tense. It has been observed that in some cases, two text fields appear, because the main verb *olla* and the past participle can separate from each other in the compound tenses. Therefore, another rule is necessary to eliminate these sentences from the query results, since one out of three past tenses (i.e. the simple past) can immediately be excluded, and the aim of the task is to let the learners decide which past tense is the most suitable in the given context. It must be ensured that the two verbs are adjacent in the compound tenses, so that each sentence contains only one text field, not providing any implications about which tense may be correct.

Passive voice is used quite often in Finnish. One of the reasons is that the first person plural form of the present tense indicative is replaced by the passive form in colloquial Finnish. Correctly conjugating the verbs in this form is therefore essential for language learners. To build cloze exercises that help FFL learners practice this construction, sentences containing a verb in passive form are selected from the database. This appears as *Voice=Pass* among the morphological codes of verbs. The passive verb is then replaced by a text input field and the first infinitive form of the verb is given in parentheses.

Hungarian exercises. In the case of Hungarian, three grammar issues were processed and observed in order to build exercises, which can help HFL learners master these topics. Formulating linguistic patterns for these led to the automatic extraction of thousands of example sentences that can be used in these exercises.

In Hungarian, transitive verbs have two paradigms: a definite and an indefinite conjugation. This increases the number of endings in the case of some verbs, and further complicates the process to choose the correct inflection in the given context. To practice the difference between these two conjugations, example sentences which contain a transitive verb are queried from the database. A transitive verb appears in at least one sentence with the *Definite=Def* pattern. After listing the transitive verbs with the help of this rule, sentences are selected that contain any of these verbs. There is no restriction regarding the paradigm that the verbs appear in in these instances; they can have a definite (*Definite=Def*) or indefinite (*Definite=Ind*) conjugation, since the task of the learner is to decide which one of the two paradigms is the correct one. After the extraction of sentences, the verb is replaced with a text input field, and the lemma of the verb is given in parentheses. Since Hungarian is a pro-drop language, the pronoun of the subject is also given italicized within the parentheses after the lemma of the verb, see Figure 5.

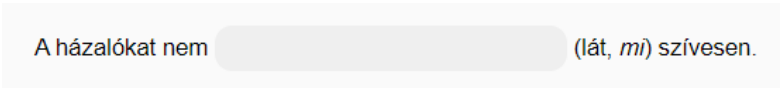


Figure 5. *Example for the Hungarian definite and indefinite conjugation task*

The correct use of verbal prefixes (or preverbs) can also be challenging. Preverbs in Hungarian can appear both preverbally and postverbally, depending on the structure and word order of the sentence. It is a debated topic exactly which words belong to this category (Kalivoda, 2021), but in this application 13 words are defined as preverbs: *be, ki, le, fel, meg, el, át, bele, ide, oda, szét, össze, vissza*. This list can be augmented or reduced as necessary in the future. The condition, that defines which Hungarian sentences are suitable for this exercise, is the following: the sentence must contain any of these 13 words either as an isolated word, or attached to the beginning of a verb. The manual validation of 300 sentences that were obtained with this initial condition led to the observation that the beginning of some verbs were incorrectly marked as preverbs, although they were part of the root. The exclusion of such sentences was implemented by adding the list of these verbs to the condition. Examples for such verbs include e.g. *kiabál* (shout), *felel* (respond), and *megy* (go).

Hungarian expresses possession by adding the possessive suffix to the possessed object. This suffix depends on the person of the possessor, vowel harmony, whether the possessed object is singular or plural, and whether the possessed noun ends with a vowel or a consonant. This explains the number of allomorphs the possessive suffix has. For instance, in case of a third person singular possessor the suffix can be *-a, -e, -ja,* or *-je*. Furthermore, the suffix on the possessed object may cause the ending of the root to change, such as in this example: *kutya* (dog), *kutyá-ja* (his/her dog), where the final vowel (initially *-a*) becomes *-á*. The possessive suffix is marked by the morphological analyzer with the *Number[psor]* and *Person[psor]* features on the possessed noun, adjective or numeral. If a sentence contains a word that has these

features among its morphological codes, it can serve as an example sentence in this task. After retrieving the compatible sentences from the database, the words which express the possessed object are replaced with text input fields and the lemma of these words are given. The person of the possessor is also given within parentheses, because the pronominal possessors are usually pro-dropped. See Figure 6.

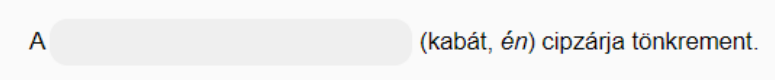


Figure 6. *Example task for the Hungarian possessive constructions*

5. Intermediate results

Monolingual flashcards introducing the target words with their definition were created for both Finnish and Hungarian. The number of monolingual Finnish flashcards is 111,593, while Hungarian data resulted in 70,198 flashcards. Bilingual flashcards, which present target words with their translation in the other language, were also developed in the CALL application. More than 800,000 such flashcards can be generated from the collected data set. Since automatic data extraction does not always lead to perfectly accurate data, the information that is presented to the language learners must be checked and validated. The flashcards therefore will be manually evaluated, before making the application freely available for the public. This evaluation has already started, and 273 bilingual flashcards were approved for use by validators, while 114 translation pairs were marked as incorrect. Hence, automatic data extraction methods presented in this paper have 70,54% precision on average. The validation of monolingual flashcards has not yet started.

Using the data set that was automatically extracted with different methods, and the patterns that were defined in order to generate cloze exercises automatically, the retrieval of thousands of example sentences was possible for each exercise type. The exact number of sentences can be seen in Table 2. These sentences and the generated exercises will also be manually evaluated, before learners can practice the different grammar aspects with their help.

To date, a subset of sentences and their analysis has been evaluated. The results are presented in Table 3. 50 sentences had been randomly selected for Finnish and 50 for Hungarian, and the output of the applied language processing tools (*emtsv*, *omorfi* and *uralicNLP*) were analyzed. The most erroneous output was given by the lemmatizer in the *omorfi* tool. More than half of the evaluated sentences has been analyzed incorrectly by that submodule. The Hungarian natural language processing tool (*emtsv*) gives better overall performance than the Finnish one (68% vs. 30% precision). The least precision was reached by the dependency parser module (*emDep*) of *emtsv*, that produced incorrect output for 14% of the evaluated sentences.

It is of high importance that language learners only encounter correct linguistic data and feedback in this application, since erroneous input may negatively affect the learning process. This is why the results of manual evaluation are stored in the database, and only accurate sentences will be found in the exercises.

Table 2: *Number of sentences obtained for each exercise type.*

Exercise type	Number of sentences matched
Finnish objects	7,088
Finnish past tenses	5,133
Finnish passive construction	2,092
Hungarian definitive and indefinitive conjugation	5,830
Hungarian verbal prefixes	5,227
Hungarian possessive construction	4,896

Table 3: *Details of manual validation.*

	Finnish	Hungarian
Not well-formed sentences	2 (4%)	1 (2%)
Erroneous lemmatization	28 (56%)	5 (10%)
Erroneous morphological features	3 (6%)	3 (6%)
Erroneous dependency analysis	2 (4%)	7 (14%)
Precision	15 (30%)	34 (68%)
Total number of validated sentences	50 (100%)	50 (100%)

6. Conclusion

In this paper, several language learning exercises were presented for Finnish and Hungarian. The automatically extracted bilingual translation pairs showed a 70,54% precision based on the manual evaluation of 387 data points, while the natural language processing tools (*emtsv*, *omorfi*, *uralicNLP*) proved to require further work to improve their precision when isolated sentences are provided as their input.

The collected sentences and translation pairs will only appear in the CALL application once their precision is ensured by manual evaluators. Data validation is ongoing in this project with the help of speakers of both Finnish and Hungarian.

One of the shortcomings of the flashcard module is the limited feedback it can produce to date, since only the original target words are considered to be correct, although one definition or source word might have more than one corresponding words in the target language.

Another possible future improvement of this application may be the usage of learners' data: to collect data anonymously from language learners that can enable researchers to further investigate the difficulties that learners face when learning Finno-Ugric languages and empirically support or counter a hypothesis or theory about these morphologically rich languages.

References

Ács, J., Pajkossy, K., and Kornai, A. 2013. Building basic vocabulary across 40 languages. In *Proceedings of the sixth workshop on building and using comparable corpora*, 52–58.

Aslani, M., and Tabrizi, H. H. 2015. Teaching grammar to Iranian EFL learners through blended learning using multimedia softwares. Journal of Applied Linguistics and Language Research 2(8): 76–87.

Basoglu, E. B., and Akdemir, O. 2010. A comparison of undergraduate students' English vocabulary learning: Using mobile phones and flash cards. Turkish Online Journal of Educational Technology-TOJET 9(3): 1–7.

Elgort, I. 2013. Effects of L1 definitions and cognate status of test items on the Vocabulary Size Test. *Language Testing* 30(2): 253–272.

Ferenczi, Zs. 2021a. Finn–magyar fordítási párok kinyerése automatikus módszerekkel. In Gráczi Tekla Etelka és Ludányi Zsófia (Eds.), *Doktoranduszok tanulmányai az alkalmazott nyelvészet köréből,* 131–150. Nyelvtudományi Kutatóközpont, Budapest.

Ferenczi, Zs. 2021b. *Wiktionary Parser*. https://github.com/ferenczizsani/wiktionary_parser

Ferenczi, Zs. 2021c. *WordNet Connector*. https://github.com/ferenczizsani/connect_wordnets

Ferenczi, Zs. 2021d. *OPUS Extractor*. https://github.com/ferenczizsani/opus_extractor

Hämäläinen, M. 2019. UralicNLP: An NLP library for Uralic languages. *Journal of Open Source Software* 4(37).

Indig, B., Sass, B., Simon, E., Mittelholcz, I., Vadász, N., and Makrai, M. 2019. One format to rule them all–The emtsv pipeline for Hungarian. In *Proceedings of the 13th Linguistic Annotation Workshop,* 155–165. Association for Computational Linguistics, Florence.

Jo, G. 2018. English Vocabulary Learning with Wordlists vs. Flashcards; L1 Definitions vs. L2 Definitions; Abstract Words vs. Concrete Words. *Culminating Projects in English*. 132.

Kalivoda, Á. 2021. *Igekötős szerkezetek a magyarban*. [Preverb Constructions in Hungarian.] Ph.D. thesis, Pázmány Péter Catholic University, Budapest.

Karlsson, F., and Chesterman, A. 2008. *Finnish: an essential grammar.* Routledge.

Kilickaya, F., and Krajka, J. 2010. Comparative usefulness of online and traditional vocabulary learning. Turkish Online Journal of Educational Technology-TOJET 9(2): 55–63.

Korhonen, S. 2012. *Oppijoiden suomi. Koulutettujen aikuisten käsitykset ja kompetenssit* [Perceptions and competences of adult learners of Finnish]. Helsinki: Helsingin yliopisto.

Laufer, B., Elder, C., Hill, K., and Congdon, P. 2004. Size and strength: Do we need both to measure vocabulary knowledge? *Language testing* 21(2): 202–226.

Lindén, K., and Carlson, L. 2010. FinnWordNet – Finnish WordNet by translation. *LexicoNordica–Nordic Journal of Lexicography* 17: 119–140.

Máté, J. 1999. A magyar nyelv elsajátításának nehézségei a finn anyanyelvű tanulók szempontjából [Difficulties to learn Hungarian for Finnish learners]. *Hungarologische Beiträge* 12: 91–112.

Miháltz, M., Hatvani, C., Kuti, J., Szarvas, G., Csirik, J., Prószéky, G., and Váradi, T. 2008. Methods and results of the Hungarian WordNet project. In A. Tanács, D. Csendes, V. Vincze, Ch. Fellbaum, P. Vossen (Eds.), *Proceedings of The Fourth Global WordNet Conference,* 311–321. University of Szeged.

Miller, G. A. 1995. WordNet: a lexical database for English. *Communications of the ACM* 38(11): 39-41.

Pirinen, T. A. 2015. Development and Use of Computational Morphology of Finnish in the Open Source and Open Science Era: Notes on Experiences with Omorfi Development. *SKY Journal of Linguistics* 28: 381-393.

Tiedemann, J., and Nygaard, L. 2004. The OPUS Corpus – Parallel and Free. In *Proceedings of the Fourth International Conference on Language Resources and Evaluation*. Lisbon, Portugal. European Language Resources Association (ELRA).

Weöres, Gy. n.d.. *The Relationship between the Finnish and the Hungarian Languages.* https://histdoc.net/sounds/hungary.html

LingBaW *Linguistics Beyond And Within 9 (2023), 36-48*

Representing temporal concepts using redundant gestures in L2 ongoing interactions

Hiroki Hanamoto
Tokyo Denki University, Japan

Abstract
Human conversational interaction is multimodal, involving both verbal and non-verbal modalities. That is, when a speaker and listener interact, they use not only spoken messages but also manual gestures. Manual gestures and spoken messages are semantically and temporally related and work together to create and express a complete meaning. This study employs a data-driven approach to investigate how L2 learners spontaneously employ gestures to express temporal concepts in ongoing dyadic interactions using 11 recorded interactions among L2 learners. The distribution and frequency of specific types of manual gestures were examined using sequential and gesture analyses. The results showed that, when representing temporal concepts, the participants produced language-redundant gestures. For example, to convey temporal concepts, they tended to co-express the same information with manual gestures, namely abstract deictic and metaphoric gestures, on an imaginary mental timeline axis, which appeared to represent the English grammatical concepts of tense and aspectual meaning. Regarding the functional differences in gestures in interactions, based on sequential analysis, speakers employed language-redundant gestures to express time concepts explicitly in comprehension sequences and in the negotiation of meaning as a strategy of repair for lexical retrieval, paraphrasing, and clarification. These findings reveal that understanding the use of both modalities, speech and gestures, is critical in uncovering how speakers conceptualize time in their minds and integrate space and time in language.

Keywords: Redundant gesture, multimodality, temporal concept, L2 interaction

1. Introduction

Researchers have long acknowledged the co-development of speech and gestures, especially in speech production (McNeill 1992). Given that people invariably gesture when they speak, these co-speech gestures are commonly assumed to be related to speech and are often coordinated at a semantic and rhythmic level (Kendon 1980; McNeill 1992). McNeill's Growth Point Theory (McNeill 1992) assumes that speech and gestures merge and that both modalities become an integrated system in spontaneous talk. Whereas gesture-speech production is mandatory in language comprehension, the relationship between gesture and speech is considered to be associated with different types of gestures, and the meaning of gestures depends on the accompanying speech (Kendon 2004). Gestures have speaker-oriented and listener-oriented

functions, implying that gestures fulfill a range of functions in spoken language (Goldin-Meadow 2000). If people gesture during spoken interactions, they might produce co-speech gestures for both internal cognitive and communicative purposes (Kita 2000). Accordingly, the author investigated the use of co-speech gestures when talking and representing time concepts in ongoing interactions. Thus, this study examines the use of temporal gestures in face-to-face dyadic interactions and aims to understand how the dyads conceptualize time and integrate space and time in language. Furthermore, this study reveals that understanding the use of both modalities, speech and gestures, is critical in social interaction and language-learning contexts. Gestures may be considered visual aids that efficiently provide cues, transforming an abstract concept into something concrete and visible for effective communication.

2. Literature review

2.1. Gestures and speech

Several studies, including those by Kita (2000) and McNeill (1992), have reported that speakers unconsciously employ gestures during speech. The exact role of gestures remains unclear. However, a substantial body of gesture studies offers two different views: Gestures have beneficial effects on addressers (e.g., Kita et al. 2007; Krauss and Hadar 1999) and on addressees (e.g., Gullberg 1998; Kendon 1994). Pinpointing the precise functions of gestures is not easy because past studies have employed varied methods and approaches. However, a holistic view suggests that gestures have both cognitive and communicative functions.

Speakers employ spontaneous manual movements that accompany speech, and their meaning relies heavily on verbal expression. According to Sime (2006), spontaneous gestures are defined as mostly unconscious speech-related manual movements that are directly related to the local speech context. Therefore, spontaneous gestures only occur during speech and are synchronized with it rhythmically, semantically, and pragmatically (McNeill 1992). Many scholars have reviewed the relationship between speech and gestures, and several have adopted a clarification system introduced by McNeill (1992). According to McNeill's taxonomy, spontaneous gestures are of four types: iconic (reflecting the property of the referent or action), metaphoric (referring to an abstract notion), deictic or pointing (indicating objects or events in both a concrete and an abstract sense), and beats (adding emphasis or rhythmic coordination in speech). That is, iconic, metaphoric, and deictic gestures, referred to as representational gestures, are all semantically related to their accompanying speech.

The role of gestures in the expression of semantic coordination of speech has been investigated in many ways. However, whether gestures refer to a redundant entity or to accompanying speech, or whether they supplement speech, has been debated (e.g., Hostetter 2011). In other words, gestures can depict no more information that was not already conveyed verbally (redundant gestures) or gestures include additional or supplemental information not present in the verbal element (non-redundant gestures). People can communicate through language as well as other semiotic modes, including gestures. Therefore, it would make more sense that gestures complement the speaker's message with what they are willing to express

verbally as visible actions (Kendon 2004). Meanwhile, why speakers sometimes employ redundant gestures when speech itself already provides sufficient information is still under discussion, and many answers and differing views have been suggested, including visual understandability (e.g., Tuite 1993), semantic integration of gesture and speech (e.g., Kita and Özyürek 2003), or preempting problems of ambiguity and vagueness (e.g., de Ruiter et al. 2012).

2.2. Gestures for expressing temporal concepts

When people think about time, they usually convey spatial and temporal concepts through both speech and gestures (Casasanto and Jasmin 2012), and, according to Lakoff and Johnson (1980), sometimes map time onto imaginary metaphorical axes in space. Space is exploited to handle temporal concepts visually, and according to Kendon (1990), abstract deictic and metaphoric gestures along time axes that accompany speech can be used to represent time concepts. For example, Torralbo et al. (2006) pointed out that English and Spanish speakers tend to conceptualize mental timelines laterally, from left to right, and along the sagittal plane, from back to front. Specifically, moving our hands to the left or back signifies the past along the timeline, whereas movements to the right or front represent the future. Thus, space mapping with speech is one option for handling temporal concepts, namely past and future timeline concepts.

Here, a question that might emerge is whether people gesture the same way or share the same mental timeline when talking about temporal concepts. It has been widely reported that time is spatially conceptualized and activated in a speaker's mind and is mapped onto imaginary mental timeline axes. In any language, people recognize time conception along the sagittal axis: past events lie at the back, and future or coming events in front. However, directionality in space-time mapping varies by situation or context in interactions as well as according to the language-speaking culture. Casasanto and Jasmin (2012) claimed that the direction of reading and writing in language or the flow of time on calendars can reflect a speaker's mind to shape their mental timeline flow. Meanwhile, according to Cienki (1998), speakers tend to gesticulate laterally to avoid intruding upon interlocutors' physical personal space.

As noted above, researchers have been concerned with studies exploring gesture use to express time concepts. However, to the best of the author's knowledge, as compared to interactions between L1 and L2 interlocutors, scant research has examined L2 learners' use of temporal gestures in time conceptualization in interactions between L2 learners only. Thus, a lack of direct evidence exists that investigates the gestures used when representing time concepts among non-native speakers of English. The few empirical studies on the use of temporal gestures in L2 contexts suggest that L2 learners employ temporal gestures to indicate temporal concepts as well as interactional communication strategies. For instance, Hanamoto (2020, 2021) analyzed face-to-face dyadic interactions using an emic approach and qualitatively explicated the ongoing process of representing temporal concepts using multimodal sequential analysis. These case studies concluded that many temporal references from both modalities were displayed and that the participants compared the tense timeline using gestures such as the abstract deictic and metaphoric types. Alibali et al. (2013) found similar patterns of abstract deictic gestures in highlighting grammatical tense concepts as interactional resources. Hanamoto (2020, 2021) further reported that participants used temporal gestures as

supplementary visual information or to replace spoken output. These results suggest that gestures accompanying speech indicate temporal concepts as well as highlight the communicative relevance of the information expressed by the gesture.

These studies raise simple but interesting questions. Looking over the studies of temporal gestures accompanying speech in interactions, there is still little evidence from naturally occurring data, not using a controlled or task-oriented conversation, as compared with lexical production or explanation. In addition, studies exploring how L2 learners themselves co-create the conceptualization of time visually and auditorily are yet to be systematically studied. Therefore, the present study followed a data-driven approach to broaden the understanding of gesture use in the ongoing process of interaction. Specifically, how and for what purpose do L2 learners visually co-create the conceptualization of time in ongoing interactions? The present study thus contributes to gesture studies, in particular with regard to interactional multimodal strategies in social interaction and language learning contexts.

3. Method

3.1. Participants

The participants were 18 male and 4 female undergraduate students studying science and engineering in Japan. They were all non-native English speakers and had learned English as a second language. Their L1 backgrounds were Japanese (n = 11), Cantonese (n = 3), Arabic (n = 2), Vietnamese (n = 2), Indonesian (n = 1), Nepalese (n = 1), Pekinese (n =1), and Turkmen (n = 1). According to the TOEIC-based placement test conducted at their university, their English levels ranged from beginner to intermediate. All participants voluntarily participated after reading and signing a consent form prior to data collection.

3.2. Data collection

Data were collected in the laboratory where the author worked. The author set up 11 dyads between Japanese and international students for video-recording interactions but did not control for their English proficiency levels. Nobody had met their dyad partner before the recording. The author set up two high-performance digital cameras with additional microphones connected to each speaker's clothes. The two cameras simultaneously and clearly recorded the speaker's speech and manual gestures. The recording time for the interactions was approximately 15 minutes. No specific discussion topics were assigned, and the participants were asked to start a free conversation. The type and purpose of the interaction could influence or relate to the communication strategies used. Thus, before the interaction, the author asked each dyad to decide on the first topic to talk about and to manage, create, and develop ongoing interactions between the pairs. The result showed that they preferred "safe topics" (Meierkord 2000) such as their common interests, majors, cultural differences, or hobbies. The interlocutors attempted to complete one topic in around 10 turns and moved on to the next topic. Given this structure, findings from non-institutional casual interaction settings provided insights into

interactional resources in L2 or English as a lingua franca (ELF) contexts. Accordingly, this study sought to determine how L2 learners represent temporal concepts through the use of spontaneous gestures in ongoing interaction.

3.3. Coding and data analysis

The author analyzed fragments in which the topic was related to the temporal concepts or references. First, based on the analytical framework of sequential analysis focusing on talk-on-interaction (Schegloff 1992), the author divided all 11 video-recorded interaction data items into fragments of sequential structure. Fragments for further analysis were transcribed and annotated using ELAN, an open-source multimodal annotation software. All utterances, including nonverbal behaviors, were transcribed verbatim using Jefferson's (1984) and McNeill's (2005) transcription conventions (see Appendix for transcription conventions). McNeill's typology was used to classify and code all spontaneous manual gestures into iconic, deictic, metaphoric, and beats gestures. Moreover, the gesture stroke and spatial direction may correlate to the timeline concepts implied by co-verbal intentions (e.g., Casasanto and Jasmin 2012). Gesture strokes, which were considered to convey the most significant and meaningful parts of the conversation, were also coded for viewpoints based on McNeill (1992) as follows: hand (left, right, bimanual), orientation (lateral, vertical, sagittal), and spatial direction (leftward, rightward, upward, downward, forward, center, backward, upper left, upper right). Gestural coding and identification were performed by two coders to ensure reliability. The substantial inter-rater agreement (κ = . 78) was calculated using Cohen's kappa coefficient.

4. Results and discussion

4.1. Temporal co-speech gestures along imaginary mental timeline axis

The author examined excerpts in which the participants used co-speech gestures when discussing time concepts. In other words, the author attempted to determine how and for what reason the participants co-created the conceptualization of time visually in ongoing interactions.

In the 165 minutes of talk, the author observed 67 cases of talking about timeline concepts; however, 37 of the excerpts were excluded from further analysis because these references were only conveyed by verbal expression, not visually. Thus, for further analysis, 30 spontaneous gestures with speech expressing temporal concepts or references were considered. These 30 utterances were expressed by both modalities, verbal and gestural. While the participants discussed temporal concepts through verbal utterances, they also expressed the same information visually with their hands. Therefore, by observing this match of speech and gesture content, redundant gestures would be more beneficial in expressing temporal concepts than would non-redundant gestures among L2 learners ranging from the beginner to the intermediate proficiency level.

Of the 30 temporal gestures that they produced along with the utterances, the gestures expressing temporal concepts were mostly abstract deictic and in some cases metaphoric

(Gullberg 1998): 21 utterances were accompanied by abstract deictic gestures, and the remaining were metaphoric gestures. As expected, there were no uses of iconic or beats gestures found in representing temporal concepts. The current investigation therefore focuses on deictic and metaphoric gestures.

All of the gestures were oriented along an axis with a clear direction: 22 gestures laterally and 8 sagittally (Figure 1). Speech and gestures are intertwined in communication; thus, co-speech gestures on both axes appear to function interactionally.

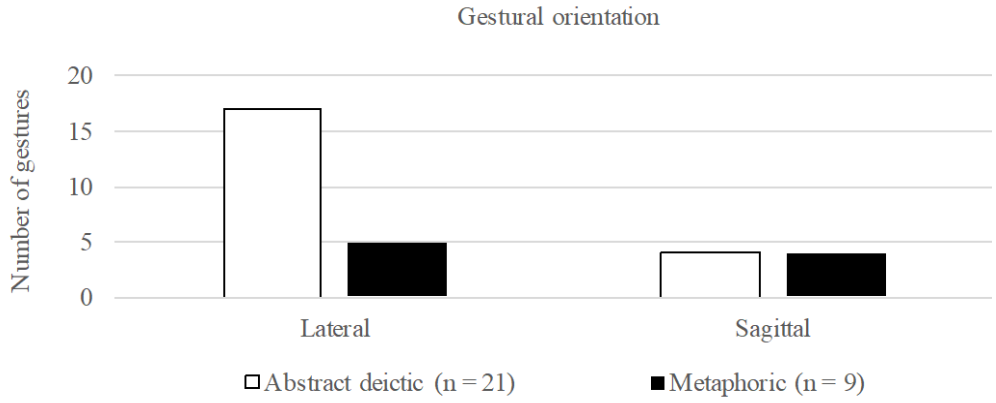


Figure 1: *Gestural orientation of temporal co-speech gestures*

The two graphs in Figure 2 show the distribution of the spatial direction of the imaginary timeline axes expressing earlier (past) and later (future) time. As this distribution of axis orientations shows, the participants placed and moved their hands onto the imaginary mental time axis when referring to timeline concepts (Lakoff and Johnson 1980). However, it is important to note that speakers in this study mapped their hands more on the lateral timeline than on the sagittal timeline axis when describing time concepts. That is, although they could employ more than one metaphorical time axis when referring to time concepts, they tended to arrange time from left to right (laterally) rather than from back to front (sagittally). This finding has been demonstrated in previous studies, including Casasanto and Jasmin (2012). Thus, as shown in Figure 3, in the case of referring to the earlier time, or the past tense or past events, they tended to move or point their hands into the space at their far left on a lateral imaginary timeline more than at their back along a sagittal axis. Meanwhile, regarding later time, they mainly gestured to the right rather than the front.

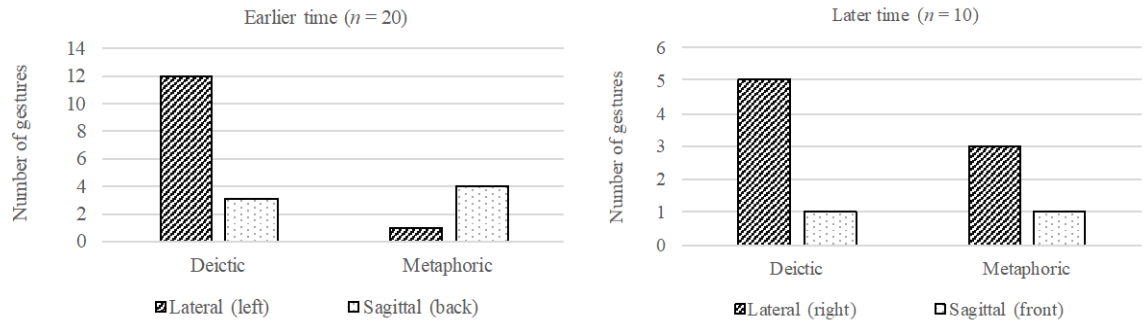


Figure 2: *Distribution of spatial direction of the imaginary mental timeline axes expressing earlier and later time*

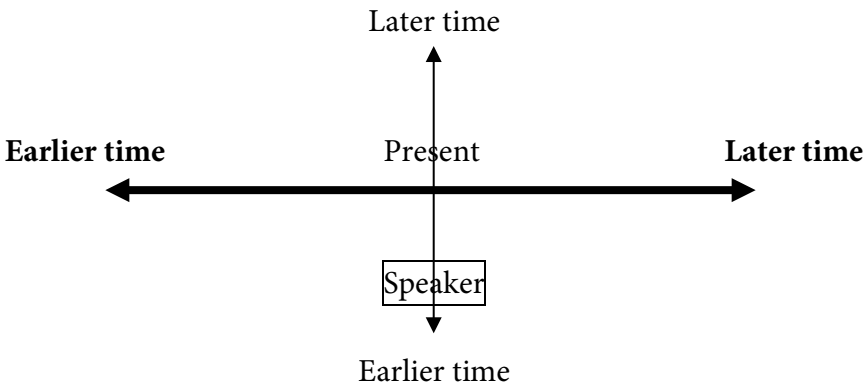


Figure 3: *Timeline axes for expressing tense references*

Each gesture on the imaginary temporal axis also appeared to adequately express different time concepts. For example, speakers tended to co-employ abstract deictic gestures along the lateral axis to accompany simple tense. Specifically, the participants extended their hands to the left to accompany simple past tense and to the right for simple future tense. Meanwhile, metaphorical gestures were mapped on the sagittal axis and synchronized with speech representing the grammatical concept of the aspect in English (i.e., present progressive and present perfect).

4.2. The function of the temporal co-speech gestures

The second goal of this study was to determine the function of the temporal co-speech gestures along the imaginary timeline axis. Combining traditional video annotation with sequential analysis, which addresses how talk construction is designed and negotiated, opens up new avenues to consider in analyses of the functions of temporal co-speech gestures. According to sequential analysis, the participants in this study expressed the same temporal concepts or references verbally as well as through language-redundant gestures along the imaginary mental timeline axis from different viewpoints, namely drawing on the concept of tense and aspectual meaning.

The author followed the transcriptions and video-recorded data with respect to functional differences in co-speech gestures. Based on sequential analysis, the author found that the participants employed language-redundant gestures when expressing time concepts, both in comprehension sequences where a speaker and a listener do not have outstanding problems in understanding and also in the negotiation of meaning, which shows a process of how participants in their interaction overcome communication problems in repair work. As Figure 4 shows, each use of gesture could be divided into four functions. Moreover, they were distributed in both situations, namely in the comprehension sequences (17) and repair negotiation sequences (13). More specifically, gestures employed in comprehension sequences were coded as "emphasis on a part of a reference" and the remaining three functions, "lexical retrieval," "paraphrasing," and "clarification," were observed in repair negotiation sequences. It is not possible to quantitatively compare the number of gestures between the two types because of the different total numbers of gestures; rather, we can compare the proportion of each function between the two types of gestures. Figure 4 shows that the participants gestured to emphasize a part of a time reference, which tends to be seen in the case of comprehension

sequences. These gestures did not contain information that gave additional meaning to the speech or generate explicitness of their verbal explanation or complements to interlocutors in interactions, but instead, speakers employed gestures that functioned as language-redundant gestures. Interestingly, information expressed by both modalities was explicitly conveyed to an interlocutor, which means such instances occurred during smooth and normal turn-taking, not repair sequences. In other words, gestures along imaginary mental timeline axes presented similar images through the dual mode, thus appearing to add redundancy to the semantics of speech that they accompanied to emphasize a part of the timeline reference.

Meanwhile, language-redundant gestures co-occurring with speech were also used in the sequences of negotiation of meaning as three types of strategies of repair: lexical retrieval, paraphrasing, and clarification. Here, it is noteworthy that such gestures were performed in connection with repair of prior talk by a speaker or a listener, namely same-speaker repair or other-speaker/recipient repair. For instance, in terms of lexical retrieval, speakers in interactions gradually moved and placed their hands on the axis to ease access to the timeline referent's word form production. In contrast, as an other-speaker repair, recipients also moved their hands to the axis with speech to increase the chance of being heard and understood to make an utterance intelligible to an interlocutor as a paraphrasing strategy; alternatively, for clarification and confirmation for resolving problems, recipients gestured alongside speech to promote the comprehension of a prior speaker's turn, which is interpreted as an interactional communicative strategy. Therefore, in case the construction and negotiation of meaning end up as incomplete, complementary combinations of gesture with speech are assumed to be effective in speech production and ongoing interactions. Excerpts 1–3 below illustrate how redundant gestures are used as strategies of repair, namely lexical retrieval, paraphrasing, and clarification, employed in their turn-taking.

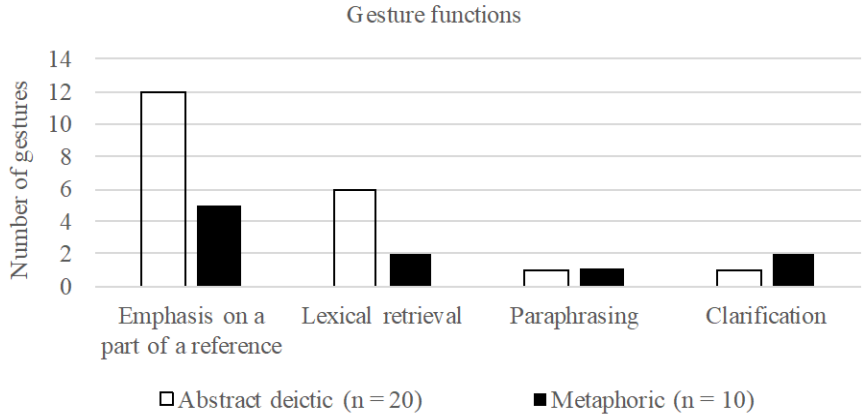


Figure 4: *Distribution of the abstract deictic and metaphorical gesture functions*

(4) Excerpt 1: Lexical retrieval

```
     A (m) = Vietnamese; B (m) = Japanese

  1.A    before I hmm go to university {I lived in}: {Tokyo}=
 →2.                                  {((moves his right fisted hand backward))}
 →3.                                                {((makes a thumbs-up and
 →4.     points a backward and sagittally twice))}
  5.B    =Tokyo
  6.A    ((nodding twice))
```

(5) Excerpt 2: Paraphrasing

```
     C (f) = Japanese; D (m) = Turkmen

  1.C   Japanese: Rapunzel? ((tilts her head to the left to appeal D to confirm
  2.    what she wanted to say))
  3.D   Rapunzel {yes=}
  4.             {((nodding twice))}
  5.C   =Rapunzel hmm. wear::: CHANGE? I go to: Tokyo Disney land
  6.D   (.) you {dress?=}
  7.           {((pretends to dress upper body bimanually))}
  8.C   =YES YES YES
  9.D   dress like (.) hmm Rapunzel?=
 10.C   =YES YES YES
→11.D   then you {went to a: Disney land?}
→12.             {((moves his right hand and points leftward))}
 13.C   {YES YES YES
 14.    {((nodding twice))}
```

(6) Expert 3: Clarification

```
     E (m) = Saudi Arabian; F (m) = Japanese

  1.E    so: you wanna speak like::any: English guy?
  2.F    hmm: no no ((shaking his head twice))
  3.E    [but:]
  4.F    [it's] my first time
 →5.E    it's first time {for you} but: your: any {your future
 →6.                    {((pointing to F with his right hand))}
 →7.                                            {((moves his right hand
 →8.     rightward))}
  9.F    maybe I need: yes
```

Additionally, the timing of the gestures further supports this finding. Figure 5 presents the timing between the onset of a lexical affiliate related to temporal concepts and the onset of a gesture. It is common for the timing of gestures and speech to be related to the familiarity of lexical features, and the gaps between speech-gesture onsets are related to difficulties with word retrieval (e.g., Krauss et al. 2000; Morrel-Samuels and Krauss 1992). According to this claim, a gesture's synchrony with speech or occurrence slightly before lexical affiliates implies the same or similar semantic information. Meanwhile, regarding speech-gesture asynchrony, where the gesture onset follows lexical affiliates, it might be possible to treat it as the perception of some problematic semantic references. In this study, we can see a similar tendency—that gestures functioned to emphasize a part of a reference and that clarification tended to precede or synchronize with the lexical affiliate. This means that speakers already know or familiarize themselves with these lexical affiliates and that they are more ready to facilitate speech production.

Understandably, these gestures were mainly observed in comprehension sequences, which means smooth turn-taking without encountering problems that needed repair when emphasizing a part of a reference with speech. Furthermore, the author found another set of gestures synchronized with speech in the repair sequences, as shown in Figure 5. However, they were used in the course of negotiation of meaning through repair strategies such as paraphrasing and clarification; they were not self-initiated but addressed and repaired by a recipient in the ongoing interaction. Such initiation of other-repair typically occurs in the turn immediately following a problematic display (Schegloff 1992). Thus, it can be interpreted that

the participants' non-verbal actions were synchronized with verbal speech to raise explicitness partly related to the repair of incomprehension.

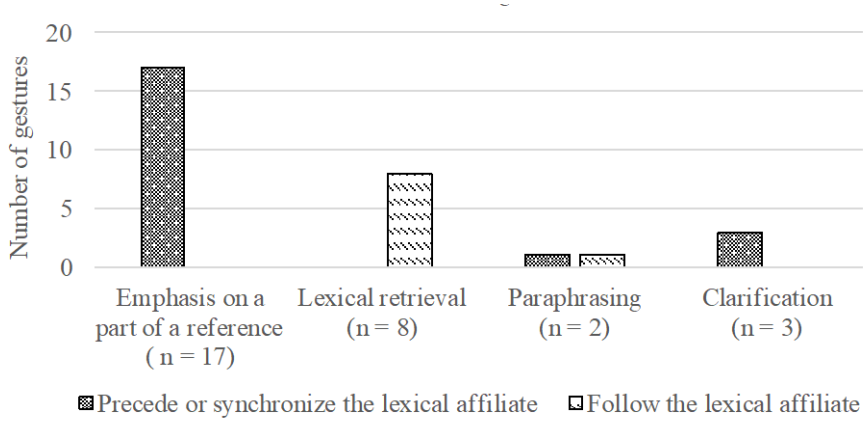


Figure 5: *Timing of gestures in relation to the temporal lexical affiliate in accompanying speech*

5. Conclusions

The goal of the present study was to describe how L2 learners spontaneously employ gestures when expressing temporal concepts in ongoing dyadic interactions. By using multimodal sequential analysis, the author obtained and explored 30 co-speech gestures for expressing temporal concepts.

The results showed that redundant gestures would be beneficial both in comprehension and repair negotiation sequences when representing temporal concepts. Specifically, the participants produced co-speech abstract deictic and metaphoric gestures when expressing temporal concepts. In other words, the visual information was largely redundant with speech (Wagner et al. 2014). This finding provides further support for the use of abstract deictic and metaphoric gestures with speech in terms of temporal expressions, as reported by Gullberg (1998). Gesturing with speech involves placing and moving hands along the imaginary mental time axis, more often on the lateral than on the sagittal axis (Casasanto and Jasmin 2012). Moreover, these spatial directions through manual gestures tended to represent the English grammar time concepts of tense and aspect. In other words, the present study's data show that accompanying gestures can reflect a speaker's mental representation of their conception of time. Additionally, the author explored the functions of language-redundant gestures in the expression of time concepts with speech. According to the sequential analysis and the timing of gestures and speech, the author found that the speakers employed gestures when expressing time concepts both in comprehension sequences and in the negotiation of meaning in repair work. That is, gestures performed in interaction fulfilled a range of functions, as Goldin-Meadow (2000) suggested, and confirmed in this study as an emphasis on a part of a reference or a repair strategy in the form of lexical retrieval, paraphrasing, and clarification, in the interactions of L2 learner ranging from the beginner to the intermediate proficiency level.

As this study provided additional evidence to support the claim that the participants tended to place and move their hands onto the imaginary mental time axis in the effective use of redundant gestures when referring to timeline concepts, it presents some methodological

weaknesses. The first limitation is related to the direction in which time is conceptualized spatially along people's mental imaginary timelines. As reported in the literature, including Casasanto and Jasmin (2012) and Lakoff and Johnson (1980), cross-cultural differences in the conceptualizations of time appear to vary according to speakers' L1 backgrounds or culture. While this study only considers the use of temporal co-speech gestures in ongoing dyadic interactions from different L1 backgrounds, interactions including pairs of participants from the same L1 background or culture also need to be examined in a cross-cultural context. A further limitation in this study was insufficient control in L2 proficiency level. The participants' English levels ranged from beginner to intermediate, which resulted in a lack of clear variability in a wide range of L2 proficiency level. Some experiments have shown that different levels of L2 proficiency may influence gesture use or gestural function including in a narrative (e.g., So et al. 2013) or role-playing context (e.g., Gregersen et at. 2009). Thus, the proficiency difference use of gesture with regard to redundant and non-redundant gestures, especially in L2 interactions, should be further investigated. Similarly, another limitation—disregarding the necessity for larger sample sizes for more qualitative and quantitative data analysis because people do not always employ gestures with speech, and ignoring individual differences—concerns the effect of mutual visibility or gaze on the number of gestures in face-to-face interaction, which a number of studies have examined (e.g., Bavelas et al. 2008; Enfield et al. 2007). Therefore, further research conducted by manipulating the visibility of the addresser and addressee is required to uncover the use of temporal co-speech gestures more accurately in ongoing interactions.

To conclude, as a direction for further research to overcome these limitations, it would be useful to determine the exact role of gestures in interactions from various domains, including naturalistic conversations described in the present study. That is, understanding the use of both modalities, speech and gestures, when expressing temporal references is crucial for uncovering how speakers conceptualize time in their minds and integrate space and time in language.

This is also a growing area of research, as understanding the relationship between language learning and gestures is important for nonverbal communication. Language or spoken messages are not always intelligible but rather pragmatically ambiguous. Gestures are visual aids that efficiently provide cues, transforming an abstract concept into something concrete and visible for effective communication. The presence of manual movements might facilitate language production and improve comprehension. This possibility segues into a discussion on whether speakers actually employ gestures for themselves (e.g., Kita and Özyürek 2003; Krauss and Hadar 1999) or intentionally for listeners (e.g., Gullberg 1998; Kendon, 2004) as well as the relationship between redundant and non-redundant gestures.

References

Alibali, M. W., Young, A. G., Crooks, N. M., Yeo, A., Wolfgram, M. S., Ledesma, I. M., Nathan, M. J., Church, R. B., and E. J. Knuth. 2013. Students learn more when their teacher has learned to gesture effectively. *Gesture* 13(2*)*: 210–233. https://doi.org.10.1075/gest.13.2.05ali

Bavelas, J., Gerwing, J., Sutton, C., and D. Prevost. 2008. Gesturing on the telephone: Independent effects of dialogue and visibility. *Journal of Memory and Language* 58(2*)*: 495–520. https://doi.org.10.1016/j.jml.2007.02.004

Casasanto, D., and K. Jasmin. 2012. The hands of time: Temporal gestures in English speakers. *Cognitive Linguistics* 23(4): 643–674. https://doi.org.10.1515/cog-2012-0020

Cienki, A. 1998. Metaphoric gestures and some of their relations to verbal metaphoric expressions. In J. P. Koenig (ed.), *Discourse and cognition: Bridging the gap,* 189–204. Stanford, CA: CSLI Publications.

de Ruiter, J. P., Bangerter, A., and P. Dings. 2012. The interplay between gesture and speech in the production of referring expressions: Investigating the tradeoff hypothesis. *Topics in Cognitive Science* 4(2): 232–248. https://doi.org.10.1111/j.1756-8765.2012.01183.x

Enfield, N. J., Kita, S., and J. P. de Ruiter. 2007. Primary and secondly pragmatic functions of pointing gestures. *Journal of Pragmatics* 39: 1722–1741. https://doi.org/10.1016/j.pragma.2007.03.001

Goldin-Meadow, S. 2000. Beyond words: The importance of gesture to researchers and learners. *Child Development* 71(1): 231–239. http:doi.org/10.1111/1467-8624.00138

Gregersen, T., Olivares-Cuhat, G., and J. Storm. 2009. An examination of L1 and L2 gesture use: What role does proficiency play? *The Modern Language Journal* 93(2): 195–208. https://doi.org.10.1111/j.1540-4781.2009.00856.x

Gullberg, M. 1998. *Gesture as a communication strategy in second language discourse: A study of learners of French and Swedish.* Lund: Lund University Press.

Hanamoto, H. 2020. How do co-occurring speech and gestures express meaning in a dyadic face-to-face ELF interaction? In R. A. Giri, A. Sharma, and J. D'Angelo (eds.), *Functional variations in English: Theoretical considerations and practical challenges*, 61–82. UK: Springer. https://doi.org/10.1007/978-3-030-52225-4_5

Hanamoto, H. 2021. Improving spatial and temporal attention through the use of spontaneous gestures in dyadic English as lingua franca interactions. In C. Lee (ed.), *Second language pragmatics and English language education in East Asia*, 164–193. UK: Routledge.

Hostetter, A. B. 2011. When do gestures communicate? A met-analysis. *Psychological Bulletin* 137(2): 297–315. https://doi.org/10.1037/a0022128

Jefferson, G. 1984. On the organization of laughter in talk about troubles. In J. M. Atkinson and J. Heritage (eds.), *Structures of social action: Studies in conversation analysis,* 346–369. Cambridge: Cambridge University Press. https://doi/org/10.1017/CBO9780511665868.021

Kendon, A. 1980. Gesticulation and speech: Two aspects of the process of utterance. In M. R. Key (ed.), *The relationship of verbal and nonverbal communication and language*, 207–227. The Hague: Mouton De Gruyter Publishers. https://doi.org/10.1515/9783110813098.207

Kendon, A. 1990. Spatial organization in social encounters: The F-formation system. In A. Kendon (ed.), *Conducting interaction: Patterns of behavior in focused encounters*, 209–237. Cambridge: Cambridge University Press.

Kendon, A. 1994. Do gestures communicate? A review. *Research on Language and Social Interaction* 27(3): 175–200. http://doi.org/10.1207/s15327973rlsi2703_2

Kendon, A. 2004. *Gesture: Visible action as utterance.* New York: Cambridge University Press. http://doi.org/10.1017/CBO9780511807572

Kita, S. 2000. How representational gestures help speaking. In D. McNeill (ed.), *Language and gestur*e, 162–185. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511620850.011

Kita, S., and A. Özyürek. 2003. What does cross-linguistic variation in semantic coordination of speech and gesture reveal?: Evidence for an interface representation of spatial thinking and speaking. *Journal of Memory and Language* 48(1): 16–32. https://doi.org/10.1016/S0749-596X(02)00505-3

Kita, S., Özyürek, A., Allen, S., Brown, A., Furman, R., and T. Ishizuka. 2007. Relations between syntactic encoding and co-speech gestures: Implications for a model of speech and gesture production. *Language and Cognitive Processes* 22(8): 1212–1236. https://doi.org/10.1080/01690960701461426

Krauss, R. M., and U. Hadar. 1999. The role of speech-related arm/hand gestures in word retrieval. In L. S. Messing, and R. Campbell (eds.), *Gesture, speech, and sign*, 93–116. New York: Oxford University Press. https://doi.org/10.1093/acprof:oso/97801985524519.003.0006

Krauss, R. M., Chen, Y., and R. F. Gottesman. 2000. Lexical gestures and lexical access: A process model. In D. McNeill (ed.), *Language and gesture*, 261–283. Cambridge, UK: Cambridge University Press.

Lakoff, G., and M. Johnson. 1980. *Metaphors we live by*. Chicago, IL: Chicago University Press.

McNeill, D. 1992. *Hand and mind: What gestures reveal about thought.* Chicago: University of Chicago Press.

McNeill, D. 2005. *Gesture and thought.* Chicago: University of Chicago Press. https://doi.org/10.7208/chicago/9780226514642.001.0001

Meierkord, C. 2000. Interpreting successful lingua-franca interaction. An analysis of non-native/non-native small talk conversation in English. *Linguistik Online* 5: 1/00. https://doi.org/10.13092/lo.5.1013

Morrel-Samuels, P., and R. M. Krauss. 1992. Word familiarity predicts temporal asynchrony of hand gestures and speech. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 18(3): 615–622. https://doi.org/10.1037/0278-7393.18.3.615

Schegloff, E. A. 1992. Repair after next turn: The last structurally provided defense of intersubjectivity in conversation. *American Journal of Sociology* 97(5): 1295–1345. https://doi.org/10.1086/229903

Sime, D. 2006. What do learners make of teachers' gestures in the language classroom? *International Review of Applied Linguistics in Language Teaching* 44(2): 211– 230. https://doi.org/10.1515/IRAL2006.009

So, W. C., Kita, S., and S. Goldin-Meadow. 2013. When do speakers use gestures to specify who does what to whom? The role of language proficiency and type of gestures in narratives. *Journal of Psycholinguistic Research* 42(6): 581–594. https//doi.org/10.1007/s10936-012-9230-6

Torralbo, A., Santiago, J., and J. Lupiáñez. 2006. Flexible conceptual projection of time onto spatial frames of reference. *Cognitive Science* 30(4): 745–757. https://doi.org/10.1207/s15516709cog0000_67

Tuite, K. 1993. The production of gesture. *Semiotica* 93(1-2): 83–106. https://doi.org/10.1515/semi.1993.93.1-2.83

Wagner, P., Malisz, Z., and S. Kopp. 2014. Gesture and speech in interaction: An overview. *Speech Communication* 57: 209–232. https://doi.org/10.1016/j.specom.2013.09.008

Acknowledgments

The current research and the preparation of this paper was supported by the Japanese Government Grant-in-Aid for Scientific Research (No. 20K13113). The author thanks the students who made this research possible. Further acknowledgments are due to the audience for their very constructive comments on the author's oral presentation at LingBaW 2021, Poland (online) on October 15, 2021, and to the anonymous reviewers for their valuable feedback on earlier versions of this manuscript.

Appendix. Transcription conventions (Adapted from Jefferson 1984 and McNeill 2005)

:	extended sound or syllable
{	overlapping utterances with non-verbal actions
=	latched utterances
((	non-verbal actions
CHANGE	speech much louder than surrounding talk
(.)	short pause less than 1 second
[	overlapping utterances
→	feature of interest to analyze

LingBaW *Linguistics Beyond And Within 9 (2023), 49-59*

Comparative analysis of American and Russian political discourse: A discourse analysis study

Monika Kopik
John Paul II Catholic University of Lublin, Poland

Abstract
This article provides an exhaustive analysis of American and Russian political discourse through the examination of the linguistic techniques employed by President Joe Biden and President Putin in their speeches. The aim of this research is to examine the linguistic approaches employed in referencing social and political traditions in the United States and Russia, investigate disparities in linguistic strategies within both political discourses, and assess variations in semantic outcomes. The analysis has been conducted to answer the following research questions: (1) What are the linguistic methods of referring to social and political traditions in America and Russia? (2) Do the linguistic strategies differ depending on the political discourse? (3) Is the semantic output different depending on the political discourse? The findings reveal marked differences between the two discourses, reflecting the social and political discrepancies between the political systems of the United States and Russia.

Keywords: discourse, political discourse, discourse analysis, American political system, Russian political system, comparative analysis

1. The notion of discourse

According to Crystal (2008: 148), discourse refers to a continuous segment of language that extends beyond a single sentence and can encompass various applications. Generally, discourse serves as a behavioural unit in linguistics with a pre-theoretical status, representing a collection of utterances that form a recognizable speech event. Examples of such events include conversations, jokes, sermons, and interviews, without specifically addressing their linguistic structure.

Fairclough (1995) emphasizes the role of discourse in meaning construction and participation in social processes. What is important, the truth or falsehood of linguistic instances is less important in this view and researchers rather focus on how truths develop during discourse production (Bleau, 2010: 23; Fairclough, 1995: 12-16; Locke, 2004: 14).

From the sociolinguistic perspective discourse is viewed as a group of ideas or patterns of thinking that can be identified in textual and verbal communications and reflected in wider

social structures. This approach highlights the connection between discourse and the social context in which it occurs (Lupton, 1992: 18).

2. Discourse analysis

According to Powers (2001: 1), discourse analysis is a relatively new linguistic field that emerged in the 1970s. It focuses on the analysis of the language in use, examining how language functions within specific contexts.

Discourse analysis employs various methods but shares common goals and assumptions. The objective is to understand how linguistic information or techniques function within specific contexts. The methodology of discourse analysis is influenced by critical social theory, ideology, false consciousness, foundationalism and postmodernism (Powers, 2001: 3).

Critical social theory, which is rooted in Marxist thought and literary criticism, scrutinizes oppressive social and political institutions and their impact on different social groups. It seeks to discover dominant ideologies that shape the experiences of the group members. Critical social theorists argue that there may not be a single true interpretation within discourse but multiple interpretations that vary depending on the context (Fairclough, 1995: 20). Althusser (1971: 19) defines ideology as representing the imaginary relationship of individuals to the real conditions of existence with the ability to mask systematic oppression. Marxist theory suggests that capitalistic ideology creates false consciousness among the working class that misleads them about the benefits of their work (Fairclough, 1995: 21; Powers, 2001: 3).

The postmodern approach to discourse analysis explores power relations within specific contexts and focuses on the meaning-making processes. It questions universal norms and underlines context-specific accounts. Postmodernism opts for practicality and moral openness, which results in increased participation in discourse (Powers, 2001: 4).

3. Political discourse

Rhetoric was regarded as a fundamental aspect of political discourse, which emphasized its role in persuading and influencing others (Roberts, 2004: 7). This historical perspective illustrates the enduring relevance of rhetorical skills in political communication. Political discourse has continued to serve as a means of conveying information about public policies and actions aimed at promoting social welfare (Wilson, 2001: 16).

While ancient rhetoric focused on the skills and techniques necessary to achieve specific political objectives, modern views on political discourse have shifted towards linguistic analysis and its relation to socio-political factors. It was not until the 1980s and 1990s that political discourse began to be characterized in linguistic terms by scholars such as Norman Fairclough and Ruth Wodak (Fairclough, 1995; Wodak, 1989). This shift in thinking highlights the evolving nature of political discourse and its analysis (Wilson, 2001: 17).

Political discourse can be approached through exclusive and inclusive approaches (Dunmire, 2012: 740). The exclusive approach limits analysis to the text and speeches of politicians and political institutions (van Dijk, 1997: 41). Conversely, the inclusive approach

regards the broader context of power dynamics, which encompasses collaborative acts among participants during a discursive performance. It acknowledges that political discourse is influenced by social, cultural and economic forces that influence each other (Muntigl, 2002: 2).

A critical social theory accentuates the role of political discourse as a manifestation of power, domination and potential abuse. Such an analytical perspective explores the impact of discourse structures and practices on political power dynamics. Socio-cultural factors also play a crucial role in shaping political discourse by reinforcing the interrelation between language and social influences (Fairclough, 1995: 30; Rojo and van Dijk, 1997: 29).

Furthermore, political discourse is intricately linked to the media, expanding its scope beyond traditional political institutions to encompass media language, science and technology. This symbiotic relationship broadens the range of linguistic accounts applicable to political communication. Moreover, political discourse expands beyond formal political settings to include everyday language and increases accessibility for discourse participants by breaking social and linguistic barriers (Fetzer and Lauerbach, 2007: 63).

The cultural context is another shaping force in political discourse, as acceptability and appropriateness of communication practices vary among different cultures (Fetzer and Lauerbach, 2007: 67). For instance, the conversationalisation of political discourse is considered acceptable in the Anglo-American culture but might face criticism and rejection in Middle Eastern societies. Political discourse cannot be treated as a monolithic entity as it encompasses various subtypes representing particular social groups, such as feminist or nationalistic groups, each with distinct objectives and characteristics (Whisnant, 2012: 14).

In order to fully understand political discourse, it is imperative to consider its close relationship with political cognition, which connects individual and collective properties of politics (van Dijk, 2002: 204). Political cognition serves as a bridge between personal beliefs and shared political representation, encompassing knowledge, ideologies, attitudes and cognitive processing. It recognizes that political discourse is shaped by subjective experiences acquired through political cognition, combining shared and personal beliefs expressed through linguistic and discursive tools (van Dijk, 2002: 208).

4. Sociolinguistic background of political discourse

Sociolinguistics studies the relationship between language and society. It investigates how language and society influence each other. The sociolinguistic perspective recognizes the importance of the social context in language analysis and considers the speaker's personal experience as valuable data (Hudson, 1996: 31). In the realm of political discourse, language is seen as an integral part of social life and analysing discourse is crucial for understanding the construction of social reality (Fairclough, 2003). Political discourse is embedded in the socio-cultural context and plays a role in shaping social patterns and behaviours (Fairclough, 1995: 28). Language in political discourse is seen as an ideological tool that constructs social and political relationships (Coupland, 2016: 44).

Several sociolinguistic notions are important for analysing political discourse. Recontextualisation is a process where social events are incorporated into new social contexts through linguistic adaptations (Blackledge, 2006: 24). Representation and misrepresentation

are important tools in controlling society through discourse and they include the analysis of the ideological effects of discourse in relation to social and historical contexts (Blackledge, 2005: 53). Social practice and social functions highlight the role of discourse as a performance that serves cultural, social and political purposes within institutions and society (van Dijk, 1997: 18). Social theory connects discourse to social patterns and relations and it aims to understand how discourse shapes and transforms communities and societies (Lemke, 2005: 5). When analysing political discourse, it is imperative to integrate social and linguistic theories to provide a comprehensive analysis that goes beyond purely linguistic perspectives (Wilson, 2001: 22).

5. American and Russian political systems

American and Russian political systems are characterised by several key features that have been shaped by socio-cultural and historical factors. They create a sociolinguistic basis for the discourse analysis.

5.1. American political system

Religion has played a significant role in the development of the American political system. The early Puritan settlers viewed America as a promised land and sought to create an earthly paradise in the shape of Heaven through hard work and dedication. This religious influence is evident in the Declaration of Independence, which mentions the idea of absolute rights bestowed by God (Paraschiavescu, 2012: 31).

The American political image is further shaped by the notion of *American paradise*. It was conceived as a utopian vision of a new land, often described as a heavenly garden or a biblical promised land. The vast American landscapes were perceived as a promise of happiness and fulfilment, creating an image of an earthly paradise. This perception was reinforced by the metaphorical association of America with femininity and desire (Girgus, 1990: 7). However, it is argued that the notion of American paradise served as propaganda to conceal the paradoxes within the political and economic systems of the United States. Stern (1938) suggests that the artificial paradise was created to mask the economic hardships and inequalities experienced by many Americans. The Great Depression exposed these paradoxes, including high unemployment, wage cuts and social unrest (Stern, 1938: 42).

Despite the complexities and paradoxes, American paradise can be viewed as both a positive definition of life in a new country and an ironic reflection of the contradictions within American society. It represents the ideals of independence, hard work and dedication, while also acknowledging the challenges present in the political and economic systems of America (Stern, 1938: 24).

The concept of *American optimism* is rooted in the belief that America was destined to become an Earthly paradise, characterised by territorial expansion and a disposition to adopt the most positive outlook (Paraschivescu, 2012: 32; Wright, 1950: 20). This optimism, deeply influenced by Puritan faith, guided frontmen in their mission to expand territory and create an earthly Eden through hard work and loyal dedication to God's plan (Wright, 1950: 23). The Puritans saw themselves as God's elects destined to build a heavenly home on Earth

(Paraschivescu, 2012: 33; Wright, 1950: 22). Despite numerous challenges such as trade taxes, natural dangers, internal conflicts and racial segregation, American optimism has contributed to the country's current high, global position (Lienesch 2014: 10). In short, American optimism can be understood as a religious element, an attitude, or a defining aspect of American society and government.

Presidential power holds a central position in the American political system. Presidents exercise power through persuasion, using their position and rhetoric to gain support for their policies (Jones, 1990: 15), They can influence the Congress through veto power and public persuasion through media and foreign policy (Jones, 1990: 20). Moreover, presidents determine the government's agenda and are expected to play a role in representing the national interest (King, 1990: 15; Nelson, 2020: 49).

The perception of parties in American politics has evolved over time. The Founding Fathers initially opposed parties but later recognised the need for a party system to control leaders' self-interest and corruption. Parties serve as communication channels between leaders and voters, allowing for the expression of needs and proposals for social and political changes (Reichley, 2000: 7). They also ensure continuity in government policies and enable diverse social groups to unite under a common party coalition (Hofstadter, 2011: 80; Reichley, 2000: 7).

5.2. Russian political system

According to Surkov (2008: 15), Russian political culture is characterized by political wholeness, idealization of political goals and personification of political institutions. Political wholeness is achieved through the centralization of power and the merging of politically active groups into national parties. Idealism is emphasized in Russian society, with a focus on utopian ideals and a sense of exclusivity and being different. Charismatic personalities play a crucial role in Russian politics, where the leaders personify the values of political groups. However, excessive centralization leads to the malfunctioning of public institutions and hinders socio-economic development (Surkov, 2008: 19).

Evans (2008) and Lukin (2009) discuss the characteristics of an ideal Russian state and leader. Russian society seeks a strong state with powerful public institutions that impose strict control and promote common social ideologies. The government should concentrate on the improvement of living conditions, the development of key industrial sectors and the provision of a robust welfare system. An ideal leader is viewed as influential, ambitious and rooted in traditional Soviet institutions. The leader's rhetoric should resonate with society, uphold conservative and paternalistic values as well as emphasize social order. The leader exercises manual control and is responsible for maintaining discipline and ensuring the execution of tasks (Evans, 2008: 18; Lukin, 2009: 81).

Russian nationalism highlights the return of Russia as a global power and rejects the dissociation of state and civil society. Centralization of power is seen as necessary to maintain social order and national pride. Western democratization is viewed as a threat to Russian independence and the rhetoric of Russian nationalism seeks to keep society ideologically homogeneous (Evans, 2008: 29).

Social unity is highly valued in the Russian political system. Unity is achieved through social consensus, ideological agreement and political wholeness. The centralisation of power ensures the fulfilment of social goals and prevents external influences (Evans, 2008: 23). Russian civil society is characterised by political apathy and passivity. The state's interference is considered imperative for social stability. Any social organisations that deviate from established norms are marginalized. Civil society is willing to sacrifice personal liberties for financial improvement and the nation's integrity (Lukin, 2009: 75; Sukrov, 2008: 24).

The modern democratic system in Russia combines elements of democratic pluralism and autocracy. While there are elections, opposition in parliament and some independent media, executive control is strict and the opposition is disregarded (Lukin, 2009). The concept of *managed democracy* is used to describe the authoritarian features of the Russian political system, including the centralisation of power and control over institutions and media (Lukin, 2009: 85; Waller, 2005: 25).

6. Discourse analysis study

Political discourses of America and Russia have been repeatedly at the center of attention in linguistic and sociolinguistic circles. Anikin (2015: 12-28) examined the correlation between metaphors used in Russian political discourse and discovered that political metaphors have a stable core but are influenced by trends towards interaction and globalization. Mammadov (2010: 67-87) conducted a comparative analysis of metaphors in American and Russian political discourses, which revealed the existence of shared as well as diverse metaphorical expressions that reflect distinct methods of presenting beliefs and viewpoints in both cultures. Lepekhova (2012: 52-64) analysed presidential addresses by Putin and Obama. The results showed that American politics emphasizes solidarity while Russian political discourse focuses on national identity and the formation of otherness. Vestermark's (2007: 17-29) study on political metaphors in American inauguration speeches found that presidents of the USA (George Bush, George W. Bush, Ronald Reagan and Bill Clinton) used a wide choice of metaphors to personalize America and evoke emotions in the audience, depending on the context and intended meaning. Yuzhakova (2018: 20-36) addressed ethnic stereotyping in English political media texts. The findings revealed that stereotypes were frequently employed to shape public opinion and influence attitudes towards Russia. To amplify the impact, speakers often utilised both auto-stereotypes and hetero-stereotypes to generate a contrasting effect. Hetero-stereotypes refer to perceptions of groups that an individual does not belong to (out-group), while auto-stereotypes pertain to perceptions of the individual's own group (in-group) (Manz, 1968: 16).

6.1. Rationale and methodology

The objective of this study was to investigate linguistic methods of referring to social and political traditions in America and Russia, explore differences in linguistic techniques across both political discourses and examine differences in semantic output. Studies mentioned in previous section focused on specific linguistic or sociolinguistic properties using mainly

quantitative methods. This study took a more holistic approach to political discourse, aiming to analyse how linguistic manipulations influence perception and language's role in referring to political traditions. Given the ongoing Russian war against Ukraine, it was principal to understand the power of language in political speeches, particularly those delivered by President Putin, and their impact on society. Moreover, a comparative discourse analysis of American and Russian political discourses was meant to provide insights into the linguistic techniques used to address political and social issues.

Three political speeches were used as data sources: President Joe Biden's *State of the Union Address* delivered on February 7, 2023 (biden), President Vladimir Putin's speeches to the Russian Federation citizens delivered on September 21, 2022 (putin 1), and to the Federal Assembly speech delivered on February 21, 2023 (putin 2). The reason behind choosing this specific speech delivered by President Biden was that it encompassed similar topics to those covered by President Putin: the state welfare, economy and military conflict between Russia and Ukraine. The choice of two Russian speeches was to ensure comparable data volume, as the American speech was longer. The analysis of the Russian speeches was based on official translations. The study employed the DIMEAN (Diskurslinguistische Mehrebenen-Analyse) method, also known as Multimodal Discourse Analysis, which considers discourse complexity through linguistic techniques (Pirini, 2017: 21; Spitzmüller, 2014: 1-28). The analysis included 3 layers: intratextual (texts), agent (actors) and transtextual (knowledge).

The discourse analysis involved listening to the speeches, recording remarks in a research journal, categorizing examples and comparing them. Categories were formulated to answer research questions and facilitate interpretation, focusing on the linguistic means of referencing political traditions, the use of grammatical structures and additional remarks.

The main results of the discourse analysis are presented in the next two sections. They focus on references to political traditions and the use of grammatical structures, respectively. Some additional remarks are given in the subsequent section.

6.2. Referencing political traditions

President Biden's speech prominently reflects American traditions and values. The phrases *light over dark, hope over fear, unity over division, stability over chaos* highlight the theme of American optimism. Similarly, the use of alliteration in the phrase *pain to purpose* conveys resilience and determination which is a crucial principle of American optimism. References to the American dream are evident in statements such as *Everything is a possibility* and *A pathway to citizenship for dreamers*. Puritan traditions are evoked through phrases like *We have been sent here to finish the job* and *dignity of work*. The president's role as a collective voice of the nation is highlighted in statements like *I have your back*. The importance of political cooperation is emphasised in phrases such as *bipartisan legislation* or *Democrats and Republicans came together*.

Speeches delivered by President Putin are less equipped with references to political traditions. This situation may be associated with the war in Ukraine; thus the propagandist system provides only selected and suitable information for Russian propagandistic rhetoric.

Power vertical[1] and Putin's dominant role within the governmental hierarchy are reflected throughout both speeches. For example, the statement *I want all levels of government to pay attention to this* indicates the autocratic nature of Putin's position and his decision-making force. The Russian president highlights the importance of social unity through patriotic references in his speech: *This support primarily revealed their true patriotism – a feeling that is truly inherent in our nation* (Putin 2). Putin also emphasises the paternalistic and protective role of the state: *The state and the society will certainly support you* (Putin 2).

In contrast to Russian political discourse, the speech delivered by President Biden underscores the interconnection of society and the state that is imperative to achieve societal well-being: *To build an economy from the bottom up and the middle out, not from the top down*. This statement highlights the importance of creating an economy that benefits all levels of society.

6.3. The use of grammatical structures

Both speakers frequently use the imperative construction *let* (Rus. *Позвольте* or *давайте*). However, the semantic perception differs depending on the speaker. When applied by President Biden, it creates an inclusive and cooperative tone, inviting collaboration beyond political divisions as it is constructed with the use of the 1st person plural pronoun *us*: *Let's finish the job*. In contrast, President Putin uses the imperative in the 1st person singular pronoun *me*, which portrays him as a teacher or preacher, delivering lectures and indoctrinating his audience: *Let me reiterate that they were the ones who started this war* (Putin 2).

Rhetorical questions are also noticeable in both speakers' addresses. President Biden's use of rhetorical questions is intended to foster unity and mutual motivation within society. By employing the 1st person plural pronoun, he positions himself as an equal while maintaining his leadership status: *Would we stand for sovereignty?* Conversely, President Putin's rhetorical questions have a defensive nature, aiming to present the West as a hostile society: *And what, after such statements, they are supposed to tour our defence facilities […] as if nothing happened?* (Putin 1). The use of the 1st person singular pronoun serves to unite society and create an antagonistic narrative against the West, portraying Russia as a protector and victim of the Western system.

President Biden and President Putin's use of the 1st person singular pronoun reflects their respective leadership styles. Biden employs this pronoun to assert his executive force and present his presidency in a positive light: *I will not raise taxes on anyone making under 400 grand.* On the other hand, the use of the 1st person singular pronoun highlights the autocratic nature of his role in Russian politics: *I want the regions to stay on track to meet these objectives* (Putin 2). In regard to the use of the 1st person plural pronoun, President Biden applies it to foster inclusivity and collaboration, inviting different political parties to contribute to the American success: *We are building back pride.* In contrast, Putin's application of the 1st person plural pronoun reinforces the dominance of the power vertical in Russian politics, providing a

[1] Power vertical refers to the centralized and hierarchical structure of political power in a state (Surkov, 2008).

sense of stability and a strong governing system for the society: *We will keep this issue under constant review* (Putin 1).

Both leaders use the 2nd person pronouns to address their audiences. The semantic function of these pronouns differs in the political discourses analysed. The use of *you* by Biden helps to create a direct and inclusive attitude towards the audience: *You came together.* It comes in contrast to the more formal and distant style of President Putin: *I instruct you* or *let me remind you* (Putin 1 & Putin 2). Biden's use of direct addressing creates a sense of closeness, respect and teamwork, while Putin maintains an authoritative role, giving orders and asserting his superior position. This distinction is influenced by the linguistic differences between English and Russian, where Russian employs conjugation to indicate the desired pronoun and has formal and informal second-person pronouns (*мы* /ti̇/ and *вы* /vi̇/). The inherent formality of the Russian language enhances Putin's authoritarian speech style.

Both presidents make use of numerals and statistics in their speeches, although the precision and relevance of the data presented are questionable. Numerals are employed for propagandistic purposes, aiming to create a positive reaction in the audience and portray the respective governments in a favourable light: *We've created […] 12 million new jobs-more jobs created in two years than any President has created in four years* (Biden). Additionally, the provision of sources in the Russian speeches lacks precision and credibility, as can be seen in the following example: *As for agricultural production, it recorded two-digit growth rates last year […] Experts believe that it will rely on a fundamentally new model and structure* (Putin 2).

Model verbs and conditional sentences are also utilised by both speakers but with different semantic functions. President Biden uses modal verbs to express necessity (*must*) and obligation, correctness and probability (*should*), while President Putin employs them to give instructions and reinforce his authority (*must* and *should*). Zero and first conditional types are used by Biden to ensure the effectiveness of presidential actions: *If anyone tries to cut Medicare I will stop them*, and to emphasise the potential for cooperation: *And there is nothing, nothing beyond our capacity if we do it together*, whereas Putin applies such structures to create a sense of determination and present Russia as a strong and independent power: *We will not be the first to proceed with these tests, but if the United States goes ahead with them, we will as well* (Putin 2).

6.4. Additional remarks

President Biden employs straightforward language to describe the military situation in Ukraine, for example, *war* or *invasion*. The choice of nouns portrays the tragic outcomes of the conflict and implies Russian aggression. In contrast, President Putin avoids directly naming the war in Ukraine and instead uses terms such as *military operation*, *pre-emptive* or *special operation* (Putin 1). He presents Russia's military actions as necessary and aimed at protecting and liberating Donbas. The Russian president also employs highly pejorative language to vilify the West (e.g., *destroy, rule, master*), depicting Western leaders as liars and accusing them of destroying the international order. He uses figurative language (e.g., *be torn to pieces by butchers*) to evoke negative emotions and portray the West as brutal and indifferent.

7. Conclusions

The research reported here focused on recent speeches delivered by President Joe Biden and President Vladimir Putin. The previous political discourse-related studies on metaphors, national identity and ethnic stereotypes had a considerably narrower scope of interest, but this study took a more comprehensive approach by comparing linguistic methods in both discourses and investigating how those methods are reflected on the socio-cultural level. The findings show that both presidents have employed similar strategies like the imperative mood and rhetorical questions, but the semantic output is different. The American discourse emphasizes cooperation and democratic values, while the Russian discourse exhibits an autocratic approach that restrains social roles. Additionally, the linguistic methods used to describe the war in Ukraine are different as Biden uses direct terms, while Putin employs more neutral language. The analysis revealed the use of linguistic methods such as pejorative and figurative language in order to create a negative portrayal of the West and support Russian propaganda.

References

Althusser, L. 1971. *Ideology and ideological state apparatuses. Lenin and philosophy and other essays*. Trans. Ben Brewster. New York: Monthly Review Press.

Blackledge, A. 2005. *Discourse and Power in a Multilingual World.* John Benjamins Publishing.

Blackledge, A. 2006. The Magical Frontier Between the Dominant and the Dominated: Sociolinguistics and Social Justice in a Multilingual World. *Journal of Multilingual and Multicultural Development 27*(1): 22-41.

Bleau, R. 2010. Discourse Analysis: A Window into Power Relations in the Psychoanalytic Process. Paper presented at the *American Psychoanalytic Association Annual Meeting*, University of Glasgow.

Coupland, N. 2016. *Sociolinguistics: Theoretical Debates*. Cambridge University Press.

Crystal, D. 2008. *A Dictionary of Linguistics and Phonetics (6th Edition).* Blackwell Publishing.

Dunmire, P. L. 2012. Political Discourse Analysis: Exploring the Language of Politics and the Politics of Language. *Language and Linguistics Compass 6*(11): 735-751.

Evans, A. B. 2008. Power and Ideology: Vladimir Putin and the Russian Political System. *The Carl Beck Papers in Russian and East European Studies*, 1-43.

Fairclough, N. 2003. *Analysing Discourse: Textual Analysis for Social Research*. Psychology Press.

Fairclough, N. 1995. *Critical Discourse Analysis: The Critical Study of Language*. Longman.

Fetzer, A., and Lauerbach, G. 2007. *Political Discourse in the Media: Cross-cultural Perspectives*. John Benjamins Publishing.

Girgus, S. B. 1990. *Desire and the Political Unconscious in American Literature*. Palgrave Macmillan.

Hudson, R. A. 1996. *Sociolinguistics*. Cambridge University Press.

Jones, C. 1990. The Separated Presidency – Making It Work in Contemporary Politics. In A. King (Ed.), *The New American Political System* (13-46). American Enterprise Institute.

King, A. 1990. *The New American Political System*. American Enterprise Institute.

Lemke, J. L. 2005. *Textual Politics: Discourse and Social Dynamics*. Taylor & Francis.

Lepekhova, M. 2012. National Identity Construction in Russian and American Presidential Speeches Following Tragic Events. In E. Zača (Ed.) *National Identity: Time, Place, People. Proceedings of the 1st International Conference for Students at the Faculty of Social Sciences*, 52-64. University of Latvia Press.

Lienesch, M. 2014. *New Order of the Ages: Time, the Constitution, and the Making of Modern American Political Thought*. Princeton University Press.

Locke, T. 2004. *Critical Discourse Analysis*. Bloomsbury Publishing.

Lukin, A. 2009. Russia's New Authoritarianism and the Post-Soviet Political Ideal. *Post-soviet Affairs – POST-SOV AFF 25:* 66-92. https://doi.org/10.2747/1060-586X.24.1.66

Lupton, D. 1992. Discourse Analysis: A New Methodology for Understanding the Ideologies of Health and Illness. *Australian Journal of Public Health 16*(2): 145-150.

Mammadov, A. 2010. Metaphors in the American and Russian Political Discourse. *Rask Journal 31:* 67-87.

Muntigl, P. 2002. *Contending with Norms: Language and Linguistics in Political Theory and Practice.* John Benjamins Publishing

Nelson, M. 2020. *The Presidency, Leadership, and the Public Good*. Palgrave Macmillan.

Office of the President of the Russian Federation. (n.d.). Statements and speeches [Webpage]. Retrieved from http://en.kremlin.ru/events/president/transcripts/statements/69390

Office of the President of the Russian Federation. (n.d.). Statements and speeches [Webpage]. Retrieved from http://en.kremlin.ru/events/president/transcripts/statements/70565

Paraschivescu, M. 2012. 'We the People and God.' Religion and the Political Discourse in the United States of America. *Journal for the Study of Religions and Ideologies 11*(33): 21-38.

Pirini, J. 2017. Approaches to Multimodal Discourse Analysis. *Oxford Bibliographies,[online] https://www.oxfordbibliographies.com/view/document/obo-9780199756841/obo-9780199756841-0183.xml*, *12*, 2020.

Powers, P. 2001. *The Methodology of Discourse Analysis*. Jones & Bartlett Learning.

Reichley, J. 2000. *The Life of the Parties: A History of American Political Parties*. Rowman & Littlefield.

Roberts, W. R. 2004. *Rhetoric*. Courier Corporation.

Schiffrin, D., Tannen, D., and Hamilton, H. E. 2008. *The Handbook of Discourse Analysis*. John Wiley & Sons.

Spitzmüller, J. 2014. *Discourse Analysis: a Multi-layered Approach*. University of Gothenburg.

Stern, M. B. 1938. America: Paradise or Paradox? Propaganda or Art? *The Sewanee Review 46*(1): 45-69.

Surkov, V. 2008. Russian Political Culture: The View from Utopia. *Russian Politics & Law 46*(5): 10-26. https://doi.org/10.2753/RUP1061-1940460502

The White House. 2023. State of the Union 2023 [Webpage]. Retrieved from https://www.whitehouse.gov/state-of-the-union-2023.

V. Yuzhakova, Y., Polyakova, L. S., and Dyorina, N. 2018. Peculiarities of Ethnic Stereotypes Usage in English Political Discourse. *Arab World English Journal (AWEJ) 9* (1): 294-306.

Van Dijk, T. A. 1997. *Discourse as Social Interaction*. Sage.

Van Dijk, T. A. 2002. Political Discourse and Political Cognition. *Political Communication 19*(2): 205-225.

Vestermark, I. 2007. Metaphors in Politics: A Study of the Metaphorical Personification of America in Political Discourse (Dissertation). Retrieved from http://urn.kb.se/resolve?urn=urn:nbn:se:ltu:diva-48119

Waller, M. 2005. *Russian Politics Today*. Manchester University Press.

Wilson, J. R. 2001. *Political Organizations*. Routledge.

Whisnant, C. 2012. *Foucault & Discourse: A Handout for HIS 389*. https://webs.wofford.edu/whisnantcj/his389/foucault_discourse.pdf

Wodak, R. 1989. *Language, Power and Ideology: Studies in Political Discourse*. John Benjamins Publishing Company.

Wright, L. B. 1950. Historical Implications of Optimism in Expanding America. *Proceedings of the American Philosophical Society 94*(1): 18-23.

.

LingBaW *Linguistics Beyond And Within 9 (2023), 60-75*

Register in Czech: Designing an MDA-based experimental study*

Anna Marklová, Olga Buchmüller, Christoph Demian, Roland Meyer and Luka Szucsich
Humboldt University, Berlin, Germany

Abstract
There are no conventionalized ways to investigate the results of multidimensional analysis (MDA) from the perceptual perspective in an experimental setting. An MDA of the Czech corpus Koditex by Cvrček et al. (2020) established eight dimensions of variation based on 122 linguistic features. The first two dimensions, which explain the largest proportion of shared variance, are labeled as 1. dynamic (+)/static (-) and 2. spontaneous (+)/prepared (-). In our study, we investigated if some situational contexts of language use evoke stronger associations with the poles of the two dimensions than others. Furthermore, we aimed to explore the impact of the mode of language use and the properties of the interlocutor on the ratings.

Czech native speakers (n=107) rated various situational contexts on 7-point Likert-like scales representing the MDA-based dimensions. The items were balanced in the formality of the interlocutor's name (Mr. or Mrs. in connection to surname/first name), the interlocutor´s gender, and the mode of language use (spoken/written). The statistical analysis uncovered a significant effect of the formality of the interlocutor's name and the mode of language use on the ratings. Using first names and spoken mode resulted in ratings closer to the positive poles of the dimensions. The comparison of individual items showed that some situations, mainly those representing the negative poles of the dimensions, are rated more consistently than others. The results of our study offer insight into how native speakers evaluate situations of language use on the scales of preparedness, subjectivity, and interactivity.

Keywords: register; Czech; language variation; situational context

1. Introduction

Testing findings of data-driven research, such as analysis of language corpora, brings challenges. Results that have been interpreted once can serve as a base for an experiment, but they must be carefully translated into a form approachable to testing subjects.

We aim to test the interpretation of the results of the multidimensional analysis (MDA) of Czech by experimental means. The study we present in this paper is the first step toward large-scope research, which will shed light on whether we can support the results of the MDA of

* Funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – SFB 1412, 416591334.

corpora by using experimental methods. We want to investigate whether speakers of Czech show a preference for utterances with linguistic features which correlate with particular situations in terms of the MDA results. To this end, a pre-study needs to be conducted. Before introducing linguistic features in situations representing, for example, spontaneous speech, we have to predetermine such situations. The present study investigates how Czech speakers evaluate different language usage situations regarding objectivity, subjectivity, preparedness, and spontaneity. Specifically, we test how the properties of interlocutors (gender, formal and informal naming) and the written vs spoken mode of language use influence the perception of language usage situations. We draw conclusions about the influence these factors had on the subjects' ratings of the situations presented in writing in the items. These results may be useful in constructing appropriate situational contexts for language use.

Figure 1 illustrates the goals of the present study and its place in our broader research. The black font, arrows, and borders indicate the portions discussed in the paper, while the grey font, arrows, and borders represent the parts currently being prepared. The investigation of situational context is a crucial initial step in our efforts to understand native speakers' intuitions about linguistic features. For example, in order to study the correlation between 'dynamic' features and 'dynamic' situations, it is necessary to first determine which situations are perceived by native speakers as 'dynamic.' Since we plan a forced-choice study, we cannot base it only on assumptions and introspection about situational contexts of language use.

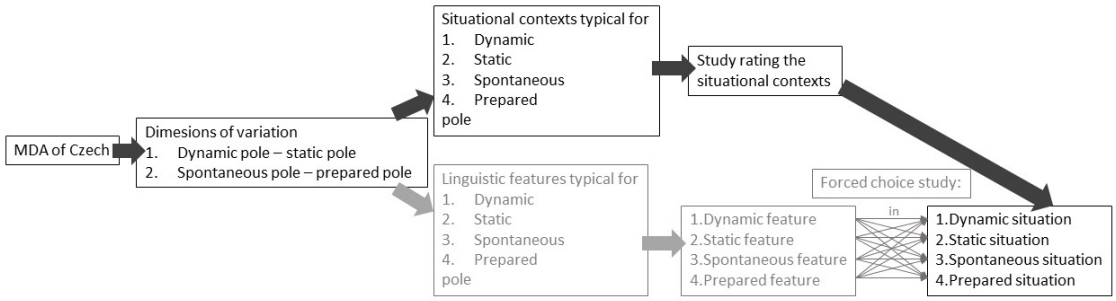


Figure 1: *Scheme of the workflow*

The linguistic variability which functionally contributes to the text composition is our broader focus. It has been a center of attention of the methodology developed by Douglas Biber (1988), which aims to interpret the variability according to several dimensions of variation, which then point out clusters of texts that are similar in those characteristics. Such clusters of texts are called registers. Any given register can be more or less well-defined concerning the dimensions (Biber et al. 2020).

According to Biber´s line of research in the text-linguistic framework, a register is defined as a named, culturally recognized category of texts (Biber 2019). Registers are typically given specific names, such as conversation, classroom teaching, email messages, or newspaper articles. The register perspective focuses on identifying linguistic features that are commonly and extensively found in texts (Biber et al. 2021b:22). Goulart et al. (2020) describe registers as language variations associated with specific combinations of situational characteristics and communicative purposes. These variations often exhibit linguistic similarities (2020:436). We follow the definition by Lüdeling et al. (2022), stating that registers are those aspects of socially-

recurring intra-individual linguistic variation that are influenced by situational and functional parameters. One can analyze registers on different levels of granularity; for example, we can recognize "conversation" as a very general register with few broad characteristics (spoken mode, two or more participants). On the other hand, "a chemistry research article" can be an example of a very specific register. Even that can be more fine-grained by distinguishing the methodology part from the introduction or discussion section since they exhibit different properties. There is no "right" level of granularity for register analysis (Goulart et al. 2020).

According to Biber (1988:20), "Given that the linguistic variation among texts comprises several dimensions, it is no surprise that the relations among texts must be conceptualized in terms of a multi-dimensional space." In other words, a single dimension is insufficient to capture the full range of language variation, and a multidimensional approach is necessary to examine the various scales of language feature usage exhibited in speech and text. These dimensions are characterized by continuity, i.e., they are not discrete entities but rather scales with two opposite poles. The co-occurrence patterns that underlie these dimensions are identified empirically rather than being based on a priori functional assumptions.

Our focus in this study is on the Czech application of the multidimensional approach. Table 1 presents the dimensions of variation identified by Cvrček et al. (2020) for the Czech language.

Table 1: *Czech dimensions of variation*

Dimension	Positive pole	Negative pole
1	dynamic	static
2	spontaneous	prepared
3	higher level of cohesion	lower level of cohesion
4	polythematic	monothematic
5	higher amount of addressee coding	lower level of addressee coding
6	general/intension	particular/extension
7	prospective	retrospective
8	attitudinal	factual

In this study, we focused on the first two dimensions, as they explain the largest portion of variation in the Koditex corpus (Zasina et al. 2018) on which the MDA was conducted. The labels of the dimension poles are based on an interpretation of the features that are most strongly associated with these poles and the text types that tend to cluster around them. Our first study is grounded in this interpretation.

How can we transfer the concept of the MDA-based dimensions into items, ratable in an experiment? Since the dimensions represent scales, interpreted on the basis of which registers and linguistic features cumulate on their opposite poles, we have translated the poles into situations typical for the text types represented there. For example, the spontaneous pole of the second dimension is represented mainly by interactive spoken communication, private correspondence, and interactive web communication. In contrast, the prepared pole is occupied by administrative texts and scientific literature (Cvrček et al. 2020:95). We used these findings for simulating situations that exhibit the property dominant for the particular pole, e.g., for the spontaneous pole, we presented a situation of two flatmates chatting in the living room, while for the prepared pole, we introduced a situation of a person writing a Wikipedia article.

The first dimension was challenging to translate into ratable scales since the piloting of our initial design had uncovered that the native speakers did not understand what was meant by "Is this situation of language use rather dynamic or static?". In order to transform the poles of the first dimension into comprehensible questions, we examined their detailed interpretation in Cvrček et al. (2020). The preference for verb expressions over nominal expressions defines the dynamic pole. Text categories grouped at this pole are various narrative novels, private correspondence, or web forums (Cvrček et al. 2020). They have narrative and reflective characteristics; verbs of thinking are common in web forums and correspondence (Cvrček et al. 2021). The preparedness of the text does not seem to play a role, while subjectivity and interactivity seem connected to the positive pole. On the other hand, nouns and adjectives crowd the static pole in various functions, reflecting the strategy of the speaker or writer to elaborate the clause members. Official documents, science papers, encyclopedias, and other official documents dominate it. The objective perspective and text types that appear without interaction seem to be associated with this pole (Cvrček et al. 2021). Based on the description of the poles of the first dimension, we created two rating scales. We asked subjects to rate the situations in terms of subjectivity/objectivity and interactivity, as these properties accurately describe the text types that are gathered at the poles of this dimension.

The second dimension of variation was easier to incorporate into our experimental design, as its poles (spontaneous versus prepared) are more comprehensible to participants. The spontaneous pole is associated with online production under time constraints, as reflected in the presence of contact expressions, fillers, non-dropped pronouns, and Common Czech (cf. Sgall et al. 1992) forms. The text category most strongly represented at this pole is spoken interaction, followed by private correspondence and web forums. The prepared pole is characterized by features such as a high inventory of prepositions, adverbs, lexical richness, or longer words. It is occupied by text categories such as prepared monologues, administrative texts, economic news, and Wikipedia articles (Cvrček et al. 2021). Therefore, we asked the following question: "Is this language use situation more spontaneous or more prepared?"

We constructed all items uniformly, showing the same structure since we expected that the mode and the interlocutor´s name (Mr./Mrs. in connection to surname, we call it a formal name, and first name, which we call informal name) would have an impact on the ratings. We also balanced the items in the interlocutor´s gender (see Stimuli). We formulated the following research question: Do the mode of language use and the name and gender of the interlocutor affect the ratings of situations of language use?

We anticipated that the mode of the language use and the interlocutor´s name would play a role as an influential factor, while the gender of the interlocutor would not have an influence. We did not have any reason to assume that the gender of the interlocutor would affect evaluations of the situations. Additionally, we were interested if the participants' ratings fit our classification of the items into categories dynamic, static, spontaneous, and prepared.

This paper first presents the theoretical framework for situational contexts of language use, then explains our methodology. The experimental procedure is described in detail. Then, the results are presented. In the discussion, we summarize our main findings and draw implications for further research.

2. Situations of language use

Variability is an inherent property of language. We choose linguistic means appropriately for situations we engage in, and these means can differ significantly. A person speaks differently towards a friend, a teacher, or an employer and formulates a formal letter, a postcard, or a scientific article differently. The variability is inherent to all layers of language. An example of a phonetic feature that correlates with particular language situations is the Czech suffix '*-ý*' in the masculine singular adjectives (*mladý muž* 'young man', *starý muž* 'old man'). It competes with its variant *-ej* (*mladej muž* 'young man', *starej muž* 'old man'). While the former variant appears in written texts and formal speech, we expect the latter variant to be more common in informal spoken situations. Examples of a syntactic feature asymmetrically distributed in language situations are clusters of two or more adjectives, which are typical for prepared texts and written language rather than for spontaneous, interactive speech (Cvrček et al. 2020).

To select appropriate linguistic features, it is necessary for a speaker to accurately assess the specific context in which language is being used. Studies have been conducted on various situational factors, such as formality, the familiarity between speakers, and the mode of language form, to determine which variables are crucial in identifying language situations (see, e.g., Agha 2006; Biber et al. 2021a; Egbert and Gracheva 2022; Pescuma et al. 2023; Sharoff 2018; Wiese 2020). It is worth mentioning that the approaches toward the relationship between registers and language situations differ. While Egbert and Gracheva (2022:4) state that "it is well-established that situational characteristics vary between texts from different registers," Biber et al. (2021a) criticize the lack of a methodological approach toward situational categorization, which has been primarily binary instead of continuous, and it expects that one register fits one situational context.

The text-linguistic framework focuses on the situational and lexico-grammatical characteristics of language use when describing registers (Biber et al. 2020). There is a long tradition of recognizing the importance of both situational and linguistic characteristics in accurately describing text categories (De Beaugrande and Dressler 1981; Halliday and Hasan 1976; Hymes 1974). The communicative function is crucial in understanding the correlations between situational and linguistic elements, particularly in sociolinguistic research (Hymes 1974). In the text-linguistic approach, there is a three-way relationship between situational context, communicative function, and linguistic form. "Text-linguistic register analysis begins with analysis of the situational characteristics of the register, including consideration of participant identities, relations among participants, channel, production circumstances, setting, and communicative purposes" (Biber et al. 2020:583). External indicators, such as the physical context (time and place) and other considerations (Biber and Conrad 2009), can signal the presence of certain register categories. For example, lectures are often indicated by the location (an auditorium or lecture hall) and the speaker standing in front of the audience. Political rallies can be indicated by the speaker's formal clothing and use of a microphone, standing on a stage with political banners behind them. The medium in which written texts are produced can also indicate registers, such as magazines printed on glossy paper versus academic journals on thicker paper with a table of contents. Additionally, texts within the same register are expected to share "other situational characteristics relating to interactiveness, personal involvement, production

circumstances, and the relations among participants" (Biber et al. 2020: 584). Situational characteristics are considered more fundamental than linguistic characteristics (Biber and Conrad 2009) and their identification precedes the selection of linguistic features. It is not possible to infer the situational context in which language is used solely from linguistic phenomena. Linguistic features are argued to be functional, occurring in a register because they suit the purposes and situation (Biber and Conrad 2009). In a conversational situation, for example, one begins to use language with the appropriate linguistic features for that type of conversation.

It is worth noting that the differentiation of registers is not culturally universal; different cultures may have different ways of dividing the range of language use situations. Some cultures may view minor differences as indicative of distinct registers, while others may consider the same range of communicative events to belong to a single register (Biber and Conrad 2009). Biber and Conrad (2009) thoroughly examined situational factors relevant to the description of registers. They introduced seven categories of situational characteristics: participants, relationships among participants, channel, production circumstances, setting, communicative purposes, and topic. Our condensed description of language use situations aims to encompass most of these characteristics. For example, the characteristics of the situation *Tereza mluví se spolubydlící v obývacím pokoji.* 'Tereza is talking with a roommate in the living room' are shown in Table 2.

Table 2: *Situational characteristics for the situation Tereza mluví se spolubydlící v obývacím pokoji.*

Participants:	Single addressor; Single addressee; No explicit on-lookers
Relations among participants:	Interactivity; Implicit power equality; Familiarity
Channel	Spoken mode; Face-to-face transient speech
Production circumstances:	Real-time
Setting:	Time and place of communication shared by participants; Relatively private place of communication
Communicative purposes:	NA
Topic:	NA

We left the topic vague because the purpose of the items is to serve as a backdrop for various linguistic features. As such, it is essential to avoid constraining the context too narrowly.

Biber et al. (2020) developed an analysis of underlying situational dimensions of variation. They modified the method of MDA of linguistic features to measure situational variation. Their goal was to identify the co-occurrence patterns among situational variables. They used a 2-factor solution since it accounts for 36% of the shared variance in their data. The two dimensions resulting from the analysis share similarities with the first two dimensions identified by the Czech MDA regarding the text types occurring on their poles. The two first dimensions of variation, and especially the first one, seem to share similarities across the MDA performed on different languages (Biber 1988 for English; Biber and Hared 1992 for Somali; Cvrček et al. 2020 for Czech; Katinskaya and Sharoff 2015 for Russian web corpora; Kim 1994 for Korean). No dimension in these languages defines an absolute dichotomy between speech and writing. Multidimensional studies have repeatedly shown that physical mode is inadequate in itself to account for the relations among registers in a language. However, each language has dimensions closely associated with speech and writing. These dimensions typically isolate

spoken registers at one extreme and written registers at the other extreme, with registers from both modes overlapping in the middle (Biber 2009).

Table 3: *Co-occurring situational variables on Biber´s dimensions of situational variation (Biber et al. 2020: 594)*

	Dimension 1		**Dimension 2**	
	+ Personal opinionated discourse	- Technical information supported with evidence	+ Narrative, entertaining discourse	- Other communicative purposes (explanatory, advice, or procedural discourse)
The text is:	interactive	pre-planned and edited	a spoken transcript; lyrical or artistic	
The author:	focuses on self; assumes personal knowledge about self	is an expert; assumes technical background knowledge	assumes cultural social knowledge	
The purpose:	persuade the reader; entertain the reader; give advice or recommendations; express opinion	explain information	narrate past events; entertain the reader	explain information; give advice or recommendations; provide how-to instructions
The basis of information:	common knowledge; opinion; personal experience	factual scientific evidence	direct quotes	

Different social cues can lead to the assessment of a situation as either more or less formal. For example, visual cues can influence our perception of a speaker (Rutter 1984). Morand (1995) discusses the behavioral and contextual codes of formality and informality, including the use of honorifics and first names as linguistic elements signaling formality or informality in speech. The formality of the situation plays a role in the choice of linguistic features and, as we assume, in assessing the suitability of the features for a particular situation. Formality is defined by setting (private vs. public), topic and communicative purpose, and the relationship between participants (Szmrecsanyi and Engel 2022). We assumed that formal names imply different characteristics of the speaker and, therefore, of some situational characteristics than the informal name. For example, *Tereza* might evoke other social characteristics, such as younger age than *Paní Novotná* 'Mrs. Novotná'. It can also influence the perception of relations among participants (friends, colleagues, familiar with each other, etc.) and settings (formal name might suggest a less private setting).

Based on the findings described above, it was hypothesized that the formality of the interlocutor´s name and the mode of communication would impact the ratings. We expected that written texts would be perceived as more prepared and less interactive than spoken forms and that the use of the formal name would be associated with a more objective, prepared, and less interactive environment than the informal name. Furthermore, we examined if the gender of the interlocutor impacts the ratings. Finally, we explored the ratings of individual items to identify the most consistently rated ones, which would serve as the situational context in the subsequent forced choice study.

3. Methodology

Since the MDA dimensions are labeled by two terms, which can be located on two opposite ends of a scale, e.g., dynamic-static, we have created descriptions of various situations assigned to the respective poles of those scales. The participants rated the situations on 7-point Likert-like scales representing the MDA-based dimensions. The experiment was conducted online, using the PCIbex Farm´s interface (Zehr and Schwarz 2022), and it was 15-25 minutes long, depending on personal progress.

3.1. Participants

The sample for this study consisted of 107 native Czech speakers who were recruited through an online platform. Their ages ranged from 18 to 45. The participants were compensated with a financial reward of 5.5 euros for their participation, which took place between May and September 2022.

3.2. Stimuli

The battery of stimuli contained four kinds of situations for evaluation. The categories follow two poles of the first two dimensions of variation of Czech.

1. Dynamic situations (n=12): situations we expected to be rated as interactive and subjective rather than without interaction and objective. It contained situations as *Pan Svoboda si povídá s přítelkyní v útulné kavárně* 'Mr. Svoboda is talking with (his) girlfriend in a cozy cafeteria', or *Tereza vypráví kamarádce veselou příhodu* 'Tereza is narrating to (a) girlfriend a funny story'.
2. Static situations (n=12): situations we expected to be rated as without interaction and objective than as interactive and subjective. An example of such a situation is *Pan Novotný prezentuje šéfové měsíční progres* 'Mr. Novotný is presenting to (his) boss monthly progress', or *Petra píše kolegovi pracovní postup* 'Petra is writing to (her) colleague a work procedure'.
3. Spontaneous situations (n=12): situations we expected to be rated as rather spontaneous than prepared. This category contains situations as for example *Petr čte esemesku od své přítelkyně* 'Petr is reading an SMS from his girlfriend' or *Paní Kučerová píše zprávu do skupinového chatu* 'Mrs. Kučerová is writing a message to the group chat'.
4. Prepared situations (n=12): situations which we expected to be rated rather as prepared than spontaneous. An example is *Paní Dvořáková hlásí zprávy v dopravním zpravodajství* 'Mrs. Dvořáková is announcing news in the traffic news' or *Jitka vypráví návštěvníkům historii hradu* 'Jitka is narrating to visitors the history of the castle'.

The items followed the same syntactic structure and were balanced in terms of mode, gender, and name of the interlocutor. Table 4 presents the structure, and Table 5 lists these elements in the four categories. Each category contained six written and six spoken situations of language use, six formal and informal forms of the interlocutor name, and six male and six female interlocutors. First names and surnames were chosen from the 50 most frequent Czech names

separately for men and for women (Samek and Malačka 2011). We chose such names, which we assessed as neutral; Czech has a rich derivation of diminutives, and it is common to alternate the official form into a hypocoristic. Some widely used hypocoristics have lost their expressive function, and they compete with the official name variant (Pleskalová 2017). It is connected with the loss of emotional expressiveness of some suffixes, for example, *-ek* for male names and *-ka* for female names (Knappová 2017). E.g., *Hana* is alternated with *Hanka*, and the form *Hanka* dominates spoken registers (Cvrček and Vondřička 2011). Therefore, we chose names that do not sound expressively marked in their official form, such as *Eva, Michal, Patrik,* etc.

Table 4: *The structure of the experimental items*

interlocutor	**action**	**object**	**connectors**	**specifier**	**localization**
Pan Novák	*vypráví*	*dětem*		*napínavý*	*příběh*
'Mr. Novák	is narrating	(to) children		(a) thrilling	story'
Jan	*mluví*	*se sestřenicí*	*na*	*rodinné*	*oslavě*
'Jan	is talking	with cousin	at	(the) family	celebration'
Michal	*píše*	*komentář*	*pod*	*facebookovým*	*příspěvek*
'Michal	is writing	(a) comment	under	(a) Facebook	post'

Table 5: *Distribution of the mode, interlocutor´s gender, and name of the interlocutor (f=formal, i=informal) throughout our stimuli battery categories*

	dynamic		**static**		**spontaneous**		**prepared**	
	female	male	female	male	female	male	female	male
written	2f 1i	1f 2i	1f 2i	2f 1i	2f 1i	1f 2i	1f 2i	2f 1i
spoken	1f 2i	2f 1i	2f 1i	1f 2i	1f 2i	2f 1i	2f 1i	1f 2i

For written mode, we have two versions of items, one version with the action verb *čte* 'read' and one with the action verb *píše* 'write'. For spoken mode, we used various verbs of speaking, as *povídá* 'tells', *mluví* 'says', *říká* 'says', *vypráví* 'narrates', etc.

3.3. Procedure

The participants were instructed to conduct the experiment on a laptop or computer, not on a phone or a smartphone. The scheme of the experimental procedure is illustrated in Figure 2. After confirming an informed consent, an elaborated description instructed the participants about the terms which would appear in the study. They had an example item for training. There were also three control questions throughout the experiment which served as a check for the participants and for the examiners to assess if the task was understood correctly. We included the questions since the piloting suggested that the participants become confused about what exactly they should rate in the experiment. The questions asked about the understanding of *užití jazyka* 'language use' and always revealed the correct answer after the participant has chosen, as in the following example:

(1) *Mr. Soukup is talking with an accountant in the city bank.*
The "usage of language" is, in this case:
(a) Conversation between Mr. Soukup and the accountant
(b) The thoughts of Mr. Soukup about the conversation

The control questions proved to be an excellent tool for avoiding misunderstandings.

The following instruction explaining the terminology, translated from Czech into English, was provided in written form at the beginning of the experiment: "Your task will be to read sentences describing different language use situations and answer questions about these sentences. The questions will ask for your opinion, and there are no wrong or correct answers. Please do the study in a calm environment, read carefully and answer questions quickly, without much contemplation. It is about your intuition and first impression."

After the instruction, an elaborated explanation of the terms 'language use', 'subjective', 'objective', 'spontaneous', 'prepared', 'interactive', and 'without interaction' followed.

The items were presented in randomized order.

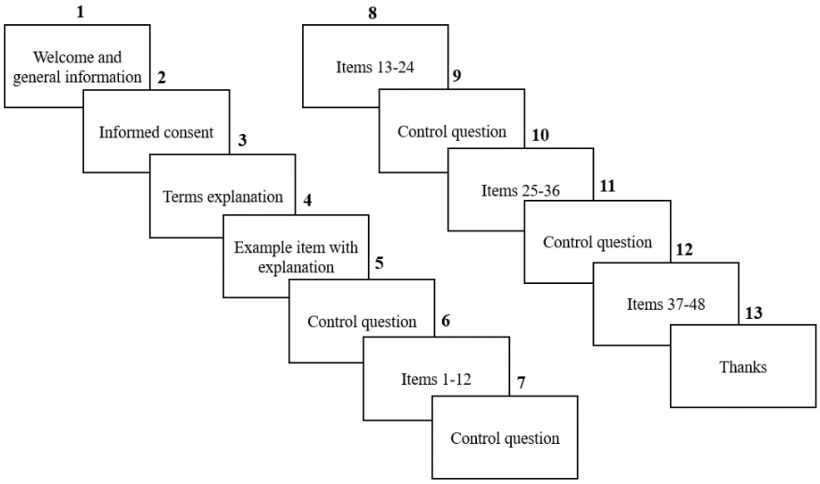


***Figure 2**: Chronological order of the experimental procedure*

3.4. Results

Three independent variables were statistically measured: the effect of the interlocutor´s name, the interlocutor´s gender, and the mode of language use.

3.4.1. Effect of properties of the interlocutor

Two groups of stimuli were established: a formal group, which consisted of descriptions with the surname form of the interlocutor´s name, and an informal group, which consisted of descriptions with the first name form of the interlocutor´s name. The mean rating on the scales in the formal group was 4.419132, and in the informal group, 4.008462. A linear regression model with a single predictor variable (R Core Team 2022) was used to assess the effect of interlocutor name on the ratings. The model aimed to investigate the relationship between the response variable "value of the rating" and the predictor variable "interlocutor´s name." The results of the linear regression analysis showed that the predictor variable "interlocutor´s name"

was significantly related to the response variable "value of the rating" ($p < 0.001$). The results of the linear model are displayed in Table 6. The results suggest that "interlocutor´s name" is a significant predictor of "value of the rating." However, further investigations are needed to establish other factors influencing the "value of the rating."

Table 6: *Linear regression model assessing the role of the name of the interlocutor as a predictor of rating*

Residuals:				
Min	1Q	Median	3Q	Max
-3.4191	-2.0085	-0.0085	1.9915	2.9915
Coefficients:				
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	4.41913	0.02638	167.5	<2e-16 ***
Informal interlocutor	-0.41067	0.03763	-10.91	<2e-16 ***
Residual standard error: 2.103 on 12499 degrees of freedom				
Multiple R-squared: 0.009439, Adjusted R-squared: 0.009359				
F-statistic: 119.1 on 1 and 12499 DF, p-value: < 2.2e-16				

A linear regression analysis was conducted to examine the effect of interlocutor´s gender on the ratings. The study used Czech first names and surnames that marked gender, and the analysis included two groups: a group of male interlocutors and a group of female interlocutors. The mean rating on the scales was 4.229769 for male interlocutors and 4.204846 for female interlocutors. The linear regression model did not find interlocutor´s gender to be a significant predictor of the value of the ratings.

3.4.2. Effect of mode

The linear regression model was used for assessing the effect of the mode of the language use on the ratings. The Spoken group consisted of the descriptions containing the verb of speaking (*říká* '(s/he) is saying', *povídá* '(s/he) is saying', *mluví* '(s/he) is talking', etc.) and the Written group contained descriptions with verbs 'write' or 'read' (*píše* '(s/he) is writing', *čte* '(s/he) is reading). The model aimed to investigate the relationship between the response variable "value of the ratings" and the predictor variable "mode." It found a significant relation between the predicative variable "mode" and the response variable "value". The results of the analysis are presented in Table 7.

Table 7: *Linear regression model assessing the role of mode as a predictor of rating*

Residuals:				
Min	1Q	Median	3Q	Max
-3.5524	-1.8788	0.1212	2.1212	3.1212
Coefficients:				
	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	4.41913	0.02638	167.5	<2e-16 ***
Written mode	0.67361	0.03732	18.05	<2e-16 ***
Residual standard error: 2.086 on 12499 degrees of freedom				
Multiple R-squared: 0.0254, Adjusted R-squared: 0.02532				
F-statistic: 325.8 on 1 and 12499 DF, p-value: < 2.2e-16				

3.4.3. Ratings of individual items

Figure 3 visualizes items that we predicted as spontaneous (A) and prepared (B) on the spontaneous-prepared scale, where one equals the spontaneous pole and seven the prepared pole. Figure 4 displays predicted dynamic (A; C) and static (B; D) items on the two scales representing dynamic and static poles of the first dimension: subjective-objective scale (A; B) and interactive-non-interactive scale (C; D). Subjective and interactive poles equal one, and objective and non-interactive poles equal seven. We searched for items consistently rated by values near the poles of the dimensions.

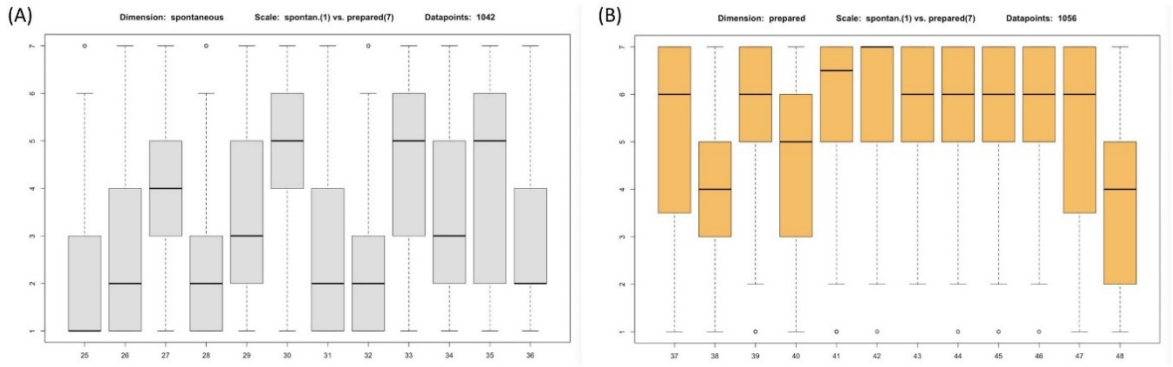


Figure 3: *Results of the second-dimension scale: (A) Spontaneous items displayed on the scale spontaneous (1) – prepared (7); (B) prepared items displayed on the same scale. The y axe displays the rating scale (1-7); each number on the x axe refers to one experimental item.*

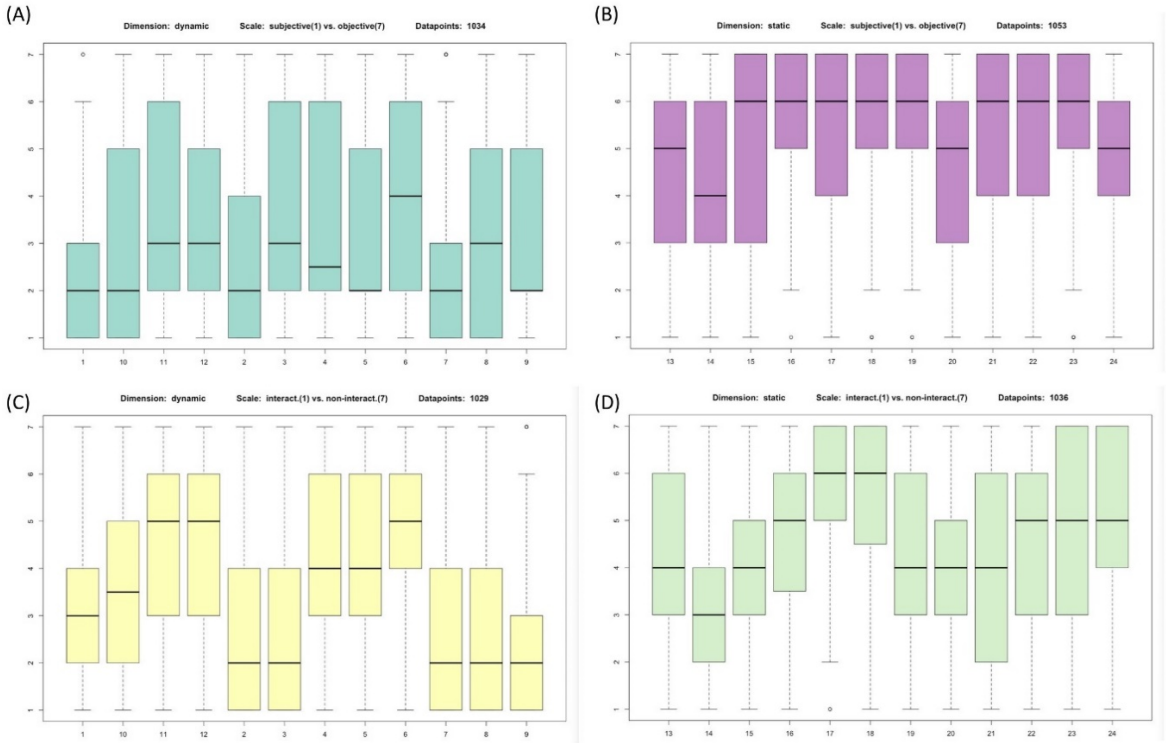


Figure 4: *Results of the second-dimension scale: (A) Dynamic items displayed on the scale subjective (1) – objective (7); (B) Static items displayed on the same scale; (C) Dynamic items displayed on the scale interactive (1) – without interaction (7); (D) Static items displayed on the same scale. The y axe displays the rating scale (1-7); each number on the x axe refers to one experimental item.*

The visual inspection uncovered several patterns: objective and prepared stimuli groups were rated most consistently, following our predictions about the items. In general, the ratings were more consistent on negative poles (non-interactive, objective, and prepared) than on positive poles (interactive, subjective, and non-interactive). In Figure 3, we present each group displayed on the respective scale (e.g., prepared group on the spontaneous-prepared scale, not on subjective-objective scale), but the participants rated all items at all three scales. We observed that when an item is placed on the negative pole of one scale, it tends to be rated on the negative pole also on the other scales (i.e., items rated as prepared tend to be also rated as objective and non-interactive). The same holds for the positive pole.

4. Discussion

This study aimed to uncover factors influencing people´s evaluation of various language use situations represented by written descriptions. The findings indicate that using an in/formal form of the interlocutor's name performing a linguistic action affects the evaluation of the situation. Using a surname with the specifier Mr. or Mrs. leads to evaluating situations as more objective, prepared, and without interaction than using a first name, which we found statistically significant. On the other hand, the gender of the subject did not show a significant observable effect. We can connect this finding to the previous knowledge about Czech names: first names are used chiefly in informal situations. At the same time, surnames are associated with more formal settings. This association seems activated when the name is used to label an interlocutor in our situation descriptions. Given the considerable variability within forms of Czech names, it would be interesting to investigate if similar tendencies occur in the context of other languages.

Mode of language use plays a role as well. Spoken mode predicts ratings on the positive pole of the scales; thus, spoken situations tend to be rated as more dynamic and spontaneous than written situations, which are connected to static and prepared interpretations. There was a significant difference found between the spoken mode and written mode in ratings. It suggests that even though there are some fairly unprepared written situations, such as chatting on WhatsApp or commenting on a Facebook post, the spoken situations are more prototypical examples, and they evoke spontaneity and dynamicity to a higher extent. Similarly, prepared and static situations can occur in spoken modalities, such as a presentation at a company meeting. However, the prototypicality is connected to the written situations.

It is important to note that although the regression models for mode and interlocutor's name yielded significant results, the effect size observed was relatively small. Therefore, further research is necessary to validate the identified influences and examine other factors that might impact the ratings. The results of our analysis suggest that some items successfully simulated situations of language use as we predicted, while others did not. The data only partially supported our predictions about the nature of the items. This outcome is unsurprising, given that we aimed to balance the representation of different modalities, name forms, and gender in each group. It is worth noting that the situations were rated more consistently in terms of being prepared, non-interactive, and objective compared to spontaneous, interactive, and subjective.

Another pattern that emerged was that the poles of static-prepared and dynamic-spontaneous overlap, with items rated higher on one scale also tending to be rated higher on the others.

Our central objective is to utilize experimental tools to examine the perception of situations determined by the interpretation of dimensions that resulted from the Czech MDA conducted by Cvrček et al. (2020). The chosen labels employed to interpret the findings of the Czech MDA (e.g., static or dynamic dimension pole) are inherently simplifying in nature. That is inevitable in order to encapsulate the extensive array of linguistic features and cumulative text types on opposite ends of each dimension within a single word. In our preliminary study, our specific focus was on investigating the poles of the two Czech dimensions of variation. We established the assessment scales based on a detailed description of the dimension poles and the text types associated with them (Cvrček et al. 2020). This approach enables us to present particular linguistic features in the situational context with higher certainty that the contexts reflect the outcomes of the Czech MDA. However, we must be careful when applying the same research design to other languages.

Overall, the results of this study provide insights into situations of language use and how different characteristics, such as the mode of language production or attributes of an interlocutor, can affect perceptions of these situations. These findings will be used in a forced-choice study where the appropriateness of particular linguistic features relative to situations will be investigated. They can serve as a resource while constructing situational contexts in empirical research.

It is important to acknowledge that our study can only reveal the perception of the provided descriptions of the situations. Due to the inherent limitations and artificiality of online experiments, it is not possible to fully replicate real-life situations as participants would experience them. However, for future research that aims to simulate real-life situations, it is crucial to have consistent assessments of the descriptions from native speakers. Our study offers a method of obtaining such situations and provides insights into the factors that influence these assessments.

It should be noted that it is impossible to examine all potential factors that may influence the assessments in one study. Specifically, the topic of conversation may also impact the perception of the appropriateness of linguistic features used by a speaker, which should be taken into consideration in subsequent studies.

References

Agha, A. 2006. *Language and Social Relations*. Cambridge: Cambridge University Press.

Biber, D. 1988. *Variation across Speech and Writing*. Cambridge: Cambridge University Press.

Biber, D. 2009. *Dimensions of Register Variation*. Cambridge, GBR: Cambridge University Press.

Biber, D. 2019. Text-Linguistic Approaches to Register Variation. *Register Studies* 1(1):42–75. doi: 10.1075/rs.18007.bib.

Biber, D., and S. Conrad. 2009. *Register, Genre, and Style*. Cambridge: Cambridge University Press.

Biber, D., J. Egbert, and D. Keller. 2020. Reconceptualizing Register in a Continuous Situational Space. *Corpus Linguistics and Linguistic Theory* 16(3):581–616. doi: 10.1515/cllt-2018-0086.

Biber, D., J. Egbert, D. Keller, and S. Wizner. 2021a. Chapter 2. Extending Text-Linguistic Studies of Register Variation to a Continuous Situational Space: Case Studies from the Web and Natural Conversation. In E.

Seone, and D. Biber (eds.), *Studies in Corpus Linguistics*, 19–50. Amsterdam: John Benjamins Publishing Company.

Biber, D., Jesse E., Daniel K., and S. Wizner. 2021b. Towards a Taxonomy of Conversational Discourse Types: An Empirical Corpus-Based Analysis. *Journal of Pragmatics* 171:20–35. doi: 10.1016/j.pragma.2020.09.018.

Biber, D., and M. Hared. 1992. Dimensions of Register Variation in Somali. *Language Variation and Change* 4(1):41–75. doi: 10.1017/S095439450000065X.

Cvrček, V., Z. Komrsková, D. Lukeš, P. Poukarová, A. Řehořková, and A. J. Zasina. 2021. From Extra- to Intratextual Characteristics: Charting the Space of Variation in Czech through MDA. *Corpus Linguistics and Linguistic Theory* 17(2):351–82. doi: 10.1515/cllt-2018-0020.

Cvrček, V., Z. Laubeová, D. Lukeš, P. Poukarová, A. Řehořková, and A. J. Zasina. 2020. *Registry v češtině*. Praha: NLN.

Cvrček, V., and P. Vondřička. 2011. SyD – Korpusov Průzkum Variant. Praha: FF UK. URL: http://syd.korpus.cz.

De Beaugrande, R., and W. Dressler. 1981. *Introduction to Text Linguistics*. London: Longman.

Egbert, J., and M. Gracheva. 2022. Linguistic Variation within Registers: Granularity in Textual Units and Situational Parameters. *Corpus Linguistics and Linguistic Theory* 0(0). doi: 10.1515/cllt-2022-0034.

Goulart, L., B. Gray, S. Staples, A. Black, A. Shelton, D. Biber, J. Egbert, and S. Wizner. 2020. Linguistic Perspectives on Register. *Annual Review of Linguistics* 6(1):435–55. doi: 10.1146/annurev-linguistics-011718-012644.

Halliday, M. A. K., and R. Hasan. 1976. *Cohesion in English*. London: Longman.

Hymes, D. 1974. *Foundations in Sociolinguistics: An Ethnographic Approach*. Philadelphia: University of Pennsylvania Press.

Katinskaya, A., and S. Sharoff. 2015. Applying Multi-Dimensional Analysis to a Russian Webcorpus: Searching for Evidence of Genres. Hissar, Bulgaria.

Kim, Y.-J. 1994. A Corpus-Based Analysis of Register Variation in Korean. In D. Biber, and E. Finegan (eds.), *Sociolinguistic Perspectives on Register*, 157–81. Oxford: Oxford University Press.

Knappová, M. 2017. Rodné Jméno. In P. Karlík, M. Nekula, and J. Pleskalová (eds.), *Nový Encyklopedický Slovník Češtiny*. URL: https://www.czechency.org/slovnik/RODNÉ JMÉNO.

Lüdeling, A., A. Alexiadou, A. Adli, K. Donhauser, M. Dreyer, M. Egg, A. H. Feulner, N. Gagarina, W. Hock, S. Jannedy, F. Kammerzell, P. Knoeferle, T. Krause, M. Krifka, S. Kutscher, B. Lütke, T. McFadden, R. Meyer, C. Mooshammer, S. Müller, K. Maquate, M. Norde, U. Sauerland, S. Solt, L. Szucsich, E. Verhoeven, R. Waltereit, A. Wolfsgruber, and L. E. Zeige. 2022. *Register: Language Users' Knowledge of Situational-Functional Variation*. doi: 10.18452/24901.

Morand, D. A. 1995. The Role of Behavioral Formality and Informality in the Enactment of Bureaucratic versus Organic Organizations. *The Academy of Management Review* 20(4):831–72. doi: 10.2307/258958.

Pescuma, V. N., D. Serova, J. Lukassek, A. Sauermann, R. Schäfer, A. Adli, F. Bildhauer, M. Egg, K. Hülk, A. Ito, S. Jannedy, V. Kordoni, M. Kuehnast, S. Kutscher, R. Lange, N. Lehmann, M. Liu, B. Lütke, K. Maquate, C. Mooshammer, V. Mortezapour, S. Müller, M. Norde, E. Pankratz, A. G. Patarroyo, A.-M. Pleşca, C. R. Ronderos, S. Rotter, U. Sauerland, G. Schnelle, B. Schulte, G. Schüppenhauer, B. M. Sell, S. Solt, M. Terada, D. Tsiapou, E. Verhoeven, M. Weirich, H. Wiese, K. Zaruba, L. E. Zeige, A. Lüdeling, and P. Knoeferle. 2023. Situating Language Register across the Ages, Languages, Modalities, and Cultural Aspects: Evidence from Complementary Methods. *Frontiers in Psychology* 13:964658. doi: 10.3389/fpsyg.2022.964658.

Pleskalová, J. 2017. Hypokoristikum. In P. Karlík, M. Nekula, and J. Pleskalová (eds.), *Nový Encyklopedický Slovník Češtiny*. URL: https://www.czechency.org/slovnik/HYPOKORISTIKUM.

R Core Team. 2022. *A Language and Environment for Statistical Computing*. Vienna, Austria.

Rutter, D. R. 1984. *Looking and Seeing: The Role of Visual Communication in Social Interaction*. Chichester; New York: Wiley.

Samek, O., and J. Malačka. 2011. *KdeJsme.cz | Četnost příjmení nebo jména v České republice*. Retrieved December 30, 2022 (https://www.kdejsme.cz/).

Sgall, P., J. Hronek, A. Stich, and J. Horecký. 1992. *Variation in Language: Code Switching in Czech as a Challenge for Sociolinguistics*. John Benjamins Publishing Company.

Sharoff, S. 2018. Functional Text Dimensions for the Annotation of Web Corpora. *Corpora* 13(1):65–95. doi: 10.3366/cor.2018.0136.

Szmrecsanyi, B., and A. Engel. 2022. A Variationist Perspective on the Comparative Complexity of Four Registers at the Intersection of Mode and Formality. *Corpus Linguistics and Linguistic Theory* 0(0). doi: 10.1515/cllt-2022-0031.

Wiese, H. 2020. *Language Situations: A Method for Capturing Variation within Speakers´ Repertoires*. in Methods of Dialectology, Vol. XVI. Frankfurt a. M.

Zasina, A. J., D. Lukeš, Z. Komrsková, P. Poukarová, and A. Řehořková. 2018. *Koditex: Korpus Diverzifikovaných Textů*. Praha: Ústav Českého národního korpusu FF UK.

Zehr, J., and F. Schwarz. 2022. *PennController for Internet Based Experiments (IBEX)*. doi: 10.17605/OSF.IO/MD832.

LingBaW *Linguistics Beyond And Within 9 (2023), 76-94*

When spatial agency bias and the advantage of the first mention are in contradiction: Evidence from Czech, German, and Spanish

Anna Marklová and Renate Delucchi Danhier
Humboldt University, Berlin, Germany
Technical University Dortmund, Germany

Abstract
Evidence from Art (History), perceptual psychology, and (psycho-)linguistics support the claim that in Western culture (or rather within left-to-right writing languages), people depict or visualize more important or salient figures to the left. However, linguistics studies investigating this topic almost exclusively use active sentences with standard Subject-Verb-Object (SVO) syntax as stimuli, where the subject takes the role of an agent. However natural language exhibits much more syntactical variation. To determine if this pattern is also present when the less common syntax is used, we asked native German, Spanish, and Czech speakers (N=300) to draw situations representing ten sentences varying in syntactic structure. These drawings, simplified versions of the mental representation of the situation, provide a glimpse into the conceptualization of the scenes. The spatial placement of the agent figures in the sentences was coded. Results show that although the asymmetrical effect is strong in prototypical SVO sentences, where the subject has the function of an agent and the object a function of a patient, the effect is weaker or disappears in passive sentences, where the subject at the first position is a patient and object on the second position is an agent, as well as in topicalized (OVS) sentences. Furthermore, we found cross-linguistic differences, which suggests that the character of the bias is language-specific. We postulate that placing the agent to the left is only one of the factors influencing spatial placement. The other factor playing an important role is the naming order.

Keywords: mental representation; reading-writing direction; spatial agency bias; advantage of first mention; crosslinguistic comparison

1. Introduction

Contrary to what may be assumed, when visually constructing a scene (i.e., drawing a picture), the placement of the figures is not arbitrary. Art historians, psychologists, and linguists have investigated the factors affecting decisions regarding the composition of a scene for at least half a century. In this paper, we show that, especially from a linguistic point of view, these factors are yet to be sufficiently understood. The good enough approach to language comprehension

(Ferreira et al. 2002) assumes that a listener does not translate linguistic input into a detailed representation. Instead, the comprehension system creates a suitable and sufficient representation for the listener's current purposes. While this approach was empirically tested mainly on the processing of ambiguous sentences (e.g., Frazier et al. 1999; Pickering and Frisson 2001), we can also apply the basic idea to the visual representation of scenes described by another speaker. It is not probable that a listener imagines many possible spatial constellations and features of objects while listening to a sentence such as, e.g., 'The lamp is on the table between the book and the computer.' A quick suitable understanding and representation of the described utterance would suffice for satisfying the current communicative requirements of the listener. Similarly, Gigerenzer and Todd (1999) argue that because of time and resource limitations during decision-making, the cognitive system works better by making fast, heuristic decisions that do not consider every single interpretation of all the available information. Models of decision-making, which assume that all possible interpretations of a given information are activated simultaneously (e.g., MacDonald, Pearlmutter, and Seidenberg 1994; Stevenson 1994), have been developed, but the weakness of these models is the assumption of 'unbounded rationality' (Ferreira and Patson 2007). It does not seem probable that a human being can run all the possible representations in a short time.

Moreover, there is evidence showing that different listeners tend to choose a particular representation over others consistently. In the example mentioned above, 'The lamp is on the table between the book and the computer,' there is a tendency to imagine this scene with the objects ordered from left to right as book-lamp-computer rather than computer-lamp-book. However, both compositions represent the sentence equally accurately (Jahn et al. 2007; see Section 2 of this paper).

Previous studies recognized two linguistic phenomena contributing to the decision-making process of listeners for spatially determining the placement of objects in (imagined or real) space. These phenomena are both connected to the fundamental influence of the reading-writing direction. They can be found in left-to-right writing cultures and right-to-left writing cultures but with mirrored effects. The first phenomenon is the so-called spatial agency bias. It refers to the tendency to place more agentic subjects on the left side of pictures (in left-to-right writing cultures) (Maass et al. 2009). The second phenomenon describes the tendency to place the entity mentioned first in the first position in the visual image, according to our reading-writing direction. As defined by Jahn et al. (2007: 2076), this bias "reflects a cultural tendency to scan in the same direction as reading and writing." This second phenomenon does not have a conventional term. Jahn et al. (2007) call it left-to-right preference. We consider this term problematic since this term carries a West-centric connotation, yet the same bias is also found in right-to-left writing cultures. We will instead follow the terminology of Gernsbacher and Hargreaves (1988), who described a phenomenon in comprehension where speakers tend to remember the first-mentioned referent in a sentence better and recall them quicker than the second-mentioned referent. They call this phenomenon *the advantage of first mention*. In this case, the advantage means the faster access of the participants mentioned first in the sentence. We apply this term also at the situation at hand, i.e., on the tendency to place the first mentioned figure in the first position in the picture, ordered according to reading-writing direction.

Both phenomena have been supported by evidence from different fields. However, there is little evidence that could help us to understand what happens when they interact. Consider the following sentence:

(1) A dog is chasing a cat.

In this sentence, the dog is the agent; thus, according to spatial agency bias, speakers from left-to-right writing cultures should tend to place it to the left position in a picture and speakers from right-to-left writing cultures to the right position. The dog is also mentioned first; thus, according to the advantage of first mention, left-to-right writing cultures should prefer to position it on the left side of the picture and right-to-left writing cultures on the right side. The two phenomena would have the same outcome: the dog is set to the picture's left side (relative to the position of the other named entity). Now consider the following sentence:

(2) A cat is chased by a dog.

In this second example, the dog is still the agent. The effect of spatial agency bias should be the same as in (1). One would expect listeners from left-to-right writing cultures to place the dog on the left side of the pictures and listeners from right-to-left writing cultures to place it on the right side. However, the dog is not mentioned first – the cat is. Thus, according to advantage of first mention, we expect the cat to be placed on the left side of the picture in left-to-right writing cultures and on the right side in RWL cultures. In this case, the two phenomena would lead to different outcomes.

Since the previous studies have focused on one of the two phenomena separately but not combined, an understanding of their interaction is lacking. In the present paper, we address this question. We are interested in if these phenomena are universal or language specific. We assume that syntax plays an important role when it comes to spatial agency bias. Previous studies have concentrated on the existence of spatial agency bias but not on its salience. We argue that the salience of spatial agency bias might differ across languages. The reason for this assumption is the syntactic variation of languages. Languages differ in the restrictions for syntactic ordering of the semantic roles in sentences; therefore, they differ in how conventional it is to syntactically place the agent in the first position in the sentence. We expect that the spatial agency bias will have a different salience across languages. Previous studies have focused solely on the existence of spatial agency bias without considering the salience of the syntactic placement of the agent and the patience in different languages. We argue that due to these differences in word order restrictions among languages, the expectation of the agent being in the first position of the sentence also varies. Therefore, we expect to observe these differences when comparing various languages.

In an experimental study, we analyzed 3000 drawings (3 languages x 100 subjects x 10 sentences) representing sentences varying in the order of the agent and patient (agent mentioned before patient, patient mentioned before agent), investigating the spatial placement of the agent. Native speakers of three languages (Czech, German, and Spanish) were asked to draw the situations described in the sentences. We measured the placement of the agent in cases

where spatial agency bias and advantage of first mention agree and when they disagree and compared if the asymmetry of its placement differs cross-linguistically.

2. State of the art: Spatial placement of figures in pictures

Researchers in different areas of science, including art, art history, perceptual psychology, cognitive science, and psycholinguistics have investigated figures' spatial placement. Each field has its research tradition, and the particular explanations within each research area for the tendencies for spatial arrangement are sometimes in contradiction.

Langacker (1990) postulated that the agent surpasses the patient cognitively (and non-linguistically). The evidence for asymmetry in the perception of agent and patient was also observed in psychological research (e.g., Hafri et al. 2013; Hafri et al. 2018). Robertson and Suci (1980) reported a preference for agent over patient in children's attention to short video clips with events. The preference for agents by infants and children was found in perception (Galazka and Nyström 2016; Golinkoff 1975, 1981; Golinkoff and Kerr 1978), as well as in comprehension (Braine and Wells 1978; Corrigan and Odya-Weis 1985). Studies in art history have observed that there are some tendencies in how to construct a visual scene and how to place figures and objects in a scene. This was firstly explained by universal habits in aesthetical preference (e.g., Bisiach et al. 1990; Gaffron 1950; Gordon 1981; Jewell and McCourt 2000). However, the evidence has shown that asymmetry is not the same throughout different cultures. Chokron and De Agostini (2000) compared the preferences of French and Israeli subjects and discovered that the former group preferred rightward directionality in pictures while the latter preferred leftward directionality. Since French subjects were left-to-right readers and Israeli subjects were right-to-left readers, the different preference among these groups was explained by reading habits. Other studies (e.g., Beaumont 1985; Heath et al. 2005; Ishii et al. 2011; Levy 1976; Nachson et al. 1999) also argue for the influence of reading-writing direction on aesthetic judgments and even on the artist's choice of composition (e.g., González 2012).

Maass et al. (2009) investigated the composition of pictures according to the spatial agency bias — the tendency to place more agentic subjects to the left side of images (in left-to-right writing cultures). They observed that groups stereotypically perceived as more agentic (e.g., males compared to females, young compared to an elderly group) are positioned on the left side in left-to-right reading-writing direction cultures (and on the right side in right-to-left writing cultures, respectively). Moreover, in a drawing task, this tendency was enhanced when the more agentic group was mentioned first, but it disappeared when it was mentioned second. In this context, the agency is defined as either having control over their own behavior, being able to affect other entities, or being responsible for a given outcome (Duranti 2005). An eye-tracking study by Gerwien and Flecken (2016) revealed differences in the visual fixation of agents between Spanish and German speakers. In an experiment where they presented an agent performing a single simple event in a short video clip, German participants (n=20) fixated on the agent more than Spanish participants (n=20). Moreover, they report on Spanish speakers mentioning agents less than German speakers, probably due to the pro-drop quality of Spanish.

The advantage of the first mention has been observed both in spoken and written discourse (Gernsbacher and Hargreaves 1988; Gernsbacher et al. 1989; Von Eckardt and Potter 1985).

Using memory tasks and priming tasks, it was established that readers and listeners have easier access to the first mentioned participant in a sentence compared to the one mentioned second. Sauppe and Flecken (2021) observed that a sentence structure immediately affects the visual attention of Dutch participants (n=40) in their eye-tracking experiment. The participants were presented with a sentence either in passive or active voice, and then a presentation of a video clip depicting a simple agent-patient event followed. When the sentence was active, the first participants´ fixation was on the agent more than on the patient, and vice versa. Gernsbacher and Hargreaves (1988) demonstrated this effect in comprehension studies on English. They concluded that the advantage of the first mention is based on general cognitive processes, and it is not language-specific. However, their research employed only speakers of English, a language with a high importance on word order for encoding semantic and syntactic roles.

Finally, Jahn et al. (2007) examined the advantage of first mention in a language comprehension study. Participants (n=27, English speakers) were asked to evaluate the consistency of spatial descriptions (e.g., 'A table is between the TV and a chair. The light is on the left of the TV. The table is next to the light.') The analysis uncovered that the construction of the scene was influenced by the reading-writing direction – English participants, who belong to a left-to-right writing culture, constructed a mental model of the scene following the order of mention. It was difficult for them to rebuild this model when the additional information provided by the last sentence of the stimulus was inconsistent with their original representation. In a follow-up experiment, another group of participants (n=34, English speakers) had to arrange three objects according to sentences such as "The pen is between the candle and the stapler." Most (n=24) of them put the objects in the order candle-pen-stapler, i.e., according to the word order, in compliance with the advantage of first mention.

Since our experiment prompts participants to draw, we have to mention another influence connected to spatial placement: handedness. This factor was found to play a role in drawing individual objects such as a line or geometrical shapes. It was also observed that right-handedness from left-to-right writing cultures correlates with a strong tendency to draw a face profile or animals from a profile facing to the left. This tendency is weakened or disappears when the drawer is left-handed (Dreman 1974; Shanon 1979). However, a systematic influence on the placement of figures in a visual scene or the composition of a complex scene has not been observed.

3. The current study

In our study, we explore the influence of spatial agency bias and the advantage of first mention on German, Spanish, and Czech. The chosen languages share the left-to-right writing direction, a prototypical subject-verb-object (SVO) structure (to a certain extent, more below), and they are Indo-European languages embedded in the Western tradition. We have chosen these languages because we wanted to look at the influences of reading-writing-direction with a magnifying glass. There is evidence for the existence of the spatial agency bias and the advantage of the first mention. However, if we want to start researching the interaction between both spatial biases, the first logical step for us is to explore typologically similar languages. While the basic SVO structure is preferred in all three languages, the commonness of this structure differs, and the rules for word order differ as well. Suppose these three languages differ in the strength

of the influence of spatial agency bias, although the writing direction of all the languages is left-to-right. In that case, we can assume that the reason for it is based on the differences in the prototypicality of the agent being placed syntactically in the first position in the sentences.

In this section, we will describe the rules of word order for all three languages in detail. In order to do that, we first need to define the concept of semantic roles. In a prototypical action involving two interacting physical entities, the one who acts or initiates physical contact with the other is called the agent. In contrast, the other undergoes the action of the verb and is called the patient (Langacker 1990). Palmer (1994) has described these semantic roles across languages for most two-argument syntactic structures. We will follow Palmer's concept of semantic roles in this study. Languages use different morphosyntactic means to signal the semantic roles of agent and patient, where word order and inflectional morphology (case marking and verb agreement forms) are the most common means used (Chan et al. 2009). Languages have different levels of freedom for ordering syntactic constituents in a sentence (Tomlin 1986). In the next section, we will describe the specifics of Czech, German, and Spanish regarding the agent-patient position within a sentence in detail. We concentrate on phrases with nominalized semantic roles. Some changes to the expected word orders can occur when some semantic roles are verbalized using pronouns instead of nouns. For example, in German, there is a tendency to place pronouns before nouns in the middle field. Czech, being a pro-drop language, can omit a subject altogether. When a pronoun expresses the object, it often chooses clitics (the short form of the pronoun), which is fixed on the second position in the sentence. Spanish is also a pro-drop language, so it can also leave subject pronouns implicit.

3.1. Czech word order

Modern Czech is a language with subject-verb-object (SVO) as the dominant word order (Dryer 2013). It is a so-called non-configurational language with relatively free word order, where the grammatical roles are expressed by flexion. It means that the word order is also driven by other factors which interact with the primary word order, namely informational structure, grammatical factors, rhythmical factors, and style (Daneš et al. 1987).

The informational structure is the main factor determining the word order of Czech sentences. A sentence can be separated into a part with lower informative importance because of the information already known in the discourse (thema/topic) and a second with higher informative importance because it contains new information (rhema/focus). Since there is a tendency to place thema before rhema syntactically, the informative importance typically develops from left to right[1]. An agent is not guaranteed to be in the first position in the sentence or to be expressed before the patient since the principles of informational structure often lead to a different organization. Consider (3), an example of an active sentence with object=patient expressed before subject=agent (from Křen et al. 2020).

(3)	*Řidička*	*osobního*	*vozu*	*vjela*	*z*	*dosud*	*neznámých*
	driver	passenger	vehicle	drove	from	yet	unknown

[1] For more information and different concepts of the informational structure of Czech see Mathesius (1947), Sgall et al. (1980), Panevová et al. (2014).

příčin do protisměru, nakonec skončila mimo silnici,
reasons into opposite line ultimately ended outside road,
kde narazila do betonového mostu. Ženu museli
where crashed into concrete bridge. Woman-ACC must
hasiči z auta vystříhat.
firefighters-NOM from car cut out.
'A driver of a passenger vehicle entered the opposite lane for unknown reasons, ultimately ending up off the road where she crashed into a concrete bridge. Firefighters had to cut the woman out of the car.'

In summary, Czech is a language that offers high flexibility in word order, and the grammatical roles are expressed by flexion. The agent does not have a guarantee to be in the first position in the sentence or to be expressed before the patient since the principles of informational structure often lead to a different organization.

3.2. German word order

German is a language with flexible word order since the semantic roles of the phrases are marked by the grammatical case of the articles (and determiners or pronouns) and not by word order. In main transitive clauses without an auxiliary, the finite verb must be placed in the second position. But both SVO and OVS are quite common. In subordinate clauses and clauses containing an auxiliary verb, the SOV order is used. In the main clause, the finite verb in the second position and the infinite parts of the predicate at the end of the sentence form a verb parenthesis. Only one constituent (usually the topic) can be placed before the finite verb, mainly the subject or adverbial phrases. The center field inside the verb parenthesis can be either empty or contain many phrases. Especially at the left and right edges of the central field, the order of the phrases is relatively fixed, but the rest can be placed freely with some general principles guiding the ordering: Subject before object; thema before rhema; known before unknown; alive before non-alive; start before the end; short phrases before longer phrases (Eisenberg 1999).

The neutral word order SVO used together with a middle field that complies with these general principles is compatible with most contexts (4). while deviating from it makes the word order marked, signaling that a particular part of a sentence is being highlighted (5) (Fandrych 2005):

(4) *Die Mutter gab dem Kind einen Kuss.*
The mother-NOM gave the child-DAT a kiss.
'The mother gave a kiss to the child.'

(5) *Dem Kind gab die Mutter einen Kuss.*
The child-DAT gave the mother-NOM a kiss.
'The mother gave a kiss to the child.'

Summarizing, word order as a cue for agent-patient relations is not very reliable in German because the subject/agent or the object/patient is not strictly tied to a particular position in the sentence. In German, the most important constraint is for the verb to be in the second position in main clauses without auxiliaries. Still, it can be considered a language with canonical SVO

word order with additional variable word order for pragmatic functions and grammatical reasons (Chan et al. 2009).

3.3. Spanish word order

Although Spanish has a relatively free word order (Contreras 1976; Kail 1989), it is usually considered an (S)VO-Language since this is the most common, unmarked word order (Dryer 2013). The parenthesis reflects that the pronominal subject in Spanish is frequently omitted because the verb's conjugation already expresses the subject's person and number. The flexible word order is used as a syntactic tool for communicating pragmatic and contextual information while keeping the same propositional content (Carreiras et al. 1995). Information presented at the beginning of the sentence (thema) is already known from context. In contrast, the information towards the end (rhema) has more informative value and is new for the listener. Depending on the communicative purpose, the speaker may mark a particular piece of information as more thematic by moving this element to the head of the sentence, while moving it to the end makes them more rhematic, as shown in examples (6) and (7). The inversion of semantic roles is also possible when a direct and indirect object exists. If the whole sentence is new information — marked by both agent and patient having an indefinite article — the unmarked SVO word order is preferred.

(6) *Juan compra flores a su madre.*
John-NOM buys flowers-ACC for his mother.
'John buys flowers for his mother.'

(7) *Flores compra Juan para su madre.*
Flowers-ACC buys John-NOM for his mother.
'John buys flowers for his mother.'

Articles also play a role in determining word order: Indefinite subjects tend to go after the verb (especially in the case of intransitive unaccusative verbs where the subject has no agency).

(8) *Crecen flores en el campo.*
Grow flowers-NOM on the field.
'Flowers grow on the field.'

Passive sentences are not very common in Spanish (especially not in spoken communication). To present the object as topical, it is more usual to put the object at the head of an active sentence and repeat the object as a pronoun in what is usually called a topicalized sentence or cleft sentence.

(9) *Era con su jefe con quien quería hablar.*
'It was with his boss with whom (he) wanted to speak with.'

In conclusion, although Spanish is commonly categorized as an (S)VO language, several other factors contribute to its word order. The flexible word order in Spanish functions as a syntactic tool for conveying contextual and pragmatic information while preserving the propositional

content of the sentence. Additionally, the placement of elements within a sentence can indicate whether they are more thematic or rhematic. Therefore, identifying the agent solely based on the word order in a sentence is unreliable, as the agentive role is not strictly linked to the initial position in Spanish syntax.

3.4. Hypotheses

Following the known effects of the advantage of first mention and spatial agency bias, we postulate the following predictions for the spatial organization of scenes by German, Spanish, and Czech speakers. All languages have left-to-right writing system; therefore, we expect:

1. HA1: In agent-patient sentences, both spatial biases agree, so the agent, which is also the first mentioned, will be placed to the left of the patient.
2. HA2: In patient-agent sentences, the influence of the spatial agency bias competes with the advantage of first mention. We hypothesize that this competition will diminish the strength of the spatial agency bias, resulting in a reduced tendency to place the agent prominently on the left side compared to the agent-patient order.

While HA1 replicates previous findings, HA2 creates a new paradigm by connecting the research done on spatial agency bias with research done on advantage of first mention.

A secondary research question was formulated: Will different languages show different salience of the spatial agency bias in the patient-agent condition? While the previous hypotheses target tendencies in the two conditions in all three languages altogether, this secondary question aims to take a closer look at each language separately.

The prevalence of patient-agent word order in each language can impact the intensity of the spatial agency bias observed in that specific language. For example, Spanish and Czech have a more flexible word order than German. The main organizing principle in Czech is informational structure, which causes patient-agent construction to be very common and is not perceived as marked. Since SVO is the prevalent word order in all three languages, the first condition (agent-patient) should bring comparable results across languages, but we expect differences in the second condition. Thus, we formulated the additional hypotheses:

3. HB1 There will be cross-linguistic differences in the salience of spatial agency bias in the patient-agent condition.
4. HB2 There will be no cross-linguistic differences in the salience of spatial agency bias in the agent-patient condition.

4. Methods

4.1. Participants

We recruited speakers of three languages with a left-to-right writing direction to participate in the study: German, Spanish, and Czech. In each language group, one hundred persons

participated. The recruitment took place in December 2018, January 2019, and March 2019. The German participants were recruited in and around Dortmund (Germany), and Spanish-speaking participants were recruited in Santiago and Concepción (Chile), as well as Lima (Peru) and Barcelona (Spain). The Czech participants were recruited in Praha, Děčín, and Starý Kolín (Czech Republic). There was no financial reward for participation in the study. The participants were recruited from the general population. Table 1 gives an overview of the biographical data of the participants.

Table 1: *Participants in the study*

	N	age (average / median)	left-handed	women
Czech native speakers	100	34.42 / 32.5	12	61
German native speakers	100	30.76 / 24	7	69
Spanish native speakers	100	35.21 / 33	7	58

4.2. Materials

The set of stimuli contained ten sentences. We did not choose a higher number since the drawing task was demanding for participants, and their motivation to draw the scenes dropped quickly. There were three kinds of sentences:

1. Agent-patient syntactic structure (3 items): active sentences with the agent mentioned first, and the patient mentioned second (in this condition, the spatial agency bias and advantage of first mention agree).
2. Patient-agent syntactic structure (3 items): one passive and two topicalized sentences with the patient mentioned first, and the agent mentioned second (in this condition, the spatial agency bias and advantage of first mention disagree).
3. Filler sentences (4 items): sentences with no agent-patient spatial relationship (or vertical spatial relationship).

All sentences are presented in Table 2. The materials are available by requesting the authors. We presented the sentences in a fixed order, with fillers distributed evenly between the critical items.

Table 2: *Experimental items with English translation*

	Czech	German	Spanish	English translation
agent-patient	*Princ mává princezně.*	*Der Prinz winkt der Prinzessin.*	*El principe saluda a la princesa.*	'A prince is waving to a princess.'
	Chobotnice postrkuje rybu.	*Der Krake schiebt den Fish.*	*El pulpo empuja al pez.*	'An octopus pushes a fish.'
	Dívka fotografuje chlapce.	*Ein Mädchen fotografiert einen Jungen.*	*Una niña le saca una foto a un niño.*	'A girl is taking a picture of a boy.'

patient-agent	*Farmář je pronásledován vlkem.*	*Ein Bauer wird vom Wolf gejagt.*	*Un campecino es perseguido por un lobo.*	'A farmer is chased by a wolf.'
	Doktorovi pomohl policista.	*Dem Artz hilft der Polizist.*	*Al policía le ayuda un médico.*[2]	'A policeman helped a doctor.'
	Vnukovi dává jeho dědeček dárek.	*Seinem Enkel gibt der Opa ein Geschenk.*	*A su nieto le da un regalo el abuelo.*	'A grandfather is giving a present to his grandson.'
filler	*Slon stojí pod stromem.*	*Ein Elephant steht unter einem Baum.*	*Un elefante está parado bajo un árbol.*	'An elephant is standing under the tree.'
	Pták vletěl do hnízda.	*Der Vogel flog ins Nest.*	*El pájaro voló al nido.*	'A bird flew into the nest.'
	Kočka sedí na střeše	*Eine Katze sitzt auf dem Dach.*	*Un gato está sentado en el tejado.*	'A cat is sitting on the roof.'
	V zahradě je květina.	*Im Garten gibt es eine Blume.*	*En el jardín hay una flor.*	'There is a flower in the garden.'

4.3. Procedure

The data collection was conducted either in a group setting (among students or coworkers) or individually. The experimenters did not intervene at any point during the competition of the task. The participants were asked to sketch drawings representing the sentences. The sentences were presented in written form, arranged on a piece of paper where each sentence was written above a square space for drawing. The reason for choosing the written modality was to maximize the potential influence of the reading-writing direction since reading implies directly looking at the writing direction. It was emphasized that artistic ability is not a concern and that simple sketches suffice. All participants were presented with the sentences in the same order, and the task was self-paced so that participants were not under time pressure. The task took approximately 10 to 15 minutes. After the experimental items, participants noted the date and location of the experiment's conduction, as well as their gender, handedness, and age.

4.4. Coding

The participant's choice of spatial placement of the agent was analyzed, taking advantage of the fact that most adults are unable to draw in perspective and therefore tend to draw the figures corresponding to the agent and the patient next to each other in two-dimensional space. For this analysis, we coded if the agent was placed to the left or right of the patient. Drawings in which no lateralization (left-right relationship) could be discerned (agent placed at other positions with respect to the agent e.g. up-down, or front-back) were coded as "other," while cases where the drawing was missing or could not be understood were coded as "NA" (not available). Figure 1 gives examples of drawings coded as left, right, and other for an agent-patient-sentence in all three languages.

[2] An error occurred during the translation of this sentence into Spanish. The structure is patient-verb-agent, but the patient is, in this case, the policeman, and the agent is the doctor. We have decided to keep the sentences since, in the screening beforehand, we did not find any preferences for one of the roles being perceived as more agentive.

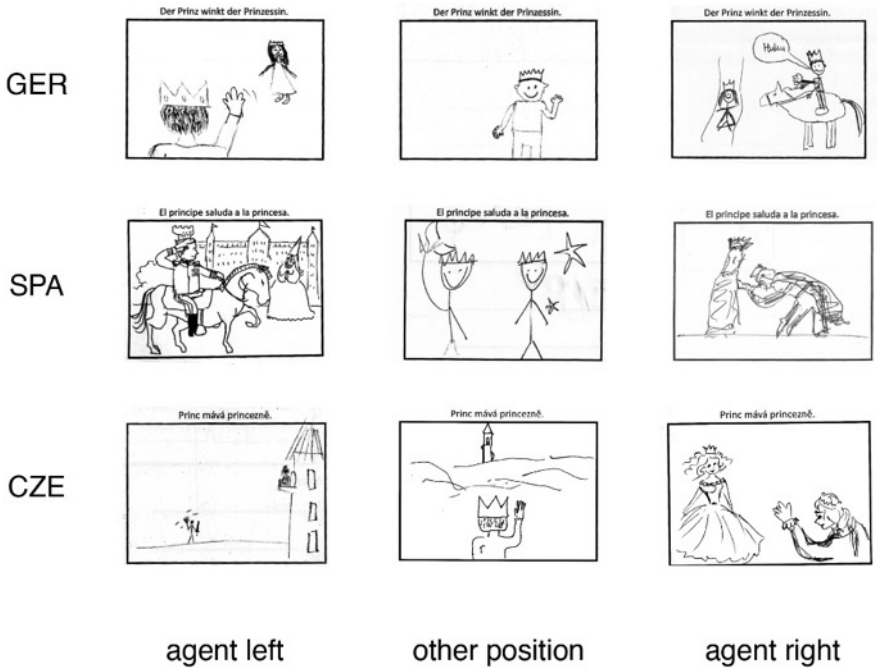


Figure 1: *Examples for the coding of drawings. The examples in the middle show drawings that could not be coded. In the German example, only the agent is shown; in the Spanish drawing, the figures cannot be identified, and in the Czech case, the drawing is done with such a perspective that the agent is neither left nor right with regard to the patient.*

4.5. Results

The results of the spatial placement of the agent in the drawings are presented in Tables 3 and 4.

Table 3*: Spatial placement of the agent, drawings of sentences with agent-patient word order.*

Agent-Patient	left	right	other	NA
German	241	52	6	1
Spanish	258	28	12	2
Czech	217	68	12	3

Table 4*: Spatial placement of the agent, drawings of sentences with patient-agent word order.*

Patient-Agent	left	right	other	NA
German	145	146	5	4
Spanish	152	135	5	8
Czech	124	158	16	2

We fitted a logistic mixed model (estimated using Laplace Approximation) on the data set t predict the spatial placement (left or right) in the drawings. The model was run using the package lme4 in R (Bates et al. 2015).

The model's total explanatory power is substantial (BIC 2648.0). The model's intercept for Czech as the reference language is at −0.2437. The model includes language (German, Czech, and Spanish) as well as the syntactic structure (agent-patient or patient-agent). Additionally, the model has a random intercept on the participant level, since each participant drew ten

images, so the observations cannot be assumed to be independent. In logistic regression, one-hot coding is used to represent categorical variables as binary variables. Each category is encoded as a separate binary variable, where a value of 1 indicates the presence of that category, and 0 indicates the absence. When interpreting the coefficients of one-hot coded variables in a logistic regression model, it's important to keep in mind that each coefficient represents the log-odds ratio between the category being represented and the reference category (the category that is encoded as all zeros). Here language is a categorical variable with three categories, i.e., German, Czech, and Spanish. We chose the language German firstly as the reference category, and later Czech was chosen as the reference category. The logistic regression model equation with German as the reference category would look as follows:

$$\log(\text{odds of spatial placement}_i) = \beta_0+\beta_1*CZE_i+\beta_2*SPA_i+\beta_3* \text{ syntactic\_structure\_AP}_i, + (1 \mid \text{participant}) \text{ for all i in } 1,2,\cdots,n.$$

Within this model:

- β_0 represents the intercept or baseline log-odds of agent position for language German and syntactic structure PA
- β_1 represents the coefficient for the Czech language variable, indicating the log-odds ratio between language Czech and language German
- β_2 represents the coefficient for the Spanish language variable, indicating the log-odds ratio between language Spanish and language German
- β_3 represents the coefficient for the syntactic_structure_AP variable, indicating the log-odds ratio between syntactic structure_AP and syntactic_structure_PA
- Odds of spatial placement = (pi/(1−pi)), where pi is the probability of that the agent position of i^{th} observation is left (The agent position value of 1 indicates left and 0 indicates right.) Odd means the probability of one outcome (left) over the probability of another (right).

To better understand the model, the predicted probabilities of all the observations are shown in Figure 2. Only the left and right placement of the subject was considered for the statistical analysis. Other placement and missing responses (NA) were excluded from the statistical analysis. In total, 76 pictures were excluded, which represents 0,025 % of the data).

The odds ratios of the syntactic order are highly significant regardless of the language taken as the reference. is 0.27 (= e−1.3020), indicating that participants with syntactic order agent-patient have 73% (= 1-0.27) higher odds of placing the agent to the left compared to participants drawing sentences with syntactic order patient-agent. Syntactic order is the most significant factor in the model, explaining most of the variation.

There is a significant difference between Spanish and German as well as between Spanish and Czech: The odds ratio of the Spanish language compared to German as a reference is 0.65 (= e−0.4366), indicating that participants with the language Spanish have a 35% (= 1-0.65) higher odds of the left agent position compared to German participants. On the other hand, compared to Czech as the reference, the odds ratio of Spanish is 0.57 (= e−0.5555), indicating

that Spanish participants have a 43% (= 1-0.57) higher odds of placing the agent to the left compared to Czech participants. There is no significant difference between Czech and German.

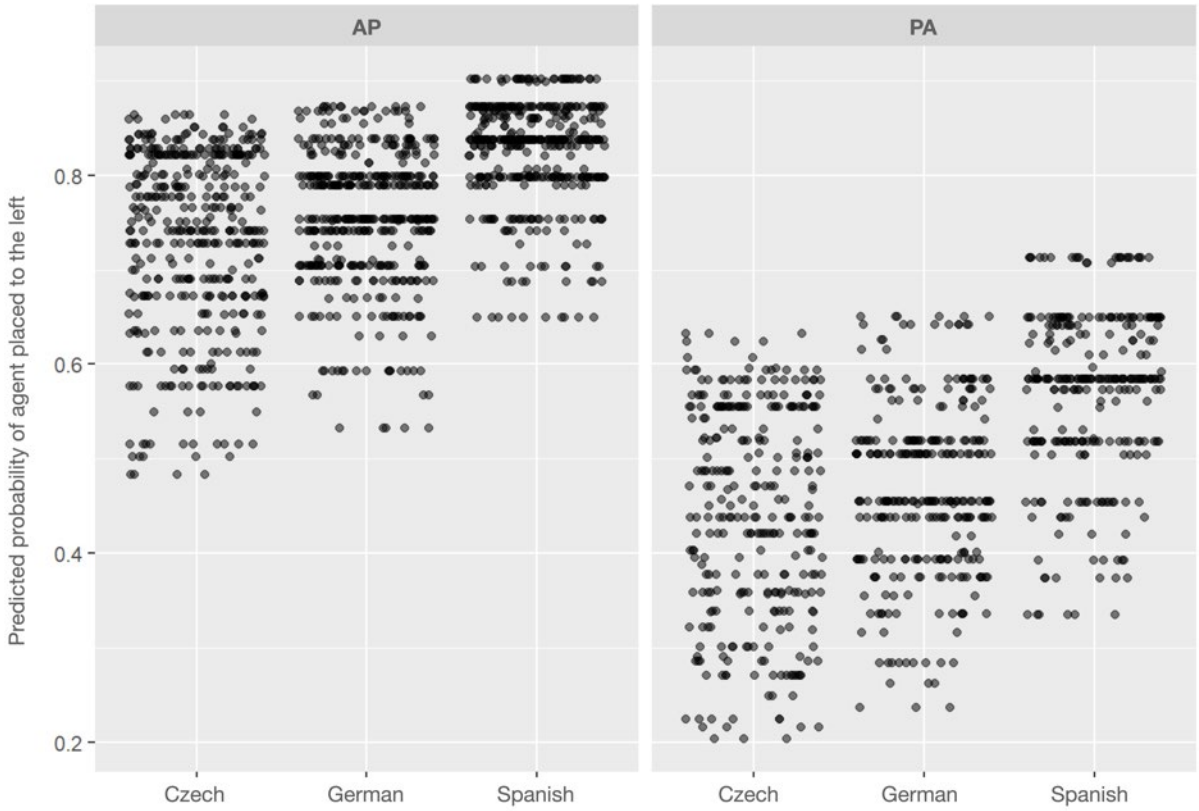


Figure 2: *Predicted probability for the spatial placement of the subject character to the left in both conditions: agent-patient word order (left) and the less common patient-agent word order (right).*

Table 5: *Beta values of the model with German as the reference category and Czech as the reference category. The significance codes are expressed by *** < 0.001, ** < 0.01 and * < 0.05.*

Reference GER				
Fixed effects	Estimate	std.Error	z value	Pr(>|z|)
(Intercept)	-0.1248	0.1194	-1.046	0.29578
CZE	-0.1189	0.1513	-0.786	0.43206
SPA	0.4366	0.1542	2.832	0.00463 **
Syn_order_AP	1.3020	0.1010	12.886	< 2e-16 ***
Reference CZE				
Fixed effects	Estimate	std.Error	z value	Pr(>|z|)
(Intercept)	-0.2437	0.1194	-2.040	0.04132 *
SPA	0.5555	0.1547	3.590	0.00033 ***
GER	0.1189	0.1513	0.786	0.43205
Syn_order_AP	1.3020	0.1010	12.886	< 2e-16 ***

5. Discussion

Spatial biases have long been a topic of interest within the field of linguistics. The prevailing understanding suggests that these biases are well-established, but this is only true when

considering sentences with canonical agent-patient syntactic order, which for many languages is not by any means the only possibility. This study delves into the notion of symmetric spatial preferences, aiming to shed light on its intricacies. While a comprehensive understanding of this phenomenon has been purportedly achieved concerning the canonical agent-patient order, we contend that the situation becomes significantly less straightforward when the syntactic order deviates from the standard agent-patient sequence, such as in the case of passive voice or topicalized sentences, which both have patient-agent configurations. Further, studies employing drawing tasks for investigating special placement biases often have used a small number of participants, or they have been focused only on the influence of either the advantage of first mention or the spatial agency bias exclusively. Our study mends these shortcomings by investigating the influence of the advantage of first mention and the spatial agency bias in interaction based on data from 300 speakers. We conducted the experiment in three languages (Spanish, German, and Czech) with different cues for signaling agency in sentences. We measured the effect of the spatial agency bias in these languages. The analysis of the corpus data revealed a significant disparity in the manifestation of spatial agency biases when departing from the canonical AP order. Unlike the well-documented and understood biases present in agent-patient sequences, the non-canonical patient-agent configurations exhibited less clarity regarding the underlying mechanisms: As stated in our main hypotheses (HA1), we predicted that in all languages, the stimuli with agent-patient-order would mainly produce drawings where the agent is placed to the left of the patient, since in these cases the spatial agency bias and the advantage of first mention agree. These results agree with previous findings from studies employing a similar methodology using sentences with a typical agent-patient word order as stimuli. Further, we predicted that in the three languages studied, for the stimuli in the patient-agent condition, the tendency to place the agent to the left would either be weaker or no longer present. This was also found to be the case since, as seen in Figure 2, the probability of placing the agent to the left when drawing a sentence with a patient-agent position is much lower. Thus, Hypothesis HA2 was confirmed. This is a key finding since previous research has rarely tested for noncanonical syntactic order. When it did, the focus was not on pitting the advantage of first mention and spatial agency bias phenomena against each other.

In our secondary research question, we asked if there are cross-linguistic differences in the prominence of the spatial agency bias. In HB1, we predicted these differences to appear in the patient-agent condition. In HB2, we predicted that in the agent-patient condition, languages would not differ. Our results did not show any significant differences in the spatial placement of the agent within the patient-agent condition. Therefore, HA2 must be rejected. On the other hand, there were significant differences between some language pairs found in the agent-patient condition, which contradicts our prediction. Thus, HB2 was rejected as well. Although the unexpected outcome was not anticipated, upon closer examination of the data depicted in Figure 2, we gain insight into potential explanations for this phenomenon. Notably, all three languages exhibited a consistent trend across both conditions. Specifically, Czech consistently displayed the lowest likelihood of positioning the agent to the left in both conditions, while Spanish consistently exhibited the highest likelihood. It is conjectured that, in Czech, the cues that typically guide the placement of semantic roles towards the beginning of sentences may generally be comparatively weaker than those observed in German and Spanish. Conversely,

Spanish may possess a stronger inclination towards associating an agentic role with the initial position in a sentence. Consequently, the spatial agency bias may be more pronounced in Spanish when compared to the other two languages.

Although our results did not support our hypotheses (HB) about the cross-linguistic differences regarding the prominence of the spatial agency bias and the advantage of first mention, they show clearly that their influence is not as straightforward and clear-cut as previously assumed. Further research considering more languages and sentences with different syntactic structures is needed to understand this phenomenon comprehensibly since our findings suggest that the spatial agency bias has a different prominence across languages. In the future, we want to work towards a plausible model explaining the factors influencing spatial agency bias by collecting more data in different languages using stimuli with different entities as agents and patients. At this point, we can show that the advantage of first mention is one of the factors influencing spatial bias based on a large amount of data from three different languages. Expanding the research by collecting new data using new materials is essential. At this point, having used only ten sentences with the same named entities as stimuli is a limitation of the study. We cannot exclude the possibility that some idiosyncratic effects played a role. For the present study, we aimed for a large number of participants reacting to the same stimuli to avoid the potential noise that several lists of items could create. However, it is necessary to use a higher number of various sentences in future research. Moreover, other variables should be considered to achieve a complete picture of the phenomenon: Comparison of languages with different script directionalities (left-to-right vs. right-to-left), changing the modality of items presentation (oral vs. written), comparing illiterate and literate people, and analyzing the development of the influences in children while they learn to read and write (compared to adults) are aims for further research.

We need to be careful when generalizing our results. The design of our study aimed to analyze quickly made decisions of spatial placement, which transfer a complex scene into a two-dimensional visual representation. In this setting, we found a pattern in positioning the agent in the drawings. We assume that this pattern carries information about how the spatial organization of the scenes works in the speaker's mind. However, it does not reflect the full range of human imagination.

It is evident that the factors influencing agency assignment and interpretation undergo a distinct shift in non-canonical configurations. Future research should delve deeper into these phenomena, incorporating psycholinguistic experiments and cross-linguistic analyses to provide a more comprehensive understanding of the mechanisms at play. In general, it is crucial for future studies on spatial bias to include also sentences with less common syntactic structures as stimuli. Otherwise, it is not possible to discern the influences of the special agency bias and of the advantage of first mention separately. It is important to keep in mind that languages differ greatly in their preferred syntactic order and how obligatory the ordering of the semantic roles is. The data presented in this study provides evidence of cross-linguistic variations, highlighting the need for further investigation into this phenomenon.

In conclusion, this study addresses the gap in the current understanding of spatial biases when departing from the canonical agent-patient order. This paper contributes to understanding how two spatial biases phenomena – the spatial agency bias and the advantage

of first mention – interact. Evidence from Czech, Spanish, and German uncovers that the strength of those phenomena manifests differently across languages, with Spanish being the language where the asymmetry is most strongly marked. Consequently, further investigation is warranted to elucidate the complexities associated with the special placement of agent and patient in non-canonical orderings in different languages and the underlying dynamics between the advantage of first mention and the spatial agency bias in different languages and sentence structures.

References

Bates D, Mächler M, Bolker B, Walker S (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software* 67(1): 1–48. doi:10.18637/jss.v067.i01.

Beaumont, J. G. 1985. Lateral Organization and Aesthetic Preference: The Importance of Peripheral Visual Asymmetries. *Neuropsychologia* 23(1): 103–13. doi: 10.1016/0028-3932(85)90048-X.

Bisiach, E., G. Geminiani, A. Berti, and M. L. Rusconi. 1990. Perceptual and Premotor Factors of Unilateral Neglect. *Neurology* 40(8): 1278–1278. doi: 10.1212/WNL.40.8.1278.

Braine, M. D. S., and R. S. Wells. 1978. Case-like Categories in Children: The Actor and Some Related Categories. *Cognitive Psychology* 10(1): 100–122. doi: 10.1016/0010-0285(78)90020-8.

Carreiras, M., M. A. Gernsbacher, and V. Villa. 1995. The Advantage of First Mention in Spanish. *Psychonomic Bulletin & Review* 2(1): 124–29. doi: 10.3758/BF03214418.

Chan, A., E. Lieven, and M. Tomasello. 2009. Children's Understanding of the Agent-Patient Relations in the Transitive Construction: Cross-Linguistic Comparisons between Cantonese, German, and English. *Cognitive Linguistics* 20(2): 267–300. doi: 10.1515/COGL.2009.015.

Chokron, S., and M. De Agostini. 2000. Reading Habits Influence Aesthetic Preference. *Cognitive Brain Research* 10(1–2): 45–49. doi: 10.1016/S0926-6410(00)00021-5.

Contreras, H. 1976. *A Theory of Word Order with Special Reference to Spanish*. Amsterdam ; New York : New York: North-Holland Pub. Co. ; sale distributors for the U.S.A. and Canada, America Elsevier Pub. Co.

Corrigan, R., and C. Odya-Weis. 1985. The Comprehension of Semantic Relations by Two-Year-Olds: An Exploratory Study. *Journal of Child Language* 12(1): 47–59. doi: 10.1017/S030500090000622X.

Daneš, F., Z. Hlavsa, and M. Grepl, eds. 1987. *Mluvnice Češtiny (3): Skladba*. Praha: Academia.

Dreman, S. 1974. Directionality Trends as a Function of Handedness and of Reading and Writing Habits. *The American Journal of Psychology* 87(1/2): 247–253.

Dryer, M. S. 2013. Order of Subject, Object and Verb. In M. S. Dryer and M. Haspelmath (eds.), *The World Atlas of Language Structures Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology.

Duranti, A. 2005. "Agency in Language." In A. Duranti (ed.), *A Companion to Linguistic Anthropology*, 449–73. Wiley-Blackwell.

Eisenberg, P. 1999. *Grundriss der deutschen Grammatik*. 2013th ed. edited by R. Thieroff. Stuttgart: J.B. Metzler.

Fandrych, C. 2005. Schauplatz: Wortstellung. *Fremdsprache Deutsch* (32): 4. doi: 10.37307/j.2194-1823.2005.32.04.

Ferreira, F., K. G. D. Bailey, and V. Ferraro. 2002. Good-Enough Representations in Language Comprehension. *Current Directions in Psychological Science* 11(1): 11–15. doi: 10.1111/1467-8721.00158.

Ferreira, F., and N. D. Patson. 2007. The 'Good Enough' Approach to Language Comprehension: The 'Good Enough' Approach. *Language and Linguistics Compass* 1(1–2): 71–83. doi: 10.1111/j.1749-818X.2007.00007.x.

Frazier, L., J. M. Pacht, and K. Rayner. 1999. Taking on Semantic Commitments, II: Collective versus Distributive Readings. *Cognition* 70(1): 87–104. doi: 10.1016/s0010-0277(99)00002-5.

Gaffron, M. 1950. Left and Right in Pictures. *Art Quarterly* 13: 312–21.

Galazka, M. and P. Nyström. 2016. Infants' preference for individual agents within chasing interactions. *Journal of Experimental Child Psychology*, 147:53–70. doi: 10.1016/j.jecp.2016.02.010

Gernsbacher, M. A., and D. J. Hargreaves. 1988. Accessing Sentence Participants: The Advantage of First Mention. *Journal of Memory and Language* 27(6): 699–717. doi: 10.1016/0749-596X(88)90016-2.

Gernsbacher, M. A., D. J. Hargreaves, and M. Beeman. 1989. Building and Accessing Clausal Representations: The Advantage of First Mention versus the Advantage of Clause Recency. *Journal of Memory and Language* 28(6):735–55. doi: 10.1016/0749-596X(89)90006-5.

Gerwien, J. and M. Flecken. 2016. First things first? Top-down influences on event apprehension. In A. Papafragou, D. Grodner, D. Mirman, and J. C. Trueswell (eds), *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*, 2633–2638, Austin, TX: Cognitive Science Society.

Gigerenzer, G., and P. M. Todd. 1999. *Simple Heuristics That Make Us Smart*. Oxford: Oxford University Press.

Golinkoff, R. M. 1975. Semantic Development in Infants: The Concepts of Agent and Recipient. *Merrill-Palmer Quarterly of Behavior and Development* 21(3): 181–93.

Golinkoff, R. M. 1981. The Case for Semantic Relations: Evidence from the Verbal and Nonverbal Domains. *Journal of Child Language* 8(2): 413–37. doi: 10.1017/S0305000900003275.

Golinkoff, R. M., and J. L. Kerr. 1978. Infants' Perception of Semantically Defined Action Role Changes in Filmed Events. *Merrill-Palmer Quarterly of Behavior and Development* 24(1): 53–61.

González, C. P. 2012. Lateral Organisation in Nineteenth-Century Studio Photographs Is Influenced by the Direction of Writing: A Comparison of Iranian and Spanish Photographs. *Laterality: Asymmetries of Body, Brain and Cognition* 17(5): 515–32. doi: 10.1080/1357650X.2011.586701.

Gordon, I. E. 1981. Left and Right in Art. In D. O´Hare (ed.), *Psychology and the Arts*, 211–241. Brighton, Sussex: Harvester.

Hafri, A., Papafragou, A., and J. C. Trueswell. 2013. Getting the gist of events: recognition of two-participant actions from brief displays. *Journal of experimental psychology*. *General*, 142(3): 880–905. doi: https://doi.org/10.1037/a0030045.

Hafri, A., Trueswell, J. C., and B. Strickland. 2018. Encoding of event roles from visual scenes is rapid, spontaneous, and interacts with higher-level visual processing. *Cognition*, 175:36–52. doi: 10.1016/j.cognition.2018.02.011

Heath, R., O. Mahmasanni, A. Rouhana, and N. Nassif. 2005. Comparison of Aesthetic Preferences among Roman and Arabic Script Readers. *Laterality: Asymmetries of Body, Brain and Cognition* 10(5): 399–411. doi: 10.1080/13576500442000166.

Ishii, Y., M. Okubo, M. E. R. Nicholls, and H. Imai. 2011. Lateral Biases and Reading Direction: A Dissociation between Aesthetic Preference and Line Bisection. *Brain and Cognition* 75(3): 242–47. doi: 10.1016/j.bandc.2010.12.005.

Jahn, G., M. Knauff, and P. N. Johnson-Laird. 2007. Preferred Mental Models in Reasoning about Spatial Relations. *Memory & Cognition* 35(8): 2075–87. doi: 10.3758/BF03192939.

Jewell, G., and M. E. McCourt. 2000. Pseudoneglect: A Review and Meta-Analysis of Performance Factors in Line Bisection Tasks. *Neuropsychologia* 38(1): 93–110. doi: 10.1016/S0028-3932(99)00045-7.

Kail, M. 1989. Cue Validity, Cue Cost, and Processing Types in Sentence Comprehension in French and Spanish. In B. MacWhinney and E. Bates. (eds.), *The Crosslinguistic Study of Sentence Processing*, 77–117. Cambridge University Press.

Křen, M., V. Cvrček, J. Henyš, M. Hnátková, T. Jelínek, J. Kocek, D. Kováříková, J. Křivan, J. Milička, V. Petkovič, P. Procházka, H. Skoumalová, J. Šindlerová, and M. Škrabal. 2020. *SYN2020: Reprezentativní Korpus Psané Češtiny*. Praha: Ústav českého národního korpusu. Retrieved January 6, 2023 (http://www.korpus.cz).

Langacker, R. W. 1990. *Concept, Image, and Symbol: The Cognitive Basis of Grammar*. Berlin and New York: De Gruyter Mouton.

Levy, J 1976. Lateral Dominance and Aesthetic Preference. *Neuropsychologia* 14(4): 431–45. doi: 10.1016/0028-3932(76)90072-5.

Maass, A., C. Suitner, X. Favaretto, and M. Cignacchi. 2009. Groups in Space: Stereotypes and the Spatial Agency Bias. *Journal of Experimental Social Psychology* 45(3): 496–504. doi: 10.1016/j.jesp.2009.01.004.

MacDonald, M. C., N. J. Pearlmutter, and M. S. Seidenberg. 1994. The Lexical Nature of Syntactic Ambiguity Resolution [Corrected]. *Psychological Review* 101(4): 676–703. doi: 10.1037/0033-295x.101.4.676.

Mathesius, V. 1947. *Čeština a Obecný Jazykozpyt*. Praha.

Nachson, I., E. Argaman, and A. Luria. 1999. Effects of Directional Habits and Handedness on Aesthetic Preference for Left and Right Profiles. *Journal of Cross-Cultural Psychology* 30(1): 106–14. doi: 10.1177/0022022199030001006.

Palmer, F. R. 1994. *Grammatical Roles and Relations*. 1st ed. Cambridge: Cambridge University Press.

Panevová, J. 2014. *Mluvnice současné češtiny 2. Syntax češtiny na základě anotovaného korpusu*. Praha: Karolinum.

Pickering, M. J., and S. Frisson. 2001. Processing Ambiguous Verbs: Evidence from Eye Movements. *Journal of Experimental Psychology. Learning, Memory, and Cognition* 27(2): 556–73. doi: 10.1037/0278-7393.27.2.556.

Robertson, S. S., and G. J. Suci. 1980. Event Perception by Children in the Early Stages of Language Production. *Child Development* 51(1): 89–96. doi: 10.2307/1129594.

Sauppe, S. and Flecken, M. (2021). Speaking for seeing: Sentence structure guides visual event apprehension. *Cognition*, 206:104516. doi: https://doi.org/10.1016/j.cognition.2020.104516.

Sgall, P., E. Hajičová, and E. Buráňová. 1980. *Aktuální Členění Věty v Češtině*. Praha: Academia.

Shanon, B. 1979. Graphological Patterns as a Function of Handedness and Culture. *Neuropsychologia* 17(5): 457–65. doi: 10.1016/0028-3932(79)90052-6.

Stevenson, S. 1994. Competition and Recency in a Hybrid Network Model of Syntactic Disambiguation. *Journal of Psycholinguistic Research* 23(4): 295–322. doi: 10.1007/BF02145044.

Tomlin, R. S. 1986. *Basic Word Order: Functional Principles*. London ; Wolfeboro, N.H: Croom Helm.

Von Eckardt, B., and M. C. Potter. 1985. Clauses and the Semantic Representation of Words. *Memory & Cognition* 13(4):371–76. doi: 10.3758/BF03202505.

LingBaW *Linguistics Beyond And Within 9 (2023), 95-111*

Critical Discourse Analysis of RT news headlines on Venezuela's post-coup crisis in 2019-2020

Ihor Matselyukh
Ukrainian Catholic University, Lviv, Ukraine

Abstract
This article researches the biased content of the propagandistic channel RT through the prism of Critical Discourse Analysis (CDA). It attempts to uncover the linguistic means of creating biased content in RT headlines that cover the Venezuela's post-coup crisis of 2019-2020. It offers a CDA approach to the systemic bias in the headlines of 375 news stories featured on one of the most tendentious webcasters, the Russian state news provider RT. The current CDA focuses on presuppositions and implicatures, back- and fore-grounding, agency, lexis, punctuation, and briefly on other figurative linguistic means in the headlines and traces their relative recurrence that might form a pattern.

Keywords: CDA, headlines, presuppositions, implicatures, agency, bias

1. Introduction

In the heavily polarized political reality of the post-Cold War world, of rapid digitalization and instantaneous access to the internet data, news webcasters as well as more traditional media are becoming more involved in political power struggle. As corporations and states' ideologies, influence-groups and leaders are eager to promote their desired image, it is obvious that the news providers are becoming increasingly engaged on the battlefield of virtual reality, disseminating a fair amount of partial material, or the material that is not completely neutral. Consequently, a new stage of media literacy should be actuated for the vast readerships to see through the genuine and fabricated ways of presenting news.

If we narrow our search for news providers from the viewpoint of their journalist ethics and financing, the reliable sources for the USA would be *The Washington Post*, *The New York Times*, *NBC News* and *The New Republic* that used to have fired journalists for the breech of professional ethics (Glader 2017); for the UK – the *BBC, Sky News, ITV, Google News* (Watson 2021); for Europe ─ *Euronews, ARD, TV2 News, Le Monde, RTVE, RTL* (Matsa 2018). But few other companies can rival RT (formerly *Russia Today*, started in 2005) in terms of its suspiciously quick rise in popularity (1 bln views on Youtube in 2014) and its extensive state

funded budget (400 mln USD as of 2015-17 with a no-cuts presidential promise (Elswah and Howard 2020). However, the channel's popularity is countered with the harsh criticism from multiple sources about its newsworthiness; the series of its bans started with the Lithuania's National Council in 2020, and after Russia's full scale invasion of Ukraine on February 22, 2022 it gradually disappeared from air in the EU and other countries across the globe (Anstrate 2020).

The announced reason and the main intention of the channel were to present "a more complete picture" of life in Russia (Dowling 2017), however, its issue barely features on the news, which per se contradicts the channel's proclaimed mission. In the separate section Russia and FSU (former Soviet Union) the average percentage of the claimed content may reach up to 15-20 % with a positive picture on its polities, or energy supplies, or some neutral wildlife issues, etc.; the tendency to propagate Russia's viewpoint has been a priority since its foundation in 2005 and has been growing rapidly since Russia's full scale war against Ukraine (RT newsfeed, April-Dec., 2022). However, some of RT's material is harmless, or at least neutral; some of its reporting is genuine, and the primary issue is to distinguish that from propaganda, according to Misha Glenny, the author of *McMafia* (Elswah and Howard 2020).

Scholarly investigation and substantiated opinion on the propagandistic content of RT feature in numerous research articles, such as (Carter and Carter (2021), (RT and Sputnik 2022), (Reidy 2022), (Crilley et al. 2022), (Brown 2022), looking both into the expansion of RT's broadcast and the response of the surveyed audiences about their political standpoint after following RT's stories. However, there are no analogous researches on the CDA of news headlines on RT within our reach. Another reason for undertaking this research was the media bias indicator that raises doubts about the credibility of RT's coverage (RT bias, 2022), (Lomas 2022). When the reliability index is only 24.28 out of 64 and the lower threshold for problematic quality reporting is 24, this evidence is enough proof to search for propagandistic content on the level of language including its macro-structures (RT News Bias 2023).

2. Approaches to the research

Given all this background information, we work on the assumption that apart from RT's bias in news on the cognitive level (news stories selection, fact distortion, etc. as claimed by the channel's critics (Dowling 2017), (Elswah and Howard 2020), (Scott 2020), (Erickson 2017), the newsmakers would certainly imbibe ideological slant in the pragmatics of the text production (favorable presuppositions, nominalizations, agency, modality, etc.). Here, at the outset of the current article, we assume that the critical discourse analysis of the news stories will reveal reporters' bias at the level of presuppositions, implicatures, agency, fore- and back-grounding, politically polarized lexis selection, figurative language in the service of ideology, etc.

In the course of our research on the headlines a tendency was discovered that they hold a much deeper appeal to the audiences than the articles themselves. The likelihood of both paper- and internet-focused readership glancing at the headlines is much higher than at the news story itself. In addition, the layout of most webpage listing totally excludes the initial paragraphs, thus leaving the readers exposed to the headlines alone. Chances are that the prominently worded and attractively designed headlines will eventually be selected for reading; thus, apart from the

graphic foregrounding, certain linguistic features make the headlines particularly memorable and effective, such as alliteration and assonance, puns and metaphors, elaborate epithets and striking zeugmas, intensive punctuation and rhetorical questions among others (Develotte and Rechniewski 2001).

In the wake of the research carried out by Roger Fowler et al. (1979), Robert Hodge and Gunther Kress (1988), Roger Fowler (1991), N. Fairclough (1995), Eric Alterman (2003), Teun van Dijk (2008), Teun van Leeuwen (2008), and others, we launch our analysis from the hypothesis that news is a product which is to be consumed in terms of semiotic and social values and its primary ingredient is the language. Although, in practice, it is the more obvious cognitive aspects of the news stories that attract sociolinguists rather than the language of the media itself; whenever bias could be detected from a linguist's point of view, thematic analysis would prevail, wavering between competing ways of analyzing events from the media outlets' and journalists' own perspectives and interests (Fowler 1991), (Philo and Berry 2004), (Konnikova 2020). Thus our approach will focus on the language and on tracing any reappearing discoursal features that might form a pattern. Other metalinguistic aspects, such as the webpage layout, visual stylistic choices, the arrangement of other multimedia, which carry significant information in news stories, will remain beyond the scope of this article.

3. Basic premises

Before analyzing the language of news stories several premises that influence news production have to be outlined: the first one is that any representational discourse – syntax, lexis, stylistic features, etc. – stems from a particular viewpoint, ideological position or tradition, even though it is called upon to form an objective representation of the world in news stories (Fowler 1991), (van Leeuwen 2008). However, what Roger Fowler (1991) and Theo van Leeuwen (2008) and other authors kept less focus on is how aggressively state media may develop their propagandistic strategies under an intense dictatorial state funding, as is the case for RT (Holitsyna 2015). The second premise is that before the news appears in the media, it undergoes the conventional processes of selection: not all events are inherently newsworthy, but become such only after their inclusion in the news reports. Since only a fraction of events are mentioned in the news, this selection itself produces a partial view of the world, influenced, among others, by mass consumption and the call for sensationalism (Fowler 1991).

The third one is the fact that news making is a business that occupies a rightful place in the world's economic affairs. Thus the expectations are that the output of the news providers will be partially correlated to the need to make money or even prosper by the distribution via profitable channels, by seeking potential advertisers, etc. The fourth premise, related to the previous one, deals with the fact that news stories, as any other literary output, are not exempt from colloquial and figurative language, which assists readability. Such stylistic features as alliteration, parallelisms, metaphors and puns, and other eye- and mind-catching devices are relied upon, especially in the 'necessary' news headlines, which are often ideologically tailored (Fairclough 1995).

The fifth premise is the fact that any news story is comprehended at the micro- and macro-levels; the former includes the news' main body text itself consisting of the story line or a single

event report, more or less detailed descriptions, witnesses' accounts, journalists' viewpoints, optionally accompanying multimedia, and nowadays — forum entries; whilst the latter is represented by the news headlines, which not only contain the gist of the reports, but also resort to generalizations, concise representation, professional assessments, etc., in order to make the story look newsworthy and memorable (van Dijk 1989), (Halas 2017).

4. CDA of the RT headlines

We assume there is enough evidence to center one's research on headlines, as according to Teun van Dijk (1989) they are made all the more prominent by visual enhancers, such as type and size, punctuation, page layout, etc. Moreover, when metaphors, irony, puns, and other figurative language are activated, headlines can produce the effect equivalent to that of defamiliarization that occurs in belle letters (Guillermo 2010), (Erdinast-Vulcan 2013). It is when the reader "experiences a heightened awareness of what is being said, and becomes freshly critical of it" (Fowler 1991: 31).

Headlines do not occupy a sizeable space in news feed, yet, by their succinct nature, their own stylistics and functions, they deserve to be treated as a separate sub-genre in CDA of news discourse. In terms of their pragmatics and function, headlines aim at; a) immediacy (the intention to reach out for the readership directly); b) compelling must-read (conditioned by their graphic prominence, sheer logic or long instilled habit of traditional reading); c) the claim for the utmost importance (enticing the readers to browse for alternative content); d) dependency on presuppositions (reference to geopolitical and current news competence); e) investigative nature (encouraging the reader's own discoveries albeit drawn from the inbuilt presuppositions). Headlines constitute the centerpiece of news stories, and although they are brief and prone to ellipsis, within the context of the news coverage they exert a considerable impact on the readership.

News coverage, as part of our time-linear cognition of reality, is perceived in its own continuum. It is dependent on the previous stories, and the news by itself constitutes a foundation for other stories to come. Headlines, as macro-structures of news stories, undergo a similar comprehension process: their perception is more firmly rooted in the previous background knowledge and presuppositions than in other factors (Fowler 1991), (Alterman 2003). By means of inserting such heavily contextualized referential lexis as *elsewhere, formerly, neighboring, prior, against, as, just, at least, these days*, etc., the meaning of an utterance can be grasped only by referring to the reality beyond the headline in question. And those of seemingly neutral status, such as *rhetoric, awareness, discontent, think-tank, regain, facilitate, pardon,* inadvertently draw on larger contextualization and acquire their unique pragmatically honed meaning. Finally, the reader almost unmistakably identifies with such strongly connotative lexis as *figurehead, clash, slam, pioneering, bloodthirsty, getting roasted, carefully orchestrated, cozy up to, scuffle with, conspiracy and sabotage, strategic blunder, double standards, decoy imitation, color revolution, python and tiger, crippling sanctions, tit-for-tat, hammer and sickle, Nazi*, which constitutes the most frequent usage on RT regarding the Venezuela's crisis.

5. Headline lengths

The most conspicuous criterion for the headlines is that of their length: the longer the utterance, the more informative it becomes. Comparative analysis of the length of headlines for different online news providers throughout the year 2020 shows that their average word-count amounts to 12.2 words for *The Independent,* 11.9 for *The Syndication Bureau*, 11.4 for *The New York Times*, 10.8 for *The Guardian*, 9.8 for *The Wall Street Journal*, 9.4 for *The Times*. RT outruns them all with a record 15.6 words per average headline. Even if this is not a direct propagandistic evidence, such stark statistics raise questions about its purpose and why the editorial staff are not leaning to the classical standards of headline brevity (Marinakos 2020), (Kevan 2014).

However, online marketing research company Backlinko looked into the reposts of more than 900 million blog posts and the result was that longer headlines (14 to 17 words) outperform short ones. Headlines and titles ending with a "?" are 23.3% more likely to get shared than the ones with traditional statements (Dean 2020). There is also another feature of RT headlines — they literally abound in punctuation, some of which might be either in rapport with the length of the headlines featuring more than single sentence utterances or pursuing another aim.

In fact, a typical RT headline might constitute a micro-story in itself. Here we provide two of the most typical examples of headlines from the three different media:

from *The Wall Street Journal*:

Iron-Ore Prices Buckle as Evergrande Adds to China Concerns
Global Economic Warfare Intensifies as Military Conflict Recedes

from *The New York Times*:

Spain Arrests Former Venezuela Spy Chief Accused of Drug Trafficking
Bouncy Castles and Grenades: Gangs Erode Maduro's Grip on Caracas

from *RT*

Take that, Trump! Venezuela's oil shipments from Iran show how alliances can help defy US sanctions
Was Maduro the 'jackpot'? Former US Green Berets reveal new details of botched Venezuela coup in interrogation tapes

If we were to rate headlines in terms of their memorability and impact, the selective criteria would be: 1) authorization, i.e. reference to the opinion of "convenient" public figures or celebrities; 2) figurative or emotionally charged language; 3) "convenient" intertextuality; 4) sensational nature; etc., as exemplified in the following:

'Leave the Venezuelan people alone': Roger Waters calls US actions 'insanity'
Trump's coronation of Guaido as Venezuelan president – Al Capone redux
Hate in the heartland: America is stumbling towards disaster one virulent tweet at a time
From zero to hero: How Venezuelan opposition leader Lopez made Juan Guaido the man of the day

RT, as well as other news platforms, does not follow the Anglophone tradition of using capital letters, which results in another means of fore- or back-grounding information at the level of visual perception in the very lead-in to the news story. Although capitalization practices can vary across different media outlets, the issue of visual appeal actuates various formatting and emphasizing techniques to attract attention to certain words.

6. Presuppositions and implicatures

In order to detect and analyze presuppositions in the current headline corpus, we turn to Steven Levinson's pragmatics triggers, i.e. proper names/definite descriptions, quantifiers, temporal clauses, change-of-state verbs, as well as to his elaborated findings on presuppositions shortlisted to a few dozen (Levinson 1983: 181): definite description, fact verbs (*know, be sorry/proud*), implicative verbs (*forget, manage*), change-of-state verbs (*stop, finish, leave*), iteratives (*another time, repeat, restore*), verbs of judging (*accuse, criticize*, *blame*), temporal clauses introduced by *before, after, while, since*, cleft sentences (*It was Y who…*), comparisons and contrasts, non-restrictive relative clauses, counterfactual conditionals, etc. However, over time new modes of presuppositions may evolve in propagandistic discourse, e. g. gradable adjectives in the superlative, relative positions of key structural elements, positive or negative attributes placed next to certain countries, leaders or ideologies, etc.

Obviously, in order to reach understanding between the news provider and the reader, common-sense presuppositions about the nature of modern geopolitical world should be activated as part of the mediated reality. And the reality of the RT world, even as we take a dozen random stories from any given rubric of its webpage (RT Newsfeed), is that the West and its allies are doomed, whilst Russia, its fossil fuels, or Sino-Russian values are held in a high regard. Having analyzed the corpus of 375 news headlines from RT on the Venezuelan crisis throughout 2019 – 2020 in terms of their content, one might end up believing that the only salvation for conflict-ridden Venezuela could come from Russia or China, but nowhere near Europe or the USA, or from Venezuela itself. The ideological pursuit is clearly after the hegemony and dominance that will inevitably affect the choice of trade partners, educational and tourist exchange, banking services and investments, which in the long run might tip the balance in the world politics and economy.

Presuppositions on our designated RT headline corpus are predominantly of a prescribed geopolitical nature along with their more situational counterparts – implicatures. These, and to some degree other bias techniques analyzed here, defy the quantitative approach; their propagandistic nature could be disputed. However, it is worth venturing into the approach that was mainly shaped by our research corpus, namely – the relative sentence position of 'them' and 'us,' and the use of the definite article in the headlines. The working definitions of **presuppositions** (P.) and **implicatures** (I.) based on online dictionaries, S. Levinson's *Pragmatics* (1983) and L. Jeffries' *Critical Stylistics* (2010) have been selected: (P.) – a notion tacitly accepted as a valid premise in advance or taken for granted; (I.) – any kind of situational background assumption against which an action, theory or interpretation makes sense or is rational. Our definition, based on the analysis of 375 headlines, would be for P. – generally accepted and implicit assumption about reality deducted from a given discourse that allows creating a convincing epistemological background, against which the interpretation of the utterance takes place; and for I. – subtle notional and structural prompts that communicate ideas beyond the literal meaning of the utterance. These definitions foreground the idea of mediated reality, which is a valid entity for a researcher in news feed continuity and is instrumental in creating a persuasive ideological backdrop.

Pragmatically motivated identifiers of presuppositions listed in S. Levinson (1983) are frequently featured throughout the corpus. However, we argue that their pragmatic function is best defined relative to other contextual factors; in particular, the most memorable initial and final positions in the headlines, as in ***America masterminded 'color revolutions' around the world. Now the very same techniques are being used at home*** or **Trump unchained: How the 'God-Emperor' is ending American Empire with Syria gambit,** where RT writers tend to tarnish their opponents; or, on the contrary, to advance Russia's mission, ***Three heavyweights in the ring: As US-China hostility escalates, what role will be played by the world's other great power, Russia?*** (Marinakos 2020) The first headline highlights the idea that America has orchestrated the color revolutions in terms of geography and, consequently, recent history, starting with the Yellow Revolution in the Philippines in 1986 up till the one in Venezuela in 2019. Collocation "the very same techniques" narrows the reader's focus, rejects any other interpretation rather than "What goes around comes around" easily identifiable as credible folk wisdom. The predicate "mastermind" must have been used accusingly in the meaning "to orchestrate a crime operation" only because of the dominating contextual presupposition and the relative position of this verb in the sentence, i. e. America is to blame, not any other state. However, its regular meaning provided in modern English language sources is "to plan and direct an ingenious and complex scheme or enterprise." The notion of "color revolution" is also given an unfavorable status as a threat to stability, although it is much better than the war or "special military operations." The latter of the three headlines introduces the idea of the boxing ring, i.e. evoking the image of a battle or resolving political issues by physical force; and triumphantly winds up with the nominal construction glorifying he sponsor-state of RT. These ideologically dense headlines constitute the overwhelming majority in our corpus, with only a handful of neutral ones.

Presuppositions and implicatures are found in other discourses and literary genres, however, they are valid tools for certain geopolitical environments, and both depend on individual and communal (re)interpretations. Very often they carry irony or sarcasm, e.g. ***US-backed Venezuela opposition caught embezzling 'humanitarian aid' cash,*** or rhetorical questions ***Hitting the reset button? French defense minister & top diplomat visit Moscow for talks*** or ***Happy… Communism? Socialism-bashing Trump congratulates Xi on anniversary of Chinese revolution***; implicit event assessment and situational feedback ***'International lawlessness': Galloway slams Lima group gathering with US, without Venezuela*** and ***Cuba, Russia, China, Iran – Pompeo lists every nation that 'must leave' Venezuela, except one***. Verbs of implicative harshness or criticism (*slam, ditch, screw, etc.*) abound throughout the corpus ***'Let them talk!' Rumors of Russia mulling a military base in CUBA shot down by PM Medvedev***. This headline might well function without the initial exclamation, but it would not have displayed the scorn that Russia holds for "them." The news story itself actuates the possible American response to having a Russian military foothold in the Caribbean; it contains just 268 words of text, but features five sizeable photos of benevolent smiles and military might on Russia's behalf. If Russia "shoots down" rumors, chances are it might deploy real weapon against those who is not in step with its political lineup. "Them" does not specify the target so that it could be anywhere in the rest of the world, implicating disregard and contempt. Sentence

There are also no plans for Russian warships to escort oil tankers to the island nation amid a US crackdown contains predication that hides *warships, escort, oil tankers* within its limits, but positions *US crackdown* (not "sanctions") as not only something indisputable but also under the dignified political standards. There is no structural agency in it as well, *plans* are denied, however, they are written out in detail, well styled and vivid. By juxtaposing *the island nation* and *US* (Venezuelan oil supplies to Cuba were on hold because of sanctions) the implicature of inequality, harassment or even bullying is actualized, similar to the Cold War propaganda. The key message of that news might be attributed to sentence *"We discussed cooperation, remembered our past, how we met for the first time,"* voiced by the Russian PM; the central "we" reiterates the idea of unity, brotherhood, remembering and revering the past.

Besides the obvious propagandistic discoursal features, the news contains this information *While the Soviets never established a permanent base on Cuba, a so-called training brigade was stationed on the island in wake of the 1962 Cuban Missile Crisis. The unit, consisting of Soviet military specialists, was a heavily-guarded secret until 1979, but played more or less symbolic role*. By consulting Norman Polmar's article *The Soviet Navy's Caribbean Outpost* (Polmar 2012) or other non-Russian historical sources, this article testifies to stark state-sponsored falsehood on RT. The second underlined phrase has a potential to outlast the previous information as it is placed last. Although we are researching headlines, this glimpse behind macro-structures can shed light on the scale of Russian propaganda even on the factual level that can be disproved in a few clicks, but would be impossible to "crack down" in olden Soviet times of closed (dis)information.

Historical and political evolution of humanity per se creates a fertile ground for **implicatures** or **models**, which derive from both the global news continuum and the local, occasional or individual experience therein, and might be characterized as widely variable across societies and cultures, and thus elusive for assessment. The mainstream tendencies of modern world of information overload tend to lean towards the sketchy or the most typical interpretations in the minds of millions of news consumers, aided by geo-political or societal meaning and interpretations of the news feeds. Over time these can evolve into **presuppositions** or **scripts**, e. i. quite ubiquitous, socially accepted opinions, parts of a larger culture of news consumption uniting millions of citizens across vast geographical expanses. Headlines, or rather their perception, call on implicatures and presuppositions, and retrieve individual and societal knowledge each time a news report is perceived (Levinson 1983), (Jeffries 2010).

As a result of this analysis, a clear trend is surfacing – when *Venezuela* is part of nominalizations or other closed non-predicative constructions, it features as a victim of western interference, sanctions, and other oppressions, i.e. one cannot directly question such presentation. In initial positions, i.e. when one can, technically, pose an argument in the form of a question, the predication transits towards Russia or its allies in the affirmative mode, or other non-western influences. Although the ratio of the former and the latter is about 65 % to 38 % (based on mutually non-exclusive occurrences), these findings testify to a strong ideological bias in the form of closed syntactical construction, coupled with open predication of a biased geopolitical slant, e.g. **Russia suspends INF Treaty in 'mirror response' to US**

halting the agreement. The news provider is achieving its propagandistic goal both through the unquestionable negativity and questionable 'reasonable' response (Jeffries 2010).

7. Lexis and bias

The analysis of the lexical aspect of the headlines opens yet another perspective of the news manufacturing on RT, as compared and contrasted with those of CNN, BBC, NYT, WSJ, etc. Apart from traditional journalistic jargon so ubiquitous in headlines, nowhere else could we come across a language so charged with heavily connotative vocabulary referring exclusively to the western political camp. High-profile politicians are referred to as *dopes, warmongers, war hawks, henchmen, kraken on steroids, charade, horned QAnon shaman, the paper ripping tiger, swamp monsters, specter*, etc. accompanied by verbals, such as *unload on, slap, leave a minefield, pull the wool, wage a culture war, covet, whack a mole, scold, ban, humiliate, oust, sabotage,* etc. and nominal, such as *snafu, rocky relations, flip-flops, the American Empire, the God-Emperor, swamp, mistrial, phony charges, gambit*, etc. Not one of these makes reference or comes anywhere near Russian leaders or its associates in terms of mere sentence structure, e. g. **Venezuela slams US sanctions on Russia's Rosneft as an attempt at grabbing control of global oil market**. In fact, "Russia" is found amid inherently positive lexis or is victimized by the West in a handful of headlines.

Although lexeme "Russia" features in the news headlines 72 times, the content and the surrounding lexis is either neutral, e. g. *agree, suspends, head for, help, apply,* etc. or unequivocally positive, e. g. *brace, cooperate, boost, deal with, thank, mediate, propose, second-biggest, alternative media*, etc. There are only nine headlines carrying negative content or posing Russia as a victim of western aggression, as in **Russian, US resolutions on Venezuela fail at UN Security Council**, and that is a shared blame with the US, or **Russian and alternative media denied access to Venezuela meeting in Canada.** In fact, only 3.74 % of all the headlines might be termed as bias free as they function outside the geo-political power struggles, e. g. **Blackout shuts down Venezuela's oil exports** or **Venezuela declares an energy emergency**.

However, Russia's political adversaries, the US and the EU feature 96 and 15 times correspondingly (111 out of 375 headlines) collocated with such unfavorable lexis as *imperial, ceased, morph into riots, fallen, end of, decline, cynical, US-driven threat, sanctions, invasion, sway, weaponize, intervention, negative, conflict, pressure, failure, coup, provocation, impose*, etc. used multiple times, with the neutral ones *invoke, election, support, software power*, used once, with no positive context whatsoever.

The focal point of these headlines, Venezuela, features 78 times, preceded by *account for, save, bound for, push, shut down, encircle; coup, crisis, recognition, interference, intervention, invasion, protests, pressure (on), relief, demands, power rationing, sanctions against*, etc. and followed by *sanctions, regime change, oil deal, lose power, accuse, suffer, blockade, affairs, (is) toast, slams*, etc. When preceded by the above lexis, epistemically, it is positioned as a victim and, structurally, as an object or in passive constructions, e.g. **Maduro to Americans: You are bigger than Trump, don't let him start 'Vietnam' war against Venezuela** or **Make Latin America Great Again? On the REAL chances of a US invasion of Venezuela**. Venezuela, as

subject or agent, is in a defiant position against the US and its allies or siding with Russia, e. g. **Venezuela strongly rejects EU backing for Guaido, promises to 'revise relations' with bloc** or **Venezuela sanctions serve warning to 'external actors' like Russia against helping Maduro – Bolton.** Subtly, this active, and hence positive, role is implicit of Russian connections or triggers such implicatures. Out of total 78 cases, 38 feature a suffering country under the US pressure, another 19 attributive usages, 2 neutral content and the remaining 19 explicitly contain a call for Russia's "brotherhood."

There are more or less linguistically neutral cases (about a handful), e. g. in **Crisis in Venezuela 'fueled' from outside, those responsible not interested in talks – Turkish FM**. But even in the open adverbial position *Venezuela* is located between turmoil-charged items, the second of which is ironic since Venezuela has the richest oil deposits in the world, and this wording might signify the world's thirst for cheap oil. The second clause after comma starts with the distancing pronoun "those" that might include anyone except the speaker, i.e. RT, although Turkey has been cozying up to Russia mainly in terms of economic partnership. And the strong negative modality exerts criticism if not condemnation of the existing tensions.

An approximately similar statistics is found with the noun and adjective *Venezuela*(*n*) used 34 times. Its initial position in a clause or other syntactic elements, e.g. **'Tired of politicized pastors': Maduro alerts Pope that Venezuelans are DITCHING Catholicism** (in about 14 examples, or 33 %), is indicative of the resistance to opposition leader Juan Guaido, the defiance to the US and its allies, and the strong implicit siding with the anti-American and anti-European part of the world, its "pioneering" vaccines and economic support; as part of predication, an attribute or as an object (in about 20, or 67 %) it is presented as a victim of Western aggression, e. g. **'Leave the Venezuelan people alone': Roger Waters calls US actions 'insanity.'**

At the same time, the word "Russia" is most often combined with s*uspends, rejects, denies, hail cooperation with, braces, boost oil exports, largest oil company, approve Sputnik V; alternative media, official visit, president, parliament, trial data, pioneering vaccines, experience, agenda, final straw, China*, etc., the discoursal value of which must be the projection of Russia's firm stance on the world arena to thwart any doubts of the "benevolent" Russian mission.

8. Punctuation 'revisited'

A misbalanced use of any means in a discourse continuum attracts attention and assumes additional communicative intent that serves in the interest of a news provider or its sponsor. Such means may comprise key lexis or structural repetitions, forms of address or bynames, etc. However, RT headlines favor punctuation to a stark visible degree as compared to other credible or less engaged platforms, such as *the Guardian, the NYT, NPR, Reuters, AP, the WSJ*, and others. Among the most frequent punctuation are quotation marks, question and exclamation marks, three dots, colons, dashes and hyphens. These textual markers render the headlines more appealing, again, attempting to approach the natural diction of the spoken medium. Skillfully applied, they are capable of incorporating accentuation, pauses, consequences, verbatim utterances, or, on the other hand, they may highlight the implicitly intended nuances in the message.

The use of 'quote-unquote' features 240 times throughout 375 headline corpus. This punctuation tool brings credibility and authenticity, as in **'Applauding keeps your hands off the trigger': Russia claps back at US Venezuela regime change rant;** or activates non-literal, 'desired' usage, **New push to 'restore democracy': US launches Venezuela affairs unit … in Colombia.** The latter case proves a ubiquitous fact that the quote-unquote should not be taken in its literal meaning, but rather in its ironic, "with tongue in cheek" manner, invoking historical or interpretative presuppositions and implicatures, which is in abundant supply on RT news feeds, e. g. the initial "New," which signals an implicature of similar previous attempts. Another aspect should be added that all RT news stories are interspersed with hyperlinked headlines at a ratio of about two to four per story, depending on the text size. And those are not necessarily interconnected with the story itself or supply further contextual reading. In our view this phenomenon testifies to one of the basic principles of propaganda – the incessant repetition of falsehood until it becomes so wide-spread that it is self-evident.

In addition to it, throughout the corpus of 375 headlines there are 41 usages of question marks. Since its traditional usage of requesting information is blocked in one way communication, except for the feedback sections, which are found at the farthest end of the news feed, only the remaining pragmatic functions are activated, such as rhetorical questions, hints at the "obvious" answers, emotional enhancement, appeal to common sense, presuppositions and implicatures, etc. as in **Mixed messages? US drops record number of bombs on Afghanistan amid peace efforts with Taliban.** The cognitive dissonance of the ideas that follow "?" might be confusing or might be a direct preconceived target to entice the reader into believing that the double standards are inherent for Russia's political enemies.

Another punctuation device, which slightly seconds the previous one, and is comparatively rarely encountered in RT headlines (in nine cases throughout the corpus) is three dots "…"; however, its impact cannot be underestimated, e.g. in **Twitter lists Guaido among 'world leaders' condemning Capitol takeover… forgets his attempt to storm Venezuelan parliament** or **George Galloway: Kiss of death – The winner of the most coveted Henry Kissinger endorsement is... Joe Biden.** And the pragmatic usage of this punctuation is none of the omission, pause or digression, but to enhance the contradictory, the unexpected, the weird, which, more than the traditionally worded ones, raise the headline onto another level of appeal and the long-term memorability.

9. Agency highlights

Fore- or back-grounding agency is yet another subtle but powerful device in an efforts to promote a desired ideological cause; nevertheless, we argue here that no discursive device is harmful as stand-alone entity, yet, when persistently reiterated in the news coverage, usually by the same news providers, it acquires its substantial share of the actual news discourse, which becomes both part of local or global history and the touchstone for further narratives.

Foregrounding equals to motivated prominence; in fact, it is so ubiquitous that we seldom pay attention to highlighted elements elsewhere, e.g. in architecture, in outfit designs, in photographs and films. Music, poetry or prose exist because of the oscillating patterns of

prominence and decadence in meaning, tension, words or sounds, their regularities, their ability to make an impression or fade away. So do speech and writing that thrive on the oscillating patterns of the known versus unknown, the opulent vs obscure, and when skillfully used by the propagandistic newsmakers it yields a necessary pre-conceived shift in agency accentuation. M.A.K. Halliday wrote that "if a particular feature of the language contributes, by its prominence, to the total meaning of the work, it does so by virtue of and through the medium of its own value in the language – through the linguistic function from which its meaning is derived" (Halliday 1971). Propagandistic discourse thrives on this prominence; it presents a distorted picture of mediated reality mostly by latent triggers, such as implicatures, nominalizations, modality, foregrounding and back-grounding of agency, etc.

Having scanned the headlines according to the usage frequency of key political actors' names, the results are as follows: Venezuela(n) 142, Trump 60, Guado 40, Maduro 38, Russia(n) 71, the EU 15, America(n) 20, Washington 14, Biden 13, China or Chinese 13, Iran 10, Colombia 7, Cuba 6, Moscow 6, MSM (mainstream media) 5. If we exclude Venezuela on the ground of it being the target of the news, and add all the cases of negative versus favorable presentation, the relative ratio of the political players on the scene divided into the two camps of downplayed western powers versus the positive pro-Russian ones would be 260 vs 142, or 150 vs 37 as used in their nominal forms. This evidence testifies to RT's more prolific negativity towards the adversaries than presenting the host and its camp in an agreeable manner. The juxtaposition of "them" vs "us" camps is still a powerful device for denouncing the West and praising their adversaries, as in **As millions of Venezuelans starve, the US must take its share of the blame for the humanitarian and economic crisis** (van Dijk 1989), (van Dijk 2008).

Venezuelan opposition leader Guaido is mentioned 21 times out of 40 in nominalizations within larger collocations where he is denied grammatical agency, e. g. **Venezuela's Guaido-led opposition holds alternative vote and then BURNS BALLOTS after boycotting legislative elections**. The remainder consists of six listings that feature him as an agent of negations and questions, with only three neutral cases, and 13 prepositional phrases. Guaido's opponent Maduro, mentioned 38 times, on the other hand, is found five times in the agency-deprived grammatical positions, ten times as a (prepositional) object, and the remaining 23 times as an agent as in **Maduro uses Venezuelan Independence Day to call for dialogue, Guaido to denounce 'dictator'**. Even in this random example Maduro is attributed full predication, while Guaido's is elliptical and should, in a way, be deducted before further processing. Even if RT's claims for impartiality and alternative viewpoints find some supporters in the world, 'dictator' is in the farthest position from 'Maduro', and, taken in quotation marks, does little harm to the latter.

It is common knowledge that in CDA, i.e. the analysis that views texts as an intertwined system of hierarchical and heterogeneous elements that reflect societal culture of power dynamics, every element of texts counts, such as the possessive case – or another subtle aspect of impacting agency. Since no element is absolutely equal in its discoursal impact, the binary nature of the possessive case foregrounds the agent, i.e. the possessor, and passivates the object possessed. In case of our corpus, Guaido is mentioned 19 times as the object of the possessive case (47.5%). Maduro, on the other hand, is listed only twice (5.3%). It is too stark a discrepancy

to be ascribed to a coincidence. In terms of possessors, the former is used once, while the latter thrice; in terms of an objective ratio it is a two-fold increase in favor of Maduro.

10. Colloquial language

A prominent feature of modern propagandistic headlines is the foregrounding of oral models of linguistic expression within the printed newspaper text. Although it departs from the mainstream journalistic practice, this proximity to the spoken language produces an illusion of a live conversation about political matters that usually takes place in more familiar domestic contexts and again gives an impression of ultimate truth. Among other reasons in favor of using conversational language is bringing in the feeling of "informality, familiarity, friendliness" (Fowler 1991), (Sai-Hua Kuo 2007), (Fairclough 1994). We also argue that beneath this triad, however, lies another psychological power of conversation: we usually speak out in safe environments, i. e. where we are accepted and understood. Spoken language as opposed to written, or more academic, is usually seen as more trustful and natural; it is the first linguistic connector between the individual and community, between the close family circle and larger societies, most of which experience is usually accompanied by simple accessible lexis. From hence this linguistic comfort of familiar expressions is carried into adult life, colloquial formulas introduce the undertones of security and understanding (Tannen 1987). In the case of reading news, spoken language seemingly removes the asymmetry of power and knowledge, introduces cooperation between the news consumer and the social institution of news-making.

Another factor that makes RT headlines stand out is their colloquial language that sometimes exceeds decent norms of journalistic ethics. However, for the propagandistic journalism of RT, as we may assume after all the above analysis, the purposeful use of spoken language and slang aims at winning attention of the large audiences worldwide as an alternative medium "questioning more". Several random headlines prove this point: **Illiberal Undemocrats say 'boll**ks' to the people in the name of 'liberalism' and 'democracy'** or **'So crass and so obvious': Pressure from Washington pushes Venezuela closer to Russia.** Striking nonce words, taboos, decontextualized colloquialisms, direct addresses, phrasal verbs, etc. do have a potential to attract attention, although they baffle and disorient the reader, as in **Repeat after me, protests in Venezuela good, protests in France bad!** The initial imperative resembles school talk, and we do not have a clear idea who is "me," presumably the state favoring Venezuela's uprising.

11. Other devices

Professional news manufacturers take into account the fact that not all stories are read in full, which might be the reason why most RT headlines contain regular predication, written out in extended structures rather than traditional elliptical ones found on such sites as CNN, BBC, etc., e. g. **Macron knows for Europeans the 'problem' country is not Russia but US** or **What if neither Democrats nor Republicans want to win in 2020? No one wants the task of changing the full diaper of US Empire.**

Most headlines on RT are, in fact, stories concisely told and offered to the reader in case one is willing to skip the full text of the news. Article "the" helps sustain references and presuppositions and is thus indispensable for the story line, nevertheless its overuse in headlines is inconsistent with the journalistic traditions in the Anglophone world. The frequency statistics for the definite article in our corpus is 103 per 375 headlines and is not significantly higher than in CNN International headlines, for example; and some of them are ingrained into the language tradition, e. g. *the world, the press, the White House, the same*, etc. The less typical usages, 22 out of 85 detected ones on RT, narrow down the scope of interpretations and are likely to produce the effect of being "right" or "the only one," or introduce the confusion as in *the American Empire*, *the Trump trap*, *the kraken*, *the full diaper*, etc. Headline **China is winning the offshore oil game** might as well function without "the" having two penultimate attributes before an easily identifiable noun; nevertheless, if the article is dropped, the sentence is interpreted in a slightly less restricted way, less geopolitically engaged. The case might be counter-argued that "the" signals the noun phrase preceded by two different parts of speech; however, the transitivity of "win" might suffice in bringing in enough structural clarity. Although the number of the definite articles in structures where its necessity might be disputed, and its contextual pragmatic interpretations might vary reaches a quarter of all cases, it is indicative of the trend, and a closer and stratified CDA might reveal all the discoursal nuances of the use of the definite article in propagandistic newscast.

A separate case comprises those items that convey intense modality — *similar to, because, enough, potential,* verbs *(won't) dare, vow, deny, propose, allege, mean*, etc., as in **Russian parliament proposes convening international organizations to tackle US tech-giant-driven threat to free speech**. Their function is directly related to foregrounding certain worldviews by means of disseminating a strategic grid of causal, consequential and attitudinal relationships that, being reiterated time and again, have a serious potential to brainwash vast audiences out of their critical approach and substitute it with the "necessary" version of truth (Jeffries 2010). Any news provider would realize that spreading propagandistic contents might trigger criticism by more or less discerning readership. In order to offset the manipulative content and entice the reader into believing in the rest of the stories, newsmakers introduce non-biased content that might neutralize the propagandistic newsfeed and make it less negative. They usually feature the sponsor-state of RT, accidents, statistics, etc. and amount to 15 out of 375, e. g. **Trade, science & culture: Russia, Venezuela to draw up 10-year cooperation plan.**

Our corpus exemplifies powerful prosodic tools inherited from Old English, such as alliteration and assonance, operating primarily at the acoustic level and reaching to the esthetic and emotional aspects of language processing. Although they are not so numerous, they testify to their long-lasting status and prove time-resilient, aiming at creating memorable utterances, e. g. **From zero to hero: How Venezuelan opposition leader Lopez made Juan Guaido the man of the day** or **Anchors aweigh: White House announces crackdown on 'birth tourism,' to jeers, cheers, and confusion**

It would be necessary to dedicate a new research into the accompanying multimedia to the news stories, especially videos and photos. Placed immediately at the beginning of stories they inadvertently set a scene and a tone to further reading. Below we provide a most vivid example

of image-making and spreading it across the globe. These photo pairs appear in two separate stories and picture the two leaders quite differently: on the left, President Maduro, clad in state regalia looks assertive and positive; Juan Guaido, on the right, was captured in emotionally intense moments, and, contrasted to Maduro, is not seen to an advantage.

12. Conclusions

In conclusion we can state that the propagandistic content in RT headlines amounts to an alarming rate. Apart from the linguistic aspects analyzed in the article, the cognitive categories of the news, e.g. topicality, urgency, time, location, circumstances, relationships, values, reasons, cause and effect, etc. exert a heavy pressure on readers' opinions, emotions, attitudes, ideologies, etc. In this article we set up a goal and proved that RT headlines contain bias in terms of headline length, presuppositions and implicatures, lexis selection, agency, punctuation, prosody, functional elements such as the definite article, and touched upon picture bias. Consequently, any findings expressed in numerical terms should be taken as part of a larger picture, impossible to gauge precisely due to the unpredictable human factors.

Applying numbers in a linguistic research is quite tentative, since what we ever see or hear is just a means to convey information, to appeal to emotions and beliefs, to entice us to action, or otherwise. However, the quantitative approach can visualize the relative weight of the key aspects against the whole corpus. In order to gauge the ultimate effectiveness of news stories with the broad readership, we would have to turn to sociological methods of polls or questionnaires, which might prove beyond ones means to accomplish.

As humans, we feel predisposed to some issues and biased against others. Moreover, the situation is getting more complicated with the long-established routine in the news coverage in different parts of the globe. As G. Nigel Gilbert and Michael Mulkay (1984) point out "… it follows that discourse can never be taken as simply descriptive of the social action to which it ostensibly refers, no matter how uniform particular segments of that discourse appear to be," which is especially true in the modern fast-pacing world of changing values and beliefs, and the eternal human quest for the truth.

References

Alterman. E. 2003. *What liberal media? The truth about Bias and the news*. New York: Basic Books.

Anstrate, V. 2020. Kremlin propaganda channel "RT" banned in Latvia. Public Broadcasting of Latvia. April 2020. https://eng.lsm.lv/article/politics/politics/

Brown, R. 2022. Study RT as propaganda — don't ban it. June, 2023. https://thecritic.co.uk/study-rt-as-propaganda/

Carter, E. and Carter, B. 2021. Questioning More: RT, Outward-Facing Propaganda, and the Post-West World Order. June, 2023. https://www.researchgate.net/publication/

Christopher, P. and M. Matthews 2016. The Russian "Firehose of Falsehood" Propaganda Model. June, 2023. https://www.rand.org/pubs/perspectives/PE198.html

Crilley, R., Gillespie, M., Vidgen, B. and W. Alistair 2022. Understanding RT's Audiences: Exposure Not Endorsement for Twitter Followers of Russian State-Sponsored Media. *The International Journal of Press/Politics* 27(1): 220–242. https://oro.open.ac.uk/74257/1/1940161220980692.pdf June, 2023)

Dean, B. 2020. Here's What We Learnt About Content Marketing. May 2020. https://backlinko.com/content-study

Develotte, C. and Rechniewski, E. 2001. Discourse Analysis of Newspaper Headlines: A methodological framework for research into national representations. *The Web Journal of French Media Studies* 4: 1-12.

Dowling, T. 2017. 24-hour Putin people: my week watching Kremlin 'propaganda channel' RT. April 2020. https://www.theguardian.com/media/2017/nov/29/

Elswah, M. and Howard, Ph. 2020. "Anything that Causes Chaos": The Organizational Behavior of Russia Today (RT). Dec. 2020. https://academic.oup.com/joc/article/70/5/623/5912109

Erdinast-Vulcan, D. 2013. *Between philosophy and literature: Bakhtin and the question of the subject*. Stanford, California: Stanford University Press:

Erickson, A. 2017. If Russia Today is Moscow's propaganda arm, it's not very good at its job. April 2020. https://www.washingtonpost.com/news/worldviews/wp/2017/01/12/

Fairclough, N. 1994. Conversationalization of Public Discourse and the Authority of the Consumer. In R. Kent, N. Whiteley and N. Abercrombie (eds.), *The Authority of the Consumer*, 253–68. London, New York: Routledge.

Fairclough, N. 1995. *Media Discourse*. London: Arnold.

Fowler, R. 1991. *Language in the News Discourse and Ideology in the Press*. New York: Routledge.

Fowler, R., Kress, G., Trew, A., and R. Hodge 1979. *Language and Control*. London: Routledge.

Gilbert, G. and Mulkay, M. 1984. Opening Pandora's Box. A sociological analysis of scientists' discourse. Cambridge: Cambridge University Press.

Glader, P. 2017. 10 journalism brands where you will find real facts. April 2020. https://www.forbes.com/sites/berlinschoolofcreativeleadership/2017/02/01/

Guillermo, B. 2010. *N. Scott Momaday's Native American ideology in "House made of dawn" (1968): Stylolinguistic analyses of defamiliarization in contemporary American Indian literature*. New York: The Edwin Mellen Press.

Halas, A. 2017. Propaganda Multimodal Discourse through the Lens of Epistemic Model. *Language and Society*. Issue 8. 56–68.

Halliday, M. A. K. 1971. Linguistic Function and Literary Style: An enquiry into the language of William Golding's 'The Inheritors'. In S. Chatman (ed.), *Literary Style: A Symposium*. 362-400. New York: Oxford University Press.

Hodge, R. and Kress, G. 1988. *Social Semiotics*. New York: Cornell University Press.

Holitsyna, N. 2015. U poshukakh putinskykh hroshei. ("In search of Putin's riches") Наталія Голіцина. У пошуках путінських грошей. Nov. 2020. https://www.svoboda.org/a/26900932.html

Jeffries, L. 2010. *Critical Stylistics. The Power of English*. New York: Palgrave Macmillan.

Kevan, L. 2014. The Ideal Length of Everything Online, Backed by Research. February 2022. https://buffer.com/library/

Konnikova, M. 2020. How Headlines Change the Way We Think. Dec. 2020. https://www.newyorker.com/science/maria-konnikova/

Levinson, S. 1983. Pragmatics. Cambridge: Cambridge University Press.

Lomas, N. 2022. EU confirms ban on Kremlin-backed media is expected to cover online platforms. June, 2023. https://techcrunch.com/2022/02/28/eu-rt-ban-extends-online/

Marinakos, C. 2020. Long or Short: Which Headlines Are Better? May 2020. https://bettermarketing.pub/long-or-short-which-headlines-are-better-9752063361ff

Matsa, K. E. 2018. Across Western Europe, public news media are widely used and trusted sources of news. April 2020. https://www.pewresearch.org/fact-tank/2018/06/08/

Philo, G. and Berry, M. 2004. *Bad News from Israel*. London: Glasgow University Media Group, Pluto Press.

Polmar, N. 2012. The Soviet Navy's Caribbean Outpost. June, 2023. https://news.usni.org/2012/10/24/soviet-navys-caribbean-outpost

Reidy, P. 2022. Russia Today is not alternative news: it is propaganda. June, 2023. http://littleatoms.com/russia-today-piers-robinson

RT and Sputnik: 5 facts to know (2022). https://share.america.gov/rt-and-sputnik-5-facts-to-know/ June, 2023)

RT bias. 2022 Feb. 2022 Review: AllSides Rates RT Lean Right. June, 2023. https://www.allsides.com/news-source/rt#articles

RT News Bias and Reliability. 2023. https://adfontesmedia.com/rt-news-bias-and-reliability/

RT Newsfeed (miscellaneous). Question More. April 2019 – Dec. 2022. https://www.rt.com/

RT Newsfeed. Russia & Former Soviet Union. Question More. April – Dec. 2020 https://www.rt.com/russia/.

Sai-Hua Kuo 2007. Social change and discursive change: analyzing conversationalization of media discourse in Taiwan. Nov. 2020. https://www.jstor.org/stable/24049457

Scott, M. 2020. Inside Russia's state-media propaganda machine. Dec. 2020. https://www.politico.eu/article/russia-propaganda-disinformation-rt/)

Tannen, D. 1987. Conversational Style. In H. W. Dechert and M. Raupach (eds.), *Psycholinguistic Models of Production*, 251-267. Norwood, NJ: Ablex.

Text analyzer. https://www.online-utility.org/text/analyzer.jsp, https://wordcounter.net/

van Dijk, T. 1989. How "They" Hit the Headlines. Ethnic Minorities in the Press. In G. Smitherman and Teun A. van Dijk (eds.), *Discourse and Discrimination,* 221-262. Detroit: Wayne State University Press.

van Dijk, T. 2008. *Discourse and Power*. New York: Palgrave MacMillan.

van Leeuwen, Th. 2008. *Discourse and Practice*. Oxford: Oxford University Press.

Watson, A. 2021. Ranking of digital news sources by impartiality in the UK 2021. Sept. 2022. https://www.statista.com/statistics/267576/

LingBaW *Linguistics Beyond And Within 9 (2023), 112-132*

Shifting sands: A bibliometric analysis of L2 vocabulary research in 1991

Paul Meara
Swansea University, United Kingdom
University of Oxford, United Kingdom

Abstract
This paper uses a co-citation analysis to examine the research on L2 vocabulary acquisition that was published in 1991. Two analyses based on co-citations in this research are presented. The first analysis provides a context for the 1991 data. It looks at work that was being cited in a five-year window covering 1987-1991. The second analysis is a more detailed account of the 1991 research on its own terms.

Keywords: L2 vocabulary acquisition, vocabulary research, bibliometric, author co-citation

1. Introduction

This paper is the eleventh in a series of studies in which I have been mapping out the way L2 vocabulary research has developed over the last 50 years. Beginning with 1983, LingBaW has published a set of papers in which I have presented bibliometric mappings of the research that appeared in each year up until 1990 (Meara: 2014–2022). This paper takes this historical overview another step forwards. It presents a bibliometric analysis of the L2 vocabulary research published in 1991, places this work in a larger historical perspective, and discusses some changes in the structure of the field, as shown by a detailed co-citation analysis.

This report adopts a rather different structure from that which is used to organise the earlier papers in this series. In those papers, I reported the work published in a single year, and then provided a five year context in which this work could be evaluated. A number of readers have commented that they find the five-year data more useful than the data for a single year, mainly because the five-year windows seem to be better at capturing the main trends in the research, and they are less affected by local variations in the outputs of individual researchers. For that reason, in this report, I will first present an analysis of the five-year period 1987-91, and then follow this up with a more detailed and more exploratory account of the research published in 1991.

The analyses that follow use the Author Co-citation method developed by Small (1973). Small's methodology is described in detail in Appendix 1 for the benefit of readers who are not yet familiar with the approach used in these papers.

I have also made some changes to the way I have mapped out the co-citation data in this report. The details of these changes are described as they arise in the sections that follow, but more detail is supplied in Appendix 1.

2. Part 1: The 1987-1991 data set

Table 1 lists the main characteristics of the 1987-1991 data set. The table also includes the main features of the outputs that appeared in the previous five-year window covering 1986-1990, described in more detail in last year's report (Meara: 2022). This table is not a complete record of all the research published in the five year window. Conventional practice for co-citation analysis is to work only with papers published as journal articles or chapters in books. Monographs, unpublished reports, theses, and so on are not normally included in co-citation analyses, as they use citations in a way that is quite distinct from what we find in shorter, more conventional research reports. Working only with papers published as journal articles or book chapters ensures a certain level of consistency on what would otherwise be a very unmanageable amount of material.

Table 1 shows that the basic data for the two five-year windows are broadly similar. The main point of difference is that the number of papers in the 1987-91 data set fell slightly compared with the earlier window, and the number of authors contributing to the data set fell quite markedly. In contrast, the number of sources cited in the 1987-91 window increased. This probably reflects the fact that by 1991 there is simply more literature available to be cited, and citations generally increase with time.

Table 1: *The main characteristics of the 1986-1990 and the 1987-91 data sets*

	1986-90	**1987-91**
Number of papers in the data set	477	455
Number of authors contributing to the data set	475	406
Number of sources cited in the data set	4616	4738

Table 2 shows the number of authors contributing N papers to the 1987-91 data set.

Table 2: *Authors contributing N papers to the data set*

N papers	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Authors		1				1		1	2		1	3	8	17	39	331
Lotka		1	2	2	2	3	3	4	5	7	9	13	21	37	84	331

As usual, the vast majority of authors contribute only a single paper to the data set. The bottom line of Table 2 provides a context for this: it shows the number of authors we would expect to contribute N papers to the data set, given that we have 331 authors who contribute only one paper. This expectation is based on work by Lotka (1926). As in previous years, Lotka's

projection suggests that the data set in this five year window has a relatively small number of authors who contribute to multiple outputs. (Lotka's method is outlined and discussed further in Appendix 2.)

The most prolific authors in this five year period are Meara (15 papers), Laufer (11 papers), Zimmerman (9 papers), Carter and Palmberg (8 papers each), Scholfield (6 papers), Bogaards, Nation and Vermeer (5 papers each). This list is basically a consolidation of the previous five-year window. Scholfield and Bogaards are new entries to the list, while a number of authors – Broeder, Beheydt, AD Cohen, Extra, Robinson and van Hout – have dropped out of the list of prolific contributors.

We now turn to the citations within the 1987-91 data set. A detailed analysis of who is cited in these papers identifies a total of 4738 sources. Most of these sources (3003 cases) are cited only once, but a considerable number of sources are cited more frequently than this. The complete distribution is shown in Table 3.

The most cited sources in the data set are listed in Table 4. This list is essentially the same as the equivalent list for the 1986-90 data set. Meara and Nation continue to be the most cited authors, cited in 16.5% and 15.2% of the papers in the data set, respectively. Laufer, AD Cohen and McCarthy are significant new entries to the list, while Kasper, Kellerman, Lockhart and Schouten-van Parreren have all fallen out of the 1986-1990 most cited authors list, though they still maintain a presence in the complete data set.

Table 3: *The number of cases cited N times in the 1986-91 data set*

FREQ	75+	74	73	72	71	70	69	68	67	66	65	64	63	62	61
Cases	1						1								
FREQ	60	59	58	57	56	55	54	53	53	51	50	49	48	47	46
Cases												2		1	
FREQ	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31
Cases	1	1			1	1			2	1	2	1	1	1	5
FREQ	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
Cases			3	4	2	3	5	2	3	8	11	5	5	4	11
FREQ	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Cases	10	6	19	17	29	22	40	48	63	68	127	171	332	700	3003

Table 4: *The most frequently cited authors in the 1986-1990 and 1987-91 windows.*

1986-90	**1987-91**
Meara (72)	Meara (77)
Nation (60)	Nation (69)
Krashen (51)	Carter Richards (49)
Levenston (50)	Levenston (47)
Faerch Richards (46)	Faerch (45)
Carter Sinclair (37)	Krashen (44)
Kasper (36)	Laufer (41)
Schouten-van Parreren Kellerman Lockart (35)	Sinclair (40)
	AD Cohen McCarthy (37)

The analysis that follows is based on the co-citations among the most frequently cited sources in the data set. Clearly, it would be a massively complex task to analyse all the co-citations between all the sources cited in the data set, and in order to keep things simple, it is normal practice in analyses of this sort to work with the 100 or so most frequently cited sources. The data in Table 3 suggests that we can get close to this conventional figure if we adopt an inclusion threshold of 15 or more citations. This threshold for inclusion is slightly higher than the figure of 14 citations that we used in our analysis of the 1986-90 data set, which gave us a set of 99 sources. The 1991 threshold gives us a set of 98 sources to work with. The main underlying characteristics of the analysis are reported in Table 5, which also includes the equivalent features of the 1986-1990 analysis. The analysis itself is reported in Figure 1 in the form of a spanning tree, based on the strongest links between the nodes.

Table 5: *The main characteristics of the 1986-90 and 1987-91 data sets*

	1986-90	**1987-91**
Inclusion Threshold	14	15
Sources included	99	98
Clusters	8	8
New sources		10
Lost sources	11	

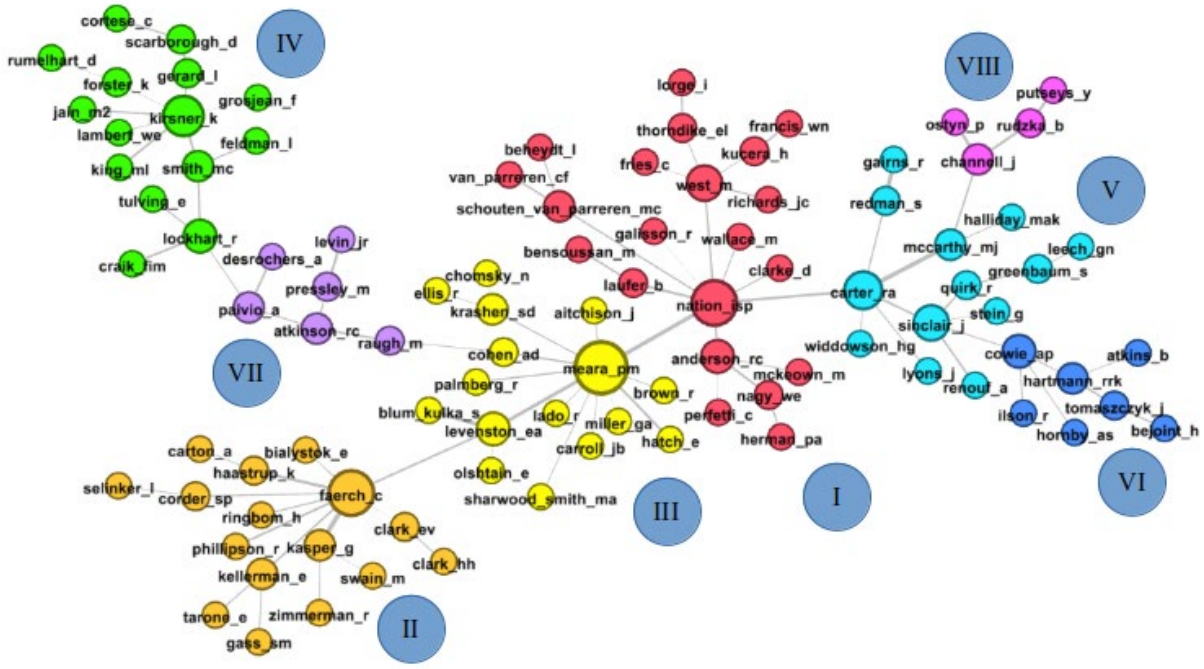


Figure 1: *Co-citations in the 1987-91 data set, graphed as a Spanning Tree. 98 nodes with at least 15 citations in the data set. Colours indicate the eight different clusters identified by Gephi using a cluster analysis. Nodes are sized according to how many connections they have with other nodes.*

This report is rather different from the ones we used in our earlier analyses, where we mapped all the co-citations with an arbitrarily decided minimum strength (e.g. all co-citation links that appear at least 10 times in the complete data set). In contrast, the mapping that appears in Figure 1 is a **spanning tree** that shows only the strongest connection between the most frequently cited

sources in the complete data set. (See Appendix 1 for further discussion of spanning trees.) The mapping is the result of an analysis by Gephi, a standard bibliometric mapping program (Bastian, Heyman and Jacomy: 2009). This figure is fairly easy to interpret. Gephi finds eight clusters in this data set, numbered in Figure 1 by their size. Table 6 provides a summary of the clusters identified in Figure 1 (right hand column). A summary of the 1986-1990 cluster data is provided in the left hand column for comparison.

Table 6: *The clusters identified by Gephi in the 1986-90 and the 1987-91 data sets. Clusters are ordered by size.*

cluster	1986-90	1987-91
I	Vocabulary teaching and reading (19)	Vocabulary teaching and reading (21)
II	Lexical error and transfer (19)	Lexical error and transfer (16)
III	Vocabulary learning theory (16)	Vocabulary learning theory (16)
IV	Performance of bilinguals (11)	Performance of bilinguals (14)
V	Dictionaries and their use (11)	Corpora and Discourse (13)
VI	Corpora and discourse and textbooks (11)	Dictionaries and their use (7)
VII	Imagery and Mnemonics (9)	Imagery and Mnemonics (6)
VIII	L1 acquisition (3)	Semantics and Collocation (4)

Cluster I, with 21 members, and centred on Nation and West, represents the main thrust of L2 vocabulary research at this time. It contains a number of identifiable sub-clusters: a set of sources who work on L1 reading (Nagy, Herman, Anderson), and a group of word counts (Thorndike and Lorge, Kucera and Francis, West, Fries and Richards). The main focus of this cluster seems to be L2 reading, guessing behaviour, and how this is affected by the frequency of words in the texts being read.

Cluster II, with 16 members, and centred on Faerch and Kasper, is mainly concerned with lexical inferencing and error. Again, we can identify some sub-clusters among these sources: the cluster is mainly composed of Scandinavian researchers (Faerch, Kasper, Ringbom, Phillipson, and Haastrup); it also includes two historically important sources (Corder and Selinker); the previously detached L1 development cluster (EVClark and HH Clark) has now become incorporated into this cluster; Gass, Tarone, Kellerman, Bialystok and Swain all point to the growing influence of North American research on L2 vocabulary studies.

Cluster III, also with 16 members, and centred on Meara and Levenston, mainly consists of sources who are less concerned with vocabulary teaching than the sources in Cluster I. There is strong emphasis here on experimental studies of language learners, and the sources provide a theoretical framework within which this research takes place.

Cluster IV, with 14 members centred on Kirsner, is the psycholinguistics cluster familiar from our earlier studies. The members of this cluster focus mainly on the performance of bilingual subjects in word recognition tasks.

Cluster V and Cluster VI are perhaps best treated as a single group of sources. Cluster V, with 13 members, centred on Carter and Sinclair, is mainly composed of UK linguists interested in Corpora and descriptions of English. Cluster VI, with seven members centred on Cowie, is a dictionary research cluster, with a particular interest in the way L2 learners use dictionaries. Taken together, these two clusters make up the second largest group of sources in Figure 1.

Cluster VII, with 6 members, is a group of sources who work on imagery and mnemonics.

Cluster VIII, with 4 members, consists of a predominantly Belgian group of researchers who published an influential set of textbooks based around emerging ideas in structural semantics.

A number of features in this map are worth highlighting.

1: The clusters identified in this analysis are essentially the same as the clusters we identified in our analysis of the 1986-1990 data set. Again, the equivalent list of clusters identified in 1986-90 is included in the table for the purpose of comparison, and this comparison shows that there is some movement among the clusters. Cluster I and Cluster IV appear to have increased in size. Clusters V and VI seem to be shifting their focus away from dictionaries, and shrinking slightly in the process, with Cluster VII forming a new cluster focussed on a single text book. Cluster VII has shrunk a little, as some of its members have become more closely aligned with Cluster IV. L1 acquisition has lost its status as a separate cluster and become absorbed into Cluster II in the 1987-91 map.

2: These changes come about as a result of changes in the underlying data. As usual, not all of the sources listed in the earlier map (1986-90) continue into the later (1987-91) map. Clusters V, VI and VII suffer no losses, but Cluster I loses Bogaards and Hosenfield; Cluster II loses Ard and Burt; Cluster III loses Howatt, Rivers and Rosch; Cluster IV loses Kolers and Meyer; Extra disappears from Cluster VIII. These losses are balanced by the appearance of nine new sources in the 1987-91 map. Perfetti and McKeown join Cluster I, strengthening the L2 reading focus in this cluster. Carton appears as a new source in Cluster II; he is mostly cited as a methodological influence because of his advocacy of introspective methods. Aitchison and Olshtain both appear in Cluster III; Aitchison strengthens the theoretical focus of this cluster, while Olshtain is mostly cited for her empirical work on vocabulary learning. Forster and Rumelhart are new sources in Cluster IV; they represent a new strand of research in this cluster that deals with formal modelling of bilingual lexicons. Greenbaum appears as a new source in cluster V; he is closely co-cited with Quirk and Leech, mainly in the context of an important corpus-based grammar of English (Quirk, Greenbaum, Leech and Svartvik) first published in 1985. Raugh, new in cluster VII, co-authored a number of papers in the 1970s with RC Atkinson; these are early papers on the use of mnemonic methods to acquire a large Russian vocabulary.

3: Cluster VI is the only cluster in the 1987-91 map that does not include any new sources. This may indicate that research on dictionary use by L2 speakers has peaked.

4: Table 7 lists the strongest links in the minimum spanning trees for 1986-90 and 1987-91. This is a new feature that we have not looked at in our previous analyses. There are a number of striking points in this data. In broad terms, the two lists are very similar, but the co-citation links for 1987-91 are generally stronger than the equivalent links in the 1986-90 map. Most of the very strong links come about because the two connected nodes are co-authors: Carter and McCarthy, Faerch and Kasper, Levenston and Blum-Kulka, Channell and Ostyn and Gairns and Redman all fall into this category. Only two of the strongest links are genuine co-citations in the sense that they do not involve co-authors being cited together: the Faerch ~ Haastrup co-citation – a new appearance in the 1987-91 list – is a sign of the increasing importance of the Scandinavian vocabulary research and underscores the central role of Faerch in the 1987-91 data set, while the Nation ~ Meara co-citation link – already strong in the 1986-90 map, but

here significantly stronger – demonstrates the increasing dominance of these two sources, and hints at the emergence of a first paradigm in the L2 vocabulary research. (cf. Meara: 2020b). The Carter ~ McCarthy co-citation is the one that shows the largest increase here (24 co-citations in 1986-90 but 32 in 1987-91). This shift highlights the growing importance of corpora for vocabulary research. Gairns and Redman is a striking new link in the 1987-91 data set, and will be discussed in more detail in Part 4 of this paper.

Table 7: *The strongest co-citation links in the network*

1986-90	1987-91
Faerch ~ Kasper 34	Faerch ~ Kasper 34
Levenston ~ Blum-Kulka 28	Carter ~ McCarthy 32
Levenston ~ Meara 26	Gairns ~ Redman 32
Nation ~ Meara 25	Nation ~ Meara 30
Carter ~ McCarthy 24	Levenston ~ Blum-Kulka 28
Channell ~ Putseys 22	Levenston ~ Meara 27
Ostyn ~ Rudzka 21	Faerch ~ Haastrup 24
	Channell ~ Ostyn 23

There seem to be two main fault lines in the 1987-91 map. These splits are mainly methodological in nature. Clusters II, IV and VII are made up of sources with a strongly empirical bias, and their work relies heavily on experimental studies of L2 learners. At the other edge of the map, we have clusters V, VI and VIII which consist of sources who are more concerned with what descriptive linguistics can tell us about what learners acquiring a vocabulary have to learn. These clusters are largely populated by British researchers.

The main trunk of the 1987-91 spanning tree is the set of edges that join Faerch, Levenston, Meara, Nation and Carter. These links are all strong, though surprisingly not as strong as some of the subsidiary branches (see Table 7). However, the really interesting feature here is the co-citation link between Faerch and Levenston that joins Cluster II and Cluster III. Faerch passed away in 1987, when he was only 39. Levenston is mainly cited for his important 1979 paper (Levenston 1979), and as far as I can see he did not produce any significant L2 vocabulary research after 1987. This means that 1987 marks the end of the active output of both these sources. Their influence will continue into future maps for a while, of course, but in the longer term we can expect the importance of this link to decline or even disappear. Given that this edge is the principal link between two of the largest clusters in the 1987-91 map, we might ask what effect this loss will have on the overall structure of the map, and which of the many sources in cluster II will emerge as its new focus.

3. Part 2: The 1991 data in more detail.

We now turn to a more detailed analysis of the research outputs published in 1991.

Figure 2 shows the distribution of the output types in this year. The figure shows that output of journal articles in the two data sets is very stable, but the number of book chapters has fallen in 1991, while the number of book-length studies has risen by about 40%. The books are listed in Table 8.

Battenberg is a wide-ranging review of opinions on dictionaries aimed at second language learners, with chapters providing a historical review of the development of learner dictionaries, the format of dictionary entries, reports on some studies of the ways users employ dictionaries, and a brief discussion of some likely developments in dictionary design. **Beheydt and Wieers** is a 1000 word dictionary aimed at L2 learners of Dutch. **Broeder** is a report arising from the European Science Foundation project (cf. Purdue: 1993). It details a set of four parallel case studies of Turkish and Moroccan learners of Dutch. Its main chapters cover the development of pronominal reference, the development of reference to movement, and the development of possessive forms. **Burgmeier et al.** is a practical work book aimed at learners of English. **Eggert** develops a systematic approach to vocabulary teaching based on semantic fields and valency. **Encinar** is a practical work book aimed at learners of Spanish. **Galisson** outlines an approach to vocabulary teaching which Galisson calls *lexicométhodolgie*. The approach stresses that L2 word meanings are not a given, but rather something which needs to be negotiated by learners. The three main chapters of this book deal with vocabulary as a component of communicative competence, the use of personalised dictionaries as a tool in vocabulary learning, and vocabulary as figurative language. (cf. also Galisson 1979). **Haastrup** is a version of a thesis which appeared in 1989. It makes extensive use of introspective reports from learners and analyses the inferencing strategies that they use when faced with unfamiliar words. **Johns and King** is a special issue of the *English Language Research Journal* published by Birmingham University. This collection is the only example of a special issue dedicated to vocabulary research in this year's outputs. **Pittelman et al.** develop an approach to vocabulary teaching based on semantic features, and has much in common with the text books developed by Rudzka at al. (1981). **Sokmen** is a text book aimed at learners of English. **Verhallen** reports a series of experimental studies which investigate depth of vocabulary knowledge in Dutch among L1 Turkish children. The data shows that these children have a smaller vocabulary than L1 Dutch children of an equivalent age and examines the size of this deficit. These children perform worse than L1 Dutch children on depth of vocabulary knowledge tests, even when these tests involve relatively "easy" vocabulary.

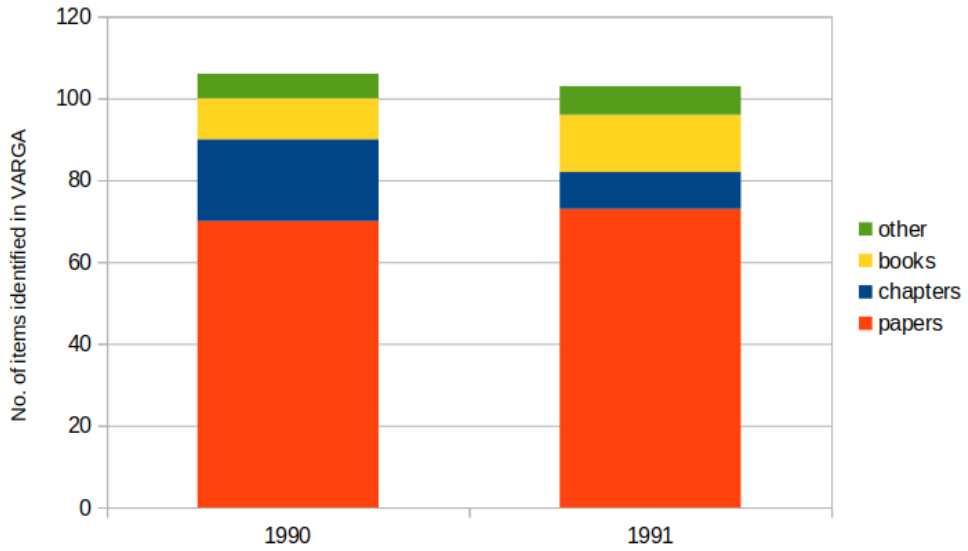


Figure 2: *The 1991 research output by type*

Table 8: *Book-length studies published in 1991*

Battenburg, J. D. (1991) English monolingual learners' dictionaries: a user oriented study. Tubingen: Niemeyer.
Beheydt, L. and T. Wieers. (1991) Elementair woordenboek Nederlands. Van In: Lier.
Broeder, P. (1991) Talking about people: A multiple case-study on adult language acquisition. Amsterdam: Swets and Zeitlinger.
Burgmeier, A, G. Eldred and C. B. Zimmerman. (1991) Lexis: Academic vocabulary study. Englewood Cliffs, NJ.: Prentice Hall.
Eggert, S. (1991) Wortschatz ordnen – aber wie? Überlegungen zu Lexiksystematisierung und -diffenzierung im Fremdsprachenunterricht Deutsch. Frankfurt: Lang.
Encinar, Á. (1991) Palabras, palabras: Vocabulario temático. Madrid: Edelsa
Galisson, R. (1991) De la langue à la culture par les mots. Paris: CLE international.
Haastrup, K. (1991) Lexical inferencing procedures. Tubingen: Gunter Narr Verlag.
Johns, T. and P. King (eds.) (1991) English Language Research Journal, volume 4.
Pittelman, S., J. Heimlich, R., Berglund and M French. (1991). Trabajos con el vocabulario. Análisis de los rasgos semánticos. Buenos Aires: Aique.
Sokmen, A. J. (1991). Common threads: an interactive vocabulary builder. Englewood Cliffs, NJ.: Prentice Hall.
Verhallen, M. (1991). Woordenschatuitbreiding bij anderstalige kinderen. [Second language vocabulary development in children.] Amsterdam, UvA Vakgroep Taalwetenschap.

The "other" items shown in Figure 2 include four doctoral theses. The VARGA database does not routinely monitor theses, as they tend not to be cited systematically in research papers. (In pre-internet days, it was practically impossible to get hold of theses unless they were published as books.)

As explained earlier, books, theses and unpublished reports are conventionally excluded from the author co-citation analysis that follows. This leaves us with a total of 75 outputs. For space reasons, I have not listed these items here, but interested readers can find a full list of these outputs in the VARGA database (https://www.lognostics.co.uk/varga) by entering **1991 ##** into the search box.

A total of 98 authors contribute to this data set. As usual, most authors (91) contribute just a single item to the data set with only a handful of authors contributing multiple outputs, see Table 9. The table also shows for comparison, the equivalent figures for 1990.

Table 9: *The number of authors contributing to N outputs in the 1991 data set*

No of outputs	5	4	3	2	1
1991 data		1	2	5	91
1990 data		2	0	6	87

The outstanding author here is Laufer, who contributes four papers to the data set. Laufer also contributed four papers to the 1990 data set, making her the most prolific author for two years in succession. The only other prolific author to appear in both the 1990 and the 1991 lists is Meara (two papers in the 1991 data set). Broeder (two papers in 1990) has fallen back to join the ranks of those who contribute only a single paper. The remaining prolific authors from the 1990 data set (Appel, Colpaert, Decoo, Schouten-van Parreren and Swartz) no longer appear in the prolific author list for 1991. There are, however, a number of new appearances in 1991. Bogaards and Scholfield contribute three papers each. Gruneberg, Kelly, Mondria and Stevens each contribute two papers. Bogaards is best known for his work on L2 dictionaries and their

users. Scholfield's papers, which were published in in-house journals deal with models of vocabulary uptake, and are far less well-known than they deserve to be. Gruneberg is a psychologist working on the potential of mnemonic systems for L2 vocabulary. Kelly, who had also published on L2 mnemonics in previous years, is working on listening errors in 1991. Mondria's two papers deal with lexical inferencing and rehearsal of new vocabulary. Stevens' two papers advocate for the greater use of concordances in teaching vocabulary. Overall, the new contributors seem to be strengthening existing themes that we noted in the 1990 data set. However, the overall rate of churn in the prolific authors list remains unusually high.

3.1. The data sources

The VARGA database (Meara n.d.) identified 82 outputs published in 1991 that were eligible for inclusion in the analysis that follows. A small number of these outputs were unobtainable, and these items are listed in Table 10.

Table 10: *Outputs published in 1991 that proved to be untraceable*

Anthony, E. and L. Menasche. 1991. Teaching Vocabulary: the current word. In *JE Alatis* (ed) *Georgetown University Round Table on Language and Linguistics.* Washington DC: Georgetown.

Carroll, M. C. and O. Mordaunt. 1991. The frontier method of vocabulary instruction. *TESOL Journal* 1(1): 23-26.

Han, M. 1991. A study on Korean college students' vocabulary learning strategies. [In Korean] *Studies in English Education*:103-126.

Henrici, G., F. Kostrzewa and E. Zofgen. 1991. Zur Wirkung von Bedeutungserklarungsverhafen auf Verstehen und Behalten: Ergebnisse aus einem empirischen Projekt. *Zeitschrift für Fremdsprachenforschung* **2(2):** 30-65.

Howard, R. 1991. Teaching medical English vocabulary systematically. *EMP Newsletter* 8: 15-21.

Lockhart, W. F. 1991. Estimating the students' active and passive vocabularies. *Zutabe* 23.

McLure, E. A. 1991. A comparison of lexical strategies in L1 and L2 written English narratives. *Pragmatics and Language Learning* 2: 141-154.

As usual, the main analysis of the 1991 data set is principally interested in identifying the sources that are co-cited within the data set. The methodology for doing this has been described in detail in the earlier papers in this series (see Appendix 1). For 1991, the analysis identifies 1485 sources – about the same number that we identified in the 1990 data set. As usual, most of these sources are cited only once (1134 cases), but a small number of sources are cited more frequently than this, and appear to be more central to the field. The data is summarised in Table 11.

Table 11: *The number of times sources are cited in the 1991 data set*

frequency	25	24	23	22	21	20	19	18	17	16	15	14
cases											1	
frequency	13	12	11	10	9	8	7	6	5	4	3	2
cases	1	1	2	1	2	4	4	14	13	36	62	211

The most frequently cited sources in this data set are Meara (15 citations), Nation (13 citations), Carter (12 citations), Laufer and Richards (11 citations each), Atkinson (10 citations), Gairns and Redman (9 citations each), Aitchison, Krashen, McCarthy and Pressley (8 citations each). Meara, Nation and Carter continue to head up this list, as they did in 1990. Laufer, Richards

and McCarthy all improve their positions slightly. AD Cohen, Palmberg, Lockhart and Levenston, who were all highly cited in the 1990 data set, no longer appear in the list of most-cited sources. Their places have been taken by Atkinson, Gairns and Redman, Aitchison, and Pressley. Overall, the data shows a small increase in the number of sources cited 2, 3 or 4 times, but a slight decline in the number of very frequently cited sources.

3.2. The analysis

The next step in our analysis of the 1991 data is to construct a mapping which shows the co-citations among the most frequently cited sources in the data set. Conventionally, we do this by setting an inclusion threshold which identifies 100 most frequently cited sources. For the 1991 data set, it is difficult to set an inclusion threshold that is gives us anything close to this conventional figure: the best match appears to be four citations, but only 78 sources are cited four times or more in the data set – rather fewer than we would like. However, this threshold value is the same as the threshold we used in our analysis of the 1990 data set, and this somewhat facilitates the year on year comparisons. These 78 sources make up 29% of the sources that are cited more than once in the data set.

Table 11 below lists the general characteristics of the data set, and provides comparison figures with the 1990 data set. At first glance, the two data sets appear to be very comparable, but the figures actually mask some important changes in 1991 and these changes will be discussed in more detail later.

The co-citations among the 78 sources were extracted from the complete data set and the results analysed using the Gephi software package (Bastian, Heymann and Jacomy: 2009). Figure 3 shows a spanning tree mapping for this data set, where the edges show the strongest links between the nodes. The equivalent spanning tree for the 1990 data can be found in Appendix 3.

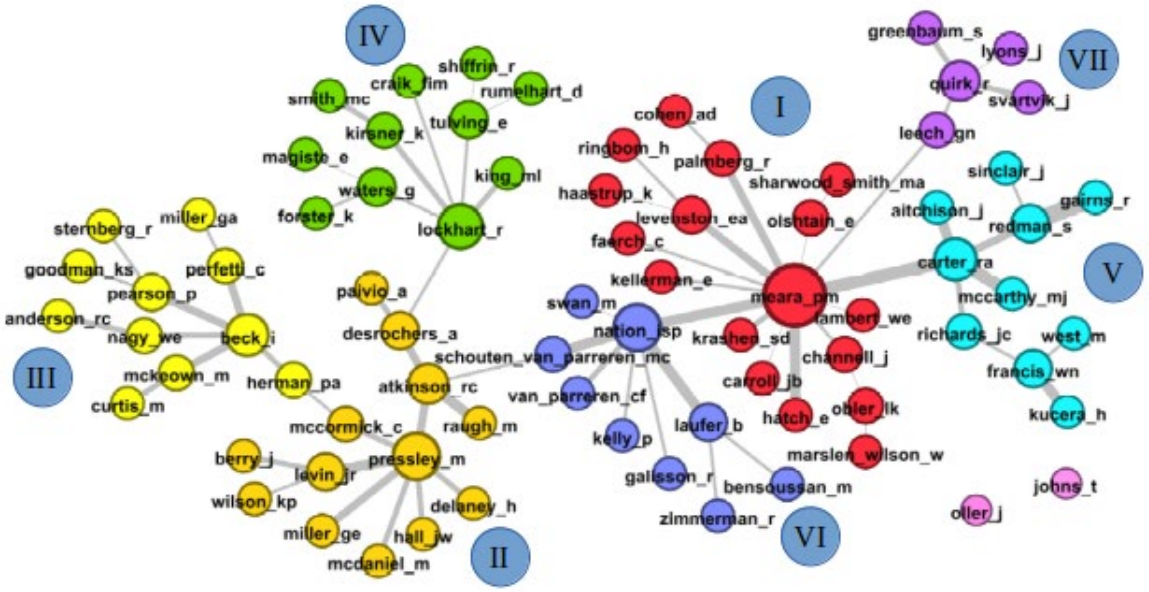


Figure 3: *The 1991 data set mapped as a spanning tree*

Gephi finds seven clusters in this data set, plus two detached nodes. See Table 11 and Table 12.

***Table 11**: The general features of the 1990 and 1991 data sets*

	1990	1991
Sources included	66	78
Inclusion Threshold	4	4
Clusters	10	7+2
New sources		44
Lost sources	31	

***Table 12:** The Clusters identified in the 1990 and 1991 data sets*

Cluster	1990	1991
I	Vocabulary acquisition and transfer (16)	Vocabulary acquisition and transfer (14)
II	Performance of bilinguals (11)	Mnemonics and imagery (13)
III	Practical applications (8)	L1 reading skills (11)
IV	Applications of semantic theory (5)	Performance of bilinguals (10)
V	L1 Reading skills (4)	Corpora and discourse (10)
VI	Inferencing and introspection	Vocabulary uptake and inferencing (9)
VII	L2 vocabulary learning	Descriptive approaches to English (5)
VIII	Error and uptake (4)	(Johns, Oller)
IX	Frequency counts (3 + 2)	
X	Dutch research (3)	
XI	Frequency counts 1 (3)	
XII	Frequency counts 2 (2)	

Cluster I, the largest cluster with 17 sources focussed on Meara, is mainly composed of sources with interests in transfer, and psycholinguistic features of L2 vocabulary acquisition. **Cluster II,** 13 sources focussed on Pressley, is an L2 mnemonics and imagery cluster. **Cluster III,** 11 sources focussed on Pearson and Beck, seems to a be set of sources whose main interest is L1 reading behaviour. **Cluster IV,** 11 sources focussed on Lockhart, is the familiar set psycholinguistic sources with interests in the behaviour of bilingual speakers, and the way bilingual lexicons are structured. **Cluster V,** 10 sources focussed on Carter and McCarthy, is mainly concerned with applications of corpora to vocabulary teaching. **Cluster VI,** 9 sources focussed on Nation, is a new cluster, which seems to be mainly made up of European L2 researchers with an interest in how learners compute the meaning of unfamiliar words. **Cluster VII**, 5 sources focussed on Quirk, is a group of researchers who work on descriptions of English. The two detached sources are Johns and Oller. Johns seems to be most closely linked with cluster V, as his work is principally concerned with concordances and their applications. Oller seems to be a representative of a strand of language testing, which has not figured so far in these maps**.**

Structurally, Gephi's analysis seems to give us three main groupings in the 1991 data-set. Cluster I and Cluster VI represent the main on-going research in L2 vocabulary learning and teaching. Clusters II, III and IV represent more empirical sources, most of whom are psychologists. Clusters V and VII represent descriptive linguistic approaches to vocabulary, with an emphasis on computer-based descriptions of English. The spine of the map is the set of strong co-citations linking Carter, Meara, Nation and Laufer.

Table 12 provides a comparison of these clusters with the equivalent clusters identified in 1990. The obvious point to make here is that the 1991 data set contains fewer, larger clusters than we find in the 1990 map. The surprising emergence of a very large mnemonics and imagery cluster, and the appearance of two clusters that deal with descriptions of English appear to mark a significant shift in the topics that are the main focus of research in 1991. Also striking is the large increase in the number of L1 reading sources – this set of sources now appears as cluster III, the third largest set of sources in the 1991 map.

These changes are also reflected in the membership of the clusters. The list of sources who make up the 1991 data set is substantially different from the sources we find in the 1990 data set, and there is a huge turnover between these two years.

Table 13 lists 31 sources appearing in the 1990 data set who do not play a role in the 1991 data set. Some of these sources are major figures who have significantly influenced the research we have logged in previous reports: H. Clark and R. Brown (important links to the L1 research), Corder (a hugely significant figure in UK Applied Linguistics), Thorndike and Lorge (an important word frequency count), Gass, Schumann, Stevick, Swain and Tarone (all important US SLA theorists), and Kasper (a key figure in European SLA research at this time) are particularly noteworthy in this respect. Also noteworthy is the loss of sources involved in text books and accounts of the research aimed at practitioners (Ostyn, Putseys and Rudzka, Morgan and Rinvolucri, Wallace).

Table 13: *Sources with a role in the 1990 data set, but failing to appear in the 1991 data set*

Anderson JR Beheydt L Brown R Clark HH Corder SP Cutler A Ehri L Elley W Feldman L Gass SM Green DW Howatt APR Ingle S Jain M Johansson S Kaper G Lorge I McLaughlin B Morgan J Morton J Ostyn P Phillipson R Putseys Y Rinvolucri M Rudzka B Schumann J Stevick E Swain M Tarone E Thorndike EL Wallace M.

In contrast, more than half of the sources that appear in the 1991 data set are new – though some of the sources are returners, sources who did not figure in the 1990 set, but are here re-asserting their status. The 44 new sources are listed in Table 14, which also records which cluster these new sources are associated with. Overall, there appears to be a noticeable shift towards sources who work in psycholinguistics, and a reduction in the number of sources whose main influence lies in the applications and popularisation of theory.

Table 14: *The 44 new sources and their cluster assignment in the 1991 data set. Returners shown in italics*

Cluster	
I	*Carroll JB Lambert WE Obler LK Olshtain E Sharwood Smith MA* Marslen-Wilson W
II	*Atkinson RC Berry J Delaney H Desrochers A Hall JW* LevinJR *McCormick C McDaniel M Miller GE Paivio A Pressley M Raugh M Wilson KP*
III	Beck I Curtis M Goodman KS McKeown M Pearson P Perfetti C Sternberg R
IV	Forster K *Tulving E* Waters G Rumelhart D Shiffrin R Magiste E
V	Sinclair J
VI	*Gallison R* Kelly P Swan M *Zimmerman R*
VII	Greenbaum S *Leech GN Lyons J Quirk R Svartvik J*
Detached	Johns T *Oller J*

Table 15: *The strongest links in the 1991 data set*

Link weight	1990	1991
9		Gairns~Redman
7	Gairns~Redman	Carter~Meara Carter~McCarthy Carter~Aitchison
6	Cohen~Meara Nation~Meara Kirsner~Smith Carter~McCarthy	Nation~Schouten-van Parreren Laufer~Nation Raugh~Atkinson Nation~Meara Levin~Pressley Kucera~Francis

In 1991, we have fewer clusters than in 1990, but the individual clusters are larger, and the 1991 map suggests that some re-positioning is taking place in the central part of the field. The biggest change between the two maps is that Meara's role as the single major hub in the 1990 data set has notably diminished. Instead, the core of the 1991 map is a spine of strongly linked sources, – Schouten-van Parreren, Laufer, Nation, Meara, Carter, McCarthy and Aitchison. (See Table 15).

Although the cluster focussed on Meara still remains the largest cluster in the 1991 map, the composition of this cluster has changed considerably. Gass, Ingle, and Howatt have all disappeared; George Miller has moved to Cluster III; Carter, McCarthy, West and Aitchison have moved to the new cluster V; Nation has moved to become the focus of the new cluster VI. This leaves Cluster I with a hard core of only four members: Meara, Cohen, Ringbom, and Kellerman who are joined by nine new members: Faerch and Haastrup, Levenston, Palmberg, and Channell (all members of smaller clusters in 1990), Sharwood Smith, Olshtain and Obler (returners from previous maps), and the only genuinely new source: Marslen-Wilson (a psychologist working on L1 word-recognition).

Clearly, the big winners in 1991 are the clusters, II, III and IV. The new cluster II is particularly important because it does not have a presence in the 1990 map, and represents a marked change of direction. This cluster contains two of the strongest co-citation links in the map: Raugh and Atkinson –co-authors of the classic papers on L2 mnemonics published in 1975 – and Pressley and Levin – co-authors of a series of papers that appeared between 1978 and 1985 (e.g Pressley and Levin: 1978 and Pressley, Levin et al.:1980). Most of the members of this cluster are actually returners – sources who were cited in papers published in the early 1980s, but not in more recent research. Most of the work cited was first published in the late 1970s, and it does not appear to have had much impact on research by applied linguists. Why this research is resurgent here is not entirely clear, but it may have something to do with the commercial exploitation of the keyword method by Michael Gruneberg, a psychologist working at Swansea University, and subsequent widespread discussion of his *Linkword* method in the UK media.

Cluster III (L1 reading) did have a small presence in the 1990 map, but here it appears to have doubled in size, and moved up to third place in the list of clusters. This change seems to be not so much a change of direction, but rather a change of emphasis, with new L1 sources being cited by L2 reading researchers. The volume of papers edited by McKeown and Curtis in 1987 seems to be a major influence here (McKeown and Curtis: 1987).

Cluster IV is unusual in that, although it is clearly the successor to Cluster II in the 1990 map, more than half of its membership has changed. The core members of this cluster – Craik and

Lockhart, Kirsner, King and Smith – are all long-standing members of the L2 performance cluster, but the priorities of this cluster seem to be shifting in the direction of bilingual memory, and formal models of bilingual lexicons. It is noticeable that most of the earlier members of this cluster have now disappeared from the mapping – only Lambert retains a tenuous presence in Cluster I.

Cluster V is also unusual, but for a different reason. All the members of this cluster were already to be found in the 1990 map, but there they mostly appeared in Cluster I. There is some evidence here that the linguistic approaches to L2 vocabulary acquisition are moving away from the mainstream L2 vocabulary research. We might expect this cluster to merge with the new Cluster VII in future maps. Notably absent from the 1991 mapping is a cluster that deals with L2 dictionary use. This strand of research is prominent in the 1987-91 map, where it appears as Cluster VI, focussed on Cowie, and a sub-cluster of (English) dictionary researchers focussed on Quirk, Carter and McCarthy. In 1991, the Quirk sub-cluster appears as a new independent cluster that is largely detached from the sources dealing directly with corpora.

Cluster VI is a new cluster focussed on Nation. This cluster seems to have brought together a number of previously disparate sources whose main interest is L2 reading. Noticeable sub-clusters here are the Dutch research sources and a strong Israeli presence including Laufer and Bensoussan. This cluster has also absorbed two sources who have played only a marginal role in our earlier maps – Galisson and Zimmerman, core sources for French language and German language research respectively.

The final point to note about the 1991 map is that it appears to indicate a shift away from practical applications of L2 vocabulary research. Previous maps highlighted the role of text books as influential sources on the research – Rudzka, Ostyn, Putseys and Channell (authors of *The Words you Need* series of textbooks) appeared as a separate cluster in several of our earlier maps, including the 1990 map, but these sources do not figure in the 1991 map. Likewise Morgan and Rinvolucri (1986), and Wallace (1982) whose introductory text books figured largely in the earlier maps, have all slipped out of the list of important sources in 1991. The sole remaining example of sources of this type is Gairns and Redman's (1986) work, which appears as a sub-component of Cluster V in 1991.

4. Discussion

Some readers may be surprised that the strongest co-citation link in the 1991 data set is Gairns and Redman. These names actually refer to a textbook that describes itself as "a practical guide for teachers on how to select, organise and teach vocabulary to all levels of students. It discusses the linguistic and psychological theories relevant to vocabulary learning … an ideal resource book for practising teachers and teachers in training" (publisher's blurb). This is a book that is genuinely reflective and practical. Even 37 years after its first appearance, this book bears re-reading and not just as a record of what people were thinking at the time.

The book is far from a traditional academic textbook. The approach it takes relies heavily on "reader activities" – tasks designed to make readers think about why vocabulary learning might not be a straightforward activity, and why we need to understand how words work. The text is divided into four parts: Words – their meanings and forms; Principles in learning and teaching vocabulary; Classroom activities; and Vocabulary in course books.

Working with Words first appeared in 1986, and is usually cited in the 1991 research literature as a general text that underlines the importance of vocabulary in language teaching. However, in reality it is much more than that, and in some ways the book could be considered as a pre-cursor to Nation's *Teaching and Learning Vocabulary* which appeared in 1990 – too late to have a significant impact on the outputs that appeared in 1991. Both texts cover much of the same ground, but *Working with Words* is considerably shorter than Nation's work, and it does not detail the background research as explicitly as Nation does. The background reading section runs to slightly less than a page, and cites only three research articles (Alptekin and Alptekin: 1984; Meara: 1980; and Richards: 1976) as compared to the very extensive bibliography (37 full pages) in Nation's book. This should not be taken as a criticism, however. *Working with Words* was reprinted 10 times by 1996, indicating that L2 vocabulary acquisition was not just a topic of obscure academic interest. Rather, the book was tapping into something that ordinary readers, not just vocabulary specialists, considered to be genuinely important at the time. The text is particularly strong in the way that it interprets current research in semantics, which explains why Gairns and Redman appear in Cluster V in the 1991 map, closely associated with Carter and McCarthy.

The main point to take away from these analyses is that the stability illustrated in the five-year map covering 1987-91 map may be deceptive. When we look in detail at the data for 1991, a much less stable picture emerges, with large changes both at the level of individual sources being cited, and a significant shift in the overall structure of the map. In both maps, we have three main territories – a set of descriptive linguistic sources, a set of L2 learning/teaching sources, and a large set of sources who come from a psychological tradition. These psychological sources taken together actually make up the largest component in the 1991 map – the first time that this has happened in these analyses. Nevertheless, the links between the psychological sources and the linguistic sources remain tenuous.

In the analyses reported in this paper, I have used a new method of displaying the co-citation patterns within the data sets. In my previous papers, the co-citation maps included a very large number of co-citation links. Once the basic parameters of the map were established, I drew maps which displayed as many co-citation links as were needed to show the overall structure of the data. The problem with this approach is that the resulting maps became increasingly complex as the data sets increased in size, and it was necessary to introduce arbitrary cut-off levels in order to keep them manageable. The resulting maps were not easy to read, and they were becoming increasingly complex as the number of outputs published in single year increased steadily. More importantly, perhaps my interpretation of the maps was becoming increasingly subjective.

In order to address these problems, I have used in this paper a stricter, more principled approach, displaying the data as a spanning tree in which every node is shown linked to the node it is most strongly associated with. The resulting trees are simpler and easier to read than the trees in my earlier papers. The new trees all have N-1 links, where N is the number of nodes in the data set (so, a data set with 100 nodes will be linked into a tree with 99 edges). The main advantage of this approach is that it makes it much easier to compare consecutive data sets: as long as two trees contain the same number of nodes, the number of links joining them together will be the same as well. This was definitely not the case with our earlier maps, where the number

of links on display could vary considerably between one map and its successor. The spanning tree maps make it easy to identify the structures in the data, and make it particularly easy to identify changes from one map to the next. The spanning tree maps also make it easy for us to identify the strongest co-citation links in the data set. In addition, we can easily identify hubs in the dataset – sources which act as the strongest link for a large number of other dependent nodes and play a major role in the structuring of the map. Again, this data was available in our earlier maps, but it was obscured by other factors – notably the raw number of citations that each node contributes, irrespective of the importance of these connections.

Of course, these advantages come at some cost. The basic problem is that the spanning tree maps encode more information than our earlier maps, but they do not always display this information directly – the 1991 map, for instance, is built around a set of only 75 co-citation links, since it shows only the reduced set of links that are sufficient to join all the nodes together into a single structure. More importantly, perhaps, it is sometimes necessary to invoke very weak links in the data set in order to complete the spanning tree, and to ignore stronger links that are redundant. This sometimes creates a false impression of the importance of specific nodes. (See the discussion of this point in Appendix 1.)

In Figure 3, for example, Cluster II and Cluster VI are joined by an edge that links Atkinson and Schouten-van Parreren which occurs only three times in the data set. In our earlier analyses, a link as weak as this would have been filtered out, as would the 12 edges with a weight of only 2 that appear in Figure 3. To some extent, we can correct for this shift by looking at the distribution of the edge weights, (see Table 16). Table 16 shows that the 1991 data set contains a handful of very strong links, but it also contains a larger number of weak links than we reported for the 1990 data set. Interestingly, seven of the twelve very weak links (Meara ~ Lambert, Meara ~ Carroll, Meara ~ Olshtain, Olshtain ~ Sharwood Smith, Obler ~ Channell, Obler ~ Marslen-Wilson and Haastrup ~ Levenston) are to be found in a single cluster – Cluster I in Figure 3. This surprising finding suggests that this cluster may be considerably less solid than it appears to be at first glance. It is worth noting, however, that a subtle feature of this sort, which strongly suggests that the 1991 maps need to be handled with some caution, would not have been obvious in our earlier maps.

Table 16: *The distribution of edge weights in 1990 and 1991*

	9	8	7	6	5	4	3	2
1991	1		2	7	9	18	25	12
1990			1	5	9	22	18	7

A further problem with the spanning tree maps is that they can sometimes give the false impression that there are no connections between the clusters other than the ones shown in the mapping. This is clearly not the case: as we saw in the earlier papers in this series, multiple connections between the clusters do exist, and sometimes these links are quite strong – indeed stronger than some of the links in the spanning tree diagrams. This loss of information clearly needs to be addressed.

The best way to address these problems seems to be to develop a way of looking in more detail at the individual clusters and the way they interact with other clusters in the dataset. I will report some new analyses that address these issues in the next paper in this series.

References

Alptekin, C. and M. Alptekin. 1984. The question of culture: EFL teaching in non-English speaking countries. *English Language Teaching Journal* 38,(1): 14-20.

Atkinson, R. C. and M. R. Raugh. 1975. An application of the mnemonic keyword method to the acquisition of Russian vocabulary. *Journal of Experimental Psychology: Human Learning and Memory* 1(2): 126-133

Bastian, M., Heymann, S., and M. Jacomy. 2009. Gephi: An open source software for exploring and manipulating networks. International AAAI Conference on Weblogs and Social Media.

Gairns, R. and S. Redman. 1986. *Working with words: a guide to teaching and learning vocabulary*. Cambridge.

Galisson, R. 1979. *Lexicologie et enseignement des langues.* [Lexicology and language teaching.] Paris.

Haastrup, K. 1989. *Lexical inferencing procedures or talking about words.* PhD thesis: University of Copenhagen.

Levenston, E. A. 1979. Second language vocabulary acquisition: issues and problems. *The Interlanguage Studies Bulletin* 4(2): 147-160.

Lotka, A. J. 1926. The frequency distribution of scientific productivity. *Journal of the Washington Academy of Sciences* 16(12): 317-324.

McKeown, M. G. and M. E. Curtis (eds.). 1987. *The nature of vocabulary acquisition.* Hillsdale, NJ: 1987

Meara, P. M. 1980. Vocabulary acquisition: A neglected aspect of language learning. *Language Teaching and Linguistics: Abstracts* 13,4(1980): 221-246,

Meara, P. M. 2012. The bibliometrics of vocabulary acquisition: An exploratory study. *RELC Journal* 43(1): 7–22.

Meara, P. M. 2014. Life before Nation: Bibliometrics and L2 vocabulary studies in 1982. In M. Gómez González, F. J. Ruiz de Mendoza Ibañez, F Gonzálvez García and A. Downing (eds.), *The Functional Perspective on Language and Discourse: Applications and Implications,* 111-129. Amsterdam.

Meara, P. M. 2015. Vocabulary research in 1983: A bibliometric analysis. *Linguistics Beyond and Within* 1: 187-198.

Meara, P. M. 2016. Two steps backwards: A bibliometric analysis of L2 vocabulary research in 1984. *Linguistics Beyond and Within* 2: 139-152.

Meara, P. M. 2017. A new beginning? A bibliometric analysis of L2 vocabulary research in 1985. *Linguistics Beyond and Within* 3: 136-154.

Meara, P. M. 2018. Laying the foundations. A bibliometric analysis of vocabulary research in 1982-86. *Linguistics Beyond and Within* 4: 108-128.

Meara, P. M. 2019. Steady as she goes? A bibliometric analysis of L2 vocabulary research in 1987. *Linguistics Beyond and Within* 5: 103-119.

Meara, P. M. 2020a. The British are coming...! A bibliometric analysis of L2 vocabulary research in 1989. *Linguistics Beyond And Within* 6: 111-129.

Meara, P. M. 2020b. The emergence of a First Paradigm in vocabulary research: The bibliometrics of *System. Vocabulary Learning and Instruction* 9(1): 1-32.

Meara, P. M. 2021. A time for consolidation: A bibliometric analysis of L2 vocabulary research 1985-89. *Linguistics Beyond and Within* 7: 65-85.

Meara, P. M. Ground Zero: A bibliometric analysis of L2 vocabulary research 1986-1990. *Linguistics Beyond and Within* 8:13-151.

Meara, P. M. (no date) VARGA: The Vocabulary Acquisition Research Group Archive. Available at: https://www.lognostics.co.uk/varga/ (accessed 12 June 2023).

Morgan, J. and M. Rinvolucri 1986. *Vocabulary*. Oxford.

Nation, I. S. P. 1990. *Teaching and learning vocabulary.* Rowley, Mass.

Pressley, M. and J. R. Levin. 1978. Developmental constraints associated with children's use of the keyword method of foreign language learning. *Journal of Experimental Child Psychology* 78(26): 359-372.

Pressley, M., J. R. Levin, G. Y. Nakamura, W. Hope, J. G. Bispo and A. R. Toye. 1980. The keyword method of foreign language vocabulary learning: an investigation of its generalizability. *Journal of Applied Psychology* 65(6): 635-642.

Prim, R. C. (1957). Shortest connection networks and some generalisations. Bell System Technical Journal, 3**6**(6): 1389–1401.

Purdue, C. 1993. *Adult Language Acquisition: Cross-linguistic perspectives*, volume 2. Cambridge.

Quirk, R., S. Greenbaum, G. N. Leech and J. Svartvik. 1985. *A comprehensive Grammar of the English Language.* Harlow.

Raugh, M. R. and R. C. Atkinson. 1975. A mnemonic method for learning second language vocabulary. *Journal of Educational Psychology* 67(1): 1-16.

Richards, J. C. 1976. The role of vocabulary teaching. *TESOL Quarterly* 10(1): 77-89.

Rudzka, B., J. Channell, Y. Putseys and P. Ostyn. 1981. *The Words You Need*. London.

Small, H. 1973. Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science* 24: 265–269.

Wallace, M. 1982. *Teaching vocabulary*. London.

Acknowledgements

Thanks to Paul Nation, John Read and Imma Miralpeix for comments on an early version of this paper. Thanks to Marlene Schwarz and Barbara Mayor for help with sourcing some of the papers. Thanks to the family of E. A. Levenston for information about his academic career post 1987.

Appendix 1: Co-citation analysis: The methodology

The co-citation method used in this paper was developed by Small in a number of papers published in the 1970s (e.g. Small: 1973). This approach, which was actually built on earlier bibliometric work by da Solla Price (1965), has been extensively used to analyse research in the natural sciences (e.g. White and Griffith 1981) but does not seem to have been adopted as a standard tool by researchers in the Humanities.

The raw data for a co-citation analysis consists of a list of all the authors cited in the set of papers to be analysed. For each paper in the data set, we make a list of every author that the paper cites; for each paper, each cited author counts only once, regardless of how many times they are cited in the paper; and for a cited paper with multiple authors, each of the contributors is added to the author list. Self-citations, where an author cites their own work, are treated in the same way as any other citation, on the grounds that authors only rarely fail to cite their own work. This raw data is then used to construct a large matrix showing which authors are cited together in each of the papers in the data set. The matrix can then be analysed using a program such as Gephi (Bastian, Heymann and Jacomy: 2009). Gephi performs a cluster analysis on the data, groups together authors who tend to be cited alongside each other in a number of papers, and outputs a mapping which shows the composition of the clusters and the relationship between them. The clusters are generally taken to represent "invisible colleges" in the data.

The maps presented in this paper are a simplification of the maps that appeared in the earlier papers in this series. The earlier maps tried to capture the relationships between the sources by including any co-citation link which was stronger than a chosen threshold value – for example, we might include any link with a weighting of 8 occurrences or more in the data

set. The threshold values were chosen to avoid cluttering up the visuals with very weak connections, but they varied from one report to another, and were essentially arbitrary.

In this paper, I have adopted an alternative solution to this problem, by displaying the data in the form of a **spanning tree.** In this alternative approach, we start with a list of nodes, a list of all the co-citation links between them ordered by their weight, and an empty map containing no nodes. We then build a map by working through the ordered list of links, and following the steps outlined in an algorithm developed by Prim (Prim: 1957). Starting with the strongest link, we add nodes and edges to the empty map as long as the new edge does not lead to a cycle. That is, if we have a new edge A ~ B, and our tree does not already contain a link (direct or indirect) between node A and node B, then we add the edge A ~ B to the map, adding new nodes as necessary. The map grows in a piecemeal way at first, adding pairs of strongly connected nodes to the map, but eventually, the algorithm finds a set of links that connects each node to another by its strongest connection.

Some advantages and disadvantages of this approach are discussed in the main body of the paper.

Appendix 2: Lotka's model

Lotka (1926) suggested that there might be a straightforward relationship between the number of authors who contribute a single paper to a field and the number of authors who make multiple contributions to the field. Suppose, for example, that we have 250 authors who make a single contribution to a data set, then it would be unusual to find only one author who makes two contributions, and it would likewise be very unusual to find that a single author who makes twenty contributions, while no other authors make more than one contribution to the data set. Lotka suggested that the expected relationship could be described as a power law:

$$E_N = T / N^x$$

where T is the total number of authors who contribute a single paper to the data set,
N indicates 2,3,4,5... outputs,
and E_N is the expected number of authors contributing to N outputs.

In practice, the value of x (the exponent in Lotka's formula) is usually around 2 – that is, a value of 2 for this exponent gives a fair approximation of what happens in real life. So, for a data set in which 250 authors contribute to just one paper in the data set Lotka's model predicts that we can expect 250/22 = 63 authors who contribute to two papers in the data set, 250/32 = 28 authors who contribute three papers to the data set, 250/42 = 16 authors making four contributions to the data set, and so on as shown in the table below.

Table 17: *An illustration of Lotka's Law with x=2 and N^1=250.*

contributions	10	9	8	7	6	5	4	3	2	1
Expected E_N	2	3	4	5	7	10	16	28	63	250

Clearly, this model predicts that the number of papers an active researcher might be expected to produce falls off rather quickly. Empirical tests of what has become known as "Lotka's Law" do seem to work well. However, the model works best when we are dealing with well-established fields, and very large data sets. The single year data sets that I have discussed in this series of papers are not a close match to Lotka's expectations, but the larger 5-year data sets are generally a better fit to the power law model. In both cases, however, we get a much better fit when the value of N^x is raised above 2. For example, we get the best fit for the 1987-1991 data set when x = 3.01. This is higher than the equivalent figure for 1986-90, which was x = 2.7, though both figures need to be treated with some caution because the data sets are relatively small. Higher values of x seem to be typical of immature, highly volatile fields. Generally speaking, the exponent values we find for the L2 vocabulary research literature are higher than we would normally expect. The rise in the 1987-91 figure seems to suggest that the field is still relatively immature, and far from settling down.

Appendix 3. The 1990 spanning tree.

The data for 1990 as reported in my last study is not directly comparable with the 1991 data reported here because 1991 data is reported in the form of a spanning tree, rather than an all-inclusive map. In order to facilitate the discussion, I have included here a map which displays the 1990 data in the form of a spanning tree based on the same procedures that generated Figure 3 for the 1991 data.

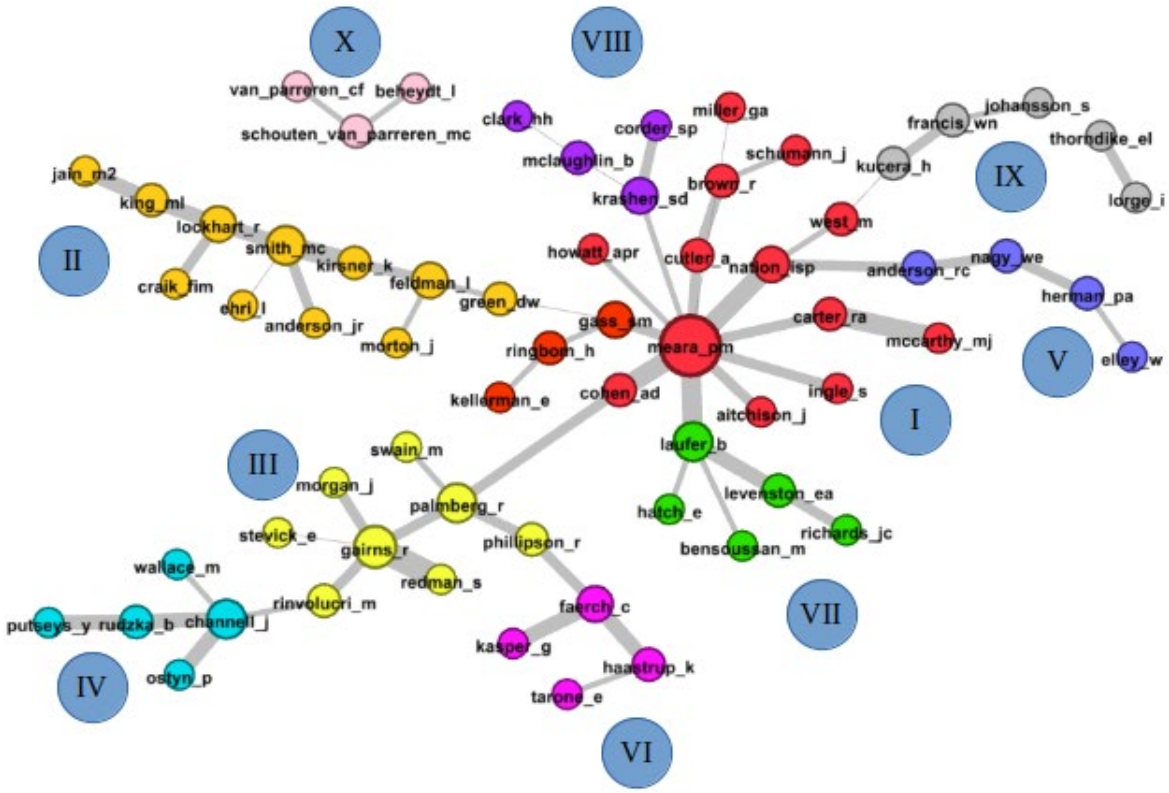


Figure 4: *The 1990 data set displayed as a spanning tree.*

LingBaW *Linguistics Beyond And Within 9 (2023), 133-146*

Is a quantifier mismatch a problem for L1 Japanese learners of English?

Paul N. Nehls, Kodai Aramaki and Tomohiro Fujii
Yokohama National University, Japan
Yokohama City University, Japan

Abstract
After identifying a linguistic difference between the English quantifier *most* and the Japanese quantifier *hotondo* 'most' we set out to find if the semantic difference between the two would constitute a learning problem for Japanese second language (L2) learners of English. The difference we hypothesized between the two is that English *most* is considered "more than half," while *hotondo* is "nearly all." As this semantic difference is not explicitly taught in a classroom environment, acquisition by learners would need to take place through experiencing *most* in contexts where they might receive contextual clues. An examination of a corpus indicated that contextual clues towards such a semantic difference would be unavailable or rarely available. Two sets of experiments (Experiments 1 and 2) were conducted using the Truth Value Judgment Task methodology. The results of Experiment 1 showed that L2 speakers treated *most* as meaning "nearly all" but that the level of learner proficiency has an effect. The upper intermediate L2 learner group (Experiment 1a) behaved more like the L1 English speaker group (Experiment 1b) than the lower proficiency L2 group (Experiment 1c). Experiment 2, testing Japanese L1 speakers on their interpretation of Japanese *hotondo* 'most,' revealed that while a majority of participants treated *hotondo* as "almost all," there was, somewhat unexpectedly, a group of speakers who interpreted *hotondo* to mean "more than half." Therefore, although the possibility cannot completely be eliminated that the result of Experiment 1a is due to L1 transfer, if some Japanese learners of English can unlearn the incorrect meaning, then some prior, if not innate, knowledge that makes the process possible must be available to them.

Keywords: quantifier, learning problem, L2 acquisition, semantic mismatch, truth value judgement task

1. Introduction

It has been observed that second language (L2) acquisition of a linguistic property P that involves a mismatch between the first and target language succeeds even when learners have not received explicit instruction or direct evidence for P from the input (Dekydtspotter, Sprouse and Anderson 1997; Slabakova 2001, 2003, 2006, 2012; Song and Schwartz 2009; among many others). Here are two possible learning situations.

(1) Type 1: A mismatch occurs, and direct evidence for P is available.
Type 2: A mismatch occurs, and no direct evidence for P is available.

It is sometimes suggested that successful learning is possible in learning situations of Type 2 because some other properties tied to P and a prior meaning computation mechanism can be leveraged.

As an illustration of the latter kind of situation, take Slabakova's (2001) study on Bulgarian learners' acquisition of grammatical aspect in English. The mismatch between English and some other languages including Bulgarian under consideration is that in English, unlike in Bulgarian, simple present sentences like (2a) and bare infinitive complements like the one found in (3a) never have the on-going-event readings that their b-counterparts have.

(2)
a. *Mary eats a tomato* (**right now*).
b. *Mary is eating a tomato* (*right now*).

(3)
a. *John saw Mary eat a tomato.*
b. *John saw Mary eating a tomato.*

Slabakova observed that the lack of the on-going event reading in (2a) is explicitly taught in language classrooms while entailment of event completion in (3a) is not likely to be: Thus, a Type 1 situation in (1) is likely to take place for the former property while a Type 2 situation in (1) is likely to take place for the acquisition of the latter. The Bulgarian learners, nevertheless, showed English L1-speaker-like behavior when tested on the property of bare infinitives illustrated in (3a). Building on the results, Slabakova proposed that by internalizing more abstract knowledge that governs the two phenomena, the learner is capable of inferring the contrast shown in (3) through knowing the one shown in (2) and other characteristics of the language.

The present study explores an instance of Type 2 mismatch that at least initially appears slightly different from Slabakova's bare infinitive case. If property P is hard to infer from other characteristics of the L2 grammar and overt instruction is not provided, we predict P to be difficult to acquire. The instance of mismatch under investigation here concerns the acquisition of the semantics of the English quantifier *most* by Japanese L2 learners. The semantic properties of *most* have drawn non-trivial attention in theoretical and psycholinguistic literature partly due to its characteristics unique in comparison to *some* and other English quantifiers (Ariel 2004; Barwise and Cooper 1981; Hackl 2009; Horn 2006; Hunter and Lidz 2013; Papafragou and Schwartz 2006). The property of the meaning of *most* that concerns us primarily is what *lower-bounded semantics* it has. As Barwise and Cooper and other scholars note, *Most A B* means:

(4) $|B| > 1/2^*|A|$, where $|X|$ stands for the number of the elements of set X.

The sentence *most of the tomatoes are rotten*, for example, has the following meaning: $|\{x: x \text{ is rotten}\}| > 1/2^* |\{x: x \text{ is a tomato}\}|$.[1]

[1] We are not suggesting that *most* is synonymous with *more than half*. See the references cited above.

From the perspective of the acquisition of *most* by Japanese EFL learners, this lower-bounded semantics of the quantifier can be thought to cause a learning problem. Our starting point is the following intuition: *hotondo* 'most' in Japanese, is one of the immediately available translations of English *most* and the one found used in explicit classroom instruction. *Hotonodo* seems to have the meaning that can be better paraphrased as *nearly all with a few exceptions,* not *more than half.* [2] If Japanese speakers assigned to *most* the meaning of *hotondo* 'most,' and they were not exposed to the positive evidence that enables them to correct their initial hypothesis, then they would interpret *most* on a par with *hotondo*. To unpack our reasoning, there are three empirical hypotheses to support this.

(5)

i. The meaning of *hotondo* 'most' in Japanese is "nearly all," not "more than half."
ii. No positive evidence is found in the input for L2 speakers that *most* means "more than half."
iii. Japanese EFL learners, unlike their L1 counterparts, do interpret *most* to mean "nearly all."

We acknowledge that quantifier acquisition has been a hot issue in recent L2 literature. Such studies include Dupuy, Stateva, Andreetta, Reboul and Stepanov (2018), Snape and Hosoi (2018), Zhang and Wu, (2022), Feng and Cho (2019). Many of these studies are concerned with scalar implicature (SI) acquisition and explore asymmetries between L1 and L2 speaker treatment of SI. The current study's focus, however, is not on L2 acquisition of pragmatic properties of *most* such as scalar implicature, but rather a certain semantic property of it.

Unlike these studies our primary query is whether prior knowledge is needed for L2 speakers to acquire *most,* the question of whether or not Universal Grammar is fundamental to this logically follows after this query (cf. Slabakova 2001, 2003).

In what follows in this paper, we report the results of the corpus study and the experiments we conducted. They suggest that the propositions given in (5i-iii) are by and large empirically supported. The paper is therefore structured as follows. Section 2 will address in more depth the nature of the potential learning problem. Section 3 will present the experiment designed to test the quantifier *most* with Japanese EFL participants and L1 English speakers. This is followed by Section 4, which addresses the experiment for *hotondo* 'most' involving Japanese L1 speakers. Section 5 is devoted to a discussion, followed by a conclusion.

2. The learning problem

The problem we are addressing in what follows is a potential case of Poverty of the Stimulus (Chomsky 1975), a learning situation in which multiple hypotheses are consistent with the input available to the learner. PoS may occur in the L2 acquisition of *most* if the input data available to learners is consistent with the wrong hypothesis that *most* cannot mean "more than

[2] We have not been able to find a theoretical paper that directly backs up our claim on *most* and *hotondo*. Tancredi Hoshi and Grosu's (2021) denotation of *hotondo*, however, is suggestive: They proposed that the meaning of the quantifier involves the 'far greater than' relation. That is, when a girl ate most of the tomatoes under discussion, the number of those she ate is far greater than that of those she did not. Their proposal seems perfectly consistent with our intuition. We also note that Koichi Otaki is the first person to point out to us that *most* and *hotondo* likely differ in the way we argue they do.

half." Also crucial to note is that while many PoS considerations involve a lack of negative evidence (such as the fact that *Is the man who over there is happy?* is ungrammatical), our case is different: the crucial evidence would be positive. If the learner hears someone say *Most of the students hate syntax* when five out of nine students hate the subject, she can figure out "nearly all" is not the lower bound interpretation of the quantifier.

Our hypothesis regards roughly-but-not-equivalent quantifiers. Specifically, we posit that the Japanese *hotondo* 'most' and the English *most* are not treated the same, namely, *hotondo* is not considered to mean "more than half." The semantic mismatch of the two quantifiers, which we show exists below, represents a minimal, but very real, difference in an interpretive sense. In order to successfully acquire the meaning, i.e. recognize the semantic difference of supposedly equivalent lexical items, the literature suggests that Japanese EFL students will either need to be explicitly taught the form, or be able to infer the meaning difference from other contextual or linguistic clues.

As for explicit instruction, when taught English quantifiers, Japanese students are introduced to the vocabulary and taught their Japanese language equivalents. However, as it has not been adequately identified, the semantic mismatch between *most* and its Japanese counterpart is not explicitly taught in the classroom. In our fieldwork with Japanese teachers of English, they expressed surprise as they had never considered the difference between *hotondo* and *most,* some admitting they had not been aware of the difference themselves.

So, it then falls to Japanese learners of English to realize the language mismatch exists from experiencing a multitude of utterances in order to encounter contextual and/or other linguistic clues and adjust accordingly.

To determine the possibility of learners acquiring the "more than half" meaning of *most* from contextual clues we used an L2 corpus by Barraja-Rohan (2013), which was selected from the TalkBank second language acquisition corpora because it contains speech from an L1 English speaker, "Jon," directed to adult EFL learners who are L1 speakers of Japanese (and of other languages such as Cantonese and Vietnamese). For example, a situation where *most* is used to indicate three out of five, i.e. just above 50% rather than requiring a situation of 90% or more, would be indicative of a contextual clue for L2 Japanese learners to infer the difference in quantifier meaning. From a total number of 2182 utterances by Jon we find the use of the quantifier *most* used nine times. See below for representative examples. In the transcription ⌈ indicates a conversation overlap, ↘ indicates falling to mid vocal pitch, and ↘ indicates falling to low pitch.

(6)

i. JON: ⌈*most people have that problem I think*↘

ii. JON: *you speak English yeah* ↘*most* ⌈*people said yes*

iii. JON: *et most universities* ⌈*in Germany* ⌈*I think so*

It is difficult to conclude from utterances of *most* like these that they could provide sufficient context or clues as to the mismatch between *most* and *hotondo.* The learner would be able to learn the meaning of *most* without positive evidence if the following inferential system and data D were available to them: If you find (a set of) positive data D in the input of your target language, hypothesize that proportional quantifier Q in the language means "more than half,"

not "nearly all." However, to the best of our knowledge, there is no theory as to what the nature of such an inference might be like and what data D might be, so there is no reason to think that the learning situation under consideration here falls under the same mismatch type as found in the work of Slabakova and others'.

The lack of either linguistic or contextual clues surrounding *most* presents the possibility of a real learning problem for Japanese learners of English. Therefore, the purpose of this paper is to try to discover if L2 learners behave differently than L1 speakers in an experimental setting.

3. Experiment 1

Experiment 1 sets out to answer two questions about the potential learning problem created by a semantic mismatch of *hotondo* 'most' and *most* where the former means "nearly all" whilst the latter means "more than half." First, this experiment will see whether Japanese learners of English treat English *most* differently than L1 English speakers. Second, the experiment will compare a possible difference in treatment of *most* due to the proficiency level of the learners. If the former is the case, we have potentially identified a genuine learning problem. If L2 proficiency does have an effect, that would indicate that despite lacking formal instruction of the semantic difference it is possible to acquire the semantic difference through advanced exposure and experience with the language.

We divided Experiment 1 into three sections based on the proficiency levels of the participants. Experiment 1a was of lower-level Japanese learners of English, Experiment 1b was of higher proficiency learners and Experiment 1c was of L1 English speakers. More details about the participants are provided in the subsections below.

3.1. Experiment 1a

As the difference between *most* and *hotondo* is a subtle semantic mismatch it is possible that the acquisition of the meaning of *most* is affected by proficiency in the English language. In the reviews of several studies done by Slabakova (2001, 2003, 2006, 2012), we see higher proficiency learners were more likely to have acquired more obscure or L1-mismatched forms compared to lower proficiency learners. To control for this factor, we divided two groups of Japanese learner of English participants based on their proficiency. The learner's proficiency was determined according to mapping their TOEFL ITP scores to the Common European Framework of Reference for Languages (CEFR). The lower proficiency group of participants were 20 Japanese learners English currently attending Yokohama City University, Japan. Their TOEFL ITP scores ranged from 390 to 460, placing them in the A2 (Basic) level.

3.1.1. Materials and procedures

The procedure for experiment 1 is a between-subjects design utilizing the Truth Value Judgment Task (TVJT) (Crain and Thornton 1998). Participants viewed a series of photos and listened to the experimenter tell the story of what was happening in each scene. Listening to each story along with the participants was the puppet of a monkey named Coco. At the end of

each story, the experimenter turned to the puppet and asked a question. Participants were asked to judge whether or not the puppet had "answered well." This particular phrase was adopted from Papafragou and Musolino (2003) to see if participants found the puppet's answer felicitous. Participants marked their answers privately on an answer sheet indicating yes or no.

Participants were tested in small groups to help maximize the attention of participants. The trials were done with the experimenter delivering the stories 'live' rather than pre-recorded. This follows the precedent set by previous TVJT studies (e.g., Papafragou and Musolino 2003; Guasti et al. 2005). Also, a direct connection between the experimenter and participants was determined to lead to greater attention/effort by participants than if they were alone listening to a recording. Participants also received a small compensation to help ensure the task was taken seriously.

To test if the quantifier *most* would be judged as "nearly all" or "more than half," participants were exposed to two slightly different photo series, a factor which we will refer to as *trial type* (Papafragou and Schwarz 2006). Four critical trials were obfuscated by six filler stories. See a sample of an English script in Figure 1. The filler stories were similar to the critical trials featuring a similar level of English complexity but did not include the quantifier *most.* An example of a filler utterance by the puppet is, "The baker didn't sell all of the donuts." In addition to fillers preventing participants from guessing the nature of the critical trials, they also served as an additional way to ascertain the participants' L2 ability level. Any participant failing to answer a number of fillers correctly would be removed from the data pool due to the possibility they had not been paying attention, or their listening proficiency was not sufficient for the task. This precaution proved unnecessary however and no participant data was omitted.

In both trial types, participants received almost exactly the same script and sets of photos.[3] One script difference occurs in scene 3, and in scene 4 the number of empty plates remaining in the photo would be 3 or 4 depending on whether the participant is undergoing the 3/5 or 4/5 trial type. Because between-subjects design was adopted, no participants experienced both 3/5 and 4/5 conditions. Nine and eleven participants were tested on the 3/5 and 4/5 conditions, respectively.

	Scene	Storyline
1.		**Experimenter:** Girl and her mother are talking. A puppet watching their conversation. **Experimenter:** Mother says, "Please eat tomatoes if you'd like."

[3] A reviewer observed a potential limitation with the materials of this study. As can be seen in Figure 1, the main character hesitates to continue before eating her last tomato in the 4/5 condition while that does not happen in the 3/5 condition. According to the reviewer, the Condition of Plausible Dissent might not be satisfied in the latter condition. That is, the possibility that the girl eats only two of the tomatoes was not hinted at as a possible outcome of the story. While we have not been able to decide whether this potential problem of the current materials affected the participants' performance in a crucial manner, we concur with the reviewer's point that the pragmatic felicity condition would have better to have been met.

2.		**Experimenter:** Girl tries to eat tomatoes.
3.		**3 of 5 Experimenter:** She feels full and has stopped eating. OR **4 of 5 Experimenter:** She feels full but decides to eat one more.
4.	 (for the 3/5 trial type) OR  (for the 4/5 trial type)	**Experimenter:** Mother says, "Are you done?" **Experimenter to Puppet**: Coco, Mother gave the girl tomatoes. What happened? **Puppet**: The girl ate most of the tomatoes.

Figure 1: *English Experiment Sample Script*

3.1.2. Results

Experiment 1a iinvolved basic level L2 learners. The actual participant distribution as to how many "yes" responses were given in the four trials can be found in Table 1. The results showed significantly different rates of acceptance for the two trial types (Mann-Whitney U test: $Z = 3.42$, one-tailed $p = .0003$). More acceptance occurred in the 4/5 trial type, with the learners accepting the puppet's statement 92% of the time, while in the 3/5 trial type the acceptance rate was 39%.

Table 1: *Basic Japanese EFL Learners – Individual Distribution*

Acceptance	4/5 Trial Type	3/5 Trial Type
4 times	7	0
3 times	4	2
2 times	0	2
1 time	0	4
0 times	0	1

From the table we see a clear difference in this breakdown by individual. There was more consistent acceptance of the puppet's statement in the 4/5 trial type, with all 11 individuals accepting the statement at least 3 times and 7 participants accepting it every time. In the 3/5 trial type, however, only 2 participants accepted the puppet's statement 3 times, while the rest mostly accepted the statement once or twice. Only one participant was completely consistent, in this case rejecting the puppet's statement every time.

3.2. Experiment 1b

The higher proficiency group was made up of 18 Japanese learners of English currently attending or recently graduated from Yokohama City University, Japan. Participants scored between 510 to 620, which places them at the upper Independent User B1 (Threshold) to B2 (Vantage) level on the CEFR. Materials and procedures were exactly the same as in experiment 1a.

3.2.1. Results

Experiment 1b is involved L2 learners at the upper (intermediate) level. For this group, an approaching significant difference is found in the participant acceptance of the puppet's statements by trial type (Mann-Whitney U test: Z = −1.51, one-tailed p=.0655). The upper intermediate group accepted the puppet's statement 54% of the time in the 3/5 trial type and 86% of the time in the 4/5 trial type (Table 2). As a raw percentage the upper intermediate learners appear to have not answered so very differently from the basic learners. The reason statistical analysis did not reveal significance is likely to be because five participants behaved L1-like in the 3/5 condition.[4]

The individual breakdown for the upper intermediate learners looks different from that of the basic learners in one important respect. In the upper intermediate group, five of the eleven participants accepted the puppet's statement in every instance in the 3/5 trial type, whereas no single participant in the basic group accepted the puppet's statement every time.

Table 2: *Upper Intermediate Japanese EFL Learners – Individual Distribution*

Acceptance	4/5 Trial Type	3/5 Trial Type
4 times	6	5
3 times	0	0
2 times	0	1
1 time	0	2
0 times	1	3

[4] There was one participant in the 4/5 trial type who behaved unexpectedly by rejecting all critical trial utterances by the puppet. When these data points are not included the p value achieves significance. Ideally it would have been better to have more participants in the 4/5 trial type group.

3.3. Experiment 1c

The final group of participants were 13 first language (L1) English speakers from the United States who reside in Japan. The same materials and procedure from the previous participant groups were used.

3.3.1. Results

Experiment 1c is involved L1 speakers of English. Results show that this group also does not exhibit a significant difference in the treatment of trial type (Mann-Whitney U test: Z=-1.02, one-tailed p=.15386). L1 speakers accepted the puppet's statements nearly identically across the trial types, with 88% in the 3/5 trial type and 100% in the 4/5 trial type (Table 3).

A breakdown of this group shows that the distribution of the upper intermediate English learners also bears greater resemblance to the L1 English speakers than the basic-level participant group in terms of overall acceptance of the puppet's utterance in the 3/5 trial.

Table 3: *L1 English Speakers – Individual Distribution*

Acceptance	4/5 Trial Type	3/5 Trial Type
4 times	5	5
3 times	0	2
2 times	0	1
1 time	0	0
0 times	0	0

When looking at the individual results across all three groups, in the upper intermediate English learner group we see a confirmation of the statistical analysis that there was no significant effect in trial type. The upper intermediate learner group's proficiency level appears to have had some effect with 5 of 10 subjects having fully acquired the form *most* as meaning "more than half." This is while the basic learner group's answer distribution appears more fragmented with, at best, two subjects accepting the puppet's answer 3 out of 4 times, with the remaining seven participants having accepted half or less.

These results suggest a possibility that proficiency level may have had some effect for Japanese learners of English to acquire the meaning of *most* through greater exposure to the language and contextual clues. However, there is another possibility that must be addressed before this conclusion can be drawn. That is, is it possible that there is differential treatment of Japanese *hotondo* among Japanese speakers which led to this difference? With this possibility in mind, we conducted Experiment 2.

4. Experiment 2

In order to ascertain whether L2 speakers' non-L1-like treatment of *most* originates in their L1 Japanese, it was necessary to also check the Japanese treatment of *hotondo* 'most'. We conducted a control experiment with Japanese participants to confirm our intuition was correct that they actually do treat *hotondo* as meaning "nearly all with a few exceptions."

4.1. Participants

Our participants were 22 L1 Japanese speakers attending Yokohama National University, Japan. Participants were volunteers who received a small compensation for participation, as was the case with experiment 1.

4.2. Materials and procedures

The procedure for experiment 2 was the same as in experiment 1 except for the language of the trials. Experiment 2 was conducted in Japanese, using the same stories and photos for critical trials and fillers from experiment 1.

(7) Scene 1
Experimenter: *Okaasan-wa onnanoko-ni yokattara tomato-o tabe-tene-to iimasu.*
mother-top girl-dat if.you.like tomato-acc eat-please-comp say
'Mother says to Girl, "Please eat tomatoes."'

Scene 2
Experimenter: *Onnanoko-wa tomato-o tabe-yoo-to simasu.*
girl-TOP tomato-ACC eat-will-COMP do
'Girl tries to eat tomatoes."

Scene 3
3/5 Experimenter: *Onnanoko-wa onakaippai-ni nari, taberu-no-o yamemasu.*
girl-TOP full-COP become eat-comp-ACC stop
'Girl has become full. She stops eating.'
4/5 Experimenter: *Onnanoko-wa onakaippai-ni narimasu-ga,*
girl-TOP full-COP become-BUT
moo hito-tu taberu-koto-ni simasu.
another one-CL eat-COMP-COP do
'Girl has become full, but she decides to eat one more."

Scene 4
Experimenter: *Okaasan-wa "Moo ii?" to iimasu. Kore-de*
mother-TOP already good COMP say this-with
ohanasi-wa owari desu.
story-TOP end COP
'Mother says, "Are you done?" This is the end of the story.'
Experimenter: *Nee, Coco. Okaasan-wa onnnanoko-ni tomato-o ageta-ne.*
(to Puppet) hey Coco mother-TOP girl-DAT tomato-ACC gave-part
Sono ato doo natta kana?
that after how became Q
'We have seen Mother gave Girl tomatoes. What happened then?"
Puppet: *Onnanoko-wa tomato-o hotondo tabeta-yo.*
girl-TOP tomato-ACC most ate-PART
'The girl ate most tomatoes.'

As with experiment 1 the first trial type was a story in which 3 of 5 items were completed. The second trial type found 4 of 5 items completed. If *hotondo* 'most' is indeed treated as "nearly all with few exceptions" we expect to find that participants more likely reject the puppet's utterance in the 3/5 trial type and accept the puppet's utterance in the 4/5 trial type.

4.3. Results

The results show that there is indeed a preference to accept *hotondo* as meaning "nearly all." The analysis showed statistical significance in the treatment of trial type (Mann-Whitney U test: Z=1.80579, one-tailed *p*=.03515). Japanese speakers accepted the puppet's answer only 45% of the time in the 3/5 trial type, while accepting them 93% in the 4/5 trial type.

The results of the individual breakdown are potentially interesting and can be seen as follows. While "yes" responses were shown as significantly reduced in the 3/5 trial type we see firmly consistent acceptance or rejection between individuals. This answer consistency has interesting implications.

Table 4: *L1 Japanese Speakers – Individual Distribution*

Acceptance	4/5 Trial Type	3/5 Trial Type
4 times	9	5
3 times	1	0
2 times	1	0
1 time	0	0
0 times	0	6

The complete acceptance or rejection of the puppet's utterance seems to suggest the possibility of some sort of interspeaker variation amongst the Japanese participants.[5] If this is the case, it is certainly an issue which is worth further study.

5. Discussion

The results of experiment 1 suggested that learner proficiency level may have some effect in acquiring the meaning of *most* as "more than half." Upper intermediate learners were more likely to accept the puppet's statements in the 3/5 trial type, and five of the eleven participants acted native-like by accepting the statement all four times. By contrast the lower proficiency learners accepted the puppet's statements in the 3/5 trial type considerably less, and no one performed in the same native-like manner. The results of experiment 2 raise another possibility, however. Though this is unexpected according to our initial intuition, in the 3/5 trial type in Japanese, five of the eleven participants accepted the puppet's statement using *hotondo* 'most' every time. Because of this result we cannot decisively conclude that the higher proficiency learners have managed to acquire the "more than half" meaning of *most.* They might instead be part of a population of L1 Japanese speakers who treat *hotondo* as having that same meaning.

[5] A reviewer observed that the L1 Japanese result may not have come from interspeaker variation but the variability of the meaning of *hotondo* from context to context, mentioning the possibility that the "more than half" interpretation is easier to obtain when the cardinality of the set of objects under discussion (e.g., tomatoes) is larger than five. Whereas this conceivable effect of set size may be proven to be real (cf. Degen and Tanenhaus 2015), it is not incompatible with the idea of speaker variation put forward in the text. It may be the case, for instance, that while a two-way split of participants like the one found in Experient 3 is observed in the 3/5 condition, no such split is in, say, a 6/10 condition. It is a future task to take into account factors left untouched such as the set cardinality issue above.

At the same time, though, this conjecture is not supported by the proficiency effect. This is because it still remains the case that the lower proficiency learners did not have any participants who behaved in this manner, and amongst this group the difference between *hotondo* and *most* still has the appearance of a learning problem.

6. Conclusion

We began by trying to identify a linguistic difference between the English quantifier *most* and the Japanese quantifier *hotondo* 'most', which are largely regarded on the surface as equivalent to each other. The working hypothesis was that while *most* means "more than half" as previous studies showed, *hotondo* means "nearly all." We set out to find whether the semantic difference — if it existed at all — would constitute a learning problem for Japanese EFL learners. As the difference is not explicitly taught in a classroom environment, this would leave acquisition by learners to take place through experience of *most* in contexts where they might receive contextual clues. An examination of a corpus indicated that this would be anything but easy as most utterances of *most* were not providing much in the way of contextual clues towards the semantic difference.

The results of the two TVJT experiments revealed two findings: (i) a population of Japanese speakers understand *hotondo* to mean "nearly all" while another understand the quantifier to mean "more than half"; and (ii) while some upper intermediate Japanese EFL learners perform on a par with L1 speakers with regard to the interpretation of *most*, basic learners use it to mean "nearly all."

If it is, in fact, possible for upper intermediate learners of English to acquire native-like usage of *most,* the way in which they do so is not clear and deserves further research. As the common use of *most* in the corpus gave little in the way of clues, at least as far as we could ascertain, the question of how upper intermediate learners 'figure it out,' so to speak, is of interest. Also of interest is the apparent bifurcation of Japanese L1 participants' interpretation of *hotondo.* A look into the semantic nature of *hotondo* and the possibility of a dialectic difference in its treatment is also a topic for further study. Another point to consider is that the quantifier *most* is semantically both upper and lower bounded, something Papafragou and Schwarz (2006) tested on English speaking adults to confirm their intuitions about these boundaries. In one of their experiments they tested participants who judged the acceptability of *most*-statements in conditions of 0/6, 1/6, 2/6, 3/6, 4/6, 5/6, and 6/6. They found that when there are no specific contextual expectations participants did not accept ratios of 50% or lower, as one might suspect. We did not try 50% or lower trial types to avoid complicating our experimental design. However, in the interest of being thorough a similar study should be conducted to also firmly establish the lower boundary for *most* in the Japanese EFL learner context as well as for *hotondo* in the Japanese L1 context.

The primary limitation of the current study is the number of participants. Having a greater number of participants would create more robust statistical results. Also, having a more even distribution in the number of participants across trial types would be desirable, a case in point being the lower number of participants in the 4 of 5 groups in experiment 1b. As a between-

subjects design was used, this makes the possibility of adding more participants in the future to create a more robust statistical profile is encouraging and may serve to clear up the question of results being due to the level of acquisition versus participant variability. A further point was brought up by a reviewer of the paper who noted our scripts for the 3/5 and 4/5 conditions varied in that we used the line that the girl "feels full" in the 4/5 condition and not in the 3/5. They suggest that it would have been better to make the two conditions parallel, noting that if the 3/5 trial contains the situation where the girl feels full, but decides to eat the third one, it becomes easier to accept the target item.

References

Ariel, M. 2004. Most. *Language* 80: 658–706.

Barraja-Rohan, A. M. 2013. Second language interactional competence and its development: A study of international students in Australia. Ph.D. diss., Monash University.

Barwise, J. and Cooper, R. 1981. Generalized quantifiers and natural language. *Linguistics & Philosophy* 5: 159–219.

Chomsky, N. 1975. *Reflections on Language*. New York: Random House.

Crain, S. and Thornton, R. 1998. *Investigations in Universal Grammar*. Cambridge, Massachusetts: MIT Press.

Degen, J., and Tanenhaus, M. 2015. Processing scalar implicature: A constraint-based approach. *Cognitive Science* 39: 667-710.

Dekydtspotter, L., Sprouse, R. and Anderson, B. 1997. The interpretive interface in L2 acquisition: The process-result distinction in English-French interlanguage grammars. *Language Acquisition* 6: 297–332.

Dupuy L., Stateva P., Andreetta S., Reboul, A. and Stepanov, A. 2018. Pragmatic abilities in bilinguals: The case of scalar implicatures. *Linguistic Approaches to Bilingualism* 9: 314-40.

Feng S. and Cho, J. 2019. Asymmetries between direct and indirect scalar implicatures in second language acquisition. *Frontiers in Psychology* 10.

Guasti, M. T., Chierchia, G., Crain, S., Foppolo, F., Gualmini, A. and Meroni, L. 2005. Why children and adults sometimes (but not always) compute implicatures. *Language and Cognitive Processes* 20: 667–696.

Hackl, M. 2009. On the grammar and processing of proportional quantifiers: most versus more than half. *Natural Language Semantics* 17*:* 63–98.

Horn, L. 2006. The border wars: A neo-Gricean perspective. In K. von Heusinger and K. Turner (eds.), *Where Semantics meets Pragmatics*, 21–48. Amsterdam: Elsevier.

Hunter, T. and Lidz, J. 2013. Conservativity and Learnability of Determiners. *Journal of Semantics* 30: 315–334.

Papafragou, A. and Musolino, J. 2003. Scalar implicatures: Experiments at the semantics-pragmatics interface. *Cognition* 86: 253–28.

Papafragou, A. and Schwarz, N. 2006. *Most* wanted. *Language Acquisition* 13: 207-251.

Slabakova, R. 2001. *Telicity in the Second Language*. Amsterdam: John Benjamins.

Slabakova, R. 2003. Semantic evidence for functional categories in interlanguage grammars. *Second Language Research* 19: 42–75.

Slabakova, R. 2006. Is there a critical period for the acquisition of semantics. *Second Language Research* 22: 302–338.

Slabakova, R. 2012. L2 Semantics. In S. M. Gass and A. Mackey (eds.), *The Routledge Handbook of Second Language Acquisition*, 127–146. London: Routledge.

Snape, N. and Hosoi, H. 2018. Acquisition of scalar implicatures: Evidence from adult Japanese L2 learners of English. *Linguistic Approaches to Bilingualism* 8:, 163-192.

Song, H. and Schwartz, B. 2009. Testing the fundamental difference hypothesis: L2 adult, L2 child, and L1 child comparisons in the acquisition of Korean wh-constructions with negative polarity items. *Studies in Second Language Acquisition* 31: 323–361.

Tancredi, C., Hoshi, K. and Grosu, A. 2021. The syntax and semantics of Japanese internally and doubly headed relatives. *Glossa* 6: 93. 1-31.

Zhang, J. and Wu, Y. 2022. Epistemic reasoning in pragmatic inferencing by non-native speakers: The case of scalar implicatures. *Second Language Research*.

LingBaW *Linguistics Beyond And Within 9 (2023), 147-162*

Aradınız kişi (şu anda) ulaşılamıyor!* The Turkish vowel system, (the so-called) '*Yumuşak g*' (ğ), and Turkish phonology: On a missed opportunity

Nicolas Royer-Artuso
University of Quebec at Chicoutimi (UQAC), Canada
French Institute for Anatolian Studies (IFEA), Istanbul, Turkey
Centre for Research on Musical Traditions, Antonine University, Beirut, Lebanon

Abstract
In this paper, some core premises that are held about Turkish Phonology are put into question, both theoretically and empirically. Some modifications to the Turkish phonological inventory and to the language's phonotactic constraints are then proposed. It is shown how modifying the phonological inventory and modifying phonotactic statements about the language gives a more realistic perspective on the empirical data. In the conclusion, some new avenues of research are finally proposed.

Keywords: phonology; morphology; phonology-morphology interface; Turkish; language change

1. General introduction

In this paper, I propose some modifications to some core premises that are held about Turkish phonology:

1. A modification of the inventory of phonemes:
   a. I will argue that the so-called '*Yumuşak g*' (ğ) is not a phoneme of the language anymore, and that the surface structures, in which it never appears, should be counted

* *Aradınız kişi şu anda ulaşılamıyor!* is the automatic answer we get from some telephone companies in Turkey when the cellphone of the person we call is busy or off. The literal translation is 'The person you are calling is not joinable at the moment'. However, *aramak* is a verb that also means 'to search for' and therefore, *Aradınız kişi şu anda ulaşılamıyor!* can also mean 'The person you are *searching for* is not joinable at the moment'. Which, as I will try to show in the present paper, is exactly the case for Turkish so-called *yumuşak g* (ğ). Note that the 'literal/orthographic' form of *Aradınız* is *Aradığınız*, a form supposedly containing *yumuşak g*, the topic this paper revolves around.

The author wants to thank the CRSH for funding, and Luc Baronian and the reviewers for helpful comments.

as phonemically valid, i.e. ğ is *phonetically* absent, and I argue that it is *phonemically* absent as well;

b. I will also argue that long vowels are now part of the language's phonemic system;

2. A modification of the phonotactic constraints of the language, namely, on the constraint on clusters of vowels, which I argue does not exist in the present state of the language.

In order to do that, I will connect the problems of Turkish ğ with other well-known problems in Turkish phonology, this way showing a) the premises' co-dependencies and b) how the proposed modification permits rethinking other problems that do not seem at first sight to be connected. Section 5 offers some notes on the theory of phonology that connect the discussion of the present phonological problem (i.e. *yumuşak g* 'soft g' (ğ)) with premises that are generally held, and that probably have to be reconsidered.

The aim of this paper is to come up with a better analysis of the empirical data. At the same time, all the discussions that are found below touch on methodological foundations of the science of Phonology; on some of the premises that are held; and on the way these premises constrain the way we develop our phonological arguments.

2. The problem with Turkish *yumuşak g* 'soft g' (ğ)

In reference grammars of Turkish, we find statements like the following:

i. The so-called 'soft g' lacks a corresponding 'consonantal' sound in standard Turkish […] When it is in word-final or syllable-final position, it lengthens a preceding back vowel […] Between identical back vowels it is inaudible […] (Göksel and Kerslake 2005: 7).

ii. Long vowels occur in words borrowed from Persian and Arabic (Ibid.: 11). There are no vowel sequences in Turkish, except in loan words (Ibid.: 12).

(i) and (ii) contradict each other. What is described in (i) often corresponds phonetically to a long vowel and *do occur* in 'native' words, e.g. *dā* 'mountain'; *sī* 'shallow' (etymologically/ orthographically *dağ* and *sığ*, respectively).

These are some of the 'effects' that are attributed to *yumuşak g* 'soft g' (ğ).

> The so-called 'soft g' lacks a corresponding 'consonantal' sound in standard Turkish, although it is pronounced as a voiced velar fricative in some dialects. It behaves like a consonant when a suffix follows it […], and is either inaudible as a consonant or may be pronounced as a palatal glide in the environment of front vowels and as a bilabial glide in the environment of rounded vowels. In particular:
>
> (i) When it is in word-final or syllable-final position, it lengthens a preceding back vowel (*dağdan* [da:dan] 'from the mountain' and *sığ* [sı:] 'shallow'), but may be pronounced as a palatal glide when following a front vowel (*eğlen-* [ejlæn] 'have fun').
>
> (ii) Between identical back vowels it is inaudible (*sığınak* [sı:nak^{h}] 'shelter', *uğur* [u:ɻ] 'good luck').
>
> (iii) Between identical front vowels it is either inaudible (*sevdiğim* [sevdi:m] 'that I love') or sounds like a palatal glide (*düğün* [düjün] 'wedding').
>
> (iv) Between rounded vowels it is mostly inaudible but can also be pronounced as a bilabial glide *soğuk* ([souk^{h}] or [soɯuk^{h}] 'cold').
>
> (v) Between a rounded vowel and an unrounded vowel it is mostly inaudible but can also be pronounced as a bilabial glide (*soğan* [soan] or [soɯan] 'onion').

(vi) 'a+ğ+ı' sequences may either sound like a sequence of /a/ followed by /ı/ or like a sequence of two /a/ vowels (*ağır* [aɪˠ] or [a:ˠ] 'heavy').

(vii) 'ı+ğ+a' sequences, on the other hand, are pronounced as sequences of /a/ followed by /ı/ (*sığan* [sıan] '[one] which fits').

(viii) When 'ğ' occurs between an 'e' and an 'i' it is either inaudible or pronounced as a palatal glide [j], hence words with the sequences 'e +ğ+i' and 'i+ğ+e' can sound like words written with a 'y', as in *değil* [dejil] 'not' and diğer [dijæˠ] 'other' (the former being similar to words *written* with a palatal glide, e.g. *meyil* 'slope'). 'e+ğ+i' sequences may also sound like a sequence of two /i/ vowels, hence *değil* is often pronounced [di:l] in colloquial speech.

Göksel and Kerslake (2005: 7)

While ğ has received some attention in the literature on the phonology of this language, I argue that some of its properties have not been properly connected to other phenomena in the language. This constitutes one of the missed opportunities to understand Turkish's vowel system and the language's active phonology: when we take into account the *synchronic* properties of ğ (i.e. when we do not map diachrony onto synchrony), some other problematic facts of the language receive straightforward solutions (but we also need to revise many other things accordingly).

A general note is needed before starting. Turkish phonology is for the major part very simple, one could say 'ideal' (that is: before looking in details at the data, and especially at the 'exceptional' cases). The analyses found in the literature about Turkish phonology are therefore rather traditional and straightforward. The phonological representations are phonemic and linear[1], and the majority of processes very easy to formalize using phoneme replacement rules given a certain phonological context (i.e. x → y/z).

3. Turkish Vocalic System

This is the vowel system ('repertoire' of distinctive vocalic segments) generally given for Turkish (1):

(1)

	Unrounded		Rounded	
	Open	Close	Open	Close
Back	a	I	o	u
Front	e	i	ö	ü

In reference grammars[2], not far from this phonological 'fact', the reader will find statements such as the following:

[1] Phonemes could of course be replaced by features and/or linear representations by non-linear ones. The important point being that this would not affect immensely what is said about Turkish phonology.

[2] I will use in the present paper three Turkish grammars interchangeably for the main part of my demonstration, i.e. Kornfilt (1997), Lewis (2000) and Göksel and Kerslake (2005). The reason is that what these grammars have to say about the problems I discuss is to a large extent identical (minus very little details that do not affect the present discussion), and that at the same time, the way they present the data is the background on which phonologists more or less agree. To the best of my knowledge, no one has yet presented an analysis like mine.

> Turkish vowels are normally short but may be long in three situations [...] The difference between short and long vowels is of quantity not quality: the positions of the speech organs is the same; the change is in the length of time during which breath flows.
>
> Lewis (2000: 21-22)

> Three situations in which long vowels occur are:
> a. Foreign borrowings
> b. Any vowel followed by ğ + consonant
> c. When it is desired to emphasize a word, one vowel may be dwelled on, i.e. lengthened.
>
> Ibid. (2000: 30-31)

> Native Turkish vowels are short *phonemically* [emphasis mine]. They can be lengthened due to processes of compensatory lengthening […] Borrowed words can have vowels with phonemic length, however (Kornfilt 1997: 489) […] Turkish has essentially only short vowels. However, as stated in that subsection, some loanwords do have long vowels, and the native phonology itself can give rise to long vowels via processes of compensatory lengthening. As a result of these facts, vowel length can be distinctive, at least auditorily: dağ 'mountain' [d a:] da 'also, too' [d a] […] saat 'hour watch' [s a a t] or [s a: t] sat! 'sell' [s a t].
>
> Ibid. (2000: 501)

In these quotes, we clearly see the connection between loanwords and long vowels: *phonemic* long vowels, it is said, appeared in Turkish only as a result of borrowing. For native words, the surface long vowels can only be attributed to a phonological process. Compensatory lengthening is often the given explanation: phonemically, these vowels are short, and point to a "(semi-abstract) segment (Kornfilt 1997: 488)" lengthening them at the output. The reason we have to postulate ğ is that:

> there is a phonemic consonantal segment which remains unpronounced in the standard language. Because it does have certain phonological effects, […] it must be recognized in the phonemic inventory of the phonemic consonantal segments. In some dialects, this segment is pronounced as a voiced velar fricative [ɣ]. Let us mention its main phonetic effect: when it is in syllable final position and cannot be resyllabified with a following vowel, it triggers compensatory lengthening of the preceding vowel: çağdaş 'contemporary' [tʃ a: d a ʃ].
>
> Ibid.

Below, I will show how another connection is to be made with the current-mainstream description of Turkish phonotactics, this time concerning its syllabic structure.

4. Reasons for the current analysis of Turkish vowel system

No reasons other than

1. the Phonemic Principle;
2. what we could call the 'Contrastive Principle' and the 'Complementary Principle'; and
3. Etymology,

are responsible for the current synchronic analyses of Turkish ğ.

1) By the Phonemic Principle here, I mean the common technique of finding the phonemes of a language by finding minimal pairs of morphemes/words that only differ by one sound. If

we can find such morphemes-words, we can assume that underlyingly, the two sounds exist in the system.

In the case of ğ, finding minimal pairs consisting of one word with and one word without a long vowel won't give much results for so-called 'native words' (but some pairs can actually be found, e.g. aç 'hungry' and ağaç (/āç/) 'tree' are in opposition). With so-called 'borrowed words, it will be easier, but the strategy will be to make a distinction between native and non-native words (a strategy that for Turkish occupies an important remedy to many of the problems posed by so-called non-native words, e.g. Vowel Harmony and Lexical Stress). The rare occasions when a long and short vowel make a difference in words will be sent, circularly, to deep representations: basically attributed to ğ (e.g. ağaç /āç/ has a ğ phonemically).

2) By the 'Contrastive Principle' and the 'Complementary Principle' I mean the method that consists in comparing words with and without their affixes, and from there, to come up with the deep *invariant* representations of these morphemes plus the rules that permit to explain the found ('surface') allomorphy. For the present discussion: cases where a) we assume ğ only because we compare words with and without their affixes (in Turkish, for the overwhelming majority, suffixes); b) find which allomorph is the 'basic' morpheme; and c) posit ğ in the input of a rule.

One important topic in Turkish Phonology is the case of the so-called 'k-Ø alternation' (where Ø=ğ). Classical examples include:

(2) köpek 'dog' + acc. '-i' → köpeğ-i 'dog /köpei/;

and for complex words involving more than one affix:

(3) yap 'to do' + -acak 'fut.' + -m '1st pers. → yapacağım /yapacaım/

(where ı is said to be the result of an epenthetic rule).

By postulating that a) the input forms contain a k and b) that these forms are invariable phonemically, we need to postulate the (morpho)phonological rule k→ ğ, a rule turning k into ğ and then turning underlying ğ's into surface Øs, thus permitting to keep ğ's in our phonemic system. And thus preserving symmetry between etymological and modern representations.

3) The role of etymology for this analysis is primordial. ğ is first of all a phoneme that can be found in earlier states of the language as well as in some modern dialects. It is thus convenient to attribute a phonemic role to ğ – even if its phonetic properties do not militate for it.

The etymological bias for ğ can also be thought in parallel with the way borrowed words are treated: nowhere does an analysis of borrowed words with long vowels exist in which these long vowel are treated as being composed of two identical vowels separated by ğ (an analysis that is preferred for native words);

4) All of the above (1-3) are also the result of a fundamental decision about Turkish phonology/phonotactics, a decision that has repercussions in the treatment we give of many related and unrelated phonological facts. This decision concerns the syllabic structure of Turkish:

> The most common combinations of consonants (C) and vowels (V) are VC (*at* 'horse', *ol-* 'be', *in-* 'descend', *iş* 'work', *üç* 'three') and CVC sequences (*gel-* 'come', *bak-* 'look', *güz* 'autumn', *göl* 'lake'). There are also CV

> sequences such as *bu* 'this', *şu* 'that', *su* 'water', *ne* 'what', *de-,* 'say', but these are fewer in number and those which are nominals usually require an additional consonant ('n' or 'y') when they combine with suffixes (6.1.3). Other types are VCV sequences such as *ara-* 'look for', *ile* 'with', *öte* 'far side', and VCC and CVCC sequences such as *ört-* 'cover', *sert* 'hard', *genç* 'young'.
>
> Göksel and Kerslake (2005: 12)

What this means, in terms of the present discussion, is that no cluster of vowels can be found in the same syllable. This applies much more in the discussions about suffixes. In monomorphemic words, it's not as necessary to mention this, except etymologically, e.g.:

> In Turkish roots are predominantly monosyllabic, i.e. they contain a single vowel. There are no vowel sequences in Turkish, except in loan words.
>
> Göksel and Kerslake (2005: 12)

For morphological operations involving native morphemes, it is argued, there must be (logically) a consonantal buffer to avoid two vowels to appear next to each other (as in the case of the 'k-Ø alternation'). If not, how do we account for the found ones without putting into question many of the premises we have postulated?

5. Notes on phonological theory and some of its premises

In the analysis of a language, the work of the phonologist can be roughly divided into two major tasks:

1. giving an account of the system of phonemes of the given language and the different manners these phonemes are organized at the syntagmatic level; and
2. giving an account of the rules or repair mechanisms that the language possesses.

(2) necessarily presupposes (1), that is to say: we cannot account for phonological processes, may they be morpheme-internal (more or less: allophonic), or morphologically – or syntactically – activated (more or less: allomorphic) unless we know how the inputs to these processes are represented.

In other words, this means that:

1. giving an account of the system of phonemes of a given language and the different manners these phonemes are organized at the syntagmatic level

CONDITIONS

2. giving an account of the rules or repair mechanisms that a language possesses.

A given analysis of the system of phonemes has some necessary logical implications, and this, circularly, only *because* we have analysed it this way. That also means that the problematic residues, e.g. exceptions and hard to analyze data, are also bound by the whole analysis, and this makes it extremely difficult to get out of the logical constraints that we have set up, so to speak, in advance: something we said in the premises will have dramatic repercussions on the following argumentation.

While this observation is pretty banal and what is described arguably necessary as a scientific method, some other more hidden methodological premises also exist that reinforce the way we analyze data and, coupled with what was presented above, carry many other logical implications (presented below with no specific hierarchical importance):

1) The first logical implication has to do with the distinction between synchronic phonological rules and the result of these processes, that is: an emphasis on etymological representations even when it is clear that these representations have changed. Etymological *residues* pose problems in the sense that they disrupt the behaviour of the postulated rules at the level of the entire system, i.e. the residues tell a story about the past, a story that does not hold for the present. These residues thus behave in ways that are unexplainable if we do not assume etymological representations – when of course we work with the accepted inventory of phonemes and phonological rules. And that is precisely the reason why the etymological representations need to be assumed. But in doing so, we inevitably distort some of the facts;

2) The second logical implication has to do with the distinction between native *versus* borrowed words. This emphasis amounts in many cases to a (light) form of essentialism. The question of the division between native and non-native words is tied closely to the question of etymological forms. When we accept that 'borrowed' words can be counted as normal 'native' words for the native speakers, our analysis of the phonology of the language can then be changed accordingly, and some of the 'mysteries' become, so to speak, less mysterious;

3) More importantly – since this somehow encompasses everything else – I will try to show how an emphasis on the syntagmatic dimension over the paradigmatic one ties all these problems together.

While we need paradigms to discover the phonemes of a language – to get complementary distributions – the goal is mainly to give a syntagmatic account of the series of phonemes that constitute morphemic-lexical inputs (i.e. deep representations). From there, we go on and discover the syntagmatic constraints on the alignment of phones and phonemes and move on to the syntagmatic constraints on the phonological properties of morphological parts. Eventually, we move on to the syntagmatic properties of words at the syntactic level.

At the same time in the mainstream analyses a methodological emphasis is given to the search of *invariant* deep representations that are then affected by the phonological form of surrounding morphemes when we put them together syntagmatically. Much of the phonological rules of a language are proposed to account for the divergence between a proposed deep representation and its surface outputs in function of phonological contexts – the same way phonemes and allophones are distinguished. However, when we look at paradigms, we observe behaviours that show a very different organisation of the system of morphemic/lexical entries in terms of the phonological properties of their representations. This points to the need for a different analysis of the system of representations.

Exemplarist models[3], for example, with their very different conclusions about phonological representations point to some very different analyses of the data. While these types of models lack in some of their explanations, they still possess the capability of taking into account the paradigmatic dimension, and this, because they take surface outputs seriously, both at the level

[3] See e.g. Bybee (2001); Pierrehumbert (2001) and (2010), amongst many others.

of a) phonetics and the level of b) full words. In that, they join the group of morphologists that emphasize the need for analyses based on full whole-words[4] – may they be morphologically simple or complex – constructions[5], and/or the group of morphologists working with analogical modelling[6] (because analogy needs whole forms to work with).

Finally, I want to add that the question of the level of abstraction we assume and/or accept in our models and theories is clearly related to what I said in the precedent discussion. However, it is not as central as it could seem: my quarrel is not with abstraction per se. It is rather with analyses that propose more and more abstraction as the phonological system changes and is restructured accordingly, abstractions needed only because the system has changed. What I propose is compatible with abstract analyses if the changes I propose are taken into account (because the current analysis of Turkish is clearly not in touch with the actual facts of the language given in the data). It is also compatible with models that are word-based as well as morpheme-based (but only if we accept more suppletion in the latter case). In that sense, what I propose is not related to any specific theory or model, but it has implications for what theories and models will do with the Turkish data and their analyses.

6. Changing some of our premises: a solution to the related problems clustered around ğ

I want to propose to rectify some premises about Turkish phonology and this, in aligning our phonological analyses with what is observed in the 'surface' data.

(1-3) are the proposed modifications:

1. there is no ğ in Modern Standard Turkish, neither phonetically (which is an accepted fact[7]) nor phonemically;
2. long vowels are now part of the phonemic inventory of Turkish; and
3. the constraint on clusters of vowels does not hold synchronically.

The reason we find in the data

a. synchronic effects of ğ;
b. only rarely long vowels in Turkish native words; and
c. only rarely clusters of vowels,

is not because of phonological constraints present in Modern Turkish. Rather, it is because of residues from the past, when the language still had ğ and these constraints[8].

---

[4] See e.g. Aronoff (1976), (1994) and (2007); Anderson (1992); Bochner (1993); Ford and Singh (1991) and Ford et al. (1997); Stump (2001); Blevins (2006) and (2016), amongst many others.

[5] See Booij (2010).

[6] See e.g. Skousen (1992); and the collection in Skousen et al. (2002).

[7] See Kılıç and Erdem (2008) (and the references therein), which is a recent very detailed discussion of ğ at the phonetic level. The argumentation is basically an attempt to save ğ phonemically.

[8] Similar conclusions about synchronic phonology and historical residues can be found in Blevins (2004).

Once we abandon or at least question some of the main mainstream principles of the phonological method[9] (presented in the precedent section) – as many frameworks in phonology and/or morphology tend more and more to do – we get a different picture of Turkish phonology and its processes. But for this, we need to reconsider some of our assumptions about Turkish's vowel system and phonotactics, as well as its morphemic-lexical representations.

The phoneme ğ is posited for Modern Turkish for three main reasons:

1. to *not* have to say that there are long vowels in Turkish native morphemes/words;
2. to keep up with etymology and not have to treat lexical/morphemic representations and problematic behaviours of morphological data in ways that would 'harm' the supposed symmetry of the system; and
3. to not have to suppose (weak) *suppletion* for morphemes – which is related to (1) and (2) indirectly, but is one of the core presuppositions about morphology and its relation to phonological output forms.

The absence of long vowels in Modern Turkish is posited for three reasons:

1. mainly because of etymological considerations: it is true that historically native words do not possess them; and it is true as well that outputs of word-formation processes did not give an opportunity for the apparition of such units;
2. because of the effects of long vowels on some phonological rules in the language (e.g. Vowel Harmony. See below); and
3. because if we were to assume long vowels, we would have to modify many premises we hold about Turkish phonology, including the existence of ğ.

Once we accept that long vowels are now part of Turkish's inventory (1), it becomes possible to take some of the encountered surface forms (considered 'output forms' in the literature) as basic-underlying forms. This is the case for all the surface forms for which a ğ is traditionally posited to explain the surface long vowels in 'native' words (e.g. the native orthographic ağaç 'tree' /āç/; or orthographic dağ /dā/).

The next logical step is the following: once we have accepted long vowels in our inventory, we can safely argue that ğ is not anymore a phoneme in the language. Every 'effect' it is said ğ has on the derivations from deep to surface representations can be accommodated directly in the lexicon and the representations it contains, i.e. a) by assuming new/reinterpreted phonological representations for morphologically simple words and morphemes; b) by assuming suppletive forms for the bases that show allomorphic behaviours, if we work with morphemes; or by assuming analogical word-formation processes based on paradigmatic relations between full words in the lexicon, if we work with full words. In other words, we can change the phonological representations of the input forms – without recourse to ğ.

Arguing that ğ is not a phoneme of Turkish also permits a new perspective on other phenomena of the language, phenomena that are difficult to offer an explanation to if we stick with the traditional analysis of Turkish phonology.

---

[9] See e.g. van Oostendorp (2013) for a list of mainstream phonological evidence and many of their problems.

7. Turkish 'k-Ø alternation'

Pöchtrager (2013), working inside the Government Phonology framework, shows that the traditional analysis of the 'k-Ø alternation' (Ø=ğ) as the result of a productive phonological rule/process does not hold:

(4) köpek 'dog' + -i 'acc.' → köpeğ-(ğ)i /köpei/
bebek 'baby' + -e 'dat.' → bebe-(ğ)e /bebee/).

It is *morphological*, however we want to analyze/formalize what is happening. As Pöchtrager writes:

> This article looks at the Turkish k-Ø alternation and questions whether it can be counted as a phonological process. After a discussion of what it means to be phonological, the empirical facts are weighed against the theoretical expectations. The alternation has several quirks, and any account treating it as phonological must allow for complex machinery to deal with those, thus weakening the predictive power of the theory employed. This is true of earlier rule-based accounts, but also of accounts that have been presented within Government Phonology, the framework that also this article is couched in. After careful revision of several problems that previous accounts have run into and that seem insurmountable, we must conclude that the k-Ø alternation does not qualify as phonological.
>
> Pöchtrager (2013: 87)

Pöchtrager works with Government Phonology, which accepts no exception to a phonological process. However, as Pöchtrager rightly underlines, the data are problematic for all the models that treat the 'k-Ø alternation' as phonological: the rule is productive but gives different types of outputs depending on the inputs.

Inkelas (2011) (see pp. 84; 86 and 97) reached very similar conclusions regarding this Turkish 'phonological rule' in the sense that no 'normal' rule works smoothly when we look at the data. Her solution is to treat the problematic data with *co-phonologies*, thus allowing the treatment of different inputs with different phonologies. However, as Kabak and Vogel (2011) clearly show, co-phonology is a problematic device for Turkish, as analyses involving co-phonologies cannot explain why words often end-up participating in different co-phonologies at the same time.

If we further modify our statements about the Turkish system of vowels as well as our statements about its phonology according to what I proposed, there is no 'k-Ø alternation' problem remaining – which does remain for Pöchtrager, since he is concerned with the phonological problem but not with the way it should be treated at the morphological level. Building on Pöchtrager's analysis, we can safely say that the 'k-Ø alternation' (Ø=ğ) is the remnant of previous states of the language that have been somehow reanalyzed as suppletive – and not as a synchronic process of erasing a k phonologically and replacing it with a buffer consonant, ğ. There is now, *at least*, two (weak) suppletive forms for the root (e.g. köpek – köpe) that are chosen when affixation of specific suffixes is involved.

However, the most straightforward analysis is to posit full forms, one without and one with the suffix, and take the relation between the two and the 'rule' that can be created by comparing them as being – in some sense of the term – *analogical*, i.e. to create a new affixed form, we compare the two full words that we have stored, and analogically create a new form witch lacks

a k – basically, through a kind of backformation process – a process that needs full words to take place (Xk ↔ Xi, e.g. köpek ↔ köpei[10]).

For this, another premise about Turkish phonology that should be corrected is the supposed constraint on series of vowels that are currently analyzed as being separated by ğ. Opening the possibilities for representations containing un-buffered series of vowels allows for more realistic accounts of morphological operations (e.g. köpek 'dog' + -i 'acc.' → köpe-i; kopek + e 'dat.' → köpe-e). At the same time, by postulating long vowels for native words, both morphologically simple and complex, we can thus account for long vowels that are sometimes 'created' in the process (*köpē* 'dog$_{[gen.]}$' is in free variation with *köpee*)[11].

All this becomes even clearer when we add a recent problem in Turkish phonology-morphology interface, i.e. the treatment of the Turkish diminutive suffix *–cik*.

8. Turkish diminutive *–cik*

This is the kind of data I am referring to when talking about the *–cik* suffix:

(5)

a. deve 'giant' + -cik 'dim.' → devecik = 'small giant' (a kind of pear that is sold in Turkey)
ambülans 'ambulance' + -cik → ambülanscık 'small ambulance'

b. Nikola 'proper name' + -cik → Nikolacık 'small Nicolas'
Nikolacık + -m 'poss.' → Nikolacıım 'my small Nicolas' (orthographic Nikolacığım).
Note: According to the mainstream analysis, k → ğ/_-V(C)$_{[suffix])}$

c. köpek 'dog' + -cik → köpecik 'small dog'
bebek 'baby' + -cik → bebecik 'small baby'

Much of the analytical problems concerning *–cik* rest on an emphasis on the syntagmatic dimension that makes us blind to paradigmatic effects. One of these effects is to be found in other so-called phonological processes that affect 'underlying' forms and create allomorphs. I will argue that the solution to the *–cik* suffix is to be found paradigmatically when we look at what happens elsewhere in the system.

The last two examples in (5) are those that have occupied linguists, e.g. Inkelas (see Inkelas (2011) and (2014)). It is very difficult to offer a traditional account of what is happening there, i.e. an analysis based on invariant morphemes and phonological rules to explain the

[10] X ↔ X is a formalism that can be found in e.g. Ford and Singh (1991) (see also Ford et al. (1997)) and Booij (2010). It corresponds to 'Word Formation Strategies' in the former model and 'Schemas' in the latter. The variables X are occupied by related full words, may they be morphologically simple or complex. The word-formation process is based on the difference that is found between the left and right side of the arrow, and helps applying the same strategy/schema to new words that are to be created, e.g. morphologically simple words from complex words as well as the opposite.

[11] In Royer-Artuso (2016) and (2017), I show how it is possible to account with morphological word-based models for different Turkish phonological facts that resist traditional analyses based on morphemes. Royer-Artuso (2016) also shows the *necessity* of positing full words as the basic units in the analysis of Turkish.

allomorphy. The problem is, again, to explain why the final *k*s of *köpek* and *bebek* disappear[12]. There is no phonological context that can explain and/or predict what is occurring, because:

1. **köpekçik* and **bebekçik* are phonologically well formed. (Note that c → ç in suffixes/$C_{[-voice]}$___, a process that is totally regular);
2. The number of syllables also does not count (i.e. it is not the case that truncation takes place because –cik needs a bi-syllabic 'stem' cf. *ambülans*, *Nikola*);
3. The recourse to co-phonologies is also impossible, since these words act normally according to other phonological processes.

The conclusion is that there is no real *phonological* explanation for what is happening, at least from a morphemic point of view. We can say that there is consonant deletion, but it is not a general rule: only by listing these words in their morphologically simple as well as complex forms in the lexicon could we save the general analysis, i.e. to treat them as exceptions, therefore, in need of being listed/memorized.

I argue that to understand the problematic *köpecik* and *bebecik*, we have to look at other data generally attributed to the interface of morphology and phonology. The main unit we are looking for are (weak) suppletives that can explain why the final *k* of *köpek* and *bebek* disappear when these words are suffixed. Basically, we have to explain the apparition of so-called 'stems', truncated ones (*köpe-*; *bebe-*).

If we look at Turkish phonology as a whole, there is one place where a beginning of an answer to the problem exists: again, the so-called k-Ø alternation, e.g. köpek 'dog' + -i 'acc.' → köpeği 'dog acc.' /köpei/; bebek 'baby' + -i 'acc.' → bebeği 'baby acc.' /bebei/.

The crux of the problem is again ğ. If a) we take surface forms at face value (i.e. there is no ğ; and no constraint on clusters of vowels), and b) permit paradigms interference, it becomes possible to explain how the 'truncated stems' can appear in the system. köpeğ-i /köpe-i/ and bebeğ-i /bebe-i permit the apparition of these 'truncated stems' (but again, only if we accept that for the native speakers, ğ is not phonemically represented and that sequences of vowels are permitted). Then, backformation/analogy can be called upon to explain the way a certain sort of paradigmatic levelling takes place. But for this, we have to accept that the full morphologically complex forms (i.e. the so-called 'outputs' of morphological processes) are somehow stored for the speaker.

9. Paradigmatic realignments/levelling

I will now discuss some cases of paradigmatic realignments/levelling that have to do with the fact that native speakers treat the so-called ğ as inexistent. The result being that some morphological paradigms end up being lumped together formally, thus creating syncretism.

The traditional analysis of the written/formal form of the word *yapaca[ğ]ım* 'I will do', goes as follows:

[12] A deletion rule erasing k before a consonant or before ç would not work since k/_C and k/_ç are found everywhere in Turkish, and more importantly in the vast majority of cases involving *–çik*/k_.

(6) yap 'to do' + aca(k) 'fut.' + m '1st pers. sg.' → yapacağım 'I will do' /yapacaım/
(We suffix –acak to the root yap-; then suffix –m to yapacak).

Then we have two choices according to mainstream premises about Turkish phonology:

1) We say that k becomes ğ because of the buffer ı that is added between consonants – not to have *yapacakm – a form that is unpronounceable in Turkish. But this is problematic because we need to assume that there are many levels of suffixation and an ordering of these levels: yapacak-m → yapacak-ı-m → yapacağım /yapacaım/ –a) epenthesis, then b) k-Ø alternation/voicing *because* of the epenthetic vowel. But then, the constraint on the non-well-formedness of clusters of consonants, which triggered epenthesis, is now responsible for the creation of a non-well-formed cluster of vowels, by deleting k (note that k/_V is totally acceptable in Turkish).

The main problem with this analysis is still the same: we have to posit the phoneme ğ only to make our premises (i.e. invariant morphemes, no clusters of vowels) fit the data (and etymology).

2) The other option is deletion of k. This would need to be done after insertion of the epenthetic vowel – if not, -m would be inserted directly on –aca(k) when k is deleted, triggering the form *yapacam*. So epenthesis and then deletion: yapacak-m → yapacak-ı-m → yapacaım /yapacaım/ But then a paradox arises: how can a phonological rule (i.e. k deletion) create forbidden patterns (i.e. clusters of vowels)? Again, this is why ğ is needed underlyingly.

Even if these solutions were acceptable, given the current analyses of Turkish, (1-2) do not explain that what we commonly hear is *yapacam* 'I will do'.

–m is the suffix for many morphological processes involving the first person. –m will be preceded by an epenthetic vowel if it is attached to a stem ending with a consonant, e.g. yapıyor 'he/she does' *vs* yapıyor-(u)m 'I do'; if the stem ends with a vowel, –m will be attached, e.g. yedi 'he/she ate' *vs* yedi-m 'I ate'.

The form we hear is not *yapacaım*, which could have been explained if we assume an underlying consonant (ğ) and a phonological rule of epenthesis (turning –m into –(I)m[13]). The 1st pers. suffix –m in *yapacam* is added without epenthesis, which indicates that there is no underlying consonant that would trigger the epenthetic process.

It could also be possible to postulate a derivation adding an extra level of phonology:

(7) yapacakm → yapacakım → yapacağım → yapacam (something we could call 'double vowel shortening' or 'vowel deletion').

The problem is that in the 2nd person singular we find *yapacan*, which contradicts this analysis: the input form is supposed to be yapacaksin → yapacan, a derivation that is unexplainable using the same type of analysis.

The only way to explain what is happening here is to look at paradigms, which can produce a –n as a 2nd person suffix:

[13] '(I)' marks the vowel that is to be chosen in function of the phonological context (i.e. vowel harmony).

(8) gel-di 'come + past (+Ø?) = he/she came'
gel-di-n 'come + past + 2nd pers. = you came

This means that the –m of *yapacam* and the –n of *yapacan* are not the result of derivations involving successive affixation followed by phonological 'arrangements'. They are the result of a merging of paradigms, probably the result of *yapacam* being treated at face value (i.e. without ğ), and therefore being connected to other paradigms not involving ğ. But for this to happen, we need a form of analogical levelling leading to syncretism, which is only possible when full forms are taken into account, may it be diachronically – through re-analysis; or synchronically.

10. Vowel Harmony

Some problems concerning Turkish Vowel Harmony (TVH) also receive a different light once we modify our statements about the Turkish vowel inventory. TVH is often blocked in the context (C)V_1CV_2, e.g. sāt 'watch' + i 'acc.' = sāti (*sātı, the expected form according to the mainstream analysis of THV).

We are told it is the long vowels that block Vowel Harmony. But TVH is not always blocked by long vowels. For example, words like sanāt 'art' or edebiyāt 'litterature' are often heard as sanātı and edebiyātı in their accusative forms, thus respecting TVH, i.e. we find free variation (e.g. sanāti ~ sanātı; edebiyātı ~ edebiyāti). Another problem is that once we have said that long vowels block THV, it becomes impossible to explain e.g. hakikat 'truth' + siz '-less' = hakikatsiz 'without truth'; bahs 'topic' + 'acc.' = bahsi, where no long vowel is present to condition the blocking of TVH. Another case in hand is the word *yar* 'friend/lover' which used to have a long vowel, but does not nowadays. But vowel harmony is blocked as if the disappeared long vowel was still there, i.e. yar + im 'my friend/lover' (*yarım)[14].

This again points to the fact that explaining synchronic data needs to be done on its own terms. Looking at diachronic forms and rules can be helpful to understand where synchronic patterns come from. But we also have to trust the data, and not push too much analyses that involve the premise of continuity as a methodological principle if the data do not fit our predictions.

Once we accept the fact that long vowels do exist in Turkish, another picture of Vowel Harmony emerges, a picture that adds to the problems in reaching a coherent picture of this phonological rule – if we keep our premises about the relation between input and output forms intact. But no problem remains if the contemporary forms are analyzed as residues of the past, not the outputs of synchronic phonological rules. At the same time, it also becomes more difficult to posit Vowel Harmony synchronically[15].

[14] The examples of this type I am aware of all involve front harmony. We could eventually treat these examples as exceptions. But see Royer-Artuso ([2013]2015) for many other troubling facts about Turkish Vowel Harmony.

[15] In Royer-Artuso ([2013] 2015), I show that the analysis of Turkish as having a *phonological* process of Vowel Harmony does not hold synchronically. TVH is morphological, at the least; which means that the affixes are in suppletive relations, and/or the result of analogical operations, i.e. some morphologically complex forms must be stored so that analogical processes can take place.

11. Conclusion

In this paper, I have tried to show how some of the premises we hold about Turkish impede on a realistic analysis of many related and not so related data. I have shown how these premises are interconnected, and how changing some of them have positive consequences on what we say about the phonology-morphology interface. The main conclusion is that Turkish has changed if we compare mainstream analyses to the synchronic data, that is: if we accept that the mainstream analyses are correct in their depiction of Turkish, what these analyses are analyses of is a state of the language that is now a fact of the past.

I have proposed here to take into account three of these changes, namely the analysis of modern Turkish as now 1) having long vowels; 2) having no ğ phonemically; and 3) having no constraints on clusters of vowels.

These changes might be linked to a common cause. A possible scenario could be that borrowing words with long vowels has permitted the reanalysis of some native words with ğ as including long vowels. At the same time, borrowing words with clusters of vowels has permitted to loosen Turkish's phonotactic constraints. This is at least an avenue of research worth exploring, both for the history of Turkish and in a more comparative way, i.e. looking at the way contact changes representations when words are borrowed without changing them to fit the constraints of the borrowing language.

The modifications made about Turkish phonology have consequences for the morphemic/lexical representations we adopt for this language: instead of invariant representations, (weak) suppletive ones for many exceptional patterns, but more importantly, for non-exceptional patterns as well (bringing these representations closer to the 'surface' forms).

Finally, the analyses I have presented also point to an organization of the lexicon and morphological processes that relies heavily on the paradigmatic dimension (in addition to the syntagmatic one); and point to the fact that this organization needs to be thought as based on full forms – as opposed to the mainstream analyses based on invariant morphemes + phonological rules to generate allophony and allomorphy.

References

Anderson, S. R. 1992. *A-Morphous Morphology*. Cambridge University Press.
Aronoff, M. 1976. *Word Formation in Generative Grammar*. Cambridge: MIT Press.
Aronoff, M. 1994. *Morphology by Itself*. MIT Press.
Aronoff, M. 2007. In the Beginning was the Word. *Language* 83(4): 803-830.
Blevins, J. P. 2006. Word-based Morphology. *Journal of Linguistics* 42: 531-573.
Blevins, J. P. 2016. *Word and Paradigm Morphology*. Oxford University Press.
Blevins, J. 2004. *Evolutionary Phonology*. Cambridge University Press.
Bochner, H. 1993. *Simplicity in Generative Morphology*. Berlin: Mouton de Gruyter.
Booij, G. 2010. *Construction Morphology*. Oxford University Press.
Bybee, J. 2001. *Phonology and Language Use.* Cambridge University Press.
Ford, A. and R. Singh. 1991. Propédeutique morphologique. *Folia Linguistica* 25: 549-575.
Ford, A., R. Singh and G. Martohardjono. 1997. *Pace Panini*. New York: Peter Lang.
Göksel, A. and C. Kerslake. 2005. *Turkish: A comprehensive grammar*. Routledge.

Inkelas, S. 2011. The Interaction Between Morphology and Phonology. In Goldsmith, Riggle and Yu (eds.) *The Handbook of Phonological Theory*. Blackwell.

Inkelas, S. 2014. *The Interplay of Morphology and Phonology*. Oxford University Press.

Lewis, G. 2000. *Turkish Grammar*. Oxford: Oxford University Press.

Kabak, B. and I. Vogel. 2011. Exceptions to Vowel Harmony and Stress in Turkish: co-phonologies or prespecification? In Simon, H., Wiese, H. (Eds.) *Expecting the Unexpected: Exceptions in Grammar,* 59-94. Mouton de Gruyter: Berlin.

Kılıç, M. A. and M. Erdem. 2008. Turkiye Türkçesindeki 'Yumuşak G' Ünsüzünün Fonetik Analizi. Proceedings of the VI Uluslarası Türk Dili Kurultayı/Ankara. 2809-2826.

Kornfilt, J. 1997. *Turkish*. Routledge.

Pierrehumbert, J. B. 2001. Exemplar dynamics: word frequency, lenition, and contrast. In Bybee J. and P. Hopper (Eds.) *Frequency and the Emergence of Linguistic Structure,* 137–58. Amsterdam: Benjamins.

Pierrehumbert, J. B. 2010. *The Dynamic Lexicon*. Online version. Last consultation: 03/01/22. http://www.phon.ox.ac.uk/jpierrehumbert/publications/DynamicLexicon.pdf

Pöchtrager, M. 2013. k-Ø and What Phonology Can Do. *Dilbilim Araştırmaları Dergisi* 2013/1.

Royer-Artuso, N. 2013 [2015]. Is Turkish a Tongue-Twister? In Dziubalska-Kolaczyk, K. and J. Weckwerth (Eds.), *In memoriam of Prof. Rajendra Singh: Papers from a special session at the 44th Poznan Linguistic Meeting, September 2013*. Poznan: Adam Mickiewicz University Press.

Royer-Artuso, N. 2016. Contact, Change and the Passage from Allomorphy to Suppletion. *Linguistic Atlantica* Vol. 35, 2.

Royer-Artuso, N. 2017. L'Accent Lexical, l'Harmonie Vocalique et le Mot Phonologique en Turc. *Langues et Linguistique* 36.

Stump, G. T. 2001. *Inflectional Morphology*. Cambridge University Press.

Skousen, R. 1992. *Analogy and Structure*. Springer, Dordrecht.

Skousen, R., Deryle L. and D. B. Parkinson (eds.) 2002. *Analogical Modeling: an exemplar-based approach to language*. John Benjamins.

van Oostendorp, M. 2013. A Consumer Guide to Phonological Evidence. In Blaho, S., M. Krämer and B. Morén-Duolljà (eds.) *Special issue 'A Festschrift on the Occasion of X Years of CASTL Phonology and Curt Rice's Lth Birthday'*, 274-293. Nordlyd 40.1. University of Tromsø.

LingBaW *Linguistics Beyond And Within 9 (2023), 163-171*

Methodology for conducting linguistic research into visual impairment: Challenges and recommendations

Jolanta Sak-Wernicka
John Paul II Catholic University of Lublin, Poland

Abstract
Despite great value of research into visual impairment (VI), there is a dearth of empirical studies in linguistics investigating the extent to which the sense of seeing impacts language development, processing and production. The lack of methodological rigour in previous studies as well as large diversity of the population, small incidence of visual impairment and little awareness of blind people's needs make this field of study challenging for researchers. This article presents and discusses the most challenging aspects of performing experimental studies in the field of VI. The overarching aim of this paper is to guide good research practice which ensures robust and unbiased experimental design and at the same time respects individuality of people with VI.

Keywords: methodology, linguistics, research, visual impaiment

1. Introduction

Visual impairment (VI) is known to affect various areas of development. Such areas include cognition, concept formation and language acquisition which constitute important components in the development of other, more complex skills and competencies (Finello, Hanson and Kekelis 1992). Although the impact of VI has been explored in different disciplines, to this day the actual consequences of vision loss for language acquisition, comprehension, perception and production are, at best, unclear. Despite a considerable significance of linguistic research into VI, a number of methodological issues make this area of study a daunting challenge.

The aim of this article is to discuss the most difficult aspects of conducting empirical studies on people with VI. The observations presented in this article are based on the author's personal experience acquired from running different research projects into VI, as well as the experience of other researchers reported in their publications. Presently, there is a handful of publications specifically devoted to the methodology of linguistic research into VI and discussing challenges and problems, which normally constitute the backstage of the research process. The purpose of this article is to provide assistance for researchers (both those with some experience and those

who are beginning their scientific careers) who are interested in running an experimental study into VI. The article is intended to help develop accurate and reliable methods for the investigation of blind people which allow them to demonstrate their abilities to the same extent as sighted people. This paper focuses on the methodological issues of linguistic research into VI, but it should be noted that many aspects discussed in the following sections also concern testing individuals with other disabilities such as hearing impairment, autism or Asparger syndrome.

2. Previous research: methods and challenges

In the field of linguistics, one can observe a growing interest in the impact of vision loss on various aspects of language acquisition, comprehension and production. Studies in this area help researchers to better understand the role of vision in the processes, and consequently provide new information to existing language theories, models and approaches which can be further subjected to empirical verification. Such studies also have significant practical applications, since they provide support for teachers and practitioners to develop appropriate educational methods, strategies and aids for the children to progress. Unfortunately, this area of study is very unsystematic, inconsistent and seriously underexplored.

Not surprisingly perhaps, much more attention has been given to VI in medical and social sciences and psychology (see e.g. Dekker and Koole, 1992; Krakowiak, 2017; Khorrami-Nejad, Sarabandi, Akbari and Askarizadeh, 2016; Huber, Chang, Alvarez, Hundle, Bridge and Fine, 2019; Rokach, Berman, and Rose, 2021), which have developed various scientific methods to investigate causes and consequences of this disability. Due to the shortage of adequate research in linguistics, it is often necessary for linguists attempting to conduct a study on blind people to reach for medical, sociological and psychological findings. This is in order to better understand the specificity of VI and gain a broader perspective on a linguistic phenomenon currently analysed. In other words, linguistic research into VI (and other impairments as well) is an interdisciplinary exercise, which encourages a researcher to search for cues and solutions beyond linguistics.

Linguistic research in VI started approximately in the 1950s, but for many years it lacked scientific rigour in terms of method used (Perez-Pereira, 2006). The main reason for this was that linguistics was mainly studied theoretically and before the 1980s there was little awareness of empirical methods which could be applied to investigate linguistic phenomena. As an empirical approach to the study of language grew in popularity, experimental linguistics started to mark its place among linguistic disciplines, employing psycholinguistic methods to test various hypotheses. Early studies into VI showed specific difficulties and delays of blind children; this led to the occurrence of many misconceptions about blindness, several of which have never been dispelled.

So far in the empirical studies of VI two main approaches have been used. The first approach involves anecdotal observations of individual children (usually tracked longitudally) who are recorded when playing or interacting with their parents (see e.g. Andersen, Dunlea and Kekelis 1984, Kekelis and Andersen 1984, Landau and Gleitman, 1985). In addition, the parents are often asked to keep a word-diary or note down specific behaviour between observation

sessions to help a researcher closely monitor a child's language development. The observational method is said to "provide a greater opportunity to investigate the role of vision in particular stages of the acquisition process" (Norgate 1997: 166). Many a time, it is also the first to supply the information about any alarming or atypical behaviour, as it can be used with infants or very young children. Longitudal studies, as indicated by Perez-Pereira and Conti-Ramsden (1999), "allow us to observe changes across time, to document the course of development, to evaluate the impact of blindness at different stages of development and so on. Other advantages include being able to obtain an actual picture of the development of blindness and different routes that children may follow, and thus, open up the opportunity for the researcher to appreciate individual differences in development."

The problem is that, as indicated above, the observations are made on individual children rather than groups. This raises the question to what extent we can draw valid conclusions on their basis about the entire population if they are not performed on a representative sample. Another problem is that researchers often fail to publish detailed information about specific factors which may distinguish between children. Among other things, such factors include the aetiology of VI, age of onset of VI, extent of vision, existence of concomitant disabilities or prematurity (Norgate ibid., Warren 1994). The information was often omitted in early research, which makes it practically impossible for other researchers to compare results between studies. Without adequate characteristics of participants it is also hard to determine what impact specific factors have on obtained results and in what way these factors have "contributed to the course of acquisition" (Norgate ibid: 167).

Another method used by linguists is direct comparison between the development of blind and sighted children, or, to be more precise, the rate at which the two groups differ in the acquisition of phonological, syntactic, morphological, semantic and pragmatic aspects of language(see e.g. Mills, 1983; Wilson,1985; Dunlea, 1989; Dunlea and Andersen, 1992). The cross-sectional approach adheres to normative view and assumes that all children go through the same route in their development. This approach ignores the fact that blind individuals do not constitute a homogenous group and may follow different developmental patterns (see e.g. Kaczorowska-Bray and Milewski 2022). The studies concentrate on mean tendencies, which conceals individual differences, characteristic to this population. What is more, such studies do not provide "information about possible patterns of change, [or] differences in patterns of change" (Perez-Pereira and Conti-Ramsden ibid.); as a result of this it is difficult to determine which behaviour should be considered typical or atypical to the population. Normally, cross-sectional comparative studies involve a considerable group of participants, but because of relatively low incidence of blindness and the fact that it is difficult to find blind individuals with appropriate characteristics, they are usually small scale studies. It is important to remember that large individual differences of blind participants as well as relatively small sample size greatly impact the power of statistical tests used to determine potential differences between the blind and the sighted. This means that any conclusions need to be drawn with great caution and in relation to potential limitations of such studies.

Beside the above mentioned problems, there are other methodological issues which occur in both comparative and observational studies. Early studies in VI did not use appropriate and precise terminology in relation to participants with VI who were called 'blind', irrespective of

whether they were early-blind, adventitiously-blind, totally blind or partially sighted (Norgate 1997). This made it practically impossible to draw any valid conclusions, make comparisons between studies or duplicate them. Presently, researchers are much more careful to use appropriate nomenclature in the description of levels of VI and are consistent in documenting the information in publications. Nevertheless, due to the low incidence of blindness they are not very strict in participant selection, grouping together individuals with, for example, total blindness and low vision. Although so far little is known about the extent to which people with total blindness and low (or partial) vision differ in language development, the study by McConachie and Moore (1994) indicates that individuals with even a small amount of vision may be more similar in the way they acquire language to sighted children. In consequence, by grouping them with totally blind children we obtain an internally heterogeneous group of participants who may differ too much to be compared.

Another thing is that researchers are not always fully aware of special needs of people with VI and tasks, tests and techniques they use for testing this group of people are not always appropriately chosen or adapted. This results from the fact that the researchers use instruments designed for sighted people who, unlike people with VI, rely on visual information to the greatest extent. By doing this, they provide blind individuals with qualitatively different information than sighted people, and consequently are not given an equal opportunity to perform in a given task. For example, in Dunlea's experiment (1989) blind children were found to have more difficulties in the generalization of concepts than children with normal vision. However, the techniques used in the study did not allow for the manipulation of objects, as a result of which the blind individuals were not given a fair chance to demonstrate their skills, and their capacities were underestimated (see Norgate 1997; Pérez-Pereira and Conti-Ramsden 1999 for criticism of this study). It also happens that the conditions under which subjects are tested are not clear or fully reported in a publication. The information about the instruction given by experimenters, the amount and type of information the subjects are expected to provide or how much time the subjects were given to complete the task may be crucial to assess validity of findings.

The final problems concerns the interpretation of results. As observed by Perez-Pereira and Conti-Ramsden (ibid.), many researchers assume that behaviour which occurs both in the blind and in the sighted has the same function in the two groups. By the same token, the lack of a given behaviour is interpreted as a specific deficit. The truth is that "two apparently identical behaviours may serve different functions and can be the result of different underlying processes, and vice versa, two different behaviours may fulfil a similar function" (Perez-Pereira and Conti-Ramsden ibid.). For example, gestures have been found to have different functions in language development for the blind and for the sighted, and the two groups use them at different rates and in different fashions (e.g. Sak-Wernicka 2023, Iverson, Tencer, Lany and Goldin-Meadow, 2000). It should be noted that many studies make comparisons only between blind and sighted subjects without introducing blindfolded controls. As a result, it is often unclear whether sighted people whose access to visual information is temporarily limited would demonstrate behaviours similar to these of the blind or the sighted people. Such comparisons can also indicate whether a specific difference between blind and sighted individuals is due to different ways they acquire information or because of some developmental or cognitive difficulties.

In the light of above mentioned methodological pitfalls, it is crucial to refine methods used in linguistics "to address difficulties in recruiting participants, and to capture the diversity of strengths and needs of visually impaired people" (Duckett and Pratt, 2001: 815). It must be stressed that previous studies have provided an important insight into the impact VI has on language development, but present and future studies should meet higher standards and be more rigorous in the methodology they use. The recommendations presented in the next section are intended to promote good research practice and help to develop objective, reliable and accurate methods of the investigation of VI in linguistics.

3. Design of experiments

Not many people with normal vision understand what limitations blindness imposes on a person and what impact it has on the individual's experiences, comprehension and mobility. Contrary to what many sighted people think, this cannot be fully grasped if we simply close our eyes. This is because blindness is not only about the accessibility of information here and now, but also about the impact of information accessible to a blind person on the person's knowledge, comprehension and interpretation. In other words, things that sighted people take for granted as visually accessible (even if not present at the moment), people with VI may perceive differently as they acquire information in a different way. For the above-mentioned reasons, researchers who are planning or preparing research on blind people may need assistance of educators, therapists or other specialists in VI. Among other things, they can provide important information about prospective subjects they work with and special needs the subjects have. Also, preliminary observations and pilot studies should be considered standard procedure before proper studies in VI. The knowledge of how blind individuals learn, communicate or perform various activities in everyday situations can hardly be found in publications, but appears indispensable in designing a research project.

As indicated by Perez-Pereira and Conti-Ramsden (ibid.), research in the field of VI (and other impairments as well) "is always carried out under difficult conditions and with scarce knowledge of the topic." Therefore, it is important for researchers to be prepared to expect the unexpected and not to take things for granted. For example, in our recent studies (still in progress) we use tactile graphics[1] to test blind children on their understanding of scalar terms (*some, at least, at most, almost all)*. The subjects are learners at Special School for the Blind and Visually Impaired aged 7 to 13. The children are asked to explore tactile graphics and then they respond to questions about the elements in the pictures. In the course of experiment, we have discovered that some of the children have little experience in reading tactile graphics, or cannot remember having done it before. This is even though, at least theoretically, books with tactile graphics should be freely available to them at schools. There were also children who, despite prior experience in reading tactile graphics, found elements presented to them incomprehensible. This was even though the tactile graphics were prepared by specialists having experience in adapting educational aids, games and books for blind individuals. One blind girl,

1 Tactile graphics are raised pictures appropriately adapted to make them accessible to people with VI (for more information concerning principles of making tactile graphics see e.g. Edman 1992).

for example, could not recognise chairs presented from the side in the picture (see Picture 1 below). When asked to make her own raised picture of a chair using modelling dough, the child modelled the chair from the front with two legs, the seat and the back as indicated in Picture 2. Such minor differences may have enormous impact on the performance of blind children and can easily be misinterpreted by the researcher. Clearly, the fact the child had different representation of the object in her mind than it was portrayed in the picture did not have to negatively affect her abilities to understand scalar terms. Therefore, additional explanation was necessary in order to give the child a fair chance to perform the task. This illustrates that it is important to look at the participants individually.

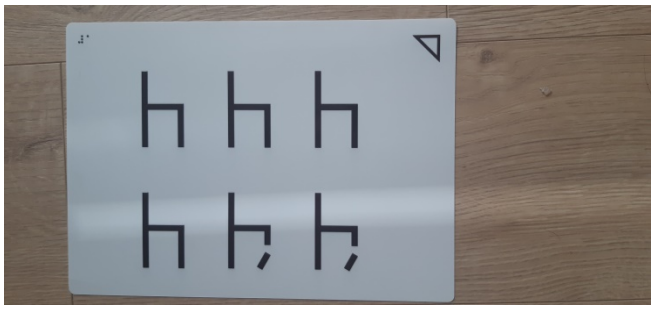


Figure 1: Tactile graphics presenting 6 chairs (2 broken) used in an experimental study.

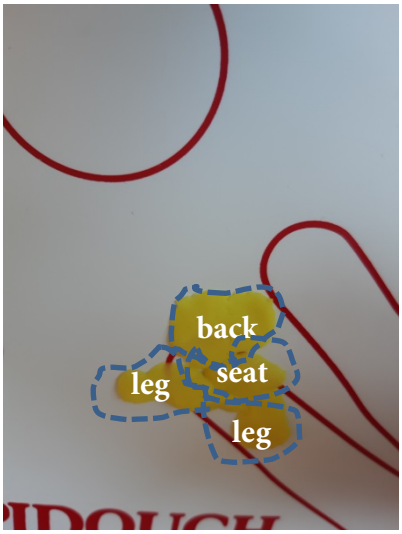


Figure 2:The Raised picture of a chair made by a blind child

It is also necessary to remember that due to their visual limitations blind individuals may need more time to perform a task. Therefore, they should be given fifty per cent more time than sighted individuals. It should be noted that reading tactile graphics differs from viewing a picture, as it is more fragmentary and therefore effort-consuming. Also finding information in a text (irrespective of whether it is in Braille or large print) can take more time.

Researchers should also make sure that blind people obtain a sufficient amount of information and the information is not different from this provided to sighted people. This means that the adaptation of research tools to the needs of the blind should not change the content of the materials. For example, if sighted people are given a picture-based task and blind people are given a description-based task, we can expect to obtain unreliable and incomparable results. In order to provide the same load of information, researchers should not only carefully

design and adapt research tools, but also they should consider supplying blind individuals with audio-description (AD), which is rarely employed in research, but which can provide blind people with important information they cannot normally access, giving them a chance to perform as successfully as sighted people.

4. Participant selection

Visual impairment imposes very different consequences on different people and people with VI do not constitute a homogenous group. This poses a serious challenge for researchers in the selection of a representative sample of participants with characteristics they require. Blind people generally differ from each other in many ways including their visual experience and acuity, extent of blindness, age of onset of VI, the existence of concomitant disabilities, educational record and many other medical, social and psychological aspects. Each blind person is an individual who has unique life experiences, which cannot be easily categorised. For instance, in the group of blind adults there are people with congenital blindness, those who were blinded in early infancy or late childhood, and those who were partially sighted in early childhood and whose vision decreased until it was totally lost in adulthood. Some visually impaired people have residual vision, while some can see light and recognise shapes. It is therefore difficult to specify what effect VI and its course may have on a person's functioning, and to which group the person should be assigned. Taking into consideration the above mentioned differences, there are two possible solutions to the problem. The first possibility is to keep strict selection criteria, even if this means performing a study on a relatively small group of participants. The second solution is to perform a study on a large group of blind people but to some extent accept the lack of homogeneity as characteristic to the population. The fact is that even if we are determined to meet strict selection criteria in a study, obtaining detailed information about participants is very often difficult (if not impossible). This is because people working with blind children not always have such detailed information, and the information they have is not always correct or updated. Some blind children have been wrongly diagnosed with multiply disabilities, while in others, the severity of the disabilities changes over time. Blindness frequently co-occurs with additional disabilities, but to this day there are hardly any studies which would address the questions of how the disabilities interact and interfere with the development of language and comprehension, and how much people with ocular-plus blindness differ from people with ocular blindness (see Bedny, Pascual-Leone and Saxe 2009 for one of very few studies in this field).

Finally, many studies into VI are performed on a small group of people. This is not only because of small incidence of blindness, but also because it is very difficult to recruit blind individuals to take part in a study. Not all educational institutions and parents of blind children are willing to collaborate, and not all blind adults are associated with some institutions, work or keep contact with other blind people. For these reasons it is often time- and effort-consuming to contact prospective participants. It needs to be stressed at this point that previous studies have mainly concentrated on the investigation of language development of blind children. There are however hardly any studies which explore the impact of VI on language competence of blind adolescents or adults, both born blind or who lost vision in the course of their life (see

Jęczeń, 2023 for one of very few studies in the area). Such studies are of great scientific value as they provide evidence of whether early difficulties of blind children reported in previous studies are overcome in the course of language development.

5. Summary

Linguistic research into VI and its impact on language development, comprehension and production is of great practical and theoretical value. Unfortunately, the lack of appropriate methods of conducting research in this area diminishes significance of many previous studies which did not give people with VI a fair chance to demonstrate their language abilities and underestimated the performance of the individuals. The methodological pitfalls were related to research design, selection of participants, procedure and interpretation of findings.

This article was aimed to present and discuss the most difficult aspects of carrying out linguistic research on blind people. The article was intended to provide assistance for researchers interested in performing a study in the field by providing practical solutions, suggestions or recommendations they may find useful when planning the project. It is also intended to encourage researchers of various linguistic disciplines to undertake research in this seriously underexplored but fascinating field of study. Future studies should not only meet higher scientific standards and respect the needs and individuality of blind people, but they should also pay more attention to aspects which so far have been neglected or completely ignored in literature. This includes communication and comprehension abilities of blind adults, the impact and inference of multiple disabilities on language performance, or the use of modern and assistive technology in examining linguistic abilities of blind individuals.

References

Andersen ES, Dunlea A, Kekelis LS. 1984. Blind children's language: resolving some differences. *Journal of Child Language* 11(3): 645-64.

Bedny, M., Pascual-Leone, A. and Saxe, R. R. 2009. Growing up blind does not change the neural bases of Theory of Mind. *PNAS* 106(27): 11312-11317.

Dekker, R., and Koole, F. D. 1992. Visually impaired children's visual characteristics and intelligence. *Developmental Medicine & Child Neurology* 34(2): 123-133.

Duckett, P. S. and Pratt, R. 2001. The Researched Opinions on Research: Visually impaired people and visual impairment research. *Disability & Society* 16(6): 815-835.

Dunlea, A. (1989) *Vision and the emergence of meaning: blind and sighted children's early language*. Cambridge: Cambridge University Press.

Dunlea A and Andersen E S 1992. The emergence process: conceptual and linguistic influences on morphological development. *First Language* 12: 95–115

Edman, P. K. 1992. *Tactile graphics*. New York: AFB.

Finello, K.M., Hanson, N.H. and Kekelis, L.S. 1992. Cognitive Focus; Developing Cognition, Concepts and language in Young Blind and Visually Impaired Children. In R.L. Pogrund, D.L. Fazzi and J.S. Lampert (eds.) *Early Focus: Working with Young Blind and Visually Impaired Children and Their Families*, 34-49. New York: AFB.

Huber, E., Chang, K., Alvarez, I., Hundle, A., Bridge, H., and Fine, I. 2019. Early Blindness Shapes Cortical Representations of Auditory Frequency within Auditory Cortex. *Journal of Neuroscience* 39(26): 5143-5152

Iverson, J. M., Tencer, H. L., Lany, J., and Goldin-Meadow, S. 2000. The relation between gesture and speech in congenitally blind and sighted language-learners. *Journal of Nonverbal Behavior* 24: 105–130.

Jęczeń U. 2023. Conceptualization of colours in the language of congenitally blind persons and the ones who became blind in the early stage of development. *Logopedia Silesiana* 11(2): 1-35.

Kaczorowska-Bray, K., Milewski, S. 2022. Specyfika rozwoju umiejętności komunikacyjnych dzieci z uszkodzeniem narządu wzroku. *Logopedia* 51(2): 77-95.

Khorrami-Nejad M, Sarabandi A, Akbari MR, Askarizadeh F. 2016. The Impact of Visual Impairment on Quality of Life. *Med Hypothesis Discov Innov Ophthalmol*. 5(3): 96-103.

Kekelis, L.S. and Andersen, E.S. 1984. Family communication styles and language development. *Journal of Visual Impairment and Blindness* 78(2): 54–65.

Krakowiak, K. 2017. *Diagnoza specjalnych potrzeb rozwojowych i edukacyjnych dzieci i młodzieży: standardy, wytyczne oraz wskazówki do przygotowania i adaptacji narzędzi diagnostycznych dla dzieci i młodzieży z wybranymi specjalnymi potrzebami rozwojowymi i edukacyjnymi: praca zbiorowa*. Ośrodek Rozwoju Edukacji.

Landau, B. and Gleitman, L. R. 1985. *Language and experience: Evidence from the blind child*. Cambridge, MA: Harvard University Press.

McConachie, H.R. and Moore, Y. 1994. Early expressive language of severely visually impaired children. *Developmental Medicine and Child Neurology* 36: 230–240.

Mills, A. 1983. Acquisition of speech sounds in the visually handicapped child. In A. Mills (ed.), *Language Acquisition in the Blind Child*, Croom Helm, London.

Norgate, S.H. 1997. Research methods for studying the language of blind children. In N.H. Hornberger and D. Corson (eds.) *Research methods in language and education*, 165-174. Dordrecht: Kluwer Academic Publishers.

Perez-Pereira, M. 2006. Language Development in Blind Children. In K. Brown (ed.) *Encyclopedia of Language & Linguistics* (2nd edition, volume 6), 357-361. Oxford: Elsevier.

Perez-Pereira, M. and Conti-Ramsden, G. 1999. *Language development and social interaction in blind children*. Hove: Psychology Press Ltd.

Rokach, A., Berman, D. and Rose, A. 2021. Loneliness of the Blind and the Visually Impaired. *Front. Psychol.* 12: 641711.

Sak-Wernicka, J. 2023. Do Blind People Need Gestures to Communicate Effectively? *Roczniki Humanistyczne* LXXI(10): 125-140.

Warren, D.H. 1994. *Blindness and children: an individual approach*. Cambridge: Cambridge University Press.

Wilson, R.B. 1985. The Emergence of Semantics of Tense and Aspect in the Language of a Visually Impaired Child, Unpublished DPhil doctoral dissertation, University of Hawaii.

.

LingBaW *Linguistics Beyond And Within 9 (2023), 172-196*

Enclisis, mesoclisis and inflection in Italo-Romance varieties: A minimalist analysis*

Leonardo M. Savoia and Benedetta Baldi
University of Florence, Italy

Abstract
This contribution addresses a central theme in morphological analysis, namely the relationship between clitics and inflectional elements. Important contributions on the point are due to Anderson (1992) and Marantz (1988), who, in different ways, connect clitics and affixes. We will propose a solution based on the idea that clitics are part of the inflectional arrangement of the verbal head. Specifically, we will investigate two types of data coming from some Romance varieties in which enclisis and mesoclisis phenomena interact with word formation. These phenomena affect the expression of the Internal Argument and lead us to rethink the analysis of enclisis and mesoclisis in terms of the ability of the inflected verb to realize Phasal domains. In other words, morphology is part of the syntactic computation, and morphemic elements, endowed with interpretable content, are introduced by the operation of Merge.

Keywords: object clitics, inflection, enclisis, mesoclisis, morpho-syntax, amalgamation

1. Introduction

The relationship between morphology and syntax is problematic for syntactic analysis. The idea that morphology is in some way an imperfection of language is rooted in morphosyntactic literature. In this line, Aronoff (1998: 406) argues that 'morphology is inherently unnatural, it is a disease, a pathology of language'. The question is why language should obscure the relationship between interpretive (Conceptual-Intentional, C-I) and sensory-motor (SM) interfaces (Manzini and Savoia 2011a, 2018) or make it more complex. Needless to say, other

* This article is fruit of a common conceptualization and elaboration, and reflects the research interests of Benedetta Baldi and Leonardo M. Savoia. It relies on a long series of field investigations, some of them in recent months, both in Piedmontese and Calabro-Lucanian centers, with native speakers. The informants were perfectly informed about the type of investigation and the oral questionnaire adopted. Abbreviations: C-I system = Conceptual-Intentional system, SM system = Sensorimotor system; DM = Distributed Morphology; SCl = Subject clitic; OCl = Object clitic; EPP = Extended Projection Principle requiring a NP/DP in subject position; WFR = Word Formation Rules; EA = External Argument; IA = Internal Argument; R = Root; CT = Categorizer; TV = Thematic Vowel; XP = X Phrase; NM = Negative Marker.

approaches to morphology are based on very different assumptions, which, as we can expect, assign morphemes an interpretive status. In fact, relying on a minimalist approach to language, we expect that morphology is, however, a natural component of languages, connected to the basic computation of syntactic structures.

Generally, in Romance varieties OCls occur in proclisis both on the lexical verb and the auxiliary, as in Italian, (1a) and (1b) for clusters. Imperatives require enclisis in Italian, in (2), as well as in the other Italian varieties.

(1)
a. la ved-o
her I.see
'I see her'
b. l(-a) ho vist-a
her I.have seen-FSG
'I have seen her'

(2) chiama-lo
call-him
'Call him!

Italian

While enclisis on imperative and, in many dialects, infinitive/gerund is widespread in Italian varieties, we find systems that, moreover, show enclisis also in finite declarative forms. In what follows we will focus on some phenomena in which clitics are combined with the inflectional part of the verb or are interpolated between the root and the inflectional exponents both in modal and in declarative forms. The data on which we will focus, come from eastern Piedmontese dialects, with enclisis in declarative forms and from southern Italian varieties spoken in the Lausberg Area between Calabria and Basilicata, with enclisis on the auxiliary and mesoclisis in the imperative.

2. Piedmontese: systematic enclisis of OCls

Enclisis on the lexical verb in declarative sentences characterizes the north-eastern Piedmontese dialects, here exemplified by the data from Romentino and Trecate (Novara) in (3) and (4) respectively[1]. (3a) and (4a) illustrate the enclisis of one clitic, (3b) and (4b) the enclisis of a complex clitic string. (3c) and (4c) illustrate the imperative; finally, (3d) and (4d) show the enclisis on the participle. In these dialects in transitive and unergative constructs, the past participle (PP) has an invariable form, for instance, *tʃa ˈm-a* 'called', including the root followed by the Thematic Vowel (TV). As to the inflected forms of the verb, they are subject to morpho-phonological modifications, as shown by the comparison with the forms in isolation reported in (3a') and (4a'). For instance, in (3a), the vowel ending of the forms exemplified in (4a'), (5a') and (6a'), is deleted when followed by the enclitic. Analogously, in (3b) and (3c) the final

[1] Tortora (2002) provided a first analysis of this phenomenon in the dialect of Borgomanero; Manzini and Savoia (2005) present a detailed analysis of other similar systems, such as those of Trecate and Romentino examined here. Both approaches rely on the cartographic framework, even if with important conceptual differences.

exponent (indicated between brackets) is not realized in the presence of the enclitic. It is of note that negation in these varieties is realized by a negative minimizer (NM), such as *mia* in (3a), which follows the inflected verb (Zanuttini 1997, Manzini and Savoia 2005, Baldi and Savoia 2022).

(3)

a.	i	ʧam-	ta/	va/	u/	a/	ja	(mia)
	SCl.1SG	call-1SG	2SG/	2PL/	3MSG/	3FSG/	3PL	NM
	'I call/do not call you/you (pl)/him/her/them'							
a'.	i	ʧam-a	tɔ	fraˈde				
	SCl.1SG	call-1SG	your	brother				
	'I call your brother'							
b.	i	de-n(u)-	m-	u/	a/	ja		
	SCl.3PL	give.3PL	1SG-	3MSG/	FSG/	3 PL		
	'They give it/them to me'							
c.	ʧam-(a)-	u/	a/	ja	(mia)			
	call-2SG-	3MSG/	3FSG/	3PL	NM			
	'(do not) call him/her/them'							
d.	l	a	(mia)	ʧaˈm-	a-	m/	-r/	-r-a/ ji
	SCl.3SG	have.3SG	NM	call-TV/	PP	1SG/	3MSG/	3-FSG/ 3PL
	'(s)he has (not) called me/him/her'							

Romentino

(4)

a.	a	ʧam-	ma/	-ta/	-na
	SCl.3SG	call-	1SG/	2SG/	1PL
	'(S)he calls me/you/us				
a'.	a	ʧam-a	i	sɔ	maˈtɛ
	SCl.3SG	call-3SG	the	his/her	boys'
	'(S)he calls her/his sons'				
b.	a	da-	v-	r-u	
	SCl.3SG	give-	Dat-	3-MSG	
	'(S)he gives it to him/her'				
c.	ʧam-(a)-	r-u/	na		
	call-2SG-	3-MSG/	1PL		
	'Call him/us'				
d.	ɔ	parˈd-y-	r/	r-a	
	have.1SG	loss-TV/PP-	3MSG/	3-FSG	
	'I have lost him/her'				

Trecate

Finally, in these varieties, the clitic can be optionally placed on a nominal element, i.e. a negative or locative expression, subcategorized by the verb, as illustrated in (5) for Romentino and Trecate. In the examples the two possibilities are illustrated, i.e. the enclisis on the locative in (5a) and the enclisis on the verb in (5b) for Romentino. The examples from Trecate show these two positions in past-participial contexts. In (6a) the enclitic occurs on the locative to the right of the past participle, while in (6b) it occurs on the participle and the locative remains in the final position. (6c) illustrates the enclisis on the locative with an inflected lexical verb.

(5)

a. i bøt-a (mia) ŋfɔr-u
SCl.1SG put-1SGL NM out-3MS
'I (do not) bring it out'

b. i bøt-u (mia) ŋfɔra
SCl.1SG put-3MSG NM out
'I (do not) bring it out'

Romentino

(6)

a. ɔ byˈt-a fɔr-ja/ la-r
have.1SG put-PP out-3PL/ there-3PL
'I have put them out/there'

b. ɔ byˈta-r fɔra/la
have.1SG put-PP-3MSG out/there
'I have put it out/there'

c. ɔ byˈt-a fɔr-ru
SCl put-PP out-3MSG
'I have put it out'

Trecate

In the imperfect indicative, in (7a), and the conditional, in (8a), for the dialect of Trecate, the person endings of singular and plural are syncretic. In the imperfect we find *–a* in the singular and *–u* in the plural. In the conditional, Ø in the singular contrasts with *–u* in the plural. The paradigm of the present indicative in (7a') has *–a* in the singular and, in the plural, distinguishes two specialized forms in the 1pl and 2pl, while in the 3pl *–u* occurs. The data in (7b) and (8b) show the enclisis on these strings, whereby the enclitic element is affixed to the inflected form, possibly enlarged by the insertion of the epenthetic vowel *-a-*. As to the structure of the inflected forms, we assume that in the imperfect *-e-* is the specialized TV (Thematic Vowel), and *–v-* the tense affix; in the conditional, *-a-r-* combines the TV and an inflectional element of the Irreality, while *–es* is the affix of the imperfect (cf. Savoia and Baldi 2022b).

(7)

a. i tʃam-e-v-a 'I called, etc.' cf. a'. i tʃam-a 'I call, etc.'
te tʃam-e-v-a te tʃam-a
a tʃam-e-v-a a tʃam-a
i tʃam-e-v-u (1PL/2PL/3PL) i tʃaˈm-u-ma
i tʃaˈm-e
i tʃam-u

b. ly/le a tʃam-e- v- (a)- va/ r-u/ r-a
he/she SCl call-TV- Imp- Vowel- 2PL/ 3-MSG/ FSG
'He/she called you/him/her'

(8)

a. i tʃam-a-r-es 'I would call, etc.'
te tʃam-a-r-es
a tʃam-a-r-es
i tʃam-a-r-es-u (1PL/2PL/3PL)

b. te tʃam-a-r-es-a-ma
SCl call-TV-Inf-Imp-Vowel-1SG
'You would call me'

Trecate

A striking property of these dialects is the high degree of syncretism. Specifically, syncretism and other kinds of ambiguity imply an interpretive common denominator shared by the inflectional affixes. Similar conclusions are now further supported by Wood and Marantz (2011), and specifically by Collins and Kayne (2020) with regard to the relationship morphology/syntax. Thus, if we consider the morphological elements involved in (7) and (8), we have the pattern in (9a) for the inflectional morphology and (9b) for SCls. As to the nature of [plural], we identify it with the part-subset content (on the basis of Chierchia 1998), i.e. the inclusion operator [⊆], indicating that the argument can be partitioned into subsets (Manzini and Savoia 2011a, 2017, Savoia and Baldi 2022b). So, the exponent *–u* can be associated with this property; the SCl *i*, a definiteness marker, can also include the inclusion property, as in (9b). The exponent *a*, which occurs both as the inflection and the SCl, can be treated as a marker of specificity. *te*, the only specialized SCL, refers to the recipient. Finally, we characterize the TV as a nominal variable 'x', whose value is fixed by the subject.[2]

(9)

a. Inflections
-a = specific
-u = [⊆]
-um(a) = 1st and [⊆] (1st PL)
TV = nominal variable, x (2nd PL)

b. SClS
i = definiteness, [⊆] (1st SG / 1st PL / 2nd PL / 3rd PL)
te = 2nd SG
a = specific (3rd SG)

Taking into account the paradigms in (7)-(8) we obtain the system of selection rules in (10), substantially specifying the speaker's knowledge with regard to the distribution of inflection elements. More precisely (10a,b,c) establish the distribution of TV and the person/number exponents; (10d,e,f) establish the distribution of the tense and mood exponents: *-v-* and *-ss-* combine with the TV, while the counterfactual *–a-r-* is merged with the root. *Elsewhere Principle* regulates the application of the rules in (10), whereby a more specific rule overrides the more general one, so, for example, (10a) precedes (10b).

(10)

a. $\text{-um(a)}_{\text{Present}} \leftarrow\rightarrow$ R] __
b. TV $\leftarrow\rightarrow$ R] __ 2nd pl / PP / Imperfect…
c. -a / -u $\leftarrow\rightarrow$ R or T/M/A] __
d. $\text{-v-}_{\text{Imperfect}} \leftarrow\rightarrow$ TV] __
e. $\text{-ss-}_{\text{Imperfect Counterfactual}} \leftarrow\rightarrow$ TV] __
f. $\text{a-r-}_{\text{Counterfactual}} \leftarrow\rightarrow$ R] __

Trecate

[2] The proposal that the TV corresponds to a nominal variable 'x', whose value is fixed by the subject has been formulated by Manzini and Savoia (2005, 2007, 2011a) and elaborated by Savoia and Baldi (2022b) in the analysis of the verbal systems. The idea is that the TV makes the root a predicate available to combine with the tense/aspectual/modal elements.

The interpretation, i.e. the disambiguation of the syncretic forms in (7)-(8), depends on contextual factors, syntactic or not. In other words, the inflectional paradigms are structurally ambiguous, a property that also characterizes the SCls.

3. Clitics and inflection

A well-known generalization concerning inflectional morphemes in syntax is Baker's (1988) Mirror Principle, whereby the verb moves to combine with the inflectional suffixes, as in (11), representing the 2nd plural of the Italian imperfect *lava-va-te* 'you(pl) washed'.

(11) … [$_{AgrS}$ lava-va-te [IP [$_{I}$ ~~lava-va-~~ [VP [$_{V}$ ~~lava-~~ …

(11) translates into syntactic operations the idea, traditional in generative grammar, that the composition of complex words is an ordered cyclic mechanism. At once, it associates the treatment of inflection with syntax. Nevertheless, the more popular morphological model, i.e. DM, identifies morphology as an autonomous component, which conceives sub-word elements (affixes and clitics) as 'dissociated morphemes'. They convey information 'separated from the original locus of that information in the phrase marker' (Embick and Noyer 2001: 557) and involve post-syntactic rules of Local dislocation (Embick and Noyer 2001). Thus, agreement and case morphemes are not represented in syntax but are added post-syntactically 'during Morphology' by the Late-insertion mechanism. In DM, Late Insertion and the manipulation of syntactic features by the morphological adjustment rules represent the indispensable means to treat the specific properties of morphology.[3] An undesirable result of this model is that there may be morphological elements devoid of any syntactic and interpretive import, as in the case of the thematic vowels of Romance languages (Embick 2010). Moreover, morphological rules can modify or delete φ-features relevant to syntax.

Traditionally, the difference between pronominal clitics and person exponents is reflected in the lexicon by the fact that inflectional elements are subcategorized for the verbal word, while clitics occupy the argument site (XP positions?) in the structure. Actually, also clitics have a restricted type of occurrence and in many cases the decision regarding their status depends on the point of view of the approach. So, the morpheme-based model proposed by Anderson (1992) identifies clitics with affixes, more precisely, applies the same type of Word Formation Rules to both, where WFRs map stems into 'fully inflected surface words' (Anderson 1992: 122). More precisely, Anderson (1992: 201 ff.) distinguishes simple clitics, i.e. the phonologically determined cliticization, from 'special clitics', that 'display a distinctive syntax'. For example, the latter occur in special and restricted positions. This is the case of pronominal clitics in Romance and Balkan languages. His idea is that WFRs operate in the same way in both cases, inflection and special clitics, i.e. by inserting phonological and morphological material in

[3] Late Insertion is a costly descriptive tool, to which we can assimilate the notion and the use of Late Merge, that Chomsky (2019: 267) criticizes as 'a complex operation of substitution of the newly Merged element in exactly in the place where it originally appeared'. Chomsky (2019: 266-267) concludes that 'everything which is done with what is called Late Merge: it's completely unacceptable, because it involves operations that are complex, unmotivated, […].'.

correspondence with the lexical heads / nodes of the structure. In the case of clitics, configurational properties of the phrase, such as the argument structure, are involved.

In DM the superficial distinction between clitics and inflectional affixes is preserved, although the featural properties of clitics make them substantially undistinguishable from the other morphological material (Halle and Marantz 1993, 1994). Marantz (1988: 253) proposes that the morphological merger, as e.g. cliticization, is a type of realization of a syntactic relation between two heads, whereby 'an independent syntactic constituent shows up phonologically as part of a derived word'. This idea closely resembles that adopted by Baker (1988) on the incorporation, seen as a way of realizing the syntactic relationship between the verb and its IA.

In the traditional approach, subject clitics (SCls), present in northern Italian dialects and in French, are inserted in their preverbal position where they realize the φ-features associated with the EPP position of Infl/T (see the discussion in Poletto 2000, Manzini and Savoia 2005, 2007). OCls, according to many authors, move from their basic position within VP to functional heads in the domain of Infl, where they have specialized positions (Kayne 1991, Uriagereka 1995, Tortora 2002) or are directly inserted in these positions (Manzini and Savoia 2005). The enclisis of OCls in imperatives and in infinitival contexts is generally derived from the high position of the verb in the C-field (Rivero 1994, Rivero and Terzi 1995, Mavrogiorgos 2010, Manzini and Savoia 2011b), as in (12).

(12) $[_{\text{Imp}}$ verb $[_{\text{C}} \ldots [_{\text{T}}\ t_i\ [_{\text{VP}}\ t_i$ OCl

Manzini and Savoia (2011b) point out that no principled reason prevents inflection and clitics from being interpolated. In fact, the head raising of the root to C can leave free the positions to his right for clitics in-between C and I, where the inflectional exponent is inserted. It is interesting to note that the movement of the verb to C or Infl leaves the clitic behind anyway, whether we think it in a high or low position. The result is that the positioning of the OCl is uncertain in many cases, thus making the model too powerful and over-generating.

Perhaps, the most well-known type of mesoclisis in the Romance varieties is attested in European Portuguese. The analysis of enclisis and mesoclisis in European Portuguese proposed by Vigario (1999) argues in favor of a syntactic solution. In European Portuguese OCls can occur in enclisis on the inflected verb, as in (13a), and in mesoclisis, although limited to the future and conditional, that is in verbal complex forms that combine the infinitive with a reduced paradigm of *have* as in (13b). Although mesoclisis could suggest the inflectional nature of the clitic, the author opposes the idea that enclitics can be treated as inflections on the basis of the evidence whereby operators such as negation, wh-, complementizers, and quantifiers require the proclitic position, as in (13c)

(13)

a. dou-te — Vigario (1999: 223)
give-PRES1SG-2SGDAT
'I give to you'

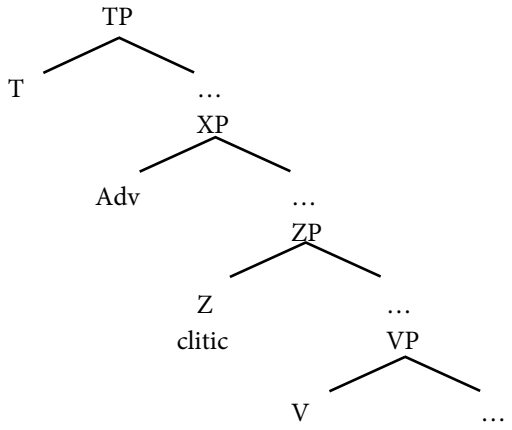
b. dár-te-íamos
give-2SGDAT-HAVE.1SG'
'We would give to you'

c. não te dou Vigario (1999: 231)
not 2SGDAT give-PRES1SG
'I do not give to you'

Vigario, on this basis, proposes that mesoclisis is nothing but a type of adjunction of the enclitic to the infinitive. As a result, a complex lexical combination is created, such as (13b), where both infinitive and *have* are different lexical heads, and pronominal cliticization must be considered a 'postlexical operation'.

It is unclear why we should assume the raising of the verb to C in modal contexts if enclisis is structurally possible even if the verb stays in Infl, as in the northeastern Piedmontese dialects in (3)-(4), and in Portuguese in (13). This possibility weakens the theory of movement to C and could suggest that enclisis is realized when OCls remain in their original position. The only possible account is that OCls have a position in the adverbial string between the inflectional position of the verb in TP and VP. So, we can expect that in some languages, the verb raising to a higher structural position, leaves OCls and adverbs on its right, along the lines proposed by Kayne (1991) for the clitic order in Occitan. This is the cartographic solution adopted by Tortora (2002; cf. pf. 3.2) in analyzing a distribution similar to which that characterizes the Piedmontese dialects in (3)-(4) with enclisis on the verb, as in (14). In (14), from Tortora (2002: 737), Z is the position of OCls.

(14)

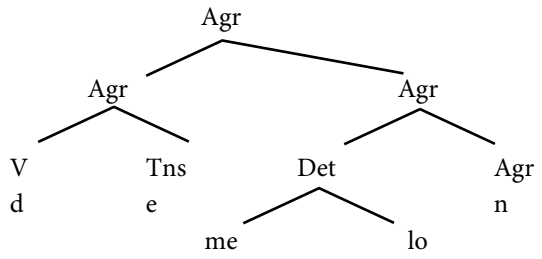


Nevertheless, Tortora concludes:

> Unfortunately, I can offer no insight as to why the Borgomanerese clitic moves to the lower Z head, while the Italian object clitic moves to the higher T head […], and the French object clitic moves to the intermediate Infn^0 head […]. The idea that object clitics move to different functional heads in different Romance languages may seem unmotivated and without explanation.
>
> Tortora (2002: 742)

Needless to say, mesoclisis increases the descriptive and structural problems for a cartographic approach to the distribution of OCls. It is no accident that a solution is provided in a morphological model such as DM as proposed by Halle and Marantz (1994) for mesoclisis in Caribbean Spanish. In this variety, in the 2nd plural of imperative, unlike the standard *de-n-me-lo*, object clitics, in DET can be inserted between the stem and the inflection *–n*, within the Agr node, as in *de-me-lo-n* 'give-me-it-2pl', in (15).

(15) Halle and Marantz (1994: 286)



The analysis of Halle and Marantz assumes that the reordering of clitics and inflectional exponents is derived by means of a post-syntactic rule that restores 'the usual order of affixes in inflected words, with the plural suffix to the right of other feature complexes' (Halle and Marantz 1994: 287). Halle and Marantz (1994: 286) see in the behavior of the pronominal clitics and plural inflectional suffix 'an argument against 'a-morphous approaches to morphology' and supporting a syntactic treatment of morphology.

Crucially, all that we are considering refers to heads movement or merger; indeed, the formation of complex words is based on the Merge operation, which takes roots and affixes, i.e. sub-word elements, and combines them into a complex syntactic object. This procedure encompasses the 'head raising', which is the classic movement of the head, i.e. the mechanism by which verbal (and nominal) heads are combined with affixes and positioned in the cartographic structure. In Chomsky's most recent reflection, conceptual reasons question the Probe-Goal agreement as a genuine syntactic mechanism (Chomsky et al. 2019, Chomsky 2019, 2020). Specifically, 'head raising' is seen as problematic insofar as it does not entail semantic effects and, structurally, it is counter-cyclic. In this sense, the approach to the agreement that we adopt is inspired by the idea of Chomsky et al. (2019: 238) that raising to the subject is an unnecessary operation:

> The features invoked in the technical literature to license applications of MERGE are typically ad hoc and without independent justification, "EPP features" and equivalent devices being only the most obvious case. […] Featural diacritics typically amount to no more than a statement that "displacement happens"; they are thus dispensable without empirical loss and with theoretical gain, in that Triggered Merge or equivalent complications become unnecessary […] MERGE thus applies freely, generating expressions that receive whatever interpretation they are assigned by interfacing systems.

So, Chomsky (2021: 30 and 36 ff.), assumes that Merge operation can create the combination of morphemes in complex words:

> The first step in a derivation must select two items from the lexicon, presumably a root R and a categorizer CT, forming {CT, R}, which undergoes amalgamation under externalization, possibly inducing ordering effects […]. With head-movement eliminated, v need no longer be at the edge of the vP phase, but can be within the domains of PIC and Transfer, which can be unified. E[xternal]A[rgumernt] is interpreted at the next phase'.

The amalgamation gives rise to complex forms like [INFL [v, Root]], subject to externalization. The external argument is interpreted in the phase of T by the inflected form of the verb, and *v* is not involved in the procedure. In keeping with this approach, we conceptualize categorizers such as *v, n*, as the bundles of φ-features that characterize the functional content of words entering into the agreement operations (Manzini 2021, Baldi and Savoia 2022). Taking into

account Chomsky (2021), the movement of OCl appears to be a case of head-movement, and can be treated as a case of amalgamation, similar to that of inflectional heads. This solution agrees with what is, however, a traditional intuition, i.e. that clitics are morphological elements very similar to inflectional morphemes[4].

In accordance with the previous discussion, we assume that morphological operations are part of the syntactic computation and there is no specialized component for the morphological structure of words (Manzini and Savoia 2011a, Manzini et al. 2020, Savoia et al. 2018; see also Collins and Kayne 2020). This is a long-standing intuition, for instance, formulated in Marantz (2001: 6), whereby 'syntax perform[s] all merger operations including those between morphemes within a word'. In the approach that we will follow, lexical elements, including morphemes, are endowed with interpretive content, thus excluding Late Insertion and the other adjustments provided by Distributed Morphology, such as the manipulation of terminal nodes, impoverishment, and fusion of φ-features. The agreement is accounted for as the morphological manifestation of the identity between referential feature sets corresponding to the same arguments of the sentence.

4. Enclisis and mesoclisis in Piedmontese dialects

Word formation involves the combination of agreement features and tense/aspect/mood inflectional affixes with roots, simple or enlarged by affixes by Merge. We wonder how clitics and inflectional exponents of the verb realize the φ-features associated with v and T. Consider first the proclisis on the verb, as in Italian *l-o chiam-a* '(s)he calls him' in (1a). As the first step, the root of the verb is merged with 3rd person inflection *–a*, creating the amalgam in (16a); the inflected verb is merged with the OCl, yielding (16b), where the latter realizes the features of the IA associated with *v*. The amalgam *OCl+inflected verb* satisfies the features of EA and IA in T, as in (16c), so that, as suggested by Chomsky (2021: 36) 'E[xternal]A[rgumernt] is interpreted at the next phase', i.e. T. Morphological elements are combined under a selective restriction such as (16d), acquired by the speaker as part of her/his linguistic knowledge.

(16)

a. $< [_R$ chiam], $a_{3sg} > \rightarrow [_{v/\varphi}$ chiam-a]

b. $< $l-$o_{3msg}$, $[_\varphi$ chiam-a]$> \rightarrow [_\varphi$ l-o $[_\varphi$ chiam-a]]

c.

C	T_φ	v_{3msg}	V_R
	l-o$_{3msg}$ *chiam-a*$_\varphi$		

d. l-o $\leftarrow\rightarrow$ __ $[_T$

We could think that proclisis implies External Merging whereby the inflected verb and the OCl combine yielding the string *OCl+verb*, which realizes the features of T. Actually, nothing seems to prevent the amalgamation of the clitic head to the verb, with the difference that the merger is applied out of the internal structure of the word.

[4] This is the case of the proposal of Roberts (2010, 2018), which analyzes Romance Cls as agreement heads, OCls of v and SCls of T.

Let us begin with the enclisis on the past participle in Piedmontese dialects, in (3a) and (4d), we note that clitics occupy the position immediately adjacent to the TV (that realizes the PP), exactly in the place generally assigned to the inflectional material. Some of these varieties, as in the case of Masserano, allow the comparison to be possible, showing enclisis in transitive forms, in (17a), and the inflectional element in unaccusative verbs, as in (17b).

(17)

a. (a)l a tʃaˈm-a- mi/ -l-u/ -l-a/ -i
SCl.3SG have.3SG called-TV- 1SG/ 3-MSG/ 3-FSG/ 3PL
'(s)he has called me/him/her/them'

b. al ɛ ɲ-y/ ɲ-u-a
SCl.3SG is come-TV/ come-TV/PP-FSG
'(S)he has come'

Masserano

This suggests that the enclitic and the inflectional exponent are realizations of the same morphological slot and, substantially, of the same argument (IA). If that's the case, the enclitic element in (18a) is merged with the past participle in (18b), adjacent to the TV, as a component of the complex participial form. The amalgam is able to realize the interpretive properties of *v* in the domain of PIC and Transfer, as in (18c).

(18)

a. l ɛ tʃaˈm-a- r-a
SCl.3SG be.3SG call-TV- 3-FSG
'(s)he has called her'

b. <[$_{\varphi}$ tʃam-a], ra$_{3fsg}$> → [$_{v/3fsg}$ [$_{\varphi}$ tʃam-a] ra]

c.

C	T	v_{φ}	participle (including OCL)
al$_{EA}$	*ɛ*		*tʃam-a-ra*$_{\varphi}$

Romentino

Taking into account the enclisis on the participle, we conclude that the selective restriction on OCls includes two possible contexts, as suggested in (19).

(19) r(u) / r a, etc. ←→ __ [$_{v}$ or TV __

Romentino

We are assuming that enclitics are inserted as sub-word elements, like inflectional exponents: in the terms of Marantz (2007), Phases can be recognized 'within words'. This hypothesis allows us to account for the difference between proclisis and enclisis on inflected verb forms in declarative sentences.

4.1. Contexts of enclisis

As shown in (4a) and (4e), differently from participles, where the enclitic is adjacent to the TV, in the finite forms of the verb the inflection can be absent and the clitic is inserted in its place. The replacement of the inflectional ending by the enclitic is systematic in the Piedmontese dialects with enclisis, except for the 1st and the 2nd plural and, in a subset of these dialects, in the

3rd plural, in the present indicative. In these contexts, we find specialized inflections. The 1st plural includes the TV *-u-* and the specialized exponent *–ma*, as in (20a); the 2nd plural coincides with the TV, as in (20b) (cf. Baldi and Savoia 2022b). Finally, the 3rd plural can include a specialized exponent *–na* in turn preceded by the stressed TV, as in (20c).

(20)

a. i laˈv- u- m- na
SCl wash- TV- 1PL- 1PL
'We wash'

a'. i laˈv- u- ma
SCl wash- TV- 1PL
'We wash'

b. i laˈv- e- v
SCl wash- TV- 2PL
'You wash yourselves'

b'. i laˈv- e
SCl wash- TV
'You wash'

c. i laˈv- e- n- sa
SCl wash- TV- 3PL- REFL
'They wash themselves'

c'. i laˈv- e- na
SCl wash- TV- 3PL
'They wash'

Romentino

a. i tʃaˈm- u- m(a) -r-u/ r-a/ ta
SCl call- TV-1PL- 3-MSG/ 3-FSG/ 2SG
'We call him/her/you'

a' i tʃaˈm- u- ma tytʃ
SCl call- TV-1PL all
'We call all'

b. i tʃaˈm- ɛ- na/ -r-u/ r-a
SCl call- TV- 1PL/ 3-MSG/ 3-FSG
'You call us/him/her'

b' i tʃaˈm-ɛ
SCl call-TV-2PL
'You call

Trecate

As detailed by the data in (20), the morphological structure is however adapted to accommodate the enclitic. This holds both for 1st and 3rd plural, which show reduced forms in (210a,c). Morpho-phonological constraints can optionally intervene to create more phonologically usual strings, as in (19a), where the sequence *…m-r…* may be avoided by inserting the epenthetic vowel *-a-* (EV).

All things considered, we conclude that enclisis on the inflected present indicative is formed by merging the enclitic element to the root. So, taking (4a) for Romentino, the complex word, yielded by the merger operation in (21a), is available to realize in T the agreement

properties associated with IA and EA, and to agree with the SCl, as in (21b), based on the Minimal Search criterion.

(21)

a. < [$_R$ tʃam], ta_{2sg}/u_{3msg}> → [$_\varphi$ [tʃam]-ta/u]

b.

C		$T_{3sg/3msg}$	v_φ	V_R
	a_{3sg}	*tʃam-ta/u$_\varphi$*		

In the case of the tense/mood inflected forms like the imperfect indicative and the conditional in (6)-(7), the enclitic behaves like the inflectional exponents, combining with the rightmost element, i.e. *-v-* or *-s-*, as in (22). The enclisis is the amalgamation of OCls with the root in the present, in (22a), or with the tense/mood-inflected form in (22a), in the other forms. The properties of *v* are realized by the inflected form in T, as in (22b).

(22)

a. < [[[$_R$ tʃam] e $_{TV}$] v $_{Imp}$], ru_{3msg}> → [$_{T/\varphi}$ [tʃam-e-v] ru]

b.

C	T_{3sg}	v_φ	V_R
a_{3sg}	*tʃam-e-v$_{T/M}$-ru$_\varphi$*		

Trecate

Epenthesis of *-a-* (Epenthetic Vowel, EV) is documented also in imperfect and conditional, as, for instance, in (23):

(23) te tʃam- a- r- e- s- a- ma
SCl call- TV- Irrealis- TV- Imp- EV- 1SG
'You would call me'

Trecate

4.2. Enclisis on locative words and negative markers

The occurrence of clitics on locatives or other adverbials associated with the verb as in (5) and (6), can in turn be treated as a combinatorial property of these morphemes. On this point, it is useful to start from the analysis proposed by Tortora (2002) as regards the enclisis on the postverbal adverbials in the dialect of Borgomanero. This variety belongs to the same area and type as the Piedmontese dialects discussed in this article; then, Borgomanerese has enclisis in declarative sentences on the verb or the following adverbial. For the latter context, only the negative markers and the manner element *già* 'already' are considered by the author. Tortora (2002: 744-745) notes that in the contexts *verb+adverb* enclisis is obligatory associated with the rightmost element, as in (24a), while the occurrence on the verb is prevented, as (24a'). In the case of participial contexts, enclisis on the participle is excluded if the participle moves to the left of the adverbial element, as shown by the contrast between (24b) and (24b'), where enclisis on the participle is blocked.

(24)

a. i porti mi-lla — Tortora (2002: 729)
SCL bring(1SG) NEG-it
'I'm not bringing it'

a'. *i porta-la mija.
SCL bring(lSG)-it NEG
b. i o vüst piö-lla
SCl have.1SG seen anymore-her'
'I haven't seen her anymore'
b'. *i o vüst-la piö Tortora (2002: 745)
SCl have.1SG seen-her anymore
'I have'nt seen her anymore'

Relying on the distribution in (24), Tortora (2002: 740 ff.) concludes that the movement of the clitic from its base position in VP, as in (14), depends on the *Right-most possible requirement*, whereby the clitic could not skip a possible host, as in (24a',b'). According to Tortora, this restriction suggests that the enclitic does not form a constituent with the verb or the participle but it 'occupies its own (head) position' and the process is syntactic.

Our data in (5)-(6) do not show such a restriction but we find optionally realized the enclisis on the locative, in (5a)-(6a), or on the verb, in (5b)-(6b). In other words, we do not observe any relevant structural constraint that interacts with the position of enclitics. Since the dialects in (5)-(6) exclude enclisis with negative markers, and we might think that negative markers have a special status, it is useful to consider data comparable with those of Borgomanero. In the variety of Galliate, similar to those of Romentino, Trecate and Borgomanero, enclisis affects not only locative or manner elements but also negative markers. (25a,a') illustrate the alternation between the enclisis on the verb to the left of the NM and the enclisis on the NM, exactly like with locatives, in (25b,b'), as we saw in (5) and (6) for Trecate and Romentino. So, enclisis does not depend on the 'right-most' requirement but can occur on the verb on the left.

(25)
a. i tʃam- r-u mea
SCl.1SG call.SG 3-MSG NM
'I do not call him'
a'. i tʃam-a mei-r-u
SCl.1SG call-SG NM-3-MSG
'I do not call him'
b. i bøt- r-u kilɔ
SCl.1SG put 3-MSG there
'I put it there'
b'. i bøt-a kilɔ- r-u
SCl.1SG put-1SG there- 3-MSG
'I put it there'

In auxiliary contexts, the canonical (and scopal) position of NMs between the auxiliary and the participle is the rule in these dialects, with the consequence that the final position of the NM is possible only as a focus. Enclisis is however on the participle, as in (26a,a'). This 'right-most' effect is only apparent because with locatives both types of occurrences reappear, as in (26b) and (26b').

(26)
a. l a mea/ pjø tʃaˈma-r-u
SCl.3SG have.3SG NM/ no longer call-PP-3-MSG
'(s)he has not/never called him'

a'. l a tʃaˈma-r-u pjø
SCl.3SG have.3SG call-PP-3-MSG no longer
'(s)he has not/never called him'
b. u tʃaˈma-r-u kiˈlɔ
have.1SG call-PP-3-MSG here
'I have called him here'
b'. u tʃaˈma kiˈlɔ-r-u
have.1SG call-PP- here-3-MSG
'I have called him here'

Galliate

The data in (25) and (26) are sufficient to conclude that no 'right-most' principle regulates the hypothesized raising of the clitic head. Only the lexical properties of the relevant vocabulary items seem to be involved. For instance, NMs are part of the sub-set of the elements admitting enclisis in the dialects of Borgomanero and Galliate, but not in those of Trecate and Romentino, while locatives admit enclisis in all our dialects except for the Borgomarese. The more restrictive behavior of NMs can be connected to the fact that NMs contribute to expressing the scope of the negative operator. More precisely, as suggested in the discussion around (3), NMs can be seen as minimizers in the scope of the negative operator ¬ (Baldi and Savoia 2022), which leaves out definite referents. This fine-grained variation reflects the typical differences associated with morpho-lexical properties, while assuming different syntactic structures and parameters for head-raising appears totally ad hoc. In conclusion, the data in (25)-(26) argue in favor of treating enclisis as a morphological phenomenon governed by the properties of lexical elements

Coming back to the formation of *adverbial element+enclitic* structures, we see that locatives can include enclitics in contexts where they are subcategorized by verbs implying a spatial reading, of which they specify the coordinates. In *i bøt-a ŋfɔr-u* 'I put it out' (from (5a)) for Romentino, the morpheme *-u* is merged to the locative in the place of its inflectional ending *-a*, as in (27a). The locative realizes (properties of) v, such as the spatial points and the IA, as suggested in (27b). The application of Merge in amalgamation takes into account the selective restrictions on the distribution of OCls, as suggested in (27c).

(27)
a. $< [_R$ ŋfɔr] $-u_{3msg} > \rightarrow [_\varphi [$ŋfɔr] u]

b.

C		T_{1sg}	v_φ	V_R
	i_{1sg}	*bøt-a*	*ŋfɔr-u*$_\varphi$	

c. *u* $\leftarrow\rightarrow$ $_{R/}$ v] ___, where R encompasses verbal Root or locative words,

The same holds for (25a'), *i tʃam-a mei-r-u* 'I do not call him', where it is the NM that hosts the 3rd person inflectional element, as in (28). The comparison between (25a) and (25a') shows that also in the case of postverbal elements, enclisis can entail different alternants, as many inflectional mechanisms: here, *mea*, in isolation, alternates with *mei*-OCl.

(28)
a. $< [_R$ mei] –r-$u_{3msg} > \rightarrow [_\varphi$[mei] r-u]

b.

¬	C		T_{1sg}	v_φ	V_R
		i_{1sg}	*tʃam-a*	*mei-r-u*$_\varphi$	

c. *r-u* ←→ $_{R/}$ v] ___, where R encompasses verbal Root or negative and locative words.

A question apart is the order of (en)clitic pronouns in clusters. The order generally applied in Italian varieties, including those examined here, is *Oblique (Dative/Locative) – Object*. As discussed by Manzini and Savoia (2017), we can hypothesize the role of interpretive constraints, which could favor this order. A possible insight is that the first position of the Dative/Locative element is related to its scope properties over the object, in the sense that Dative/Locative includes the IA.

4.3. Mesoclisis

Evidence in favor of the analysis we propose is provided by the mesoclisis shown by the dialect of Trecate in the forms ending in *–u*, i.e. the 3rd plural of the present and the three plural persons of the imperfect and conditional. In these forms, the clitic is inserted between the root and the inflectional exponent *–u*, as illustrated in (29). An effect of mesoclisis is that the vocalic endings of enclitics are blocked and replaced by *–u*; in particular, the distinction between the form of the 3rdsingular feminine *-r-a* and singular masculine *r-u* is lost. (29a,b,c) exemplify mesoclisis in the present, in the imperfect, and in the conditional.

(29)

a. i tʃam- (a-) m-/ t-/ r- u
SCl call- (EV) 1SG-/ 2SG-/ 3PS- PL
'They call me/you/him/her'

b. nyati i tʃam-e- v- (a)- v/r- u
we SCl call-TV- Imp- (EV)- 2PL/3PS- PL
'We called you/him/her'

c. i tʃam-a- r- e- s- a- m- u
SCl call-TV- Irrealis- TV- Imp-EV- 1SG- PL
'They would call me'

Trecate

Mesoclisis can be explained as a type of amalgamation of clitics and inflectional exponents, where the 3rd plural inflection is merged to enclitic elements in the final position. In (30a), the enclitic *–m(a)-* is merged to the Root. In (30b) the inflection of 3rd plural *–u* is amalgamated to this sequence yielding the complex inflected form, incorporating both the agreement features with the internal argument realized by *-m-*, and those with the subject, realized by the 3rd plural inflection *–u-*. This amalgam realizes the properties of T in (30c).

(30)

a. <tʃam$_R$, m(a)$_{1sg}$>→ [$_\varphi$tʃam-m(a)]

b. < tʃam-m(a), -u$_{3pl}$>→ [$_{v/T}$ tʃam-m-u]

c.

C	T_φ	v_φ	V_R	
i_φ	*tʃam-m-u*			'they call me'

in the imperfect and conditional in (6)-(7) *–u* is extended to the whole plural paradigm, where the inclusion operator [⊆] subsumes all plural references; the distribution of SCls is different, and the SCl *i* is syncretic with the 1st singular. Hence, the plural inflection *–u* seems to be necessarily expressed for interpretive requirements, in its position at the right of the sequence of inflectional elements, fixing the scope of the event. The resistance of the plural exponent *–u* in Trecate can be related to the plural suffix in the mesoclisis in Caribbean Spanish (Halle and Marantz 1994; see section 2). Halle and Marantz conclude that the reordering of clitics and the inflectional exponent is derived by a post-syntactic rule that has the effect to create 'the usual order of affixes in inflected words, with the plural suffix to the right of other feature complexes' (Halle and Marantz 1994: 287). The principle in question is the need for plural specifications of the verb to be preserved and recognizable.

5. Enclisis on the auxiliary

Enclisis shows up also in the varieties spoken in the Lausberg Area on the border between Calabria and Basilicata, here exemplified by the data of Cersosimo (Basilicata) and Albidona (Calabria). In these systems, enclisis is limited to the present indicative form of the auxiliary, while with lexical verbs the usual proclitic order occurs, as illustrated in (31a) and (32a). Enclisis affects only the 3rd person OCls, in (31b) and (32b), whereas the 1st and 2nd person OCls are inserted in proclisis, as in (31c) and (32c). Enclisis is excluded with the 3rd person singular and the 2nd plural of the auxiliary. In particular, in the case of the 3rd singular person, we find two alternants, i.e. *ɛ* which occurs alone or when preceded by the proclitic, in (31d), and *a* which also realizes the reference to the 3rd person IAs, as in (31d'). In the variety of Albidona both 2nd and 3rd singular persons exclude enclisis, as in (32d). Of course, in contexts where the IA is differently realized, as in intransitive ones, the auxiliary occurs in its simple form, as in (32e) and (31e).

(31)

a. jillə u/ a/ i/ mə/ tə við-əðə
he 3.MSG/ 3.FSG/ 3PL/ me/ you see-3SG
'He sees him/her/them/me/you'

b. ɛn- u/ a/ i cam-a-tə
have.3PL- 3.MSG/ 3.FSG/ 3PL call-TV-PP
'They have called him/her/them'

c. m/ t/ v ɛnə cam-a-tə
me/ you.SG/ you.PL have.3PL call-TV-PP
'They have called me/you'

d. m- ɛ ccam-a-tə
me have.3SG call-TV-PP
'(S)he has called me'

d'. a ccam-a-tə
have.3SG call-TV-PP
'(S)he has called him/her/them'

e. ɛnə vən-u-tə
have.3PL come-TV-PP
'They have come'

Cersosimo

(32)

a. mə/ tə/ u/ a/ i ˈßiðə-nə
me/ you/ him/ her/ them see-3PL
'they see me/you/him/her/them'

b. ɛddʒ- u/ a/ i βistə
have.1SG- him/ her/ them seen
'I have seen him/her/them'

c. tə m- u datə
to.you have.1PL it given
'they have given it to you'

d. l ɛ βistə/ l ɛ bbistə
her/him have.2SG seen/ her/him have.3SG seen
'You have / (s)he has seen her/him'

e. (ɛ)ddʒə dɔrm-u-tə
have.1SG sleep-TV-PP
'I have slept'

Albidona

We can think that enclisis is nothing but a type of gender and number specification that the auxiliary is endowed with. The clear parallel with the nominal paradigm is confirmed by the fact that only 3rd person clitics are involved, that is clitics coinciding with the properties of gender and number. 1st and 2nd person clitics are regularly inserted in proclisis. It is of note that in some dialects of this group, the 3rd person referents can be also realized by means of a specialized form of the auxiliary, as it is the case for the 3rd person form *a* 'has' in (33a) that incorporates the 3rd person object, so contrasting with *ɛ* 'has' in the contexts where the object is a 1st/2nd person referent or is missing, as in (33b) (cf. Baldi and Savoia 2022a).

(33)

a. a ccam-a-tə
have.3SG call-TV-PP
'(S)he has called him/her/them'

b. m- ɛ ccam-a-tə
me have.3SG call-TV-PP
'(S)he has called me'

Cersosimo

Some facts emerging from the micro-variation affecting these phenomena in the related dialects of this area, support this conclusion. So, in the similar dialect of the near village of Albidona, we find the enclisis of the 3rd person OCls, as in (32b). However, in the context of negation, the proclitic *lə* is inserted, but the agreement exponents are also present, as *-a* in (34a). It is interesting to note that in the masculine singular, in enclisis *-ə* occurs. We can think that *lə* include in itself all the specifications we characterize as msg. Other dialects, such as that of Cersosimo, do not imply insertion of the proclitic element in negative contexts, as in (34b)

(34)

a. ɔ llə ddʒ- a/ ə βistə
neg 3SG have.1SG- 3FSG/ 3MSG seen
'I have not seen her'

Albidona

b. ann ɛddʒ- u/a/i cam-atə
Neg have.1SG- 3MSG/FSF/PL call-ed
'I have not calle him/her/them'

Cersosimo

On the basis of the data we have discussed, in particular the split between 1st/2nd person clitics and 3rd person clitics and the occurrence of *–a* to the right of the auxiliary in (34a), we conclude that enclisis can be identified with an allomorph of the auxiliary. Merge combines the root with the agreement element, as in (35a). Its occurrence in Phase C/T realizes in T the referential properties of arguments, as in (35b).

(35)
a. < [$_{R/\varphi}$ ɛn]-, u_{3sg} > → [$_{T/\varphi}$ ɛn-u]

b.

C	T	v	V
	ɛn-u_{φ}		*cam-a-tə*

Negation, as in the discussion about (34), can entail the insertion of the definiteness base *l-*. The insertion of the definiteness root *l-* can be interpreted as a (variable) requirement whereby a 3rd person referent outside the scope of negation needs to be specified by a richer content (Manzini and Savoia 2017). Be it as it may, not in all dialects the root *l–* is required; where it is inserted, the auxiliary is however inflected, suggesting that the two mechanisms operate at a different level. The vocalic clitic is inserted within the word, as in (36a), while the clitic *lə* is combined with the verb, in (36b). The combination *lə+verb+inflection* realize the properties of T, as in (36c).

(36) ɔl lə ddʒ- a vistə
a. < [$_{R/\varphi}$ ɛddʒ]-, a_{3sg} > → [$_{T/\varphi}$ ɛddʒ -a]
b. < lə$_{\varphi}$, [$_{T/\varphi}$ ɛddʒ-a]> → [$_{T}$ lə [ɛddʒ-a]]

c.

C	T	v	V
	lə	[*ɛddʒ-a*]	*vis-tə*

We saw that only the auxiliary introduces the exponent corresponding to 3rd person IAs. We can connect this property with the nature of auxiliaries. In fact, we know that auxiliaries are verbs with special distribution and syntactic functions. In these dialects, the same auxiliary covers all verbal classes and presents specialized forms different from *have* and *be* (Manzini and Savoia 2005: pf 5.8; Baldi and Savoia 2022a).

Let us deepen this point. In Romance dialects spoken in the Lausberg Area, in addition to the dialects with enclisis, such as those in (31) and (32), we find dialects with alternation of the auxiliary depending on the person of the internal arguments (IA). So, for instance in the dialect of Morano (Calabria), in the active form of transitive verbs, the auxiliary alternates two allomorphs, one with the stem vowel *a-*, and one with *ɛ-*. The alternant *a-* incorporates the reference of the 3rd person IA in the shape of the feature [+back], as in (37) for Morano.

(37) aɟɟ-u/ a:/ a: camɛ:t-u/a/i
(him/her/them)have-1SG/2SG /3SG called-MSG/FSG/PL
'I have / you have / s(he) has called him/her/them'

Morano

We saw that this type of realization of the 3rd person reference appears also in dialects with enclisis, as, for instance, in that of Cersosimo, even if only for the 3rd person of the auxiliary, as exemplified in (31d'). The alternant *ɛ-* occurs in all other contexts, including unaccusative, reflexive, and unergative verbs, as in (38a,b)

(38)

a. ɛʝʝ-u vinut-u /rurmut-u
have-1SG come-MSG /slept-MSG
'I have slept'

Morano

b. ɛ vvənutə / ddərmutə
have.3SG come/ slept
'(s)he has come/slept'

Cersosimo

Moreover, *ɛ-* characterizes active contexts where a 1st/2nd person OCl or lexical DPs occur, as in (39a,b).

(39)

a. t ɛʝʝ-u vist-u
you have-1stSG seen-MSG
'I have seen you'

Morano

b. m ɛ ccam-a:-tə
me have.3SG call-TV-PP
'(s)he has called me'

Cersosimo

Thus, we can treat *aʝʝ-u* 'I have.it …'[5] in (37) for Morano, as an internally inflected stem selected in combination with the past participle. The head *aʝʝ-u* is endowed with the φ-features identifying the IA of *v* in contexts where it is merged with the participle yielding (40a), based on sharing φ-features, able to refer to the same argument. The specialized *(a)ʝʝ-u* exponent is merged to T where it realizes the subject in (40b).

(40)

a. $< [_R\ a_\varphi(ʝʝ\text{-}u)], [camɛt\text{-}u_\varphi] > \rightarrow [_{T/\varphi}\ aʝʝ\text{-}u][camɛt\text{-}u_\varphi]$

Morano

b.

C	T_{1sg}	v_φ	V
	$a_{\varphi}ʝʝ\text{-}u_{1sg}$		$camɛt\text{-}u_\varphi$

We can treat this type of auxiliary as a defective root specialized for T/v. In other words, the auxiliary in the aspectual construct realizes the event properties of v, and the enclitic element behaves like an inflection of the IA of 3rd person, typically inserting itself in the final position or requiring a specialized form of the auxiliary. Thus, differently from lexical verbs, auxiliary forms have as their content the features associated with v, both the aspectual and, possibly, the agreement features. The different interpretive status of 3rd person and 1st and 2nd persons

[5] For the sake of clarity, we remind that in this dialect the ending *–u* of the first person of auxiliary is the usual verbal inflection corresponding to the subject.

explains why the latter escape this type of agreement. Deictic elements are read in relation to the universe of discourse, determining a strong effect of DOM, and are introduced by independent specialized exponents.

5.1. Mesoclisis in imperatives

These dialects present enclisis in imperatives as well as generally Italian varieties (see discussion in Section 2). A current analysis assumes that imperatives assign a property to a prominent argument, identified with the addressee, rather than denoting events (Platzak and Rosengren 1998). Han (2011) assimilates the imperative to a type of quantification over a set of possible worlds restricted by the event described by the verb. As we have seen in Section 2, usual structural representations of the imperatives express the special nature of the imperative sentence by assuming that it is embedded in a high position, in C (Rivero and Terzi 1995) or the Speech Act Phrase (Speas and Tenny's (2003). Be that as it may, we can think that the special morpho-syntactic structure incorporated by the imperative verb, externalizes its modal properties.

Coming back to the dialects we are considering, we see that, on par with many southern Italian dialects, the enclitic element or cluster in the final position modifies the prosodic structure of the word by attracting the main stress, as in (41a,b), where the bold type indicates the stressed vowel.

(41)

a. purˈt-**a**- llə
bring-TV-it
'Bring it'

b. pɔrta-a- ˈm-**i**llə
bring-TV-me-it
'Bring it to me'

Cersosimo

a. cam-ə- ˈtɛ-mə
call-TV-2pl-me
'Call (pl) me'

b. da- ˈm-**i**ʎʎə
give-me-them
'Give them to me'

Albidona

a. caˈm-**ɛ**- lu
call-2SG- him
'Call him'

b. rən-a- ˈm**i**-lu
give-2SG- me-it
'Give it to me'

Morano

The prosodic re-positioning of the main stress in the enclitic forms gives rise to a left-headed foot such as *pɔrta-ˈm-**i**llə* 'bring it to me', as in (42), that is, the basic prosodic structure of words.

(42) F

mi-l lə

Analogously to the morpho-phonological adjustment phenomena observed for Piedmontese dialects in section 3.1, the re-assignment of the main stress in enclitic strings seems to confirm the hypothesis that enclisis creates a single-word string. This conclusion is compatible with the possibility of mesoclisis, attested in the 1st and 2nd plural forms of imperative, as illustrated by the data of Cersosimo and Morano in (43) and (44). (43a,b) and (44a,b,b') show mesoclisis with clitic clusters. We see that the 1st person or dative clitics are inserted in-between the root (enlarged by TV) and the 1st or 2nd plural inflection followed by the accusative clitic.

(43)

a. da- mm-iə- tə- ˈvillə
give- me-TV- 2PL- it
'Give (pl) it to me'

b. da- nn- iə- mə- nn- illə
give- him/her- TV- 1PL- him/her- it
'Let us give it to him/her'

Cersosimo

(44)

a. rɔˈn- a- ti- mi/li kwissu
give- TV-2PL me/him/her this
'Give (pl) this to me/him/her'

b. rən- a- nˈni- mu- lu
give-TV- him/her 1PL it
'Let us give it to him/her'

b'. rən- a- mˈmi- tu- lu
give-TV me 2PL it
'Give (pl) it to me'

Morano Calabro

A natural hypothesis, reminiscent of the previous discussion as well as the analysis of Halle and Marantz (1994), is that both simple and complex strings correspond to the inflectional part of the word and are merged to the root expanded by the TV. Thus, *rɔn-a-mˈmi-tu-lu* 'give (pl) it to me' is produced by the amalgamation in (45a), where the sequence *Root+TV* is merged with the OCl of 1st person; the inflection of 2nd plural is merged to this complex in (45b), to which the OCl is adjoined in (45c), so yielding the final string. The inflected form realizes the features of T as in (45d); in other words, the imperative modality is mapped into a specialized type of inflection, involving enclisis (as other Romance varieties) and mesoclisis.

(45)

a. $<[_{\varphi}$ rən$_{R}$-a$_{TV}]$, mmi$_{\varphi}>\rightarrow$ $[_{\varphi}$ rəna-mmi]

b. $<[_{\varphi}$ rəna-mmi], tu$_{\varphi}>\rightarrow[_{\varphi}$ rəna-mmi-tu]

c. $<[_{\varphi}$ rəna-mmi-tu], lu$_{\varphi}>\rightarrow[_{T/\varphi}$ rəna-mmi-tu-lu]

d. C T v word
rɔn-a-mˈmi-tu-lu$_{\varphi}$

Selection constraints of the type in (46) will fix the distribution of the relevant morphemes, whereby the 2nd plural inflection is associated with both the string closed by the TV and the 1st person clitic, as in (46a). OCls, in turn, are anyway associated with an inflectional preceding element, as in (46b,c).

(46)
a. $t(V)_{2pl}$ ←→ TV__ or $_{1sg}$] __
b. mi ←→ Infl] __
c. lu ← → Infl] __

As we saw, only deictic clitics (1st person and dative) occur in the inner position, while 3rd person object clitics occur in the final position. Manzini and Savoia (2011b), Baldi and Savoia (2020) attribute this to the fact that the deictic interpretation does not need to be anchored to the eventive position *v*, unlike 3rd person elements. More simply, the 3rd person clitic is inserted in its canonical position at the end of the string, in the scope of the deictic elements, so that the two interpretive domains, deictic vs event-anchored elements, are split.

6. Concluding remarks

The idea pursued in this article is that we can explain a set of phenomena regarding the distribution of OCls, without resorting to the movement of the verb or the clitic in pre-determined positions. We have reported data from different Romance varieties that show instances of the close relationship between enclitics and inflectional affixes, bringing evidence in favor of uniform treatment. In this line, we followed an approach in which morphology is part of the syntax and complex words are formed by applying Merge to head elements, combining the root with inflectional affixes. The latter are included, in turn, in the lexicon as items endowed with semantic content.

Enclitics are conceived as sub-word elements merged to the root or the string *root + inflectional elements* in the same way as other agreement exponents. In other words, they contribute to forming the verb. This makes it possible to unify enclisis-related phenomena in a single treatment and to overcome the issue of the status and position of enclitics.

References

Anderson, S. 1992, *A-Morphous Morphology*. Cambridge: Cambridge University Press.

Aronoff, M. 1994. *Morphology by Itself*. Cambridge, Mass.: MIT Press.

Aronoff, M. 1998. Isomorphism and monotonicity. In S. Lapointe and D. Brentari (eds.), *Morphology and Its Relation to Phonology and Syntax*, 411–418. Stanford: CA: CSLI.

Baker, M. 1988. *Incorporation: A Theory of Grammatical Function Changing*. Chicago: University of Chicago Press.

Baldi, B., and L.M. Savoia. 2020. Clitics in imperative: proclisis, enclisis and mesoclisis in Albanian and in Italo-Romance varieties of Lausberg area. *LINGBAW* 6: 17-46.

Baldi, B., and L. M. Savoia. 2022. Partitives and indefinites: Phenomena in Italian varieties. *Studia Linguistica* 76: 1: 56-100.

Baldi, B., and L. M. Savoia. 2022a. ε- vs a- Alternation in the Auxiliary and Distribution of OCls in Calabro-Lucanian Dialects of Lausberg Area. In M. Janebová, J. Emonds, and L. Veselovská (eds.), *Language Use and*

Linguistic Structure. Proceedings of the Olomouc Linguistics Colloquium 2021, 96-124, Olomouc: Palacký University Olomopuc.

Baldi, B., and L. M. Savoia. 2022b. Phenomena in Romance verb paradigms: Syncretism, order of inflectional morphemes and thematic vowel. *LINGBAW* 8: 5-2.

Chierchia, G. 1998. Partitives, reference to kinds and semantic variation. In A. Lawson (ed.), *Proceedings of Semantics and Linguistic Theory*, VII, 73-98. CLC Publications, Ithaca.

Chomsky, N. 2019. Some Puzzling Foundational Issues: The Reading Program. In Á. Gallego, and D. Ott (eds.), *Generative Syntax: Questions, Crossroads, and Challenges*, *Catalan Journal of Linguistics. Special issue*: 263-285.

Chomsky, N. 2020. *The UCLA Lectures* (April 29 – May 2, 2019). https://ling.auf.net/lingbuzz/005485

Chomsky, N. 2021, Minimalism: Where Are We Now, and Where Can We Hope to Go. *Gengo Kenkyu* 160: 1-41.

Chomsky, N., Á. Gallego, and D. Ott. 2019. Generative Grammar and the Faculty of Language: Insights, Questions, and Challenges. In Á. Gallego, and D. Ott (eds.), *Generative Syntax: Questions, Crossroads, and Challenges*, *Catalan Journal of Linguistics. Special issue*: 229-261.

Collins, Ch., and R. Kayne. 2020. *Towards a Theory of Morphology as Syntax*, online, http://ordinaryworkinggrammarian.blogspot.com/2020/12/towards-theory-of-morphology-as-syntax.html (13.07.2021).

Embick, D. 2010. *Localism versus Globalism in Morphology and Phonology*. Cambrigde, Mass.: The MIT Press.

Embick, D., and R. Noyer. 2001. Movement Operations after Syntax. *Linguistic Inquiry* 32(4): 555-595.

Halle, M., and A. Marantz. 1993. Distributed morphology and the pieces of inflection. In K. Hale, and S. J. Keyser (eds.), *The view from Building 20*, 111–176. Cambridge Mass: The MIT Press.

Halle, M., and A. Marantz. 1994. Some Key Features of Distributed Morphology. In A. Carnie, H. Harley, and T. Bures (eds.), *Papers on Phonology and Morphology*, 275-288. *MIT Working Papers in Linguistics 21*.

Han, Ch.-h. 2011. Imperatives. In K. von Heusinger, C. Maienborn and P. Portyer (eds.), *Semantics*, v. 2, 1785-1804. Berlin: De Gruyter Mouton.

Kayne, R. 1991. Romance Clitics, Verb Movement, and PRO. *Linguistic Inquiry* 22: 647-686

Manzini, M. R. 2021. Chomsky's (2020) Links and linker phenomena. *Quaderni di Linguistica e Studi Orientali QULSO* online 7: 89-102.

Manzini, M. R., and L. M. Savoia. 2005. *I dialetti italiani. Morfosintassi generativa*. 3 vv., Alessandria: dell'Orso.

Manzini, M. R., and L. M. Savoia. 2007. *A Unification of Morphology and Syntax. Investigations into Romance and Albanian dialects*, London: Routledge.

Manzini, M. R. and L. M. Savoia.2011a. *Grammatical Categories*. Cambridge University Press, Cambridge.

Manzini, M. R. and L. M. Savoia. 2011b. Mesoclisis in the imperative: Phonology, morphology, or syntax?. *Lingua* 121: 1101–1120.

Manzini, M. R. and L. M. Savoia. 2017. Enclisis/Proclisis Alternations in Romance: Allomorphies and (Re)Ordering. *Transactions of the Philological Society*, 115: 98-136.

Manzini, M. R., and L. M. Savoia. 2018. *The Morphosyntax of Albanian and Aromanian Varieties*. Berlin/Boston: De Gruyter Mouton.

Manzini, M. R., L. M. Savoia, and B. Baldi. 2020. Microvariation and macrocategories: Differential Plural Marking and Phase theory. *L'Italia Dialettale* 81: 189-212.

Marantz, A. 1988. Clitics, morphological merger, and the mapping to phonological structure. In M. Hammond, and M. Noonan (eds.), *Theoretical Morphology*, 253-270. San Diego: Academic Press.

Marantz, A. 2001. *Words*. WCCFL XX Handout, USC, February 2001.

Marantz, A. 2007. Phases and Words. In S.-H. Choe (ed.), *Phases in the theory of grammar,* 191-222. Seoul: Dong-In Publishing Co.

Mavrogiorgos, M. 2010. *Clitics in Greek. A minimalist account of proclisis and enclisis***.** Cambridge: Cambridge University Press.

Platzack, Ch., and I. Rosengren. 1998. On the subject of imperatives: A minimalist account of the imperative clause. *The Journal of Comparative Germanic Linguistics* 1: 177–224.

Poletto, C. 2000. *The Higher Functional Field*. Oxford: Oxford University Press.

Rivero, M. L. 1994. Clause Structure and V-Movement in the Languages of the Balkans. *Natural Language and Linguistic Theory* 12: 63-120.

Rivero, M. L. and A. Terzi. 1995. Imperatives, V-Movement, and Logical Mood. *The Journal of Linguistics* 31: 301-332.

Roberts, I. 2010. *Agreement and Head Movement.* Cambridge, Mass.: The MIT Press.

Roberts, I. 2018. Object clitics for subject clitics in Francoprovençal and Piedmontese. In M. Grimaldi, R. Lai, L. Franco, and B. Baldi (eds.), *Structuring Variation in Romance Linguistics and Beyond*, 255-265. Amsterdam: Benjamins.

Savoia L. M., and B. Baldi. 2022. Root, Thematic Vowels and Inflectional Exponents in Verbs: A Morpho-Syntactic Analysis. *Languages* 7: 1-18.

Savoia, L. M., B. Baldi, and M. R. Manzini. 2018. Sigmatic plurals in Romance varieties spoken in Italy and their interaction with -i plurals. *LINGBAW* 4: 141-160.

Speas, P., and C. Tenny. 2003. Configurational Properties of Point of View Roles. In A. DiSciullo (ed.), *Asymmetry in Grammar*, 315-344. Amsterdam: John Benjamins.

Tortora, Ch. 2002. Romance enclisis, prepositions, and aspect. *Natural Language & Linguistic Theory* 20(4): 725-758.

Uriagereka, J. 1995. Aspects of the Syntax of Clitic Placement in Romance. *Linguistic Inquiry* 26: 79-123.

Vigario, M. 1999. Pronominal cliticization in European Portuguese: a postlexical operation. *Catalan working papers in linguistics CatWPL* 7: 219-237.

Wood, J., and A. Marantz. 2017. The interpretation of external arguments. In R. D'Alessandro, I. Franco, and Á. J. Gallego (eds.), *The Verbal Domain*, 255–278. Oxford: Oxford University Press.

Zanuttini, R. 1997. *Negation and clausal structure.* New York: Oxford University Press.

LingBaW *Linguistics Beyond And Within 9 (2023), 197-207*

When *must not* is not *forbidden*

Leszek Szymański
University of Zielona Góra, Poland

Abstract
The present paper describes an empirical investigation into an English modal predicate with the auxiliary verb *must*, the negative particle *not* and the bare infinitive of the main verb. Typically, the negator *not* changes the meaning of *must* from *obligation* or *strong recommendation* to *forbiddance*. This, however, takes place only with the root flavor of *must*. Epistemic *must* does not interact with *not* in this way. The study uses authentic language samples retrieved from the online version of *The Corpus of Contemporary American English*. The analysis adapts the model of *the semantic field of modal expressions* developed by Kratzer (1991), and it attempts to find what lies behind the said lack of interaction between *must* and *not*. After a scrutiny of the conversational backgrounds influencing the studied modal meanings, the study found that the meaning expressed by a speaker with *must not* depends on whether the speaker evaluates the propositional circumstances directly or infers from them. Moreover, the study proposes patterns of *must-not* interfaces with regard to the modal flavor.

Keywords: modality, modality-negation interfaces, semantic field of modality, conversational backgrounds, possible worlds

1. Introduction

Saying that modal verbs are ambiguous is not a revealing statement. It has already been established that they receive their specific meanings in particular contexts (Hacquard 2006, 2010, 2011, Kratzer 1991, 2012). This paper offers a possible solution to the issue of contextual identifying a modal meaning with regard to negated *must*.

It is commonly known that negated root *must* – *must not* or *mustn't* – does not express the meaning of *not obliged*. The negator triggers the meaning of *forbiddance*, and, for example: *You mustn't smoke in my office* expresses the speaker's lack of consent, which is not the same as the lack of obligation or commitment. However, the meaning of forbiddance is still root modality. On the other hand, in the sentence: *She mustn't know the address*, *mustn't* expresses speaker's certainty that she does not know the address, and hence the epistemic flavor. The present study takes a modular approach to the analysis of the semantics of negated *must* by looking at possible worlds that influence its modal interpretation.

More specifically, the aim of the study described in the present paper is to empirically disambiguate the semantics of negated *must* followed by the bare infinitive of the main verb. In

order to do this, the study examines the contexts of *must not* + V and employs the model of *the semantic field of modal expressions* developed by Kratzer (1991). The study also investigates the potential pattern of modality-negation interplay. It attempts to determine when *must not* (*mustn't*) does not express the prototypical meaning of *forbiddance*. It adapts the concept of *possible worlds*, widely-acknowledged in philosophy and logic, to a linguistic analysis, which uses language data drawn from *The Corpus of Contemporary American English* (COCA) (Davies 2008-), which is a collection of authentic language use recorded in the United States of America.

This paper has been divided into five sections. The present Introduction is followed by a description of the concept of *modality* in section 2. After defining modality, section 2 discusses the model of *the semantic field of modal expressions* (Kratzer 1991), which makes the theoretical basis for a further-described analysis. It also overviews the interaction of modality with aspect and negation. Section 3 provides an account of the semantics of the English modal *must*. Section 4 discusses the analysis, beginning with a description of the material. The paper closes with Conclusions in section 5.

2. Modality

Modality is a broad concept which has to deal with modifications people make to the facts of the world that surrounds them (Perzanowski 2006). With its origin in philosophy, modality has also gained interest among logicians and linguists.

In the present study, we fill follow Kratzer (1991) in viewing *modality* as a semantic notion dealing with possibility and necessity. On the basis of the model of *the semantic field of modal expressions*, a modal meaning can be perceived as emerging from a combination of its three domains: *the modal force*, *the modal base* and *the ordering source*(*s*). They are discussed below.

The *modal force* relates to how strong the connection between the uttered proposition and a set of other propositions is. It ranges from *possibility* to *necessity*, with various degrees of each (see Kratzer 1991: 649). The modal force can be exemplified as follows:

(1) She **can** see her sister.
(2) She **must** see her sister.

In (1), the speaker expresses that it is possible for her to see her sister, thus the modal force of *possibility*; whereas in (2), the speaker states that it is necessary for her to see her sister, hence the modal force of *necessity*.

The modal force comes out as a result of the evaluation of a *modal base* made by a speaker, which supplies all the accessible information for the modal judgment. In this way it forms a *conversational background* for the modal judgment.

There are two types of the modal base. When the speaker evaluates the spatio-temporal characteristics that they refer to in the proposition, then they evaluate a *circumstantial modal base*. However, when the speaker takes into account what they know, think or believe to base their modal judgment on, then they evaluate an *epistemic modal base*. The difference between a circumstantial and epistemic modal base can be exemplified with (2). When the necessity stems from an obligation that someone has imposed on her, then the obligation depends on the

situation, which entails a *circumstantial* modal base. However, when the necessity derives from what the speaker concludes on the basis of what they know or think, then the modal base is *epistemic*, since it is thought-based.

The obligation and speaker's conclusion mentioned above are examples of ordering sources. An *ordering source* is another conversational background that the speaker evaluates which determines the sequence of possible worlds. A *possible world*, which is an underlying concept in the Kratzerian model (see Hacquard 2011, Portner 2009), is what the world could have possibly been like in the given circumstances (see e.g. Carnap 1956, Hintikka 1961 or Kripke 1963). In fact, each conversational background is a possible world that a speaker evaluates in their modal judgment.

The present study employs the Kratzerian (1991) proposal as a theoretical framework for the distinction between *root* and *epistemic* modal flavors. This logic-oriented model has been adapted to our linguistic analysis due to the fact that its underlying aim is to account for the ambiguity of modals. Thus, it is expected to allow us to examine certain extra-systemic factors which have a bearing on the type of modality expressed by negated *must*. Kratzer (1991: 650) states that modals which take circumstantial modal bases express *root modality*, while those that take epistemic modal bases express *epistemic modality*. This dichotomous division is widely acknowledged by Anglicists dealing with modality (Nuyts 2006: 7).

Modality has been recognized to interact with other verb-related categories, such as aspect or negation (e.g. Abraham 1997, 1999, 2008, 2020, Hacquard 2006, 2009, 2010, 2011, 2016, Kotin 2012, 2014, Leiss 2008 or Szymański 2019, 2021, 2022). Regarding the former, root modality has been identified to converge with the perfective, while epistemic modality with the imperfective (see Abraham 2008). A classic example is provided by Abraham (1999: 66):

(3)

a. He must **die**.

b. He must **be dying**.

In (3a), the verb *die* denotes a perfective event, while its progressive form *be dying* in (3b) denotes an imperfective event. As for the modal *must*, in (3a) it denotes an obligation, thus root modality; while in (3b) it denotes speaker's certainty, thus epistemic modality. Consequently, there is a correspondence between the perfective and root modality, as well as between the imperfective and epistemic modality.

It is also now well established that modality interacts with negation (e.g. de Haan 1997, Iatridou and Zeijlstra 2013, Morante and Sporleder 2012, Palmer 2003, Radden 2007, Szymański 2016, 2017, 2021, Tottie 1991). *Negation* is understood as "an operator that reverses the truth value of a proposition" (Miestamo 2007: 552). Its influence on modality can take one of two ways. It can either negate the modality or the event in the proposition. Consider the example (taken from Szymański 2021: 291):

(4)

a. Sarah **can't** ride a bike.

b. She **may not** be at home.

(4a) exemplifies negated modality, because it expresses what is not possible for Sarah. (4b) exemplifies negation of the event, because it is possible that she is not at home.

The present study will consider the analytic clausal negation with the employment of the negative particle *not*, which "asserts that some event, situation, or state of affairs does not hold" (Payne 1997: 282).

3. A note on the semantics of *must*

As the study described below deals with the English modal *must*, there needs to be an introduction to the semantics of this verb. Grammar books (e.g. Biber et al. 1999/2007, Eastwood 2002, Greenbaum 1996, Huddleston and Pullum 2002, Quirk et al. 1985 or Swan 2002) provide the meanings of *strong obligation* or *necessity*, for example:

(5) Your seatbelt **must** be fastened.
(6) Children **must** go to school.

Also, one can find the meaning of *recommendation* or *encouragement*, for example:

(7) You **must** visit the new mall next time! You'll love it!

The above meanings of *must* belong to the root category. An important remark must be made concerning negated root *must*, which does not mean the opposite to any of the above modal meanings, but it means *forbiddance*, for example:

(8) You **mustn't** smoke in the office. [It is forbidden to smoke in the office.]

In addition, *must* can express the meaning of *speaker's certainty*, *conclusion* or *deduction*, thus the epistemic flavor, for instance:

(9) She knows the plot very well, so she **must** have read the book!

A number of empirical investigations have found that there is a decrease in the frequencies of the root flavor of *must* in favor of an increase in the frequencies of its epistemic flavor. Corpus studies have reported that the former are being substituted by *have to* and *need to* (see e.g. Millar 2009, Williams 2009, Johansson 2013).

4. The study

4.1. The material

The present study uses samples of authentic language excerpted from *The Corpus of Contemporary American English* (COCA) (Davies 2008-), which is available online at www.english-corpora.org/coca/. Counting over one billion words (as of February 2023), COCA is the largest available corpus of contemporary American English. It includes language samples collected between 1990 and 2019 in the United States of America. The COCA material is

subdivided into eight genre-based subcorpora: *spoken* (SPOK), *fiction* (FIC), *popular magazines* (MAG), *newspapers* (NEWS), *academic texts* (ACAD), *TV* and *movies subtitles* (TV), *blogs* (BLOG), and other *web pages* (WEB). TV, BLOG and WEB were added to the already existing database in March 2020.

For this study, an online query was run with the following query string: *must [x] [vvi]*, in which *[x]* stands for negation (both with *not* and the contraction *n't*) and *[vvi]* for the bare infinitive of the main verb. It brought about a random sample of 200 occurrences (which was the set limit) of negated *must* with the bare infinitive of the main verb. 45 of the examples date to the 1990s, 48 to the 2000s, and 107 to the 2010s. This uneven diachronic distribution does not impact the study, though. Regarding the distribution of *must not* + V, the excerpted material included the data presented in Table 1.

Table 1: *Genre distribution of the studied material*

genre	frequency
ACAD	21
BLOG	35
FIC	36
MAG	15
MOV	15
NEWS	16
SPOK	11
TV	10
WEB	41
TOTAL	**200**

As Table 1 shows, the genre distribution of the research material is not equally balanced, which may result from the random selection of examples by the online software. Nevertheless, this should have no bearing on our results. Moreover, as the data in Table 1 show, *must not* + V occurs in all genre types, in both speech and writing, as well as at various levels of formality.

4.2. The analysis

Let us begin the analysis with the meanings expressed by negated *must* + V in the researched sample. The study reported on the following modal meanings: *forbiddance of an event*, *recommendation that an event is not actualized* and *speaker's certainty that an event does not exist*. Let us exemplify this with the following sentences:

(10) A woman **must not show** any part but her face to strangers. [NEWS, 2003, *In freer Iraq, new curbs on women's wear*].

(11) You **mustn't worry** about that photograph. It will blow over. [TV, 2015, *Miss Fisher's Murder Mysteries*]

(12) Whoever thinks this sucks just **must not know** good punk rock if it weren't for these guys the grunge scene probably wouldn't have truly happened yea everyone says that Nirvana started but really they just made it big. [WEB, 2012, *Green River – Ain't Nothing To Do – Listening and stats at Last.fm*]

In (10), the speaker states what a woman is forbidden to do in Iraq. This ban is imposed by a local law. In (11), the speaker recommends to the listener not to worry, which may be attributed

to the speaker's volition, that is, what the speaker wants the listener not to do. It is important to notice that the meaning of recommendation arises above the sentential level (see Portner 2009) from the semantics of forbiddance. We can propose an interpretation that the speaker does not allow the agent to worry about that photograph. Next, example (12) comes from a music fan's comment on other people's music tastes. Thus, it expresses what the speaker thinks, that is, the speaker is certain that people who do not like this [the music discussed in the thread] do not know good punk rock.

Taking the expressed modal meanings into account, (10) and (11) typify the *root* and (12) represents *epistemic* modal flavors. Altogether, the studied sample included: 190 (95%) instances of root and 10 (5%) instances of epistemic *must not* + V. The low frequency of epistemic *must not* makes it even a more intriguing issue to discuss.

Let us now verify whether the spelling of the negator *not* in its full (*not*) or contracted (*n't*) form corresponds to the modal flavor expressed by negated *must*. The study found that:

i. 149 instances of the full form and 41 instances of the contracted form for the *root* flavor, while
ii. all the 10 instances with the full form of the negator for the *epistemic* flavor.

We may thus propose that, in the studied sample, the contracted form of the negator is characteristic of negative root *must*, i.e. of the meaning of *forbiddance*. Moreover, the sample showed that negated epistemic *must* co-occurs only with the full form of the negator.

Let us now turn to the domains of the semantic field of modality expressed by *must not* + V. Regarding the modal force, as shown by (10) – (12), negated *must* expresses the modal force of *necessity*. So, (10) can be paraphrased as: "it is (logically) necessary for a woman not to show any part but her face to strangers". (11) can be paraphrased as: "it is (logically) necessary for you not to worry about that photograph". (12) can be paraphrased as: "it is (logically) necessary for people who do not like this music not to know good punk rock".

With regard to the modal base, the reported dichotomy of the modal flavor points to its two types. The root flavor comes from the evaluation of the circumstances that the speaker refers to in the proposition, thus a *circumstantial modal base*. Consider the examples below:

(13) But whether we honor our heroes or not, in order to keep the government from growing beyond its Constitutionally allocated limits, the government **must not spend** the People's money on former government personnel – the money does not belong to government. [WEB, 2012, "Obama: America 'Would Not be a Great Country' Without All Our", http://www.theblaze.com/stories/obama-america-would-not-be-a-great-country-without-all-our-entitlements/]

In (13), the speaker refers to circumstances in which the government's rights are regulated by the constitution, which is the supreme law. Thus, in this situation, a constitutional law allocates some limitations to the government and in this way it does not allow the government to "spend the People's money on former government personnel". Consequently, this law is the *forbidden* ordering source in this situation.

(14) The body of the letter **must not exceed** 350 words.
[WEB, 2012, "Rules", http://www.ca7.uscourts.gov/rules/rules.htm]

Similarly in (14), the word limit of the letter is imposed by law. In this particular case it is "Federal Rules of Appellate Procedure and Circuit Rules of the United States Court of Appeals for the Seventh Circuit". This document imposes the code of conduct on parties that intend to make an appeal. Thus, the law that puts a ban on letters longer than 350 words is a *forbidden* ordering source.

(15) You **must not use** the power for selfish gain. You **must not abuse** it. Not once. Do you hear? [FIC, 2004, Menger-Anderson, Kirsten, "The Baquet (Short story)". *Southwest Review* Vol. 89 Issue 2/3, p. 395-413].

In (15), we can observe two instances of *must not* + V. Both express the meaning of *forbiddance*. In each of them, it is the speaker that imposes the prohibition on the agent. Thus, the ordering source is *forbidden*. Moreover, this forbiddance may stem from the speaker's desire not to have the agent "use the power for selfish gain" or "abuse it". This is a *boulomaic* ordering source. It may also be so that the speaker does not want the agent to behave in such ways in order to prevent some unwanted behaviors. This entails a *teleological* ordering source.

Furthermore, the study found instances in which a ban was imposed by a speaker on themselves, i.e. *self-imposed forbiddance*. Consider the examples below:

(16) I **mustn't wake** Philip. And if I do, I **mustn't let** him see me like this. [FIC, 2001, Armstrong, Kelley, Bitten.]
(17) We **must not** let extremists control the political or religious discourse.
[BLOG, 2012, Major religions should be able to shrug off minor slights,
http://blogs.chicagotribune.com/news_columnists_ezorn/2012/09/easydoesit.html]

Example (16) presents two instances of root *must not* + V. In each, the speaker self-imposes the necessity not to wake Philip and not to let Philip see the speaker. Thus, the primary, so to say, ordering source is the *imposition* by the speaker. Moreover, we can identify two further ordering sources. When the necessity comes from what the speaker does not want to do, then the ordering source is *boulomaic*. When the necessity comes from a purpose, e.g. not to make Philip angry or laugh at the speaker, then the ordering source is *teleological*. Next, in (17), by using the inclusive pronoun *we*, the speaker includes themselves in the imposed prohibition. Thus, the ordering source in (17) is the *forbiddance* of allowing "extremists [to] control the political or religious discourse" inflicted by the speaker. Again, it may be driven by the speaker's desire not to have extremists seize control over the discourses, which, in turn, may result from the aim of depriving them of any type of power. Thus, *boulomaic* and *teleological* ordering sources can be identified.

The above meanings of *forbiddance* seem to derive from similar ordering sources. Let us now look at the meaning of *recommendation* in (18):

(18) "If you haven't been to the Corcoran Gallery yet, Orpha, you **mustn't miss** it."
[FIC, 2017, Anna Loan-Wilsey, A march to remember]

In (18), the speaker recommends the Corcoran Gallery to Orpha, i.e., the speaker wants her to visit this place. Thus, the ordering source is *boulomaic*. It can be further supported with a reason, for example, to see a particular exhibition, which entails a *teleological* ordering source.

Thus, a difference comes out: the meaning of *recommendation* does not include the *forbidden* ordering source, in which an authoritative body does not allow for an event to take place.

Turning now to the epistemic flavor of *must not* + V, let us consider the following examples:

(19) Wow, cockboy, please teach me to be as funny as you someday. Sorry you **must not get** much attention and playful human interaction at this time in your life. [BLOG, 2012, "Suicide Silence Vocalist Mitch Lucker Passes Away In Motorcycle Accident", http://www.theprp.com/2012/11/01/news/suicide-silence-vocalist-mitch-lucker-passes-away-in-motorcycle-accident/].

(20) Therefore, your instructor will take the time to point out, or at least consider, SG and P errors, assuming that if you didn' t correct them yourself, you **must not know** how. [ACAD, 2009, Kurland, Michael, "Get the MOST from a writing course", *Writer* Vol. 122, Issue 4, pp. 36-37].

In (19), the speaker makes their modal judgment on the basis of what they think the receiver (here: cockboy) experiences. In other words: the speaker deduces that cockboy does not "get much attention and playful human interaction". This reasoning comes from the speaker's observations of cockboy's posts on the internet site and the discussion cockboy is engaged in on the Internet. Thus, the ordering source is *deductive*. Next, in (20), the speaker expresses an instructor's assumption that it cannot be otherwise than that a student does not know how to correct the "SG and P errors" themselves. The expressed instructor's conclusion is based on the lack of these errors' corrections introduced by a student themselves. Thus, a *deductive* ordering source.

The final issue to discuss in the present study is the influence of negation on *must*. First of all, root *must not* + V shows that modality interacts with negation because the root meaning changes from *obligation* to *forbiddance*. Thus, negation does not perform here its prototypical function of reversing the meaning to the opposite, yet it produces a new meaning of *the lack of consent*. With regard to the meaning of recommendation, which arises above the sentential level (see Portner 2009), it is also the lack of consent for not doing the opposite to what the speaker recommends.

We can find further support in logic. Following Palmer (2003: 9), "there is logical equivalence between "not possible" and "necessary not" and between "possible not" and "not necessary"". Therefore, we can say that, for example, (10) can be paraphrased as: "it is (logically) not possible for a woman to show any part but her face to strangers", and (11) can be paraphrased as: "it is (logically) not possible for you to worry about that photograph".

We can thus propose the following pattern of interaction (cf. Szymański 2016: 255):

(21) ROOT *must* + *not* → neg MODALITY → FORBIDDEN.event

Secondly, with epistemic *must not* + V negation affects the event, which is the prototypical function of a negator that *not* performs (cf. Payne 1985). Hence, we can propose that (cf. Szymański 2016: 255):

(22) EPIST must + not → neg EVENT → SPEAKER'S CERTAINTY

5. Conclusions

The study described in this paper was set up to investigate the semantic field of modality expressed by *must not* + V. Using authentic language samples from COCA, the analysis established that *must not* + V expresses typically three modal meanings: *forbiddance* of an event, *recommendation* that an event is not actualized, or *speaker's certainty* that an event does not take place. The first two meanings belong to root modality, while the third one is epistemic modality.

Let us now juxtapose the study results in Table 2.

Table 2: *The semantic field of must not + V.*

	modal force	**modal base**	**ordering source**
must not + V	necessity	circumstantial	forbidden
			boulomaic
			teleological
		epistemic	deductive

The study confirmed that *must not* + V expresses the modal force of *necessity*. It can take either a *circumstantial* or *epistemic* modal base. The former comes from a *forbidden* ordering source, which may be further founded on *boulomaic* or *teleological* ordering sources.

An important remark must be made concerning the root flavor of *must not* + V. The study found that the *forbidden* ordering source is present only when *must not* expresses the meaning of *forbiddance*. This ordering source features an authoritative body, for example: a law, a regulation or a person, including the speaker, and this authoritative body is the primary source of the expressed prohibition. The *forbidden* ordering source is absent, however, from the meaning of *recommendation* that an event is not actualized; it can be identified only in the meaning of *forbiddance*. Both the remaining circumstantial ordering sources, i.e. *boulomaic* and *teleological*, can be present in both root meanings of *must not* + V.

The epistemic modal base results from a *deductive* ordering source, i.e., it is based on the evaluation of available facts. Thus, the meaning of *speaker's certainty* that an event is non-existent, or *speaker's certainty* of a negative proposition, comes out as a result of speaker's *deduction*. The modal judgment the speaker makes is based on observable evidence; however, this evidence is not the direct conversational background that leads to the expressed modal force. This evidence leads to speaker's reasoning, and it is this reasoning that forms the basis for the modal force and the modal evaluation.

Concluding, we can say that *must not* + V expresses *forbiddance* or *recommendation not to do something* when the speaker expresses the necessity of the event based on the circumstances to which they refer in the proposition; while the meaning of *speaker's certainty that an event does not occur* emerges when the speaker infers the necessity of the event from the circumstances. This is when *must not* is not *forbidden*.

References

Abraham, W. 1997. The interdependence of case, aspect, and referentiality in the history of German: The case of the genitive. In A. van Kemenade, and N. Vincent (eds.), *Parameters of morphosyntactic change*, 29—61. Cambridge: Cambridge University Press.

Abraham, W. 1999. On the syntax and semantics of modal verbs in German. *Groninger Arbeiten zur Germanistischen Linguistik* 43: 61—94.

Abraham, W. 2008. On the logic of generalizations about cross-linguistic aspect-modality links. In W. Abraham, and E. Leiss (eds.), *Modality–aspect interfaces: Implications and typological solutions*, 3–13. Amsterdam, Philadelphia: John Benjamins.

Abraham, W. 2020. *Modality in syntax, semantics and pragmatics*. Cambridge: Cambridge University Press. https://doi.org/10.1017/9781139108676.

Biber, D., Johansson, S., Leech, G., Conrad, S., and E. Finegan. 1999/2007. *Longman grammar of spoken and written English*. Harlow: Pearson Education Limited.

Carnap, R. 1956. *Meaning and necessity: A study in semantics and modal logic*. Chicago: University of Chicago Press.

Davies, M. 2008-. *The corpus of contemporary American English (COCA)*. Available online at https://www.english-corpora.org/coca/.

De Haan, F. 1997. *The interaction of modality and negation. A typological study*. New York, London: Garland Publishing, Inc.

Eastwood, J. 2002. *Oxford guide to English grammar*. Oxford, New York: Oxford University Press.

Greenbaum, S. 1996. *The Oxford English grammar*. Oxford, New York: Oxford University Press.

Hacquard, V. 2006. *Aspects of modality*. (Ph.D. dissertation). Cambridge, MA: Massachusetts Institute of Technology. https://dspace.mit.edu/handle/1721.1/37421.

Hacquard, V. 2009. On the interaction of aspect and modal auxiliaries. *Linguistics and Philosophy* 32: 279—312. https://link.springer.com/article/10.1007/s10988-009-9061-6.

Hacquard, V. 2010. On the event relativity of modal auxiliaries. *Natural Language Semantics* 18 (1): 79—114. https://link.springer.com/article/10.1007/s11050-010-9056-4.

Hacquard, V. 2011. Modality. In K. von Heusinger, C. Maienborn, and P. Portner (eds.), *Semantics. An international handbook of natural language meaning*, vol. 2, 1484—1515. Berlin, Boston: Walter de Gruyter.

Hacquard, V. 2016. Modals: Meaning categories?. In J. Błaszczak, A. Giannakidou, D. Klimek-Jankowska, and K. Migdalski (eds.), *Mood, aspect, modality revisited: New answers to old questions*, 45—74. Chicago: University of Chicago Press.

Hintikka, J. 1961. Modality and quantification. *Theoria* 27: 119–128.

Huddleston, R. D., and G. K. Pullum. 2002. *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.

Iatridou, S., and H. Zeijlstra. 2013. Negation, polarity and deontic modals. *Linguistic Inquiry* 44: 529—568. https://doi.org/10.1162/LING_a_00138.

Johansson, S. 2013. Modals and semi-modals of obligation in American English: Some aspects of developments from 1990 until the present day (2013). In B. Aarts, J. Close, G. Leech, and S. Wallis (eds), *The verb phrase in English. Investigating recent language change with corpora,* 372-380. Cambridge: Cambridge University Press.

Kotin, Michail L. 2012. Modalitäten. In G. Pawłowski, M. Olpińska-Szkiełko, and S. Bonacchi (eds.), *Mensch – Sprachen – Kulturen: Beiträge und Materialien der internationalen wissenschaftlichen Jahrestagung des Verbandes Polnischer Germanisten 25.-27. Mai 2012, Warszawa*, 140—158. Warszawa: Euro-Edukacja.

Kotin, Michail L. 2014. Modalitäten im Sprachkontrast: Nochmals zu der Aspektualität-Modalität-Schnittstelle. In K. Lukas, and I. (eds.), *Deutsch im Kontakt und im Kontrast: Festschrift für Prof. Andrzej Kątny zum 65. Geburstag*, 105—117. Frankfurt am Main: Peter Lang.

Kratzer, A. 1991. Modality. In A. von Stechow, and D. Wunderlich (eds.), *Semantics: An international handbook of contemporary research*, 639—650. Berlin: de Gruyter.

Kratzer, A. 2012. *Modals and conditionals: New and revised perspectives*. Oxford, New York: Oxford University Press.

Kripke, S. A. 1963. Semantical analysis of Modal Logic I, Normal Propositional Calculi. *Zeitschrift für Mathematische Logik und Grundlagen der Mathematik* 9: 67–96.

Leiss, E. 2008. The silent and aspect-driven patterns of deonticity and epistemicity: A chapter in diachronic typology. In W. Abraham, and E. Leiss (eds.), *Modality–aspect interfaces: Implications and typological solutions*, 15–41. Amsterdam, Philadelphia: John Benjamins.

Miestamo, M. 2007. Negation – An overview of typological research. *Language and Linguistics Compass* 1(5): 552–570. https://doi.org/10.1111/j.1749-818X.2007.00026.x.

Millar, N. 2009. Modal verbs in TIME: frequency changes 1923-2006. *International Journal of Corpus Linguistics* 14(2): 191-220. https://benjamins.com/catalog/ijcl.14.2.03mil.

Morante, R., and C. Sporleder. 2012. Modality and negation: An introduction to the special issue. *Computational Linguistics* 38 (2): 223–260. https://direct.mit.edu/coli/article/38/2/223/2142/Modality-and-Negation-An-Introduction-to-the.

Nuyts, J. 2006. Modality: Overview and linguistic issues. In W. Frawley (ed.), *The expression of modality*, 1—26. Berlin: Mouton de Gruyter.

Palmer, F. R. 2003. Modality in English: Theoretical, descriptive and typological issues. In R. Facchinetti, M. G. Krug, and F. R. Palmer (eds.) *Modality in contemporary English*, 1—17. Berlin: Mouton De Gruyter.

Payne, T. E. 1997. *Describing morphosyntax*. Cambridge: Cambridge University Press.

Perzanowski, J. 2006. Ontyka modalności. In W. Strawiński, M. Grygianiec, and A. Brożek (eds.), *Myśli o języku, nauce i wartościach*, 281—297. Warszawa: Wydawnictwo Naukowe Semper.

Portner, P. 2009. *Modality*. Oxford: Oxford University Press.

Quirk, R., Greenbaum, S., Leech, G., and J. Svartvik. 1985. *A comprehensive grammar of the English language*. London, New York: Longman Group Limited.

Radden, G. 2007. Interaction of modality with negation. In W. Chłopicki, A. Pawelec, and A. Pokojska, (eds.), *Cognition in language. Volume in honour of Professor Elżbieta Tabakowska*, 224–254. Kraków: Tertium.

Swan, M. 2002. *Practical English Usage*. Oxford: Oxford University Press.

Szymański, L. 2016. Towards a transboundary approach to the analysis of linguistic modality – Elements of an empirical investigation of the modal auxiliary *must* in contemporary American English. *Biuletyn Polskiego Towarzystwa Językoznawczego* 71: 211—230.

Szymański, L. 2017. An empirical investigation of the allegedly non-normative modal predicate with *must*, *not*, and the perfect infinitive of the main verb. *Biuletyn Polskiego Towarzystwa Językoznawczego* 73: 247—258.

Szymański, L. 2019. *Modal auxiliaries and aspect in contemporary American English – A corpus-based study*. Zielona Góra: Oficyna Wydawnicza Uniwersytetu Zielonogórskiego.

Szymański, L. 2021. A corpus-based analysis of the modal can with theperfect in American English from a synchronic anddiachronic perspective. *Studia Neophilologica* 93 (3): 287—313. https://doi.org/10.1080/00393274.2020.1846613.

Szymański, L. 2022. The Furdalian concept of 'open linguistics' exemplified with an investigation into the semantic field of English possibility modals. *Biuletyn Polskiego Towarzystwa Językoznawczego* 78: 237—258. DOI: 10.5604/01.3001.0016.2022

Tottie, G. 1991. *Negation in English speech and writing*. San Diego, New York, London: Academic Press.

Williams, C. 2009. Legal English and the 'modal revolution'. In R. Salkie, P. Basuttil, and J. van der Auwera (eds.), *Modality in English: Theory and description*, 199—210. Berlin: Walter de Gruyter.

LingBaW *Linguistics Beyond And Within 9 (2023), 208-223*

Subject-Object binding dependencies in Romanian

Alina Tigău
University of Bucharest, Romania

Abstract
This paper dwells on an interesting contrast between Romance (Romanian, Spanish a.o.) and Germanic languages (English, German a.o.) with respect to the syntax and the interpretation of the direct object (DO). One structural difference between these two groups of languages amounts to the fact that the former clitic double (CD) and differentially object mark (DOM) their direct objects while the latter do not. This leads to important interpretive consequences when it comes to phenomena such as Subject-Object binding dependences: Non-CD languages rely on the c-command configuration and surface word order in resolving binding relations (the antecedent must c-command the element containing the bound pronoun. As a consequence, a natural way for the DO to bind into the Subject is to have it moved to the left, in a preceding, c-commanding position). As will be shown, in CD languages, the word order configuration is not decisive: the direct object may bind the subject without having to precede it at the same time. The paper draws a parametric difference between *configurational languages* (where binding is closely linked to the c-command configurations and is sensitive to surface word order) and *non-configurational languages,* where the same semantic properties can be derived from the internal structure of the direct object (through its featural specification).

Keywords: binding, c-command, clitic doubling, differential object marking, direct object

1. Introduction

This paper investigates an interesting contrast between Romance (Romanian a.o.) and Germanic languages (English, German a.o.) with respect to the syntax and the interpretation of the direct object (DO). In example (1a) the subject *any husband* will expectedly bind the possessive within the DO *his wife* both in the Romanian example and within its English corresponding translation. In (1b), on the other hand, the binding relation between the possessive now hosted within the subject DP and the DO may no longer be maintained in the English variant, but it is claimed to remain possible in the Romanian example (Cornilescu et al. 2017). The situation for English is straightforward and follows the principles of Binding Theory (Reinhart 1976,1983 and Chomsky 1980, 1981): the possessive in (1a) is bound by the c-commanding subject preceding it, while in (1b) the DO may not bind this possessive given that

it does not c-command it[1]. What is interesting, however, is the Romanian variant in (1b), given that it seems possible for the possessive to be bound by the DO, even if the latter does not seem to c-command it. What makes the situation even more interesting, is that only clitic doubled and differentially marked DOs (CDed+DOMed DOs) give rise to this inverse binding dependency. An undoubled DO does not allow for such effects: in (2), the only possible interpretation is an unbound one, where the possessive may pick up an antecedent from the larger context but definitely not *any client.*

(1)

a. *Orice soț$_i$ responsabil o va ajuta pe soția lui$_i$ la treburile casnice.*
any husband$_i$ responsible her.cl will help DOM wife.the his$_i$ at chores.the household
'Any responsible husband$_i$ will help his$_i$ wife with the household chores.'

b. *Soțul ei$_i$ o va ajuta pe orice soție$_i$ la treburile casnice.*
husband.the her$_i$ her.cl will help DOM any wife$_i$ at chores.the household
'Lit. Her$_i$ husband will help any wife$_i$ with the household chores.'

(2) *Consilierul său$_i$ bancar va sfătui orice client$_i$ în așa fel încât investiția lui să aducă profit.*
councillor his$_i$ banking will advise any client$_i$ in such a way that investment his SUBJ bring profit
'His$_i$ banking councilor will advise any client$_i$ in such a way that his investment will be profitable.'

Romanian also allows a third variety of direct objects, namely object DPs which have been differentially object marked (DOMed) but not clitic doubled (3a). This variety bears the functional preposition *pe (on),* which obligatorily marks those object DPs that are high on the animacy and definiteness scales (Aissen 2003): thus, *pe* is obligatory with personal pronouns and proper names, optional with definite descriptions and indefinites and impossible with DOs denoting inanimate referents or bare nouns. Only differentially marked objects may be additionally clitic doubled (3b):

(3)

a. *Am auzit pe copii venind.*
have.I heard DOM children coming.
'I heard the children coming.'

b. *(I)-am ajutat pe copii la teme.*
them.cl-have.I helped DOM children at homework.
'I helped the children with their homework.'

DOMed DOs bear the differential marker *pe,* a functional category notated K (from *case*), which is external to markers of definiteness and indefiniteness. In other words K selects a DP

[1] Reinhart (2001) notices that backward binding seems to be allowed with psych verbs in English (example 1). While these data are very interesting, given that they seem to challenge the c-command requirement for binding, we chose to discuss our experimental data on Romanian against the more general view that proper binding necessitates c-command and the English example employed in the paper patterns with (2) below. Note, nevertheless, that the experiencer object may be a proper binder in example (1), given that it is a subject-like argument, competing with a theme-subject. The latter might be actually merged lower and function as a derived subject.

(1) His$_1$ health worries every patient$_1$.

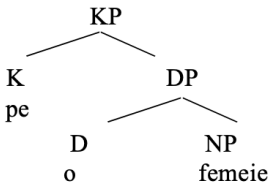
(2) * His$_1$ doctor visited every partient$_1$.

constituent, acting as a *phrasal affix* so DOMed DOs will be labelled as KPs and will exhibit the structure below:

(4)

a. *pe o femeie*
DOM a woman

b.



K thus represents one more functional category present within the extended projection of the Noun. As a DOM language, Romanian distinguishes between the extended KPs (*pe*-DPs) and the smaller, unmarked DPs. Historically, as argued in Hill and Mardale (2019, 2021)[2], *pe* is the descendent of the former allative preposition (*s)pre (to),* which underlies modern Romanian *pe* (on). This P underwent a process of downward reanalysis. PE lost its prepositional role and instead of c-selecting a DP became a K head in the projection of the complement itself. It may be shown that in Modern Romanian K is a spell out of a syntactic [person] feature (Cornilescu 2000).

This paper has a twofold aim: a) to present the results of an experiment on Subject-Object dependecies in Romanian investigating the possibility of the inverse binding interpretation in (1b); b) to propose a syntactic account for the experimental results. We start by presenting some data from the literature suggesting that clitic doubled DOs undergo movement from their merge position (section 2); we then spell out our hypothesis in section 3: Romanian CDed+DOMed DOs may bind into the subject DP irrespective of surface word order; single DOMed DOs and unmarked counterparts are not likely to bind into the Subject when they do not precede it. In section 4 we present the experiment and in section 5 we propose a syntactic account: the pronominal clitic acts a movement trigger for marked DOs, which possibly reach a landing site wherefrom they may c-command the subject. Section 6 contains the conclusions.

2. Preliminaries: evidence for movement

The pronominal clitic has been argued to trigger movement of its double DP from inside the VP into a position within the T area (Dobrovie-Sorin 1994, Cornilescu 2002a, Tigău 2011) or to move by itself (Cornilescu 2002b, Cornilescu and Cosma 2014). In what follows, we will briefly review some of the arguments supporting movement out of VP:

[2] Hill and Mardale (2019) posit a downward reanalysis of PE from a locative preposition (P) to case marker (K) and further to a marker of discourse agreement on the nominal determiner (D): P>K>D. The three stages of reanalysis are argued to trigger various ways of feature-checking mechanisms inside the marked DO: K-PE has a valued discourse feature that foregrounds the marked DP and disallows Clitic Doubling (CD); D-PE bears an underspecified discourse feature which needs CD for valuation. Hill and Mardale (2019) also notice that K-PE is productive in Old Romanian, while the D-PE is pervasive in Modern Romanian and claim that this diachronic shift from K-PE to D-PE is determined by the rise and spread of clitic constructions in the language.

2.1. Supine clauses

Cornilescu and Cosma (2014) discuss, for instance, the case of Romanian supine clauses and observe that in these configurations the verb may select unmarked and DOMed DOs but never CDed+DOMed DOs. The supine clause in example (5) *de vizitat pe cineva* contains the indefinite bare quantifier *cineva* 'somebody' as a DO. This DO ranges over [+human] referents and needs to be differentially marked but is never clitic doubled. As such, it represents a perfect candidate for the verbal supine. If we were to replace the bare quantifier with a DO expressed by means of a personal pronoun, as in (6), the result is infelicitous: the DO *pe ei* needs to be both differentially marked and clitic doubled but the supine clause does not have sufficient structure to accommodate the pronominal clitic.

(5) *Nu ne putem vedea mâine pentru că am de vizitat pe cineva.*
not we.refl. can.we see tomorrow because have.I of visited DOM somebody
'We cannot meet tomorrow because I have to visit somebody.'

(6) **Nu ne putem vedea mâine pentru că am de vizitat pe ei.*
not we.refl. can.we see tomorrow because have.I of visited DOM them
'We cannot meet tomorrow because I have to visit somebody.'

Consider the examples in (7) and (8): from (a) we notice that a DO expressed by means of a personal pronoun is necessarily clitic doubled – lack of doubling leads to ungrammaticality (b). In (8a) an attempt is made to include the same DO within a supine clause: the result is ungrammatical given that clitic doubling in not possible. Example (8b) is, on the other hand, felicitous, given that an undoubled DO has been used.

(7)
a. *I-am ajutat pe ei să ajungă la facultate.*
them.cl-have.I helped DOM them SUBJ. reach at faculty
'I helped them get to college.'
b. **Am ajutat pe ei să ajungă la facultate.*
have.I helped DOM them SUBJ. reach at faculty
'I helped them get to college.'

(8)
a. **E greu de ajutat pe ei.*
is hard of helped DOM them
'It is hard to help them.'
b. *E greu de ajutat copiii încăpățânați.*
is hard of helped children.the stubborn
'It is hard to help stubborn children.'

Thus, the prepositional supine appears to reject those internal arguments which need to be clitic doubled (i.e. DOs expressed by means of personal pronouns) and to accept those DOs which do not require doubling or which disallow it (bare quantifiers such as *cineva* 'somebody'). Starting from these observations, Cornilescu and Cosma (2014) posit that the prepositional supine is a reduced clause which lacks the Agreement projection. The pronominal clitic is not allowed in the prepositional dative precisely because it needs to leave the VP and reach a projection, which is not

part of the reduced clause put forth by the prepositional supine; if the pronominal clitic were to remain inside the VP, we would be able to have clitic doubled DOs within this configuration.

2.2. Parasitic gaps

Cornilescu (2002b) notices an interesting difference between configurations featuring clitic doubled DOs and configurations lacking doubling when these DOs undergo Heavy NP Shift (HNPS): while unmarked and DOMed DOs may license parasitic gaps when shifted to the right, CDed+DOMed DOs do not. The sentences in (9) exemplify this:

(9)

a. *Am examinat t fără a întrerupe* [] *fiecare concurent separat.*
have.I examined t without to interrupt [] each contestant separately.
'Lit. I examined without interrupting each contestant separately.'

b. *Am examinat t fără a întrerupe* [] *pe fiecare concurent separat.*
have.I examined t without to interrupt [] DOM each contestant separately.
'Lit. I examined without interrupting each contestant separately.'

c. **L-am examinat t fără a întrerupe* [] *pe fiecare concurent separat.*
him.cl-have.I examined t without to interrupt [] DOM each contestant separately.
'Lit. I examined without interrupting each contestant separately.'

Cornilescu (2002b: 6, p.2)

Parasitic gaps are empty categories inside an island for extraction (an adjunct), which are rendered acceptable by another gap outside this island. The latter gap is known as the *licensing gap*. Both gaps are bound by the same constituent labelled as *the antecedent*. In (9), the binder is *fiecare concurent separat (each competitor separately)* which has undergone HNPS an A'-movement by means of which the licensing gap has been created.

Note that if HNPS does not apply, i.e. if the licensing gap does not exist, the examples (9a) and (9b) above are ungrammatical because there is nothing to license the parasitic gap:

(10)

a. **Am examinat fiecare concurent separat fără a întrerupe* [].
have.I examined every contestant separately without to interrupt []
'I have examined every contestant separately without interrupting.'

b. **Am examinat pe fiecare concurent separat fără a întrerupe* [].
have.I examined DOM every contestant separately without to interrupt []
'I have examined every contestant separately without interrupting.'

Interestingly, the counterpart of (9c), where HNPS has not applied, is felicitous (probably because the pronominal clitic saturates the argument structure of the verb and there is not gap to speak of):

(11) *Am examinat pe fiecare concurent separat fără a-l întrerupe* [].
have.I examined DOM every contestant separately without to-him.cl interrupt []
'I have examined every contestant separately without interrupting.'

HNPS is an instance of A'-movement, whereby a constituent from within the *v*P is moved out of the *vP* and right-adjoined to this *vP*. The moved constituent leaves behind a gap, which may license a(nother), parasitic, gap. In examples (9a) and (9b), the direct objects *fiecare*

concurent and *pe fiecare concurent* respectively have been moved from within their position inside the *vP* hence their traces may license a parasitic gap and the examples are well-formed. In example (9c), on the other hand, the clitic doubled DO which undergoes HNPS is not to be found inside the *vP* and, consequently, when HNPS applies, the trace of the DO may no longer license the parasitic gap. For a more formal account on PG licensing see Cornilescu (2002b).

2.3. Focus projection

Gierling (1997) shows that, from a phonological point of view, clitic doubled DOs do not behave as arguments of the verb with respect to focus projection. They are shown to actually pattern with adjuncts, which do not permit the projection of focus onto the verb. Examples (12) and (13) below capture this difference: as pointed out by Gierling (1997) (12b), containing an unmarked DO, may be used as an answer to both questions listed under (12a); on the other hand, (13b), which contains a clitic doubled DO may only function as an answer to the first question inquiring about the argument. The broad focus question is argued not to be suitable in this situation unless (13b) contains an additional stress on the verb as in (13c):

(12)

a. *Ce cauți?* *Ce faci?*
'What are you looking for? What are you doing?'

b. *Caut o carte.*
search.I a book
'I am searching for a book.'

(13)

a. *Pe cine cauți?* **Ce faci?*
Who are you looking for? *What are you doing?

b. *Îl caut pe Ion.*
him.cl search.I DOM John
'I am searching for John.'

c. [$_F$ *Îl CAUT pe ION]*
him.cl search.I DOM John
'I am searching for John.'

The explanation provided in Gierling (1997) for this state of affairs runs as follows: focus may not project from a DP which has been doubled by means of a clitic to a higher consituent like the VP (as it usually does with an undoubled DO) because this clitic doubled DO has left the VP.

3. An experiment on Subject-Object dependencies in Romanian

3.1. Experimental hypotheses

The insights presented above support a movement hypothesis for CDed+DOMed DOs: Cornilescu (2002b) and Cornilescu and Cosma (2014) posit movement of the pronominal clitic out of the VP, presumably from a BigDP-like DO hosted in the complement position of the V (as in Uriagereka 1995, for instance). Gierling's (1997) argument seems to indicate that the

doubled DO itself leaves its merge position from within the VP. Some other linguists (Dobrovie-Sorin 1994, Cornilescu 2002a, Tigău 2011, 2016) hint that a clitic doubled DO may bind into the Subject, which counts as evidence that the DO leaves the VP reaching a landing site wherefrom it may c-command the subject, hence the binding dependency.

The experiment we propose in this article is meant to investigate whether the *DO into Su* binding dependency holds for CDed+DOMed Dos, irrespective of the surface word order of the two arguments, as it has been claimed in the literature but never actually shown. Given the discussion on evidence for movement of CDed+DOMed DOs presented above, we start from the hypothesis that such DOs may bind into the Subject DP, irrespective of the surface word order. We posit that in table 1 below all the four possible binding directions will hold for CDed+DOMed DOs, while for DOMed and unmarked DOs only the binding directions depicted in table 2 are possible:

Table 1: *parameters – word order and binding (CDed+DOMed DOs)*

Word order	Su before DO		DO before Su	
Binding direction	Su binds DO	DO binds Su	Su binds DO	DO binds Su

Table 2: *parameters – word order and binding (DOMed DOs and unmarked DOs)*

Word order	Su before DO		DO before Su	
Binding direction	Su binds DO	DO binds Su	(?) Su binds DO[3]	DO binds Su

[3] The situation *DO before Su; Su binds into DO* should be possible given that the moved DO may still reconstruct to its merge position and thereby be bound by the subject DP. Note, however, that when the DO is unmarked, this binding interpretation is problematic: in this configuration, the DO may be either Clitic Left Dislocated, (1a), or contrastively focused, (1b). If Clitic Left Dislocated, the DO occupies a position wherefrom it precedes the subject DP but it needs to be resumed by means of a pronominal clitic. Given our experimental hypothesis according to which the pronominal clitic doubling of a DO influences binding, we might expect the clitic in the Clitic Left Dislocated configurations to also interfere with binding along the same lines. Note, however, that (1a) does not allow a bound interpretation between the Subject and the DO, nor does the focused variant in (1b) allow this bound interpretation. Regarding the configuration in (1a), we may posit (in line with Tigău 2018) that the left dislocated DO has been merged directly in the left periphery, as proposed by Cinque 1990, Iatridou 1991, 1994, Anagnastopoulou 1994, Zagona 2002, Suñer 2006, a.o. Hence there is no lower position where it could reconstruct. Note, on the other hand, that a single DOMed DO, which has been topicalised may be bound by the subject. The example is, however, at best marginal and the need for a doubling clitic is strongly felt.

(1)

a. ?*Cărțile lui$_i$ le recitește orice autor$_i$ cu plăcere*
books.the his them.cl reads any author with pleasure.
'Intended reading: Any author reads his books with pleasure.'

b. ?*Cărțile LUI$_i$ recitește orice autor$_i$ cu plăcere.*
books.the HIS reads any author with pleasure.
'Intended reading: Any author reads his books with pleasure.'

c. ??*Pe doctorandul său$_i$, orice profesor$_i$ ajută cu sfaturi și bibliografie.*
DOM PhD student.the his any professor ajută with advice and bibliography
'Any professor helps his PhD student with advice and bibliography.'

In the experiment, we only used clitic left dislocated unmarked DOs similar to the one in (1a) for the situation *DO before Su, Su binds into DO*. We also leave the focused variant for further research.

The following hypotheses will be probed for in our experiment.

H1. CDed+DOMed DOs bind into the Subject irrespective of word order
H2. DOMed DOs bind into the Subject only when the DO precedes the Su
H2. Unmarked DOs bind into the Subject only when the DO precedes the Su

3.2. Experiment design

When checking binding dependencies between the Subject and the direct object in Romanian, we have to bear in mind that objects may come in three flavours: unmarked, differentially marked by means of *pe (on)* (DOMed DOs) and clitic doubled and differentially marked (CDed+DOMed DOs). This variation naturally led to our designing three corresponding experiments, each featuring a different kind of DO. The experiments, however, were similar in design: they all contained experimental items featuring a subject and a direct object, where the order of the two arguments varied between *Su before DO* and *DO before Su*, along with the direction of binding, which varied between: *Su binds into DO* vs. *DO binds into Su*. We thus obtained four possible patterns, presented in table 3 below:

Table 3: *Experimental items function of word order and binding*

Word order	Su before DO		DO before Su	
Binding direction	Su binds DO	DO binds Su	Su binds DO	DO binds Su

Each experiment contained 12 sentences, which were varied according to the 4 patterns such that a total of 48 experimental items was obtained for each experiment. Example (14) contains one sample item featuring an unmarked DO, in all its variants:

(14)

Su before O, Su binds into O

a. *Orice pilot$_i$ bun verifică personal avionul său$_i$ înainte de decolare.*
any pilot$_i$ good checks personally plane.the his$_i$ before of take-off
'Any good pilot$_i$ checks his$_i$ plane personally before take-off.'

Su before O, O binds into Su

b. *Pilotul său$_i$ verifică personal orice avion$_i$ înainte de decolare.*
pilot its$_i$ checks personally any plane$_i$ before of take-off
'Lit. Its$_i$ pilot checks any plane$_i$ personally before take-off.'

O before Su, Su binds into O

c. *Avionul său$_i$ îl verifică orice pilot$_i$ înainte de decolare.*
plane.the his$_i$ it.cl checks any pilot$_i$ before of take-off
'Any good pilot$_i$ checks his$_i$ plane before take-off.'

O before Su, O binds into Su

d. *Orice avion$_i$ îl verifică personal pilotul său$_i$ înainte de decolare.*
any plane$_i$ it.cl checks personally pilot.the its$_i$ before of take-off.
'Lit. Its$_i$ pilot checks any plane$_i$ personally before take-off.'

The examples in (15) contain an experimental item featuring a CDed+DOMed DO:

(15)

Su before O, Su binds into O

a. *Orice soț$_i$ responsabil o va ajuta pe soția lui$_i$ la treburile casnice.*
any husband$_i$ responsible her.cl will help DOM wife.the his$_i$ at chores.the household
'Any responsible husband will help his wife with the household chores.'

Su before O, O binds into Su

b. *Soțul ei$_i$ o va ajuta pe orice soție$_i$ la treburile casnice.*
husband.the her$_i$ her.cl will help DOM any wife$_i$ at chores.the household
'Lit. Her$_i$ husband will help any wife$_i$ with the household chores.'

O before Su, Su binds into O

c. *Pe soția lui$_i$ o va ajuta orice soț$_i$ responsabil la treburile în casă.*
DOM wife.the his$_i$ her.cl will help any husband$_i$ responsible at chores.the household
'Any responsible husband$_i$ will help his$_i$ wife with the household chores.'

O before Su, O binds into Su

d. *Pe orice soție$_i$ o va ajuta soțul ei$_i$ la treburile în casă.*
DOM any wife her.cl will help husband.the her at chores in household
'Lit. Her$_i$ husband will help any wife with the household chores.'

The experiment on single DOMed DOs mirrored the one containing CDed+DOMed DOs, the only difference being that the pronominal clitic had been discarded from all experimental items previously used in the CDed+DOMed experiment.

Each experiment contained two tasks:

1. a **norming task** where the respondents were required to identify the binding dependency at stake by choosing from among three possibe readings: a) one which enclosed the binding dependency interpretation holding between Su and DO, b) one where the possessive pronoun would bind another antecendent, not present in the experimental item, and c) a third answer variant where both variants a) and b) could be ticked as possible.
2. an **acceptability task** where respondents had to assign a score ranging from 1 to 7 (1 being the lowest acceptability score and 7 being the highest).

Consider an example of the two tasks:

(16) *Șeful său$_i$ îl mai verifică din când în când pe orice angajat$_i$.*
boss.the his$_i$ him.cl more checks from time to time DOM any employee$_i$.
'Lit. His$_i$ boss checks on any employee$_i$ from time to time.'

Norming task: The sentence below may be interpreted as follows:

a. Any employee gets checked by his own boss from time to time.
b. The boss of a certain person checks any employee.
c. Both as a) and b).

Acceptability task: Assign an acceptability value from 1 to 7 to this sentence, where 1 stands for 'totally unacceptable' and 7 stands for 'fully acceptable'.

The 48 experimental items in each experiment were distributed into 4 lists using the Latin square method for an even distribution. To the 12 items in each list 12 fillers were added, grouped into: 4 completely unacceptable items (for the acceptability experiment)/with no possible answer (for the norming experiment), 4 completely acceptable items/all answers possible, and 4 expectedly average items/with one variant response. The fillers had been previously tested for acceptability in a smaller, informal experiment. In the end, each list contained 24 items and was assessed by at least 20 native speakers of Romanian, mostly students of the University of Bucharest, who took part in the experiment for one course credit. We thus had a total of 80 respondents per experiment, so 240 respondents in the three experiments altogether. Answers were afterwards verified and the outliers were removed (i.e. questionnaires where more than 6 fillers had been evaluated incorrectly).

3.3. Experimental results and discussion

3.3.1. Binding dependencies between the Subject and CDed+DOMed DOs

We repeat below one sentence from example (15) for convenience (see page 8 for all the tested variants of this item):

(17) ***Su before O, Su binds into O***

a. *Orice soț$_i$ responsabil o va ajuta pe soția lui$_i$ la treburile casnice.*
any husband$_i$ responsible her.cl will help DOM wife.the his$_i$ at chores.the household
'Any responsible husband will help his wife with the household chores.'

As may be seen from table 4, the intended bound reading is accepted by most of the respondents, irrespective of the order of the two arguments or the direction of binding (over 80%). Surface word order seems to play a part, however, as those items where the order between the two arguments matches the direction of binding are more readily accepted by respodents on their intended bound reading. Consider the bolded lines of table 4.

Importantly for our analysis, CDed+DOMed objects may bind into the subject DP irrespective of whether they precede or follow it within the sentence. In the configuration *Su before DO, DO binds into Su* the desired bound interpretation was found possible by over 83% of the respondents.

Table 4: *Intended bound readings in the norming task (CDed+DOMed DOs)*

1.	**Su before DO**	**Su binds into DO**	**96%**
2.	Su before DO	DO binds into Su	83%
3.	DO before Su	Su binds into DO	89%
4.	**DO before Su**	**DO binds into Su**	**96%**

3.3.2. Binding dependencies between the Subject and single DOMed DOs

The tested items containing single DOMed DOs closely mirrored those featuring clitic doubled DOs, the only difference being that the pronominal clitic had been eliminated:

(18) ***Su before O, Su binds into O***
Orice soț$_i$ responsabil va ajuta pe soția lui$_i$ la treburile casnice.
any husband$_i$ responsible will help DOM wife.the his$_i$ at chores.the household
'Any responsible husband will help his wife with the household chores.'

Just as in the previous case, items containing single DOMed DOs fare better on their intended bound reading if the surface order of the two arguments matches the direction of binding (see lines 1 and 4 of table 5). Instances of inverse binding, are less readily accepted on their bound reading. Instances where a fronted object is bound by the subject are found acceptable on their bound interpretation by more than half of the respondents. This is not surprising: we might imagine that in these cases the fronted DO reconstructs in its initial merge position within the VP and below the position occupied by the subject.

What is surprising, however, is the relatively high score that items where a DO binds into a preceding subject get (line 2 of the table 5). According to our hypothesis H2, respondents should not accept a bound interpretation in this case. The score of 51%, even though significantly lower than the scores obtained for the other configurations, needs to be explained.

Table 5: *Intended bound readings in the norming task (single DOMed DOs)*

1.	**Su before DO**	**Su binds into DO**	**99%**
2.	Su before DO	DO binds into Su	51%
3.	DO before Su	Su binds into DO	67%
4.	**DO before Su**	**DO binds into Su**	**96%**

3.3.3. Binding dependencies between the Subject and unmarked DOs

An example featuring a binding dependency with an unmarked DO has been provided below for convenience. In order to see all the tested variants of this item, see example (15) above:

(19) ***Su before O, Su binds into O***
Orice pilot$_i$ bun verifică personal avionul său$_i$ înainte de decolare.
any pilot$_i$ good checks personally plane.the his$_i$ before of take-off
'Any good pilot$_i$ checks his$_i$ plane personally before take-off.'

The results in this experiment put forth a different pattern: the most readily accepted configuration is the one where the subject precedes and binds the DO, which is expected considering the previous two experiments. Unexpectedly, the configuration where the DO precedes and binds into the subject fares less well than its counterparts from the preceding experiments. The only explanation we may think of is that in these patterns we used a fronted inanimate object which was also resumed by a pronominal clitic (Clitic Left Dislocation), given that a simple fronting configuration did work. The binding dependencies might be problematic in such configurations but further research is needed to find out why.

Items featuring inverse binding fare even worse on their intended bound interpretation. We expect a low score for *Su before DO* and *DO binds into Su*, given that unmarked objects are not expected to move out of their merge position and bind into the subject (López 2012). We also expect a low score for the pattern in line 3 of table 6 for the reasons extended upon in fn. 4.

Table 6: *Intended bound readings in the norming task (unmarked DOs)*

1.	**Su before DO**	**Su binds into DO**	**91%**
2.	Su before DO	DO binds into Su	56%
3.	DO before Su	Su binds into DO	40%
4.	**DO before Su**	**DO binds into Su**	**71%**

The participants thus seemed to pattern alike and to consider that a CDed+DOMed DO would more likely bind a preceding subject.

Even if we see a clear difference between the way in which items featuring CDed+DOMed DOs are understood in their intended bound reading and the way in which items containing DOMed or unmarked DOs fare in this respect, we cannot but notice that the overall precentages are quite high, surpassing 50% even in those cases where we would not expect a bound interpretation (e.g., an unmarked DO binding into a preceding Su, 56%). A possible answer might come from the tested items themselves – on checking them individually, we observed that some of the items received very high scores on the relevant binding interpretation, irrespective of word order and DO type. Consider example (20) below, which got 100% on the binding reading, as opposed to example (21) with the same configuration, which only got 30% on the binding reading:

(20) *Pe copilul ei aflat în primejdie nici o mamă adevărată*
DOM child.the her found in danger no mother true
nu-l va putea abandona.
not-him.cl will can abandon.
'No true mother will be able to abandon her child found in a dangerous situation.'

(21) *Gazda lui îl pune pe fiecare oaspete la masă,*
host.the his him.cl put DOM every guest at table
indiferent de cât de săracă este.
irrespective of how poor is
'His$_i$ hostess will invite to dinner every guest, irrespective of how poor she is.'

We assume that this has to do with the fact that the situations described by those items were such that the non-binding interpretation would be less likely. The pragmatic context seemed to be important in this respect. Other items, where a bound reading was not contextually obvious, fared significantly worse, with scores of 40% and less. When taking some of the problematic items out, the differences between CDed+DOMed DO and DOMed DOs with respect to their binding abilities in the *Su before DO, DO binds into Su* case increased dramatically. Given that the results regarding unmarked DOs are inconclusive at this point, we will focus on providing a syntactic account for the clear-cut case of CDed+DOMed DOs.

4. Sketching an account for CDed+DOMed DOs

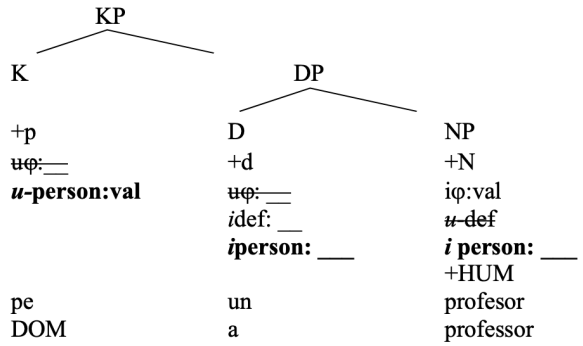
In the beginning of this paper we drew a difference between languages such as English, which are configurational in the sense that they rely on c-command mirrored by surface word order in order to resolve binding relations and non-configurational languages such as Romanian, where surface word order does not seem to be crucial and where CDed+DOMed DOs seem to diregard c-command when it comes to binding into a preceding subject.

In this section, we would like to argue that, in fact, this lack of regard for c-command requirements is only apparent with CDed+DOMed DOs: due to their internal featural make-up, CDed+DOMed DOs are forced to leave their merge position inside the VP in search for suitable projection(s) up the tree, against which they might check their features.

One important ingredient to understanding the syntax of marked DOs (whether simply DOMed or CDed+DOMed) is the fact that they are sensitive to the animacy and definiteness scales (Aissen 2003). In previous work, Cornilescu and Tigău (2018, 2021), Tigău (2020) we posited that this sensitivity be syntactically captured through a [Person] feature, i.e. marked DOs incorporate a [Person] feature.

The tree in (22) shows this at work: the DO *un profesor* (a profesor) denotes a human referent and this is captured through the unvalued interpretable feature [*i*Person:___], which has been added in its feature specification. Given their sensitivity to the animacy hierarchy discussed above, this DP triggers the use of the differential marker *pe,* which is posited to enter the derivation carrying a valued uninterpretable feature [*u*Person:val]. The [*i*Person:___] feature of the NP is further transfered to D and gets checked against the K head, carrying [*u*Person:val]. After feature checking, DOMed DOs will thus end up carrying [*i*Person:val] and will not need to further check this feature by movement. Consider:

(22)



Following Tigău (2020), we posit that CDed+DOMed DOs also start out as KPs, but that their K has been semantically bleached in that its syntactic [Person][4] feature is unvalued and uninterpretable this time i.e., [*u*Person: __]. The DO *un coleg (a colleague)* carries an unvalued interpretable person feature [*i*Person: ___], just like the DO in (22), but this time, due to the slightly different specification of K regarding its person feature, the result of feature checking between K^{o} and D^{o} is an interpretable **unvalued** [*i*Person:___] [5], as may be seen in (23b).

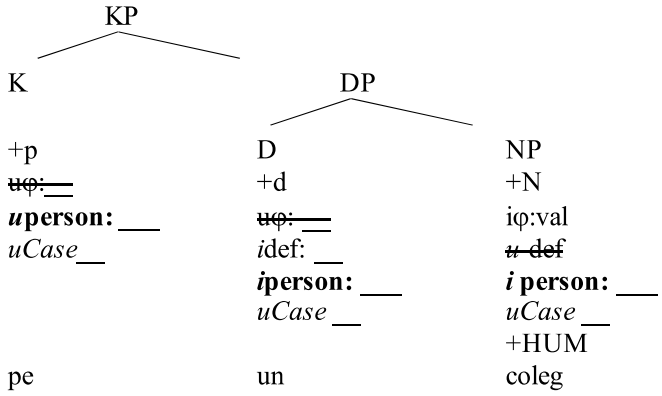
(23)

a. *Îl văd pe un coleg.*
him see.I DOM a colleague.
'I see a colleague.'

[4] See Tigău (2020), Cornilescu and Tigău (2018) for a more extensive discussion on why DOMed DOs carry a [Person] feature.

[5] We follow Pesetsky and Torrego (2007) in distinguishing between valued/unvalued and interpretable/ uninterpretable features.

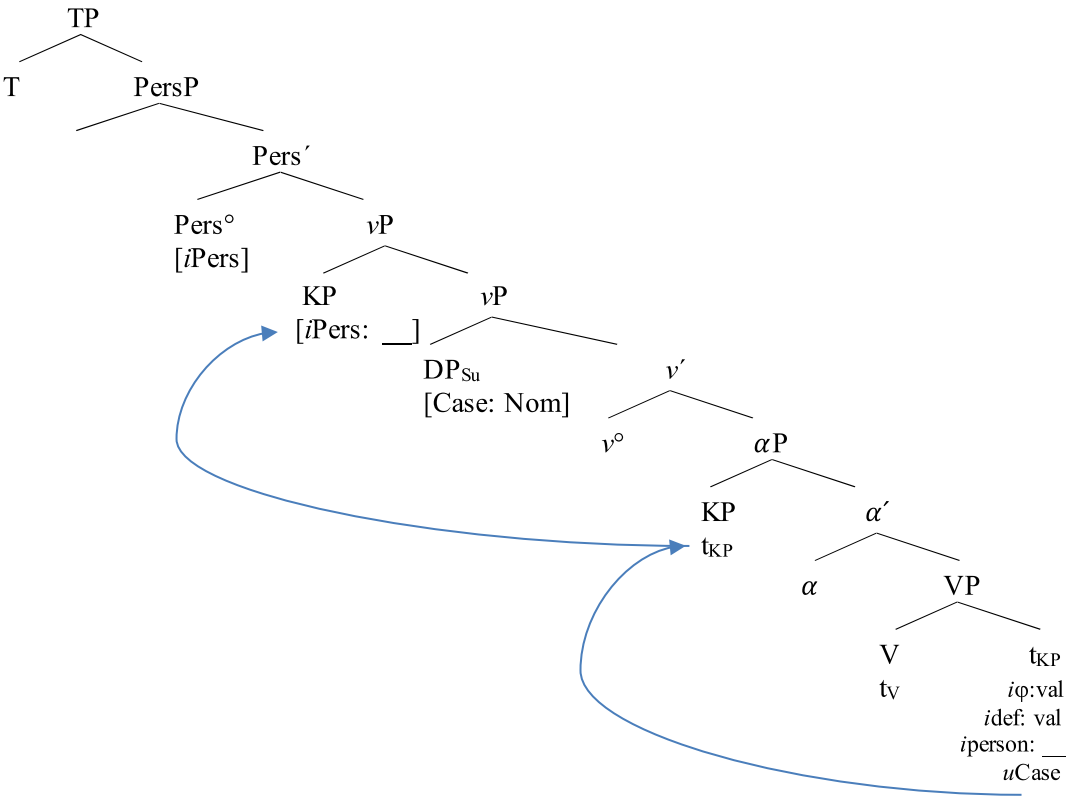
b.



The [*i*Person__] feature of the KP in (22b) thus needs to be valued against an appropriate head, and the KP will have to scramble all the way into the vicinity of a PersonP to have this feature checked (Săvescu 2009). Consequently, the process of feature checking, which a CDed+DOMed DO needs to go through enables it to reach a position wherefrom it may bind into the subject, which explains the binding dependencies captured in our experiment.

The tree in (24) shows this at work: the DO KP is merged as a complement of the VP but it leaves its base position and moves first to SpecαP and then even further to a position at the left periphery of the *v*P, where it will be able to enter an agreement relation with Pers°, which carries a valued interpretable [Person] feature. As a consequence of agreement, the [*i*Person__] feature of the DO will be valued. Having reached its final landing site at the periphery of *vP*, the DO is now in a c-commanding position with respect to the position occupied by the DO Subject.

(24)



5. Conclusions

The experimental findings show that while CDed+DOMed DOs may bind into the subject irrespective of word order, DOMed and unmarked counterparts are not always inclined to do so. Clitic Doubling thus seems to lead to important interpretive consequences when it comes to phenomena such as Subject-Object binding dependencies and to differentiate Romanian from English (and other Germanic languages) in this respect: Non-CD languages rely on the c-command configuration and surface word order in resolving binding relations (the antecedent must c-command the element containing the bound pronoun. As a consequence, a natural way for the DO to bind into the Subject is to have it moved to the left, in a c-commanding position).

In CD languages such as Romanian, the word order configuration is not decisive: the DO may bind the subject without having to precede it. In the final section we put forth a tentative proposal according to which CDed+DOMed DOs are forced to leave the *v*P reaching a landing site wherefrom they may c-command the Subject. Under this account, Romanian is shown to actually pattern with the other non-CD languages, which rely on c-command to resolve binding dependencies. The point of difference would only boil down to the internal make-up of the DO: CDed+DOMed DOs have a featural load which elicits movement out of their merge position. By way of movement, CDed+DOMed DOs end up in a c-commanding position with respect to the subject and they are able to bind into this subject by following the regular rules of binding.

References

Aissen, Judith. 2003. Differential Object Marking: Iconicity vs. Economy. *Natural Language and Linguistic Theory* 21: 435–483.

Anagnostopoulou, Elena. 1994. *Clitic Dependencies in Modern Greek*. Salzburg: Salzburg University dissertation.

Chomsky, N. 1980. On Binding. *Linguistic Inquiry* 11: 1–46.

Chomsky, N. 1981. *Lectures on Government and Binding*. Foris: Dordrecht.

Cinque, Guglielmo.1990. *Types of A′-Dependencies*. Cambridge: MIT Press.

Cornilescu, Alexandra. 2000. Notes on the Intepretation of the Prepositional Accusative in Romanian. *Bucharest Working Papers in Linguistics*, 2 (1): 91.

Cornilescu, Alexandra. 2002a. Direct object at the left periphery. *Bucharest Working Papers in Linguistics* 4 (1): 1–15.

Cornilescu, Alexandra. 2002b. Clitic doubling and parasitic gaps in Romanian. Paper presented at Going Romance Groningen, November 2002.

Cornilescu, Alexandra and Cosma Ruxandra. 2014. On the Functional Structure of the Romanian *de* supine. In Ruxandra Cosma, Stefan Engelberg, Susan Schlotthauer,

Speranța Stănescu and Gisela Zifonun (eds.), *Komplexe Argumentstrukturen. Kontrastive Untersuchungen zum Deutschen, Rumänischen und Englischen.* (Konvergenz und Divergenz Series), 283–336. Berlin/Boston: de Gruyter.

Cornilescu, Alexandra, Dinu Anca and Tigău, Alina. 2017. Romanian Dative Configurations: Ditransitive Verbs, A Tentative Analysis, *Revue Roumaine de Linguistique*, special volume *Investigating Romanian Datives / Recherches autour du datif roumain,* LXII (2). 179–206.

Cornilescu, Alexandra, Alina Tigău. 2018. Towards a derivational account of Romanian binding ditransitive constructions. In Teresa Parodi (ed.), *Proceedings of the VIII Nereus International Workshop "Referential Properties of the Romance DP in the Context of Multilingualism. Arbeitspapier* 129, 121–140. Konstanz: Fachbereich Sprachwissenschaft, Universitaẗ Konstanz.

Cornilescu, Alexandra, Alina Tigău. 2021. Is there a dative alternation in Romanian? Remarks on the cross-categorial variation of datives in ditransitive construction. In Adina Dragomirescu, Alexandru Nicolae, (eds.), *Romance Language and Linguistic Theory* 2017. *Selected papers from Going Romance* 31, 91-109. *Bucharest,* Amsterdam: Benjamins.

Dobrovie-Sorin, Carmen. 1994. *The Syntax of Romanian. Studies in Generative Grammar, vol* 40, Berlin: Mouton de Gruyter.

Gierling, Diana. 1997. Clitic Doubling, Specificity and focus in Romanian. In Black, James. and Motapanyane, Virginia (eds.) *Clitic, pronouns and movement,* 63–85. Amsterdam: John Benjamins.

Hill, V. and A. Mardale. 2019. Patterns for Differential Object Marking in the history of Romanian. *Journal of Historical Syntax* 3 (5): 1–47.

Hill, V. and A. Mardale. 2021. *The diachrony of Differential Object Marking in Romanian.* Oxford: Oxford University Press.

Iatridou, Sabine. 1991. Clitics and island effects. ms. MIT, Cambridge

Iatridou, Sabine. 1994. Clitics and Island Effects. In Roumyana Izvorski and Victoria Tredinnick (eds.), *University of Pennsylvania Working Papers in Linguistics* 2 (1). 11–30. Philadelphia: University of Pennsylvania Linguistics Club.

López, Luis. 2012. *Indefinite Objects. Scrambling, Choice Functions, and Differential Marking.* Cambridge, Massachusetts: MIT

Pesetsky, David and Torrego, Esther. 2007. The Syntax of Valuation and the Interpretability of Features. In Simin Karimi, Vida Samiian, Wendy K. Wilkins (eds), *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation,* 262–194. Amsterdam: John Benjamins.

Reinhart, Tanya. 1976. *The syntactic domain of anaphora.* PhD Dissertation, MIT.

Reinhart, Tanya. 1983. *Anaphora and semantic interpretation.* London: Croom Helm.

Reinhart, Tanya. 2001. Experiencing derivations. In Rachel Hastings, Brendan Jackson and Zsofia Zvolenszky (eds.) *Proceedings of Semantics and Linguistic Theory* 11, 365–387. Ithaca, NY: CLC Publications.

Săvescu, Oana. 2009. *A Syntactic Analysis of Pronominal Clitic Clusters in Romance: The View from Romanian*. New York: New York University dissertation.

Suñer, Margarita. 2006. Left dislocation with or without epithets. *Probus* 18 (3): 127–158.

Tigău, Alina. 2011. *Syntax and Interpretation of the Direct Object in Romance and Germanic*
Languages with an Emphasis on Romanian, German, Dutch and English. Bucharest: Editura Universităţii Bucureşti.

Tigău, Alina. 2016. *A DRT analysis of Clitic Doubling.* Bucharest: Editura Universităţii Bucureşti.

Tigău, Alina. 2018. Linguistic creativity with Clitic Left Dislocated objects in Old Romanian. *Creativity* 1 (1): 107–122.

Tigău, Alina. 2020. *Experimental insights into the syntax of Romanian ditransitives.* Berlin: Mouton de Gruyter.

Uriagereka, Juan. 1995. Aspects of the syntax of clitic placement in Western Romance. *Linguistic Inquiry* 26 (1): 79–123.

Zagona, Karen. 2002. *The Syntax of Spanish*. Cambridge: Cambridge University Press.

LingBaW *Linguistics Beyond And Within 9 (2023), 224-237*

Hypocoristic palatalization in Basque and historical applications

Jackson Wolf
Wayne State University, Detroit, Michigan, USA

Abstract
This paper examines the processes of expressive palatalization in the Basque diminutive. Basque has two forms of the diminutive, a list of inflectional suffixes and a method of palatalization with specific phonological requirements. A speaker will first palatalize any coronal sibilants in the word. If there are none, then a dental obstruent that has a palatal counterpart is the next candidate. If there are again, none, then the last candidate is a dental coronal, but only the consonant on the leftmost edge. However, if there is a sibilant and a dental consonant, only the sibilants are palatalized. If there is a dental obstruent and a dental sonorant, only the obstruent is palatalized. To describe this process, I adopt an OT approach and an autosegmental approach to determine where the [+palatal] inflection morpheme can attach. Finally, I show the application of unworking the hypocoristic formation through internal reconstruction of Basque in animal names to produce two reconstructions.

Keywords: diminutive, phonology, historical linguistics, autosegmental, OT

1. Introduction

Basque is a language spoken in the southwest region of France and the northeast region of Spain known as Basque Country – *Euskal Herria* – with around 750,000 native speakers (Saltarelli et al., 1988). It is typologically unique in Europe for several reasons. One is that it is a language isolate, belonging to a family that predates Proto-Indo-European. Work has been done that claims it is related to languages in the Caucuses, but this is still up for debate (Bengston, 2017). It is the only ergative aligned language spoken in all of Europe. It also has the typologically unusual distinction between the alveolar and alveolar laminal fricatives [s] and [s̻].

There are two kinds of phonological palatalization: the allophonic and the expressive. The allophonic palatalization is a requirement of the phonological environment and cannot be ignored by speakers. This is often triggered by front vowels [i] and [e] (Hualde, 1991). This is either through [j] insertion or through palatalization of the consonant if a palatal consonant of the same manner exists. Bérces and Ulfsbjorninn (2022) provide an autosegmental account

wherein the palatalization surfaces at a specific point in the CV boundary as a consonant at a boundary searches for the place of articulation.

Basque has two forms of the hypocoristic. One of which is the suffix *-ko*. This behaves much like the suffix -y in English: Bill → Billy compared to Ene → Eneko (further discussion in Zaratiegi and Izko, 2014). The focus of this paper is on expressive palatalization, more commonly referred to as hypocoristics in the literature. This is the process of expressing feelings of affection, cuteness, or small size as enacted by the speaker. The other is a means of palatalization. An example of this is seen in example (1):

(1) Ni-re neska Ni-re neʃka
my-POSSESSIVE girl my-POSSESSIVE girl-DIM.
My girl My girl (affectionate)

To express the feelings of affection for the girl, a speaker must add the feature [+palatal] to the word which surfaces on the optimal consonantal candidate. Here, the palatal is expressed on the sibilant. This is not the only place the diminutive can occur. Further pairs of this include [euskalduna] and [euʃkalduna] for "Basque person", the name [doanes] and [ɟoanes], and [aita]/ [aica] for "father" (Corum, 1972, Hualde et al., 2010). Each of these pairs introduces a sense of familiarity and fondness expressed through the diminutive.

This process of expressive palatalization follows a set of rules in the derivation process. In order to account for this process, I propose an Optimality Theory (OT) analysis to analyze the forms that surface and the unaccounted forms. For this to work, I operate under the assumption that the expressive diminutive morpheme is the feature [+palatal] that attaches itself to a candidate laid out by OT. Since the derivation follows complex ordering of the consonants, I rely on an autosegmental approach to base my constraints.

My secondary goal in this paper is to demonstrate the effects of common use of the palatal diminutive in Basque. People often share special bonds with the animals around them. Take this fact one step further: if you want to show the closeness of you and your animals, you would show this with the hypocoristic form. I examine the evidence from Basque animal names to show that this process happened so often that the diminutive effect was semantically bleached and that the current word used for these animals is what was once a specialized form.

The order of this paper is as follows. In section 2 I provide the data to show how the palatalization process works in Basque. In section 3 I propose my OT analysis. In section 4 I examine animal names to demonstrate the use of the palatal diminutive and to propose an internal reconstruction of animal names. In section 5 I conclude.

2. The expressive palatal – rules and usage

2.1. The emergence of the palatal

As stated previously, this is entirely distinct from palatalization triggered by a phonological environment. Data presented in grammars and textbooks show that there are predictable environments where allophonic palatalization must occur (King, 1994). More recent work

provides consonant skeletons and autosegmental explanations for the more specific and dialectal variants (Bérces and Ulfsbjorninn, 2022).

The focus of this paper is the manipulation of a well-formed output to produce a distinct semantic change. I propose that the feature [+palatal] is added to the stem to express the diminutive. There are specific rules that determine where the palatal feature surfaces in a word when the diminutive is formed. The rules are laid out in total with examples taken from Rijk's grammar of Standard Basque (2007).

One natural class for palatalization is the sibilant category. Basque has four phonemic sibilants with palatal counterparts. These are /s/, /s̻/, /ts/ and /ts̻/. The fricatives, each appearing as either voiced or voiceless allophones, both correspond to [ʃ] (allophonic voicing has no effect as [ʒ] does not appear in Basque). The affricates and their voiced allophones both appear as [tʃ] ([dʒ] does not appear in Basque). Orthographically, /s/ corresponds to "s", /s̻/ corresponds to "z" and /ʃ/ corresponds to "x". Thus /ts/ is "ts", /ts̻/ is "tz", and [tʃ] as "tx".

(2) (Rijk, 2007)

gizon → gixon	zoro → xoro	seme → xeme
[gis̻on] → [giʃon]	[s̻oro] → [ʃoro]	[seme] → [ʃeme]
man → little fellow	crazy →foolish	son → sonny

The other candidate for palatalization is a dental consonant that has a counterpart for manner of articulation in the palatal category. Basque also has four of these. These include /t/, /d/, /n/, and /l/. These sounds become [c], [ɟ], [ɲ], and [ʎ], respectively. These letters in the orthography are represented such that "t" is [t] and "tt" is [c], "d" is [d] and "dd" is [ɟ], "n" is [n] and "ñ" is [ɲ], and "l" is [l] and "ll" is [ʎ].

(3) (Rijk, 2007)

tontor → ttonttor	eder → edder	lapur → llapur
[tontor] → [concor]	[eder] → [eɟer]	[lapur] →[ʎapur]
peak → hump	beautiful → lovely	thief → rascal

The descriptive challenge is when both a sibilant and a dental consonant are present in the same word. The sibilant is the only candidate that becomes [+palatal] and the dental consonant, which is a candidate for palatalization, is ignored. Return to example [1]: the word "neska" [neska] becomes "nexka" [neʃka], never *[ɲeʃka] or *[ɲeska]. The word "euskalduna" also surfaces as [euʃkalduna], never *[euʃkaʎɟuɲa], *[euʃkaʎɟuna], *[euskaʎɟuɲa], or any of the other possibilities. Taking it one step further, if there is a dental obstruent and a dental sonorant in the same word, only the obstruent will become palatalized. Finally, if both [n] and [l] are present in a word, then only the leftmost sonorant becomes [+palatal].

These data show that my analysis must account for two things. First, it must account for sibilants being palatalized over dental consonants. Second, it must account for the difference in sonorant ordering. I present my constraint ranking and an explanation using autosegmental analysis in section 3.

2.2. The expressive palatal and its potential presence in animal names

The expressive palatal is a highly productive aspect of Basque often used by Basque speakers for pet names and the diminutive alike (Salaberri, 2004 and Salaberri and Salaberri, 2014). Everyday words in these two studies have been paired with the hypocoristic transformation so often that the hypocoristic becomes the standard form. Even names that were once marked as being "pet names" are now the standard form. Zaratiegi and Izko present the names *Pello* and *Patxi* as two such cases (2014). The original form of these names would have been *Pelo* ([pelo] → [peʎo]) and *Frantzisko* ([frantsi̪] → [frantʃi] → pantʃi]).[1]

A marked form replacing the standard usage of a word is a documented case in historical linguistics. This is known as Kuryłowicz's 4th law of analogy. This law states that "When the old (non-analogical) form and the new (analogical) form are both in use, the former remains in secondary function and the latter takes the basic function" (1947). The above data make this distinction clear. The form *Patxi* is a standard form in the language (and is the name of one of the authors) while the base form, *Frantzisko*, is now a name that has been given a more formal application. Compare this with German *Nikolaus* > *Klaus.* Or English *William* > *Bill*. Either form is acceptable, but the nickname has now become the standard form and the name base becomes something more serious.

The inverse of this happened in Old English. The term *dogge* originally was used to denote a dog of immense power and stature. Now the word *dog* refers to the entire scope of the animal (Crowley and Bowern, 2010). This book also explains that the Old English word *bride* – young birds still in the nest – became *bird* and started referring to the entire species. There are certain animal names in Basque that contain palatal sounds. I propose that hypocoristic forms in Basque have replaced the standard form operating under Kuryłowicz's 4th law of analogy. In other words, speakers start with an animal name, they palatalize it to refer to something small, cute, or endeared, and use this so much that it becomes semantically bleached into the standard form. Now what was originally a particularly small or cute animal is now a prototypical version of the animal. I argue that current words in Basque have undergone the same changes that Old English went through. My analysis in section three will lay the groundwork for this claim and I will further apply this to internal reconstruction in section 4.

3. An Optimality Theory account for palatalization

I will be analyzing expressive palatalization under an Optimality Theory approach (Prince and Smolensky, 1993). As stated in section 2, an Optimality Theory approach to the expressive palatal needs to account for two things: the preference for sibilants over dental consonants, and the apparent hierarchy found in dental consonants.

Before presenting constraints, I investigate the behavior of the dental consonants compared to the sibilants. While all sibilants in a word become palatalized under the expressive diminutives, there is a hierarchical order present for the dental consonants. Examples from Zubiri (2002), Rijk (2007), Salaberri, (2004) and Salaberri and Salaberri, (2014).

[1] Zaratiegi and Izko cite that *[f] > *[p] in Middle Basque and that this change also deleted the [r].

(4) (Rijk, 2007; Zubiri, 2002; Salaberri and Salaberri, 2014)
[t] and [d] take priority over [n] and all instances of the consonant become the palatal counterpart.

Standard	**Diminutive**
[kontua] 'account'	[koncua] 'account (dim)'
[tontor] 'peak'	[concor] 'hill'
[dominika] 'Dominika'	[ɟominika] 'Dominika (nickname)'

(5) (Salaberri, 2003)

Standard	**Diminutive**
(a) [ana] 'Ana (name)'	[aɲa] 'Anna (nickname)'
(b) [lo] 'sleep'	[ʎo] 'asleep'
(c) [poloni] 'Poloni (name)'	[poʎoni] 'Polloni (nickname)'
(d) [manuel] 'Manuel (name)'	[maɲuel] 'Mannuel (nickname)'

The consonant [n] is palatalized if there are no other candidates present in the word (5a), otherwise it is ignored if [t] or [d] have already become palatalized[2]. The consonant [l] is palatalized if no other candidates are present in the word (5b) but is again disfavored with respect to [t] and [d]. However, there are cases where [l] and [n] are both present (5c, d) yet one becomes palatal and the other does not. Salaberri also notes that palatalizing [l] is habitually less common than [n] among speakers. I propose a hierarchy for palatalization of the coronal consonants below in example (6).

(6) Hierarchy of Coronal Palatalization (HCP)
[s], [s̪], [ts] [ts̪] >> [t], [d] >> {[l], [n]}

All sibilants in a word take priority for palatalization. If none are present, then all dental obstruents in a word are palatalized. If none are present, then one sonorant at the leftmost edge is chosen as a candidate. To motivate the leftmost edge theory, I rely on Bérces and Ulfsbjorninn (2022), which provides an autosegmental account of phonological palatalization. The same process applies in the dental sonorants when realizing the hypocoristic morpheme [+palatal].

Bérces and Ulfsbjorninn (2022) argue that in the underlying form in the skeleton, both [l] and [n] appear as underspecified coronal sonorants, [L] and [N]. Once one of these consonants are in the proper environment (to the right of [i] or [j]) they become [ʎ] and [ɲ]. This leftward spreading occurs along the prosodic word from left to right. While the underspecification does not apply to hypocoristic formation (because I am dealing with a well-formed output with specified places of articulation), the notion of the dental sonorants only being palatalized at the leftmost edge still applies.

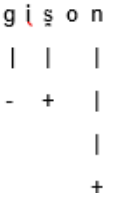
This palatalization is initiated from the diminutive morpheme [+palatal] and will attach to a coronal candidate from one of three tiers indicated by the hierarchy in (6). The diminutive morpheme [+palatal] must be realized on a coronal consonant with a palatal counterpart in the phonetic inventory. These are indicated below in (7) with either a "-" if no palatal counterpart exists or a "+" is the inventory has one. It will attach to all sibilants in the prosodic word on the first tier if available, the dental obstruents in the second tier, and the dental sonorants in the

[2] Salaberri notes that in the eastern dialect, [n] is palatalized over [d].

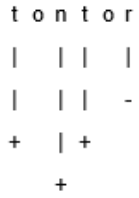
third tier. (If nothing in the HCP is present, then a suffix is chosen from the list provided by Salaberri and Salaberri (2014)). In the case of [l] and [n], only the leftmost coronal sonorant is palatalized (these will be specified since hypocoristics deal with a well-formed output). Example [7] shows how this tier system operates in the language.

(7)

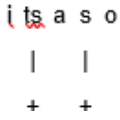
a. /[+palatal] +[gis̪on]/ = [giʃon]



b. /[+palatal] + [tontor]/ = [concor]



c. /[+palatal] + [itsaso]/ = [itʃaso]



d. /[+palatal] + [poloni]/ = [poʎoni]

e. /[+palatal] + [manuel][3]/ = [maɲuel]

(7a) shows an example of the sibilant tier beating out the dental obstruent tier. The sibilant appears higher up on the autosegmental plane, so it is the only eligible coronal that becomes palatalized. Example (7b) shows an example of dental obstruents beating out dental sonorants. [t] is higher on the plain than [n], so the two eligible dental obstruents are palatalized. The autosegmental analysis also shows that a markedness constraint to prohibit *[coɲcor] would not require a CODACOND family of constraints because the [t] and [n] are on different tiers and can never be palatalized together (Ito, 1989). Example (7c) shows a word with more than one eligible candidate on the same tier being palatalized. Examples (7d) and (7e) show a case of

[3] While syllabification does not appear to be an issue here, narrow transcription of the Basque name "Manuel" is [ma.nu.(w)el]

the only candidates being the two different dental sonorants, and the leftmost candidate being the only one palatalized.

Given the HCP in (6) and the examples in (7), I can form my list of constraints and provide their overall ranking to handle any of the four types of words seen in (8) and (9).

(8) Markedness Constraints

Constraint	**Assign a violation mark for every…**
(a)*SIBILANT$_{alveolar}$ (*SIB$_{alv}$)	…alveolar sibilant present in the output.
(b)*OBSTRUENT$_{dental}$ (*OBS$_{den}$):	… dental obstruent present in the output.
(c)*SONORANT$_{dental}$ (*SON$_{den}$)	…dental sonorant present in the output.

(9) Faithfulness constraints

Constraint	**Assign a violation mark for every…**
(a) IDENTITY-SD-palatal	… segment that does not match its correspondent for [palatal].
(b) REALIZEMORPHEME	… morpheme not realized in the output.
(c) LEFTMOST	… feature change not found at the left-most edge.

The constraint ranking to account for sibilant palatalization is *SIB$_{alv}$ >> IDEN(TITY)-SD-palatal. There are two alveolar sibilants present in the input and both are palatalized in the optimal candidate (10d). Palatalizing only one of the sibilants (10b, c) maintains a fatal violation of markedness.

(10) *SIB$_{alv}$ >> IDENT-SD-palatal

/[+palatal] + itsaso/	*SIB$_{alv}$	IDEN-SD-palatal
a. itsaso	*!*	
b. itʃaso	*!	*
c. itsaʃo	*!	*
→ d. itʃaʃo		**

Candidate (10a) introduces the next constraint. Example (10) takes for granted that the [+palatal] morpheme will be realized in the diminutive. The sibilants are the hosts for palatalization in *itsaso*, but this extra-phonological change requires more motivation. The constraint REALIZEMORPHEME (Ito and Mester, 2003:4) ensures that [+palatal] is realized somewhere in the word further motivate the violations of [11a].

(11) REALIZEMORPHEME >> IDENT-SD-palatal

/[+palatal] + itsaso/	REALIZEMORPHEME	*SIB$_{alv}$	IDENTITY-SD-palatal
(a) itsaso	*!	*!*	
(b) itʃaso		*!	*
(c) itsaʃo		*!	*
→ (d) itʃaʃo			**

The constraint ranking in (11) requires the morpheme to surface somewhere in the word at the expense of faithfulness to the [palatal] feature. REALIZEMORPHEME is not ranked with respect to *SIB$_{alv}$.

Knowing that *SIB_{alv} >> IDENT-SD-palatal, I can extend this ranking to both *OBS_{den} and *SON_{den}. In order for palatalization to occur, these two markedness constraints must also outrank IDENT-SD-palatal as demonstrated in example (12) and (13).

(12) *OBS_{den} >> IDENT-SD-palatal.

/[+palatal] + [tontor]/	*OBS_{den}	IDEN-SD-palatal
(a) [tontor]	**!	
→ (b) [concor]		**
(c) [toncor]	*!	*
(d) [contor]	*!	*

(13) *SON_{den} >> IDENT-SD-palatal

/[+palatal] + [lapur]/	*SON_{den}	IDEN-SD-palatal
(a) [lapur]	*!	
→ (b)[ʎapur]		*

Examples (12) and (13) further show that IDEN-SD-palatal is always being violated when the expressive palatal is realized in the stem. Ranking among the individual markedness constraints is determined by the HCP. When a word has multiple candidates for palatalization (such as *mesedez* in (14) *gizon* in (15) and *contua* in (16)), only the highest candidate among the hierarchy hosts the palatal feature.

(14) *SIB_{cor} >> *OBS_{den}

/[+palatal] + [mesedes̪]/	REALIZEMORPHEME	*SIB_{alv}	*SON_{den}	IDEN-SD-palatal
(a) [mesedes̪]	*!	**	*	
(b) [mesedeʃ]		*	*	*
(c) → [meʃedeʃ]			*	**
(d) [meseɟes̪]		**!		*

(15) *SIB_{cor} >> *SON_{den}

/[+palatal] + [gis̪on]/	REALIZEMORPHEME	*SIB_{alv}	*SON_{den}	IDEN-SD-palatal
(a) [gis̪on]	*!	*	*	
→(b) [giʃon]			*	*
(c) [giʃoɲ]				**
(d) [gis̪oɲ]		*!		*

(16) *OBS_{den} >> *SON_{den}

/[+palatal] + [kontua]/	REALIZEMORPHEME	*SIB_{alv}	*OBS_{den}	*SON_{den}	IDEN-SD-palatal
(a) [kontua]	*!		*	*	
→(b) [koncua]				*	*
(c) [koɲcua]					**
(d) [koɲcua]			*!		*

The rankings of the markedness constraints given in example (14)-(16) match the structure of the HCP which is further enforced by the ranking of REALIZEMORPHEME over IDEN-SD-palatal. REALIZEMORPHEME remains unranked at the top of the constraint list to enforce the

morpheme surfacing in the word. The consonant on which the palatal suffix surfaces is determined by the constraint ranking beneath it.

The final type of change is the type seen in examples (7d) and (7e) when there are two different eligible dental sonorants but only the leftmost is palatalized. In this scenario, the constraint LEFTMOST determines which consonant hosts the [palatal] feature.

(17) LEFTMOST >> *SON_{den} >> IDEN-SD-palatal

/[+palatal] + [poloni]/	REALIZEMORPHEME	LEFTMOST	*SON_{den}	IDEN-SD-palatal
(a) [poloni]	*!		**	
→ (b) [poʎoni]			*	*
(c) [poloɲi]		*!	*	*
(d) [poʎoɲi]		*!		**

The effects of LEFTMOST are seen in (17c) and (17d). Because the morpheme appeared on consonants other than the left-most available host, these candidates are harmonically bounded by (17b) and will never surface in speech. Reusing the words *itsaso* in example (18) and *tontor* in example (19) show that the effects of LEFTMOST are only within the domain of the dental sonorants.

(18) *SIB_{alv} >> LEFTMOST

/[+palatal] + itsaso/	REALIZEMORPHEME	*SIB_{alv}	LEFTMOST	*SON_{den}	IDEN-SD-palatal
(a) itsaso	*!	*!*			
(b) itʃaso		*!			*
(c) itsaʃo		*!	*		*
→ (d) itʃaʃo			*		**

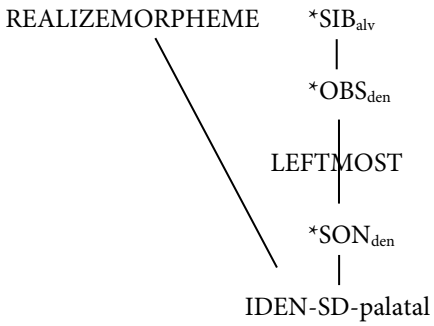
The useful loser in this example is (18b). This candidate satisfies LEFTMOST but suffers a fatal violation of *SIB_{alv}. Thus, in the sibilant tier it matters more that all sibilants change to become [+palatal] than only the host at the leftmost edge becomes [+palatal]. In tableau (19) below I organize as a comparative tableau as it provides the final ranking argument along with the complete ranking hierarchy.

(19) Final ranking argument: *OBS_{den} >> LEFTMOST

/[+palatal] + [tontor]/	REALMORPH	*SIB_{alv}	*OBS_{den}	LEFTMOST	*SON_{den}	IDEN-SD-palatal
(a) [tontor]	*!W		**!W	L	*	
→ (b) [concor]				*	*	**
(c) [toncor]			*!W	*	*	*
(d) [contor]			*!W	*	*	*
(e) [coɲcor]				**!W	L	

Candidate (19a) which has two dental obstruents but satisfies LEFTMOST proves the ranking. The overall ranking argument is presented in a Hasse diagram in example (20) below.

(20) Final ranking argument
REALIZEMORPHEME, *SIB_{alv} >> *OBS_{den} >> LEFTMOST >> *SON_{den} >> IDEN-SD-palatal



In this section I have presented an Optimality Theory analysis of the expressive palatal feature in Basque. I have shown that the feature [+palatal] must be realized within the word for the effect to be pronounced. The host of the [palatal] morpheme is determined by the Hierarchy of Coronal Palatalization which in turn determines the constraint ranking: all sibilants in a word, all dental obstruents in a word, and the left-most dental sonorant in a word. These changes are all at the expense of faithfulness to the [palatal] feature.

4. Internal reconstruction of Basque animal names effected by palatalization

4.1. Basque animal names

I can apply the hierarchy given in section 3 to different words in Basque to facilitate the internal reconstruction of Basque animal words. I choose animal terms for two reasons. The first is in support of reconstructions from Bengston (2017) along the principle of Kuryłowicz's fourth law of analogy. The second is that humans and animals have had a close relationship for millennia and I imagine that the list of animal terms would be a good place to look for the expressive diminutive.

I start my search with a list of animal terms in Basque. Below is a list of 15 different terms for animals with Basque on the right and English on the left. I mark them with numbers 1, 2, and 3. 1 means that they have no palatalization candidates and would instead receive one of the many suffixes listed in Salaberri and Salaberri (2014). 2 means that they have palatalizable candidates but show no evidence of hypocoristic palatalization. 3 means that they contain one of the possible results of palatalization (Rijk, 2007).

(21)

[2]Bear – hartza
[3]Bird – Txoria
[3]Butterfly – Pinpillinnpauxa
[2]Cat – Katua
[1]Cow – Behia
[3]Dog – Txakurra
[2]Donkey – Astoa
[2]Eagle – Arrano
[2]Elephant – Elefantea
[2]Goat – Ahuntza
[2]Horse – Zaldia
[2]Lion – Lehola
[3]Monkey – Tximinoa
[3]Mosquito – Eitxoa
[2]Mouse – Sagua
[3]Rabbit – Untxia
[2]Sheep – Ardia
[2]Snake – Sugea
[1]Spider – Armiarma
[2]Tiger – Tigrea

Only "cow" and "spider" are removed from the list of candidates here. They have no consonants with a palatal counterpart for place of articulation. There are several names for animals that have consonants that can be palatalized, such as "cat" *katua* → *kattua* or "eagle" *arrano* → *arraño*. Six of these words are potential cases for palatalization overtaking the standard form of the word. These words are "dog" *txakurra*, "bird" *txorria,* "butterfly" *pinpillinpauxa*, "monkey" *tximinoa,* "rabbit" *untxia,* and "mosquito" *eitxoa*. Assuming the analysis from section 3, internal reconstruction needs to undo the palatalization of the highest available candidate in the hierarchy. This only provides me with one solution for each of these words.

I am supplying two facts about the Basque language to aid my word list. The first is that all the words in the above list have two morphemes. They all end in *-a* which is the definite article. *txorria*: the bird, *txori*: bird. The second is a method of internal reconstruction. Historical work on Basque as of 2022 has gathered enough evidence to state that the affricates in Basque can all be reasonably reconstructed as fricatives (Bengston 2017, Hualde 2021).

txakur,txorri, tximino: [tʃ] can only come from [s] or [s̻]. pre-Basque would be either **[sakur]/[s̻akur], **[soria]/[s̻oria], and **[simino/s̻imino].

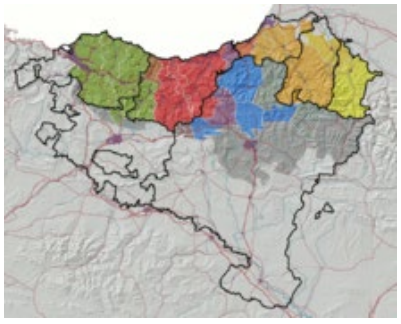
pinpillinpauxa: Expressive palatalization of the [l] would be a violation of LEFTMOST and therefore the presence of [ʎ] must be for some other reason. Therefore, the expected pre-Basque form is **[pinpiʎinpausa].

untxi, eitxo: following the resoning of previous examples, the expected results are **[unsi]/[uns̻i] and **[eiso]/[eis̻o].

4.2. Internal reconstruction

Normally with language reconstruction, linguists take data from existing languages in the language family and compare the word forms to determine the proto form given evidence from phonological change. With language isolates like Basque, there are no other language family members to compare the language to. Linguists then rely on internal reconstruction, where evidence is compared between dialects. Basque has six dialects shown in the map below in (22).

(22) (Zuozo, 2009)



The Green corresponds to the Biscayan dialect (western). Red is the Gipuzkoan dialect (central). Blue is Upper Navarrese (Northern and Southern). Orange is Lower-Navarrese and Lapurdian (Eastern and Western). Yellow is the Souletin dialect. The dark gray is any other Basque area where there is too much overlap to grant any one label.

The dialect that will support internal construction the most is the Lapurdian dialect. This dialect of Basque has been standardized since the 17th century after translating the Bible into Basque as worked by P. Axular. The priest's work is described by Basque language enthusiasts as being "the most elegant and sophisticated language ever used in Basque" (Alvarez et al., 2015). This much more conservative version of the language is in contrast with the Gipuzkoan dialect, which is the most liberal dialect of the language with the largest number of speakers. Lapurdian will be the dialect that most closely preserves the old forms to confirm my hypothesis.

Euskararen Herri Hizkeren Atlasa (2010), provides a corpus of different words in the different dialects of the region. Comparing the location of the dots to the map provided by Zuozo (2009), my analysis is able to account for five of the six possible internal reconstructions. There is no available data for *tximinoa* to support my hypothesis given by *Atlasa.* Each chart lists the forms as they appear in their orthographic forms.

(23) Animal terms across the Basque dialects

Word	**Biscayan**	**Gipuzkoan**	**U. Navarrese**	**L. Navarrese**	**Lapurdian**	**Souletin**
'bird'	txori	txori	txori (txore)	xori	zori	txori
'butterfly'	mariposa	txipeleta	mariposa	pimpilin(pauxa) papillun	papillun	papillun
'dog'	txakur	txakur	zakur (tzakur)	xakur	zakur	txakur (xakur)
'mosquito'	geltxo/eltxu	eltxo	eltxo/ulitx	ulintx	ulitz	eltxo
'bunny	konexo	konexu	konexu	lapin	llapi	untxi

Unfortunately, there are only two words given in *Atlasa* that correspond to the dictionary entries for these animal terms. There was no data for *tximinoa*, so this is unincluded entirely. The word for "bunny" appears to shift between loanwords in French (*lapin*) and Spanish (*conejo*). The Souletin dialect is the only one that has "untxi" and there is no motivation to reconstruct anything.

The word for "butterfly" also poses an interesting problem. Spanish and French have clearly had their influences here (French *papillon* and Spanish *mariposa*). The Lower Navarrese dialect includes [pimpilin] with an optional [pauʃa] at the end due to truncation. This hints at the [l] → [ʎ] change, but more data is needed to make a comfortable assertion of **[pinpilinpauʃa].

The word for "mosquito" allows me to reconstruct **[ulitz]. There are three forms that all look almost identical, except for Lower Navarrese having the epenthetic [n]. Otherwise, based off Lapurdian having the oldest language and using the HCP that I propose, this supports my hypothesis.

The words for "dog" and "bird" both behave the same way, which is expected given that they both currently start with [tʃ] and with the information taken from Hualde (2021). I propose **[s̪akur] which supports and is supported by Bengston (2017) and Hualde (2022) most recently. In support of this as well, [s̪akur] is in Basque dictionaries as "originally from dog" followed by "hound". This follows Kuryłowicz's 4th law of analogy: what was once the standard form has now become a marked term with a specific definition. "txori" also then is reconstructed as **[s̪ori].

While there was not enough data to reconstruct all words, I do hope that these findings will lead to more internal reconstructions in the future. Expanding the search beyond just animal names to any word in Basque that has one of the palatal sounds listed can potentially lead to more cases of the hypocoristic form overtaking the standard form.

5. Conclusion

I have presented an Optimality Theory approach guided by autosegmental phonology to show how the expressive palatal is formed in Basque. I present a constraint ranking to account for the complex ordering of obstruents and sonorants. The consonants with palatal consonants will appear on different tiers and the [+palatal] feature will apply only to the one highest up on the tier or furthest to the left of the phonological word.

I also conducted an internal reconstruction to investigate the extent of the palatalization process in Basque. I found two conclusive internal reconstructions, one of which is contested in the literature. The others are not attested in the dialect maps. While one of these cases is already attested in the literature, this study will hopefully lead to more cases of internal reconstruction uncovered through the palatalization hierarchy. With enough tokens of hypocoristics surfacing in Basque, it is not unlikely that the standard pronunciation seen across dialects will involve one of these palatalized consonants. Perhaps as time goes on, more of these animal names will become palatalized through expressive palatalization and more cases like *txakurra* will surface.

References

Alvarez, O., Eizagirre, X., Flores, A., Grande, N., Hidalgo, E., Inarra, I., Lauzirika, J. and Portugal, T. 2015. The Unification of the Basque Language. Euskaliak. http://euskalkiak.eus/en/euskararen_batasuna.php

Bengtson, J. D. 2017. The Anthropological Context of Euskaro-Caucasian. Iran and the Causus. 21(1). Brill.

Bérces, K. B. and Ulfsbjorninn, S. 2022. Cross-morphemic palatalization in Getxo Basque: empty positions, bipositionality, and place licensing. *The Linguistic Review*. De Gruyter Mouton.

Crowley, T. and Bowern, C. 2010. *An Introduction to Historical Linguistics.* 4th edition. Oxford University Press.

Corum, C. 1972. *Palatalization Phenomena in Basque*. ASJU.

Hualde, J. I., Lujanbio, O., and Joxe, J. Z. 2010. Goizueta Basque. *Journal of the International Phonetic Association* 40(1). Cambridge University Press.

Hualde, J. I. 2021. On the comparative method, internal reconstruction, and other analytical tools for the reconstruction of the evolution of the Basque language: An Assessment. Anuario del semenario de filologia vasca. University of Illinois at Urbana-Champaign.

Ito, J. 1989. A prosodic theory of epenthesis. *Natural Language and Linguistic Theory*. 7.

Ito, J. and Mester, A. 2003. Lexical and Postlexical phonology in Optimality Theory: Evidence from Japanese. Linguistische Berichte. Sonderheft 11: Resolving Conflicts in Grammars. Ed. by G. Fanselow and C. Féry. 183-207.

King, J. 1994. *The Basque Language – A practical introduction*. University of Nevada Press.

Kuryłowicz, J 1947. La nature des procès dit analogiques. *Acta Linguistica* 5: 17-34.

Saltarelli, M., Azkarate M., Farwell D., de Urbina, J. O. and Oñederra L. 1988. Basque. Croom Helm Descriptive Grammars. London: Croom Helm

Urrutia Badiola, A. 2010. Euskararen Herri Hizkeren Atlasa. Bilbo. ISSN: 0210-1564.

Salaberri, P. 2003. On hypocoristic formation in Basque. *FONTES LINGVAE VASCONVM stvdia et docvmenta.* 35(93). Gobierno de Navarra.

Salaberri, P. and Salaberri, I. 2014. A Descriptive Analysis of Basque Hypocoristics. *FONTES LINGVAE VASCONVM stvdia et docvmenta.* 46(112). Gobierno de Navarra.

Zuazo, K 2008. Euskalkiak. https://en.wikipedia.org/wiki/Basque_dialects#/media/File:Euskalkiak_koldo_zuazo_2008.png

Zubiri, J. J. 2002. Haur hizkeraren erabileraz. *Euskararen kutxa.* HIZPIDE 49.

LingBaW *Linguistics Beyond And Within 9 (2023), 238-250*

Mirative focalization: A case study of Mandarin *lian*-DP *dou* construction*

Yue Xing
Eötvös Loránd University, Budapest, Hungary
Hungarian Research Centre for Linguistics, Budapest, Hungary

Abstract
The paper investigates Mandarin *lian*-DP *dou* construction (aka. 'even'-construction) in terms of the following controversial aspects – i.e., the contributions of the syntactically indispensable elements *lian* 'even' and *dou* 'all', and the syntactic distribution of the construction in connection with associated information structure. It is extensively accepted in the literature that a *lian*-DP – i.e., the chunk formed by *lian* and the following nominal phrase, can represent two functional positions – in the clause-external Left Periphery (henceforth LP), and in the low IP area, because it occurs either preceding or following the alleged subject. In the present paper, however, I argue that a *lian*-DP, regardless of its linear position, undergoes successive-cyclic movement and, specifically, it first makes a stopover in Spec*dou*P for quantificational reasons before it takes a further step of mirative focus fronting targeting the LP. Support is threefold – pragmatically, *lian*-DP *dou* construction denotes contextually similar implicatures as Sicilian mirative expressions do; semantically, the quantifier *dou*, serving as a maximality operator, imposes exhaustivity over the alternatives available on a scale and therefore forces the *lian*-DP to move to Spec*dou*P; and syntactically, the observable weak crossover effects (WCO) manifest that *lian*-DP movement is inherently focus fronting.

Keywords: *lian*-DP *dou* construction, Mandarin, maximality operator, mirative focus, weak crossover

1. Introduction

Mandarin *lian…dou…* construction, also termed as Chinese 'even'-construction in the literature, has been a subject of debate over the past several decades. Nevertheless, controversy remains over the syntactic distribution and information structure of the construction (Badan and Del Gobbo 2010, 2015; Paris 1979; Paul 2005; Shyu 1995; Tsai 2004; Zhang 2013, among others). The present paper addresses the relevant issues on Chinese 'even'-construction when the phrase immediately

* I'm grateful to Marcel den Dikken and Irina Burukina for their helpful comments and discussion on the project. Special thanks go to Giuseppe Samo and Fuzhen Si for their feedback on the earliest proposal. The remaining errors are my own.
The paper is supported by the China Scholarship Council (CSC).
Concerning the correspondence of the paper, please contact the author at yingxue037@gmail.com.

following *lian* is a nominal phrase (henceforth *lian*-DP *dou* construction). As illustrated in (1), *lian*-DP is linearizable sentence-initially and sentence-internally.

(1)

a. *lian* xiao haizi [$_{IP}$ ta *dou* bu xihuan].
even little kid 3sg all neg like
'Even children (s)he doesn't like.'

b. [$_{IP}$ ta lian xiao haizi dou bu xihuan].
3sg even little kid all neg like
'(S)he doesn't like even children.' adapted from Paul (2005: 117: 19)

Traditionally, it is claimed that the sentence-initial *lian*-phrase occupies the Left Periphery (LP), whereas the sentence-internal one is in the low IP area (see, e.g., Paul 2005; Zhang 2013, Badan and Del Gobbo 2015, *à la* Belletti 2004). The bipartite distribution of *lian xiao haizi* 'even-children' in (1) correlates with the syntactic position of the sentence subject *ta*, which is supposed to occupy the structural subject position in SpecIP following the Extended Projection Principle (EPP). However, the opposite opinion holds that a *lian*-phrase is invariably licensed in the *v*P periphery, see, e.g., Xiong (2017).[1] In combination with the fact that Chinese is a Topic-prominent language that lacks the strong EPP feature of T, the distribution of *lian*-DP alongside the structure of *lian*-DP *dou* construction is still something worth exploring.

According to Rizzi (2005), a Topic is distinguished from a pure subject in having the [+D-linking] property, which prevents a Topic constituent from occurring in out-of-the-blue contexts. Consider, for example, the question-answer pair in (2), where the only felicitous answer to the question ("what happened to the celebrity") must embrace a discourse-related Topic referring back to *zhe-ge mingxing* 'this celebrity'. That follows only if the sentence-initial *ta* that precedes *lian*-DP in (2-*A*) is inherently a topic rather than a normal structural subject. By contrast, a plausible assumption that can be made about the grammatical but infelicitous reply in (2-*A′*) is that the post-*lian*-DP *ta* might serve as a real subject[2].

(2) ***Q***: zhe-ge mingxing fasheng-le shenme?
this-cl celebrity happen-prf what
'What happened to this celebrity?'

A: -ta *lian* SHUI *dou* tou!
3sg even tax all evade
'(S)he even the tax evaded!'

---

[1] Evidence arguing for the proposal that *lian*-phrase is licensed in the *v*P domain in Xiong's (2017) is twofold: First, *lian*-phrase can be used in an embedded relative clause; second, the fact that Chinese allows for null subjects indicates that it has a weak EPP feature.

[2] Example (i) presents a grammatical sentence in which the non-referential subject *mei'ge'ren* is supposed to project a QP in SpecTP, which is preceded by two functional projections, i.e., a TopP hosting *Zhang San* and a FocP hosting *lian yi-ben-shu* (details on the focalization of *lian*-DP will be discussed later in the paper). This observation supportatively converges with our assumption that the normal subject position in Mandarin *lian*-DP *dou* construction is in SpecTP.

(i) Zhang San$_i$, *lian* yi-ben-shu$_k$ mei'ge'ren dou bu gei ta_i t_k
Zhang San even one-CL-book everyone all NEG give him
'Zhang San, everyone does not even give him a book.'

#A′: *-lian* SHUI ta *dou* tou!
even tax 3sg all evade
'(S)he even evaded the tax!'

Therefore, the syntactic distribution of *lian*-DP brings itself back as a remaining question. As is suggested by the topic-hood of the sentence-initial subject in (2-*A*), a functional projection like FocP seems a quite plausible host for the *lian*-DP that follows the Topic. Thus, the following questions arise: (i) What is the functional projection that hosts *lian*-DP and, (ii) what kind of discourse-related features are associated with this projection? This may give us a clue about the distribution of a *lian*-DP once these questions are answered. In addition, in order to capture a general picture of *lian*-DP *dou* construction in terms of its underlying structure, I will also look into the properties of the particle *lian* 'even' and the quantifier *dou* 'all' and try to understand how they configure the Mandarin 'even'-constructions as depicted in this paper.
Below are my proposals for the paper: ***a)*** 'even'-construction in Mandarin involves Mirative focalization of the *lian*-DP; ***b)*** *dou* serves as a maximality operator that quantifies over the scale introduced by *lian*; and ***c)*** the promotion of the *lian*-phrase takes two steps: *lian*-DP first journeys through Spec*dou*P for quantificational reasons, then undergoes mirative focalization to the Left Periphery. This holds no matter whether a *lian*-DP is linearized sentence-initially or sentence-internally [3].

The remainder of the paper is structured as follows. Section 2 presents the pragmatic parallelism between *lian*-DP *dou* construction in Mandarin and mirative constructions in Romance languages (Cruschina 2012) in conveying unexpected new information. Section 3 examines the maximality operator *dou* in terms of its semantic properties and demonstrates the semantic and syntactic essentiality of *lian* as a scalar introducer in Chinese mirative construction. Section 4 focuses on the syntax that derives a *lian*-DP *dou* construction proper, showing that *lian*-DP fronting must be licensed through focalization. Section 5 winds up the paper with conclusions and potential puzzles of the analyses.

2. Mirative expression: *lian*-DP *dou* construction and Romance mirative focalization

According to Cruschina (2012), mirative constructions in Romance languages are applied to convey unexpected new information alongside pragmatic intentions such as surprise, anger, concern, and fright in out-of-the-blue contexts. Mirative expressions in Romance feature

[3] As opposed to the idea that external *lian*-DP exhibits Ā-movement whereas internal *lian*-DP is derived from A-movement, as claimed in Badan and Del Gobbo (2015), Paul (2005) and Zhang (2013), the paper argues that *lian*-DP *dou* constrruction is derived through the Ā-movement of *lian*-DP to the mirative focus position in the high left periphery. In reply to a reviewer's concern about the difference between the current paper and Badan and Del Gobbo's (2015) analysis, the paper holds that *lian*-DP fronting is inherently restricted to focalization rather than topicalization, as corobborated by the weak crossover effects exhibited in section 4.1. In addition, the paper examines the semantic contribution of *lian* to setting up a gradable scale in order for the maximality operator *dou* to quantify over and, therefore, *lian*-DP is forced to take the first step of movement targeting Spec*dou*P, from where focalization of *lian*-DP takes place. Besides, the paper proposes that *lian*-DP *dou* construction denotes contextually similar unexpected implicatures as Sicilian mirative expressions do and concomitantly, defines *lian*-DP *dou* construction as a case of mirative construction.

mirative fronting of the constituents carrying "unexpected new information", which in turn "gives an exclamative flavor to the whole sentence" (71). Compare (3), a typical example of mirative fronting in Sicilian, with a *lian*-DP *dou* construction in (4). The use of the *lian*-phrase in Mandarin bears great resemblance to the application of "macari-" in Sicilian to express the extreme unexpectedness upon hearing about the news of inviting a designated person to the theatre.

(3) [Sicilian]
MACARI/MANCU GIUFÀ[4] 'mmità au tiatru!
EVEN/NOT-EVEN GIUFÀ invite.past.3sg to-the theatre
'He even invited/didn't even invite Giufà to the theatre!' Cruschina (2012: 66; 69)

(4) [Mandarin]
ta *lian* ZHANG SAN *dou* yaoqing/ bu yaoqing qu kanxi!
3sg even Zhang San all invite/ neg invite go theatre
'He invited/didn't invite even Zhang San to the theatre!'

Examples in (5)-(10) below show analogies between Mandarin *lian*-DP *dou* constructions and Romance mirative constructions at length from a pragmatic perspective. Each pair of utterances converge on the condition under which they are applied with an exclamative intonation and interpretation to express unexpected new information alongside surprise, anger, or fright:

[Context for surprise: The man that is referred to as *ta* 'he' earns very little and cannot afford a house, about which the interlocutors involved in the conversation know very well. One interlocutor said (5) or (6) out of surprise as soon as (s)he heard that the man had bought a big house on his own.]

(5) [Sicilian] [5]
Na casa s'accattà!
a house refl buy.past.3sg
'He bought a house!' Cruschina (2006: 371)

(6) [Mandarin]
ta *lian* FANGZI *dou* mai le!
3sg even house all buy prf
'He bought even a house!'

[4] Throughout the paper, the focal portion of a sentence is written in capital letters.

[5] As precisely pointed out by a reviewer, overt Focus marker is invariably present in Chinese *lian*-DP *dou* constrructions but not necessarily in Sicilian mirative examples. As depicted in Cruschina (2012), Sicilian resorts to focus fronting to express mirativity. In some cases, mirative focus fronting is not associated with any overt lexical operators, as in examples in (5), (7), and (9); in others, it is bound to focalizing adverbs, such as *sempri* 'always' and *mai* 'never', or focus particles such as exclusive (*sulu* 'only'), additive (*anchi, puru, macari* 'also'), and scalar particles (*macari* 'even', *mancu* 'not even'), as in (3). With or without overt focus particles, Sicilian mirative construction gives rise to the same interpretative effects of unexpected new information. In Mandarin Chinese, there are indeed cases in which Chinese mirative construction involves a *lian*-phrase that contains a silent *lian*, as shown in section 3.2. Nevertheless, the semantic properties of *lian* requires it to be syntactically present as a scalar introducer in order for a proper Chinese mirative construction to obtain the maximal degree of unexpectedness. Simply put, bare mirative focus fronting of the type in (5), (7), and (9) is impossible in Mandarin Chinese. In order to have a focus delivered narrowly to a fronted nominal phrase (a DP, as is referred to throughout the paper), focus operators such as *lian* and *dou* must be syntactically present.

[Context for anger: Supposing that the person who utters (7) or (8) is the director of a project, leading a team of 20 people. At a regular meeting this Monday morning, a member of the director's team didn't show up without asking for her/his permission and, even worse than that, that member did not submit his proposal in time. The director was so angry with this absent person and said the following at the meeting]

(7) [Sicilian]
Maria Santissima! UN MORTU è!
Mary very-holy a dead be.pres.3sg
'Holy Mary! He is like a corpse!' Cruschina (2012: 70; 90)

(8) [Mandarin]
tian na! ta *lian* SIREN *dou* bi bu shang
Jesus sfp 3sg even dead men all compare neg up
'Jesus! He is even worse than a dead man!'

[Context for fright: The speaker just knew from a friend that the man who has been a close friend to him is truly a scary person, who was once imprisoned for robbing a bank with a gun. The speaker is very upset knowing about the truth and telling his girlfriend to stay away from that guy.]

(9) [Sicilian]
Stassi accura, signurina UN-CHIACCU-DI FURCA è!
stay.impr.2sg aware lady a-knot-of gallows be.pres.3sg
'Be careful, my lady – He is like a gallows knot!' Cruschina (2012: 70; 91)

(10) [Mandarin]
li ta yuan-dian, ta *lian* YINHANG *dou* qiang-guo!
away 3sg far-cl, he even bank all rob-prf
'Stay away from him, he has even robbed the bank!'

In addition, as noted by Cruschina (2012), mirative constructions are attested in non-canonical interrogative environments as in (11), where Sicilian mirative expressions are completely compatible with rhetorical questions. In a similar fashion, it is also possible for a *lian*-DP *dou* construction to be present in a non-canonical interrogative environment to express surprise and incredulity, see (12).

(11) [Sicilian]
a. Chi viglianti sì?
int awake be.pres.2sg
'Are you awake?'
b. Chi a Maria salutasti?
int to Maria greet.past.2sg
'Did you say hello to Maria?' Cruschina (2006: 372)

(12) [Mandarin]
ta *lian* ZHE-DIAN CHANGSHI *dou* bu zhidao?
3sg even this.cl common knowledge all neg know
'(S)he doesn't know even this common knowledge, does (s)he?'

So far, the connection between 'even'-construction and mirativity is only observed in root clauses. However, the 'even'-sequence is also compatible with subordinated clauses such as conditional 'if'-clause. And when doing so, the illocutionary exclamative force fades away. Take (13), Mandarin *lian*-DP *dou* sequence is felicitous in the conditional *ruguo* 'if'-clause, and so is the English 'even'-construction, as suggested by the translation line. Therefore, it needs to be pointed out that this paper centers its discussion around *lian*-DP *dou* construction in root clauses whereby it is always compatible with mirativity as defined in Cruschina (2012).

(13) ruguo *lian* jiankang *dou* mei you, najiu shenme dou bu sheng-le.
if even health all neg have, then what all neg left-prf
'You will have nothing left if you don't even have health.'

3. Maximization over scalarity: when *dou* meets *lian*

3.1. Dou: a maximality operator

This paper adopts Giannakidou and Cheng's (2006) and Xiang's (2008) proposal in viewing Mandarin *dou* as a maximality operator. In line with Xiang (2008)[6], the presence of *dou* in a *de*-degree construction gives rise to maximality and exhaustivity. Compare the two sentences in (14): when *dou* is absent from the degree construction, as seen in (14a), the crying event is not necessarily the effect of her being sad; whereas in the presence of *dou*, as in (14b), the crying event must be interpreted as a result of the maximal degree of 'her being sad'.

(14)
a. ta shangxin-de ku le.
3sg sad-ext cry prf
'she was sad and she cried.'
b. ta shangxin-de ***dou*** ku le.
3sg sad-ext all cry prf
'she was so sad that she cried.' Xiang (2008: 239; 42)

Moreover, what is shown in (15) suggests that *dou* is incompatible with non-maximal degrees of sadness as indicated by the use of *zhibuguo* 'only/just'.

(15) ta bu shi hen shangxin,…
3sg neg be very sad
'She is not very sad,…'
a. ta zhibuguo ku le
3sg only/just cry prf
'She only cried.'
b. *ta zhibuguo *dou* ku le.
3sg only/just all cry prf
'She only even cried.' Xiang (2008: 240; 43)

[6] As pointed out by Xiang (2008), "A degree construction without *dou* simply describes a degree of the predicate, but the same sentence with *dou* emphasizes the upper-bound of the maximal degree".

In fact, the maximizing effects that come alongside the presence of *dou* are directly relatable to *dou's* inherently being a universal quantifier. As reported by Xiang (2008), *dou* distributes over a plural set that is linearized to its left and imposes exhaustivity. The presence of *dou* in (16b) is inherently and mandatorily quantifying over every single child getting involved, making it semantically distinguished from the sentence in (16a) wherein *dou* is absent.

(16)

a. haizimen qu-le gongyuan
children go.prf park
'The children went to the park.'

b. haizimen *dou* qu-le gongyuan
children all go.prf park
'The children all went to the park.' Xiang (2008: 236; 31)

Following the assumption of *dou* as a maximality operator, I postulate that *dou* must co-occur with a gradable scale to maximize over. Reconsider (14b), the maximal sadness reading obtained in the appearance of *dou* suggests that there is a scale of sadness, which is saturated by the gradable predicate *shangxin* 'sad' on its own. Provided the presence of *dou* also requires maximality on a given scale of alternatives in *lian*-DP *dou* construction, the following questions then arise: which element introduces the scale requested by *dou* and; what does *lian* contribute to the entire construction? In the following section, I will demonstrate the claim that "*lian* introduces a scale" (Xiang 2008: 242) for *dou* to quantify over.

3.2. Lian and scalarity

Taking a cross-linguistic position, 'even'-construction systematically involves a scalar implicature that is associated with the focus-sensitive particle 'even' (see, e.g., Beaver and Brady 2008; Chierchia, Danny and Benjamin 2011; Giannakidou 2007; Greenberg 2018; Nakanishi 2012; Simonin 2018; Wilkinson 1996, a.o.). As can be seen from the previous section, *dou* seems to call for a gradable scale of alternatives in order to activate the maximality effect. In a *lian*-DP *dou* construction, the only possible candidate for a scale introducer is *lian* since the DP in question is certainly not inherently gradable, nor is the predicate of the sentence. As illustrated in (17), *lian* is ineligible to appear in a *de*-degree sentence already containing a gradable predicate. That confirms the assumption that *lian* is responsible for setting up a gradable scale requested by the maximality operator *dou* in *lian*-DP *dou* construction.[7, 8]

(17) *ta *lian* shangxin-de *dou* ku le
3sg even sad-de all cry prf
Intended reading: 'she was even sad enough so that she cried.'

[7] Although *de* is obligatorily present in a *de*-resultative sentence, I would assume that the necessity for an overt lexicalization of *de* serves as a linker that functions in establishing a connection between the gradable predicate 'being sad' and the result event of 'crying'. *De* has nothing to do with the scalarity because the event of 'her being sad' has already introduced a scale of sadness before *de* is introduced and moreover, *de* cannot be taken out from (14a), where a scale is not even needed when the sentence is paraphrased as "she cried sadly".

[8] It is briefly mentioned in Xiang's (2008) that *lian* is literally used as a conjunction that roughly means *with*, *together,* or *and*. Such a connective use of *lian* might be amenable to its scalarity nature.

In line with the fact that *lian* correlates with the scalarity in *lian*-DP *dou* construction, *lian* must be semantically and syntactically present. (18) presents an example where *lian* takes a silent form that is yet semantically and syntactically requested for a scale of unexpectedness gained from the reading 'even Zhang San found a job', where the highest degree of unexpectedness is picked out by *dou*.

(18) Zhang San *dou* zhaodao-le gongzuo
Zhang San all find.prf job
'Even Zhang San found a job!'

The semantic and syntactic status of *lian* becomes more salient if we replace *Zhang San* in (18) with a plural form *tamen* 'they'. As shown in (19), the sentence is ambiguous between two logically possible readings. The distributive interpretation presented in the *a*-reading is naturally associated with a phonetically prominent *dou*. In that sense, *dou* functions as nothing more than a distributor (Lin 1998), which makes it possible to get the predicate (*zhaodao-le gongzuo* 'found a job') distributed over each and every individual in the plural set of arguments. The other available interpretation, however, is inevitably associated with a focal stress on *tamen* 'they' when a covert *lian* is introduced to the structure. Consequently, as illustrated by the *b*-reading, the speaker expresses a very strong sense of unexpectedness upon hearing the news about the fact that they have found their jobs. It should be noted that when *lian* is syntactically represented (even covertly), the distributive paraphrase now fails to be activated by *dou* since the *b*-reading cannot be paraphrased as 'even each and every one of them has found a job'. Instead, *dou*'s being a maximal operator perfectly converges with the syntactically present *lian* in conveying such a strong flavor of surprise and mirativity under the assumption that *lian* introduces a gradable scale of unexpectedness.

(19) tamen *dou* zhaodao-le gongzuo.
3pl all find-prf job
A. 'Every and each of them found a job.'
B. 'Even they have found their job(s) (which is unbelievable)!'

In light of these observations, we propose that the particle *lian* must be semantically and syntactically present in order to provide a scale of unexpectedness, from which the maximality operator *dou* picks out the most unexpected piece of information. That makes possible for *lian*-DP *dou* construction to express a strong sense of unexpectedness, i.e., mirativity.

4. On the syntax of *lian*-DP *dou* construction

4.1. Lian-DP fronting: mirative focalization

With the semantic contributions of *lian* and *dou* in mind, we will turn to the syntax involved in deriving *lian*-DP *dou* construction. It should first be mentioned that we adopt the approach of treating *lian* as a "minor functional head" that has to attach to a DP category bearing stress (Bayer 1996; Belletti 1990; Badan and Del Gobbo 2015) and thereby assume that *lian* merges

with the DP in the base-generated position of the phrase to be focused, namely, within *v*P domain.

Based on the quantificational nature of focus movement, foci always give rise to weak crossover (WCO) effects. (20) shows the impossibility of co-reference between the fronted Information Focus (IFoc, hereinafter) and the pronoun *sa* 'his/her' in Sicilian. On a similar account, the ill-formedness of the Mandarin sentence in (21) suggests that a fronted *lian*-DP gives rise to a WCO effect.

(20) ??/* A Mario$_i$ vitti sa$_i$ matri.
to Mario see.past.3sg his/her mother
'His/her mother saw Mario.' Cruschina (2012: 54; 26)

(21) **lian* XIAOLI$_i$ tade$_i$ mama *dou* mei kanjian t_i!
even Xiaoli her mother all neg see
'Her$_i$ mother did not even see Xiaoli$_i$!'

The sentence in (21) upgrades if the trace of *Xiaoli* is dislocated to the left of its co-indexed pronoun *tade* 'his/her', as indicated in (22). The grammatical output in (22) then forms a minimal pair with (21) and in turn, demonstrates that (21) indeed involves a violation of the WCO effect.

(22) *lian* XIAOLI$_i$ *dou* t_i mei kanjian tade$_i$ mama!
even Xiaoli all neg see her mother
'Even Xiaoli hasn't seen her mother!'

The leftward movement of *lian Xiaoli* 'even Xiaoli', therefore, involves focalization rather than the left-dislocation of a Topic because the latter would not produce a WCO violation. In addition, as shown in (23), the contrastive topicalization of *Xiaoli* and *Xiaohua* does not give rise to the WCO, either.

(23) Xiaoli$_i$ a, *lian* TADE$_i$ MAMA *dou* mei kanjian t_i;
Xiaoli sfp even her mother all neg see
Xiaohua$_k$ a, TADE$_k$ QUANJIA *dou* kanjian t_k le!
Xiaohua sfp her whole family all see prf
'Her mother (Xiaoli's mother) has not even seen Xiaoli, whereas her whole family (Xiaohua's family) has seen Xiaohua!'

That is suggestive of the fact that *lian*-DP preposing is restricted to focalization. Next, we will show that *lian*-DP focalization is not associated with Contrastive Foci (CF). When "what happened" question is used to obtain IFoc, as illustrated in (24), *lian*-DP *dou* construction of the type exemplified in the a-sentence is considered a proper reply, whereas the *de shi*-type pseudo-cleft (identical to English 'what'-cleft) that involves contrastive foci in the b-sentence is not felicitous. Therefore, we conclude that *lian*-DP foci differ from contrastive foci in that the new pieces of information associated with *lian*-DP foci make it compatible with out-of-the-blue contexts.

(24) -fasheng shenme le?
happen what prf
'What happened?'
a. *-lian* FAN BINGBING *dou* tao shui le!
even Fan Bingbing all evade tax prf
'Even Fan Bingbing was a tax dodger!'
b. # -Fan Bingbing *bei* zhikong *de shi* TAO SHUI, bu shi PIAOCHANG.
Fan Bingbing pass accuse de cop evade tax, neg cop prostitute
'What Fan Bingbing was accused of is evading tax, rather than prostituting.'

4.2. Lian-DP focalization: Ā-type movement

Examples in (26) show the possibility and impossibility of getting *Mali* (i.e. the embedded object in (25)) focused with *lian*-particle in the matrix clause. As argued by Shyu (2001), *Mali* undergoes A-movement in (26a) as its preposing across a tensed clause boundary to the matrix post-subject position gives rise to an ill-formed sentence.[9] We find that such a restriction is nullified, however, if *dou* also ends up inside the main clause, as exemplified by (26b). This observation also captures the situation when *lian-Mali* promotes to the sentence-initial position. As seen in (26c,d), getting *lian-Mali* focused in the sentence-initial position calls for the co-occurrence of *dou* in the matrix sentence.

(25) Zhangsan renwei [$_{IP}$ Lisi xihuan Mali].
Zhangsan think Lisi like Mali
'Zhangsan thinks that Lisi likes Mali.' Shyu (2001: 95; 3)

(26)
a. *Zhangsan *lian* MALI$_i$ renwei [$_{IP}$ Lisi *dou* xihuan t$_i$].
Zhangsan even Mali think Lisi all like
'Zhangsan even Mary$_i$ thinks Lisi likes t$_i$.'
b. Zhangsan *lian* MALI$_i$ *dou* renwei [$_{IP}$ Lisi xihuan t$_i$].
Zhangsan even Mali all think Lisi like
'Zhangsan even Mary$_i$ thinks Lisi likes t$_i$.'
c. **lian* MALI$_i$ Zhangsan renwei [$_{IP}$ Lisi *dou* xihuan t$_i$].
even Mali Zhangsan think Lisi all like
'Even Mary$_i$ Zhangsan thinks Lisi likes t$_i$.'
d. *lian* MALI$_i$ Zhangsan *dou* renwei [$_{IP}$ Lisi xihuan t$_i$].
even Mali Zhangsan all think Lisi like
'Even Mary$_i$ Zhangsan thinks Lisi likes t$_i$.'

As far as the locality / Relativized Minimality (RM) principle is concerned (Rizzi 1990, 2004), the fronted *lian-Mali* in the two grammatical cases (namely, b- and d-sentences) must end up in an Ā-position because *lian-Mali* preposing, though crossing over the subject position (SpecIP) represented as *Lisi*, does not give rise to any ill-formed sentences. That holds true whether *lian*-DP ends up sentence-internally (26b) or moves all the way up towards the sentence-initial position (26d). In fact, the proposal that sentence-internal *lian*-DP in the b-

[9] Similar analysis is also proposed in Badan and Del Gobbo (2015) to show that sentence-internal *lian*-XP undergoes A-movement that ends up in the low IP area.

sentence undergoes displacement into an Ā-position is suggestive of the fact that *Zhangsan* also occupies an Ā-position, just in line with our previous discussion for *ta* in (2-*A*).

4.3. Syntax of lian-DP dou construction

The syntax in Figure 1 provides a solution to the derivation of *lian*-DP *dou* construction of the type in (2), as reproduced in (27) and (28). The particle *lian* merges with the object *shui* 'tax' in the complement of V, while the maximality operator *dou* projects a *dou*P just above *v*P. As represented below, we propose a successive cyclic two-step movement for *lian*-DP fronting. *Lian-shui* starts out its journey from inside *v*P first to Spec*dou*P, wherein *lian*-DP provides a possible scale for *dou* to maximize over; subsequently, it targets SpecFocP, where discourse-related information such as mirativity is properly expressed. The subject *ta* '(s)he' moves to the usual structural subject position in SpecTP (cf. footnote 1), yielding the surface order where *lian*-DP linearizes sentence-initially, as in (27); with *ta* '(s)he' further undergoing topicalization (as indicated by the dashed line), the *lian*-DP then ends up surfacing to the right of *ta* '(s)he', as in (28).

(27) *lian* SHUI ta *dou* tou!
even tax 3sg all evade
'Even the tax (s)he evaded!'

(28) ta *lian* SHUI *dou* tou!
3sg even tax all evade
'(S)he even the tax evaded!'

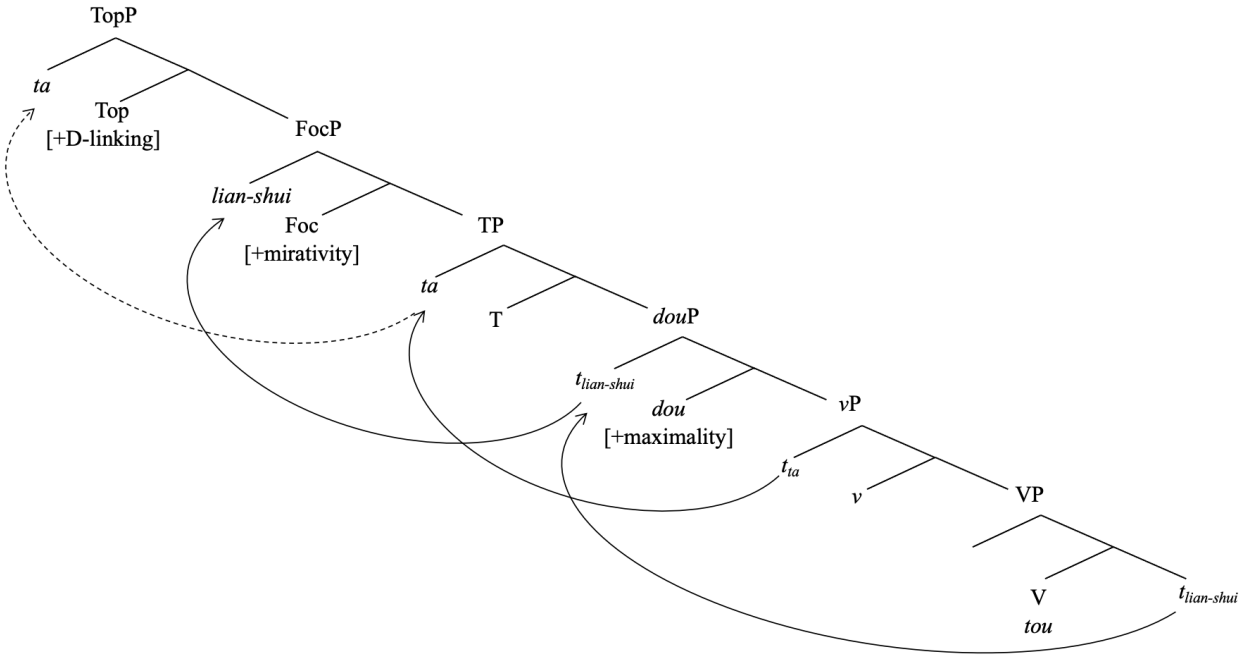


***Figure 1**: Structure of lian-DP dou construction*

5. Closing remarks

In this paper, we have investigated Mandarin's 'even'-construction featuring *lian*-DP *dou* with respect to its syntactic derivation and configuration. Taking a cross-linguistic view, we started out by examining the pragmatic parallelism between the *lian*-DP *dou* pattern and Sicilian mirative expressions. We then argued for the indispensability of the scalar introducer *lian* and the maximality operator *dou* in terms of their semantic and syntactic contribution to the highest degree of unexpectedness. Lastly, we provided a structural analysis for the two grammatical surface orders of *lian*-DP *dou* construction.

The major contribution of the paper can be generalized as follows: the linear position of a *lian*-DP – be it sentence-initial or sentence-internal – is a result of successive cyclic movement with the ultimate landing site in the Mirative Focus position in the Left Periphery. The first movement of *lian*-DP is semantically associated with the scalarity of the scope designated for the maximality operator *dou*, and the second step of *lian*-DP movement is essentially triggered by the discourse-related mirative features of the peripheral FocP.

There are, indeed, potential limitations instructive to future research. As suggested by the ill-formedness of 26(a,c), *lian*-DP and *dou* must end up being clause mates to each other. A depictive generalization, therefore, is that the physical location of *dou* seems to signal the location of FocP that hosts a fronted *lian*-DP. Throughout the analyses in this paper, however, *dou* inherently serves as a quantifier, which is in principle not in conflict with a *lian*-DP focus. In this regard, another assumptive analysis is required.

Abbreviations

cl = classifier, cop = copular, impr = imperative, int = interrogative, neg = negative, pass = passive, past = past, pl = plural, pres = present, prf = perfective, refl = reflexive, sfp = sentence-final particle, sg = singular

References

Badan, L., and Del Gobbo, F. 2010. On the Syntax of Topic and Focus in Chinese. In P. Benincà and N. Munaro, (Eds.), In *Mapping the Left Periphery*, Oxford and New York: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199740376.003.0003.

Badan, L., and Del Gobbo, F. 2015. The even-construction and the Low Periphery in Mandarin Chinese. In Wei-Tien Dylan Tsai (Eds.), *The Cartography of Chinese Syntax, The Cartography of Syntactic Structures* (Vol. 11), 33-74. Oxford/New York: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780190210687.003.0002.

Bayer, J. 1996. *Directionality and Logical Form: On the scope of focusing particles and wh-in-situ* (Vol. 34). Springer Science & Business Media.

Beaver, D., and Brady C. 2008. Sense and sensitivity: How focus determines meaning (Explorations in Semantics). Oxford: Blackwell.

Belletti, A. 1990. *Generalized Verb Movement*. Turin, Italy: Rosenberg & Sellier.

Belletti, A. 2004. Aspects of the low IP area. In Luigi Rizzi (Eds.), *The Structure of IP and CP. The Cartography of Syntactic Structures* (Vol. 2), 16-51. Oxford/New York: Oxford University Press.

Giannakidou, A., and Cheng, L. L. S. 2006. (In) definiteness, polarity, and the role of wh-morphology in free choice. *Journal of semantics 23*(2): 135-183.

Chierchia, G, Danny F. and Benjamin S. 2011. The grammatical view of scalar implicatures and the relationship between semantics and pragmatics. In Claudia Maienborn Paul Portner and Klaus von Heusinger (eds.), *Handbook of semantics*, vol. 3, 2297–2331. Berlin: Mouton de Gruyter.

Cruschina, S. 2006. Informational focus in Sicilian and the left periphery. In Mara Frascarelli (Eds.), *Phases of Interpretation,* 363-385. Berlin, Germany: Mouton de Gruyter.

Cruschina S. 2012. *Discourse-related features and functional projections*. Oxford/New York: Oxford University Press.

Giannakidou, A. 2007. The landscape of EVEN. *Natural Language and Linguistic Theory* 25(1): 39-81. https://doi.org/10.1007/s11049-006-9006-5.

Greenberg, Y. 2018. A revised, gradability semantics for *even*. *Natural Language Semantics 26*: 51-83.

Lin, J. W. 1998. Distributivity in Chinese and its implications. *Natural language semantics* 6(2): 201-243.

Nakanishi, K. 2012. The scope of even and quantifier raising. *Natural Language Semantics* 20(2): 115-136. https://doi.org/10.1007/s11050-011-9077-7.

Paris, M. C. 1979. Some Aspects of the Syntax and Semantics of the *lian ... ye/dou* Construction in Mandarin. *Cahiers de Linguistique-Asie Orientale* 5(1): 47-70.

Paul, W. 2005. Low IP area and left periphery in Mandarin Chinese, *Recherches Linguistiques de Vincennes* 33: 111-134. https://doi.org/10.4000/rlv.1303.

Rizzi, L. 1990. *Relativized Minimality*. Cambridge MA: MIT Press.

Rizzi, L. 2004. Locality and left periphery. In Adriana Belletti (Eds.), *Structures and Beyond. The Cartography of Syntactic Structures* (Vol. 3), 223-251. Oxford/New York: Oxford University Press.

Rizzi, L. 2005. On some properties of subjects and topics. In Laura Brugè, Giuliana Giusti, Nicola Munaro, Walter Schweikert, and Giuseppina Turano (Eds.), *In Proceedings of the XXX Incontro di Grammatica Generativa*, 203-224. Venice, Italy: Cafoscarina.

Simonin, O. 2018. The mirative and scalar meaning of even, *Anglophonia* [Online], 26. https://doi.org/10.4000/anglophonia.1775.

Shyu, S. I. 1995. *The Syntax of Focus and Topic in Mandarin Chinese*. University of Southern California, Los Angeles.

Shyu, S. I. 2001. Remarks on Object Movement in Mandarin SOV Order. *Language and Linguistics*, 2(1): 93-124.

Tsai, W. T. D. 2004. On Formal Semantics of *zhi* (只) and *lian* (连) in Chinese. *Studies of the Chinese Language* 299: 99-111.

Wilkinson, K. 1996. The Scope of *even*. *Natural Language Semantics 4*(3): 193-215. https://doi.org/10.1007/BF00372819.

Xiang, M. 2008. Plurality, Maximality and Scalar Inferences: A Case Study of Mandarin dou. *Journal of East Asian Linguistics* 17(3): 227-245. https://doi.org/10.1007/s10831-008-9025-9.

Xiong, Z. R. 2017. A Cartographic Analysis of Even-Sentences in Mandarin. *Modern Foreign Languages* 40(4): 439-450.

Zhang, Z. H. 2013. On the distribution of topics and foci in Mandarin: A cartographic solution. *Modern Foreign Languages* 36(1): 10-17.