

GALA 15

Generative Approaches to Language Acquisition

September 22-24, 2022
Goethe University Frankfurt

- Program, Abstracts & General Information -



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Program

Best Student Presentation Award

We are pleased to announce that Cambridge University Press will sponsor three best student presentation awards. All master and doctoral students presenting a talk or a poster are eligible. The first prize will consist of free access to the Journal of Child Language for one year. The second and third prizes will consist of book tokens. Instructions for the award procedure will be given during the conference.



For more information on the conference venue please click [here](#).

Thursday

September 22, 2022

8:30 – 9:00

Registration

Room IG 311

Room IG 411

9:00 – 9:30

Welcome

9:30 – 10:30

PLENARY I: **Ana Pérez-Leroux**
How to interpret variable input
[\[abstract\]](#)
Chair: Esther Rinke

10:30 – 11:00

--- Coffee Break ---

Chair: Cristina Flores

Chair: Naama Friedmann

11:00 – 11:30

Lydia White, Heather Goad, Guilherme D. Garcia, Natália Brambatti Guzzo, Liz Smeets and Jiajia Su. Pronoun interpretation in L2 English and L1 Italian: effects of stress [\[abstract\]](#)

Chiara Dal Farra, Fabienne Martin, Yining Nie, Maria Teresa Guasti and Artemis Alexiadou. Bigger is better! Older Italian children prefer heavy locative prepositions [\[abstract\]](#)

11:30 – 12:00

Francesco Romano and Pedro Guijarro-Fuentes. L1 vs Dominant Language Transfer in L2 and Heritage Swedish Speakers of Italian [\[abstract\]](#)

Noof Alaowffi. Empty or Non-empty Site? Evidence from the Acquisition of Najdi Arabic Sluicing [\[abstract\]](#)

12:00 – 12:30

Duarte Oliveira. Boundedness and temporal reference in the oral narratives of European Portuguese speakers of L2 German [\[abstract\]](#)

Ana Lúcia Santos, Alice Jesus and Silvana Abalada. Control and inflected infinitives in ditransitive vs. transitive structures [\[abstract\]](#)

12:30 – 14:00

--- Lunch ---

Chair: Shanley Allen

Chair: Maria Lobo

14:00 – 14:30

Elisa Di Domenico. Over-use of overt subject pronouns in L2 Italian: The LI counts! [\[abstract\]](#)

Anamaria Bentea, Ur Shlonsky and Stephanie Durrleman. A'-dependencies in acquisition: The role of pronominal interveners [\[abstract\]](#)

14:30 – 15:00

Estela Garcia-Alcaraz and Juana M. Liceras. The metalinguistic abilities of bilinguals with Prader-Willi syndrome [\[abstract\]](#)

Maja Stegenwallner-Schütz. A Complex and Colorful Comprehension Task of German Case Marking in a Pilot Study on the Comprehension of Double Object Constructions among Primary-school-aged Children [\[abstract\]](#)

Thursday

September 22, 2022

Room IG 311

Room IG 411

15:00 – 15:30

Liliana Correia, Chao Zhou and Cristina Flores. Productive lexical knowledge predicts bilingual children's global accent in their heritage language [[abstract](#)]

15:30 – 16:30

--- *Coffee Break & Poster Session I* ---

Chair: Kamil Deen

Chair: Ailís Cournane

16:30 – 17:00

Sofja Volkova, Raffaella Folli, Christina Sevdali and Juliana Gerard. Children's morphological case comprehension: a dual task-and-language approach [[abstract](#)]

Selçuk Güven, Naama Friedmann, Sadiye Bacik Tirank and Aysin Noyan Erbas. Moved vs. in situ DPs in Turkish: Wh-Questions and Relative Clauses in Hearing Impairment and in Developmental Language Disorder [[abstract](#)]

17:00 – 17:30

Magdalena Wojtecka, Roland Nenno and Stefanie Habertzettl. Are adolescent L2-learners with L1 Dari sensitive to the strong relationship between verb placement and finiteness in German main clauses? [[abstract](#)]

Ankelien Schippers, Andreas Hiemstra and Esther Ruigendijk. Long-distance wh-dependencies in L3 German speakers of Dutch [[abstract](#)]

17:30 – 18:00

Bernadette Wittecy, Isabel Neitzel, Eva Wimmer and Martina Penke. Morphosyntactic development in German-speaking individuals with Down syndrome – longitudinal data [[abstract](#)]

Marta Manenti, Laurie Tuller, Jade Ridet, Emmanuelle Houy-Durand, Frédérique Bonnet-Brilhault and Philippe Prévost. Assessing structural language skills of autistic adults: focus on sentence repetition [[abstract](#)]

18:15 – 18:45

Short guided tour of the Goethe University Campus

18:45

Reception in the Rotunde, Goethe University

Friday

September 23, 2022

Room IG 311

Room IG 411

9:00 – 10:00

Chair: Philippe Prévost

PLENARY 2: Jacopo Romoli

Children and choices [[abstract](#)]

Chair: Merle Weicker

Chair: Esther Ruigendijk

10:00 – 10:30

Antoine Cochard, Hamida Demirdache and Angeliek van Hout. Semantic or pragmatic immaturity: The view from the acquisition of logical connectives in French children [[abstract](#)]

Maki Kubota, Jorge González Alonso, Yanina Prystauka, Isabel Nadine Jensen, Merete Andersen, Alicia Luque, Sergio Miguel Pereira Soares, Øystein Alexander Vangsnes and Jason Rothman. Bidialectal Exposure Modulates Neural Signatures to Conflicting Grammatical Properties: Norway as a Natural Laboratory [[abstract](#)]

10:30 – 11:00

Francesca Foppolo and Flavia Adani. When *some* excludes *all*: new evidence for a bilingual advantage in scalar implicatures [[abstract](#)]

Shatha Alaskar and Ian Cummings. Processing and Similarity-Based Interference in Non-Native Sentence Comprehension [[abstract](#)]

11:00 – 11:30

--- Coffee break ---

11:30 – 12:00

Chair: Jacopo Romoli

Chair: Emanuela Sanfelici

Christos Makrodimitris and Petra Schulz. The event-semantic kindergarten-path effects in *before* and *after* sentences: evidence from monolingual Greek children [[abstract](#)]

Maria Milan, Fabrizio Arosio and Elena Pagliarini. Comprehension and production of direct object clitics in Italian children with phonetic-phonological disorder or morphosyntactic disorder [[abstract](#)]

12:00 – 12:30

Adina Camelia Bleotu and Tom Roeper. Do children distinguish 'the green leaves and the yellow leaves' from 'the green and yellow leaves'? [[abstract](#)]

Silvia Silleresi, Chiara Dal Farra, Artemis Alexiadou, Maria Teresa Guasti and Uli Sauerland. Impersonal *sì* in child Italian [[abstract](#)]

12:30 – 13:00

Michela Redolfi and Chiara Melloni. Processing subsecutive adjectives in development: evidence from eye-tracking [[abstract](#)]

Letizia Raminelli and Adriana Belletti. On the comprehension of reflexive *sì* in preschool Italian-speaking children [[abstract](#)]

13:00 – 14:30

--- Lunch ---

Friday

September 23, 2022

Room IG 311

Chair: Ana Lúcia Santos

14:30 – 15:00

Bénédicte Grandon. Lexical access in German-speaking children and adults: an eye-tracking study [[abstract](#)]

15:00 – 15:30

Natalya Shirokorad, Marta Tagliani, Michela Redolfi, Chiara Melloni and Maria Vender. Predictive processing and language proficiency: the use of semantic and phonological cues in L1 and L2 in an eye-tracking study [[abstract](#)]

15:30 – 16:00

Bénédicte Grandon, Marcel Schlechtweg and Esther Ruigendijk. Does the segmental salience of noun plural marking influence its acquisition? An eye-tracking study of nominal plural in German-speaking children and adults [[abstract](#)]

16:00 – 17:00

--- Coffee break & Poster Session 2 ---

17:00 – 18:00

PLENARY 3: Cristina Flores
Verb placement across different acquisition types. Evidences from German as heritage, second language and attrited language [[abstract](#)]

Chair: Jacopo Torregrossa

18:00 – 18:30

Business meeting

19:30

Social Dinner at BADIAS, Schirn Kunsthalle, Römerberg, 60311 Frankfurt am Main
<https://badias.de>

Room IG 411

Chair: Ana T. Pérez-Leroux

Alina Kholodova, Michelle Peter, Caroline Rowland and Shanley Allen. Cumulative priming effects across development in a structurally biased language [[abstract](#)]

Ioli Baroncini and Jacopo Torregrossa. Cross-linguistic influence as motivated by the combined role of structure and language activation using within- and across- languages priming experiments [[abstract](#)]

Anamaria Bentea and Theodoros Marinis. Cross-linguistic Influence in Complex Syntactic Structures: The Case of Multiple Interrogatives in Bilingual Children [[abstract](#)]

Saturday

September 24, 2022

Room IG 311

Room IG 411

Chair: Barbara Höhle

Chair: Angeliek van Hout

9:30 – 10:00

Rowena Garcia and Natalie Boll-Avetisyan. Gradient phonotactics in acquisition: A cross-linguistic corpus study [[abstract](#)]

Evan Zysman and William Snyder. A Parametric Connection between VP Ellipsis and Yes/No Questions [[abstract](#)]

10:00 – 10:30

Eirini Ploumidi. On the monosyllabic and disyllabic truncations in child Greek [[abstract](#)]

Caterina Tasinato and Emanuela Sanfelici. When locality matters: on the acquisition of nominal ellipsis in Italian [[abstract](#)]

10:30 – 11:00

--- Coffee break ---

Chair: Barbara Höhle

Chair: Angeliek van Hout

11:00 – 11:30

Miguel Meira and Elaine Grolla. The “Growing Trees” Approach and the Development of the Left Periphery of the Sentence in Brazilian Portuguese [[abstract](#)]

Kangzheng Gao. Applying Constraint Demotion algorithm to parameter-setting [[abstract](#)]

11:30 – 12:30

PLENARY 4: Naama Friedmann. Growing trees: How children climb the syntactic tree [[abstract](#)]

Chair: Petra Schulz

12:30 – 12:45

Closing remarks

Pre-recorded

Jiawei Shi and Peng Zhou. Effect of temporary ambiguity in Mandarin-speaking children’s comprehension of relative clauses [[abstract](#)] [[talk](#)]

Poster Session I

Thursday, September 22, 2022

1. **Ioanna Kolokytha, Dimitra Arfani and Spyridoula Varlokosta.** The role of number, gender and case mismatch in the comprehension of object relative clauses in child Greek [[abstract](#)]
2. **Elisa De Cristofaro, Linda Badan and Adriana Belletti.** Discourse markers in L1 and L2 Italian: a comparative study [[abstract](#)]
3. **Miriam Geiss.** How children convey attitude in speech - Canonical and non-canonical questions by German monolingual children [[abstract](#)]
4. **Shuyan Wang.** Processing limits can delay children's computation of scalar implicatures [[abstract](#)]
5. **Anna Gavarró and Alejandra Keidel.** Two experiments on verbal agreement in Catalan and some implications [[abstract](#)]
6. **Maria F. Ferin, Miriam Geiss, Theodoros Marinis and Tanja Kupisch.** The acquisition of non-canonical questions in Italian: lexical and syntactic markers in elicited production [[abstract](#)]
7. **Usha Lakshmanan, Deborah Foucault and Tom Roeper.** Does Branching Directionality Impact Bilingual Children's Understanding of Recursive Structures in Their Stronger Language? Evidence from Recursive Adjectives and Possessives in English [[abstract](#)]
8. **Stephanie Durrleman, Lijun Chen and Xiaowei He.** The acquisition of long bei-passives in Mandarin by children with DLD [[abstract](#)]
9. **Ioanna Kappa.** On the reduction of plateau clusters in child Greek [[abstract](#)]
10. **Maria Lobo, Joana Batalha, Antónia Estrela and Bruna Bragança.** Syntactic complexity in early written development [[abstract](#)]
11. **Aysın Noyan Erbas, Merve Dilbaz Gürsoy, Ayşe Nur Demirci and Hazel Zeynep Kurada.** Past and Non-Past Tense Morphology in Early Turkish Speaking Children with Autism Spectrum Disorder [[abstract](#)]
12. **Karina Gomes Bertolino.** Spontaneous production of generic null subjects in a partial null subject language [[abstract](#)]

Poster Session 2

Friday, September 23, 2022

1. **Martina Penke and Laura Gerkens.** Verbal agreement inflection in children with hearing loss – the role of hearing device, perceptual prominence and syllable structure [[abstract](#)]
2. **Johannes Hein, Cory Bill, Imke Driemel, Aurore Gonzalez, Ivona Ilić and Paloma Jeretič.** Do child languages have negative concord? A corpus study [[abstract](#)]
3. **Kalliopi Katsika, Maria Lialiou and Shanley Allen.** Case and word order in children's online processing of relative clauses: evidence from heritage Greek [[abstract](#)]
4. **Lydia Grohe and Petra Schulz.** Adjective ordering preferences are not rigid: evidence from elicited production in child and adult German [[abstract](#)]
5. **Carla Soares-Jesel, Maria Lobo and Ana Lúcia Santos.** The problem of pseudoclefts in French: intersection configurations and intervention effects in language acquisition [[abstract](#)]
6. **Susan Logue, Christina Seydali, Raffaella Folli and Juliana Gerard.** Variable input effects and language domains in sequential bilingualism [[abstract](#)]
7. **Giuditta Smith, Federica Mantione and Chiara Finocchiaro.** Asymmetries in the acquisition of Italian cliticisation [[abstract](#)]
8. **Giulia Bettelli and Fabrizio Arosio.** Can a priming-based training enhance the production of direct object clitics in early L2 Italian children? [[abstract](#)]
9. **Ioana Grosu and Ailís Cournane.** Sensitivity to event mutability in children's spontaneous counterfactuals [[abstract](#)]
10. **Mara Moita.** A' and A movement in Portuguese cochlear implanted children: The effects of length of language exposure [[abstract](#)]
11. **Akari Ohba and Kamil Deen.** Alternative Routes to Verb Learning: Beyond Syntactic Bootstrapping [[abstract](#)]



Abstracts

- Talks -

Thursday

September 22, 2022

09:30-10:30

How to interpret variable input

Ana T. Pérez-Leroux

University of Toronto

Generative approaches to language acquisition study how grammar (the mental symbolic system that underlies human language) grows in the minds of children. Despite their great diversity (Longobardi, 2018), human languages exist within a limited space of formal possibilities. In this presentation I review recent work on the acquisition of variable phenomena, exploring a potential integration of developmental sociolinguistics into a generative framework.

There is growing consensus that grammar grows from the interaction between statistical learning and innate structural biases that support inferences (i.e., rules; Yang, 2016) about sentences poorly represented in experience (Lidz & Gagliardi, 2015). Under minimalist assumptions, what children learn is the encyclopedic and functional lexicon of a language (Chomsky 2001), through their visible distributions (Gleitman et al., 2005). Distributional learning gives us categories, but is it sufficient to guide how children learn the interpretation of those categories? Are further constraints required? The literature articulates a range of what I will call contrast inferences. These are implicit assumptions that listeners and learners make about the expressive choices of speakers. Contrast inferences include various lexical learning biases (Mutual exclusivity, Marchman & Wachtel, 1988; Principle of contrast, Clark, 1993; Morphological Uniqueness, Pinker, 1984; etc.) as well as semantics and pragmatic principles such as Maximize resuppositions (Heim, 1982), scalar implicatures (Schlenker 2012), etc.

I rely on three types of data from recent work to explore the role that learning and contrast inferences play in incorporating noisy and sparse input into the developing grammar:

- I. Data on language phenomena with scarce and opaque input, including recursive nominal modification (Pérez-Leroux, Roberge, & Brunner, to appear), and undetected ambient variability in Korean scope (Han, Musolino and Lidz 2016))
- II. Data on phenomena undergoing sociolinguistic variation and diachronic change, including children's incrementation of epistemic reading of modals (*the cat must be fed ... because he is hungry vs. because he is not hungry*, Cournane 2016, Cournane & Pérez-Leroux, 2020), the selection of English possessives (*the tail of the cat/the cat's tail*; Hall & Pérez-Leroux, 2022), and form selection in future contexts (*the boy will/is going to/can go down the slide*; Hall & Pérez-Leroux, in prep).
- III. Studies examining the impact of phonetic variability on the acquisition of functional categories, including plurals across dialects of Spanish (Miller & Schmitt, 2010) and gender agreement in Spanish-English bilinguals (Pérez-Leroux et al, 2022).

In the course of acquisition, children map formal contrasts in a layered process. Contrast inferences constrain how children interpret distributional variability in grammatical, discursive, or social terms. Distributional learning yields categories and paradigmatic contrasts; it also supports learning meanings, but additional constraints are necessary. Once differences in elements in related distributions are detected, contrasts are mapped at different levels of linguistic knowledge: lexicon (different words), grammar (different categories/sentences), truth functional semantics (different truth values relative to the world), perspectival semantics (nontruth functional distinctions that reflect speaker perspectives on a situation or referent),

pragmatics (attributions to discursive meanings, including politeness/familiarity, etc.) and, finally, sociolinguistics (attributions to speakers' social affiliations). By driving learners to interpret all variation, at one level or another, contrasts inferences support both grammatical and sociolinguistic development.

References

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- Cournane, A. (2015). *Experimenting with language change in the domain of modality*. Ph.D. dissertation, U. of Toronto.
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Thursday

September 22, 2022

11:00–11:30

Pronoun interpretation in L2 English and L1 Italian: effects of stress

Lydia White¹, Heather Goad¹, Guilherme Garcia², Natália Guzzo³, Liz Smeets⁴ & Jiajia Su⁵

McGill University¹, Université Laval², St. Mary's University³, York University⁴,
National Research Centre for Foreign Language Education, Beijing Foreign Studies University⁵

Anaphora resolution in the L2 acquisition of null subject languages has received considerable attention, from the perspective of the syntax/discourse interface (e.g. Belletti et al. 2007; Sorace & Filiaci 2006), processing (e.g. Sorace 2011) and prosody (e.g. White et al. 2017). In contrast, pronoun interpretation in L2s that are not null subject languages has been less investigated. Of particular interest in the case of null subject L1s is the mismatch in the preferred interpretations of overt pronouns in these two types of languages, as well as how the presence or absence of stress impacts interpretation. We examine the effects of stress on interpretation of L2 English pronouns by Italian speakers, as well as effects of stress in L1 Italian.

In Italian, the relevant distinction is between null and overt pronouns. In biclausal sentences like (1a), the antecedent of a null pronoun is typically the subject/topic of a higher clause, whereas overt pronouns are interpreted as taking other antecedents, such as the object of the verb or someone external to the sentence (e.g. Carminati 2002). In languages like English, there is a distinction between unstressed and stressed pronouns. When pronouns are unstressed, they prefer an antecedent that is prominent in the discourse, usually the sentence subject/topic. Stressed pronouns, on the other hand, prefer non-topic antecedents, as in (1b) (e.g. Grimshaw & Rosen 1990; Samek-Lodovici 1996). Null subject languages also allow overt pronouns to be stressed, resulting in a shift in preference, such that object antecedents are less preferred than they are with unstressed pronouns (Luján 1986). Pronoun stress, then, results in an ‘overturning’ effect in both languages: in Italian, a reduction in preference for object antecedents (in favour of subjects or external antecedents); in English, an increase in preference for object antecedents (away from subjects) (see (1a/b) and Table 1).

(1a) Monica_i ha telefonato a Claudia_j quando Ø_i/lei_j/LEI_{i/j} era in ufficio.

(1b) Monica_i phoned Claudia_j when she_i/SHE_j was in the office.

As Table 1 indicates, Italian speakers must establish a correspondence between English unstressed pronouns and Italian null pronouns and between English stressed pronouns and Italian unstressed pronouns. Following previous research demonstrating effects of stress on Italian pronoun interpretation (Gargiulo 2020; White et al. 2017), we hypothesize that Italian-speaking English L2ers will come to realize the role of stress on anaphora interpretation, in particular, that stressed pronouns in English shift the interpretation away from subject antecedents, like unstressed pronouns in Italian.

We report on two experiments, administered online. 21 Italian speakers (intermediate/advanced English proficiency) participated in an experiment on L2 English; 18 Italian speakers participated in an experiment on L1 Italian. Each experiment involved auditorily-presented biclausal sentences (similar to those in (1)) (24 in English, 36 in Italian), manipulating pronoun type and presence/absence of stress. Stimuli were preceded by written contexts introducing potential referents (main clause subject, object or external). After listening to a sentence, participants indicated their preferred referent for the pronoun. See (2).

Results for L2 English (Figure 1) show that subjects were the preferred antecedents for unstressed pronouns; stress led to a significant increase in object antecedent choices. For LI Italian (Figure 2), participants showed a significant difference between null and overt pronouns, subject antecedents being preferred for null pronouns and object antecedents for overt pronouns. Stress was also significant, reducing object preferences and increasing the proportion of other antecedents (subjects or external).

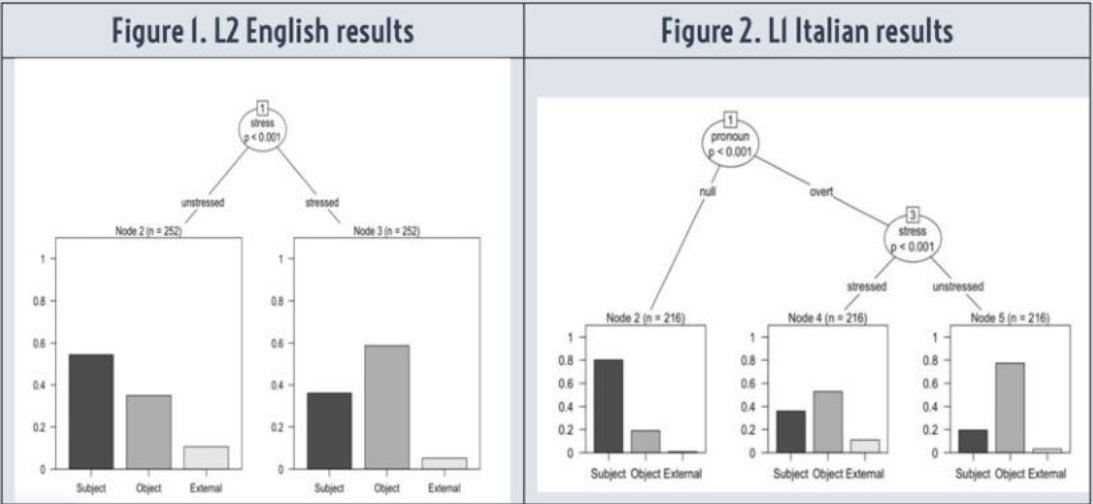
In conclusion, the results suggest that, as hypothesized, L2ers are sensitive to differences in pronoun interpretation between the two languages. Notably, the differential role of stress is well understood: stress on L2 English pronouns resulted in an increase in object choices (compared to unstressed pronouns), whereas stress on pronouns in LI Italian resulted in a decrease.

Table 1. Antecedent preferences for pronouns in Italian and English

	null	overt unstressed	overt stressed
Italian	subject	object	overturning (→subject/external)
English	n/a	subject	overturning (→object)

(2) Example test item (English experiment):

Written context (on screen)	Carol, Janet and Laurel are working on a project together
Test sentence (audio)	Carol called Laurel when she was in the office
Question (on screen)	Who was in the office?
Choices (on screen)	Carol/Laurel/Janet



References

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Thursday

September 22, 2022

11:00–11:30

Bigger is better! Older Italian children prefer heavy locative prepositions

Chiara Dal Farra¹, Fabienne Martin², Yining Nie², Maria Teresa Guasti¹, Artemis Alexiadou²

¹Università degli Studi di Milano-Bicocca & ²Humboldt-Universität zu Berlin

Introduction Lexical locative prepositions often have ‘light’ (monomorphemic) and ‘heavy’ (polymorphemic) variants. The Italian light preposition *in* can express the same meaning as its heavy counterpart *dentro* (a) ‘in/inside’; the same holds for *su* and *sopra* (a) ‘above/on top of’. Italian children up to age 3;4 typically produce light prepositions before heavy ones in corpora (Sanfelici & Gallina 2022). However, no work has investigated the use of light and heavy prepositions in older Italian children, after both types have been acquired.

Hypothesis Research has shown that both light and heavy locative prepositions can be decomposed into the same complex conceptual structure involving multiple projections (e.g., Svenonius 2006, 2010, Matushansky & Zwarts 2019), as shown in (1a/b). While heavy prepositions can be morphologically decomposed, as in (1b) for *dentro* (a), light prepositions leave much of the conceptual structure unrealized, as in (1a) for *in* (n- preceding a definite determiner). Assuming that children prefer one-to-one mapping between form and conceptual structure (e.g., Slobin 1973, van Hout 2008, Alexiadou, Guasti & Sauerland 2021), we expect Italian children who have acquired both heavy and light prepositions to prefer more complex prepositional forms than Italian adults. In particular, we expect children to use heavy prepositions like *dentro* more often than adults, who are more likely to use lighter variants like *in*. In addition, locative prepositions with an optional component such as *dentro* (a) (Tortora 2005, Folli 2008, Franco 2018) should be produced more often with the optional *a* in child language than in adult language.

Method We conducted a corpus study of child and adult Italian, investigating the use of light (*giù, in, fuori, sotto, su*) and heavy locative prepositions (*dentro, dietro, sopra*) in picture-based narration. We focused on the Frog story, which provided many opportunities for locative preposition production. Utterances containing prepositions ($N=1649$) produced by 159 typically-developing children aged 4–11 were extracted from the Bologna and Roma CHILDES Frog story corpora (MacWhinney 2000). Utterances with prepositions ($N=644$) were also extracted from three Frog stories each narrated by 16 adults in the Italian NOCANDO corpus (Brunetti et al. 2011). We annotated utterances for the main preposition (Main P), preposition type (light or heavy), and any preceding (Prev P) or following prepositions (Next P) used. We annotated for whether the use of Prev P or Next P was optional, as in *dentro* (a), coded as Optional P.

Results As shown in Table 1, we found a significant effect of population on preposition type ($p < 0.001$). Italian children produced the heavy Main Ps *sopra* (a) and *dentro* (a) more often than their light counterparts *su* and *in*, respectively. Italian adults, however, exhibited the opposite behaviour, preferring to use the light variants. With heavy prepositions, Italian children produced more Optional Ps ($p < 0.001$), at a rate of about 25% (Fig. 1). Italian adults rarely produced Optional Ps, except with *dentro* (Fig. 2). Light prepositions, including polysyllabic ones such as *sotto, fuori*, did not trigger the production of Optional Ps in adults or children.

Discussion The results show that typically-developing Italian children from age 4 are sensitive to morphological complexity in prepositions. They prefer heavy prepositions and often produce them with optional components, while Italian adults prefer light prepositions and omit optional ones. This can be explained if PPs have a complex conceptual structure, and children prefer a one-to-one mapping between structure and form. Heavy prepositions such as *dentro, sopra, dietro* provide a way to spell out structure more overtly, as they contain a morpheme *-tro/-pra* (>Lat. *partes*) which spells

out a generic light nominal PART/SIDE, as shown in (1b). The optional *a* spells out the possessive relation between the Ground and this nominal (Franco 2018), which also captures the fact that *a* can optionally be used with heavy prepositions (e.g., *sopra a*), but not with competing light Ps (e.g., **su a*). Thus while heavy prepositions may be acquired after lightones in Italian, once acquired they get overused by older children and then fade in adult usage, resulting in a familiar (though prolonged) U-shaped acquisition trajectory. A similar process may characterize the development of prepositions in children with dyslexia (Mantione 2016).

(1a) *nel lago* 'in the lake'

PlaceP

Place
O/

ProjP

Project
O/

AxPartP

AxPart
in

AxPartN

N
O/

KP

K
O/

EigenP
il lago

(1b) *dentro il~a lago* 'in the lake'

PlaceP

Place
O/

ProjP

Project
d-

AxPartP

AxPart
en-

AxPartN

N
PART
-tro

KP

K
O/ / a

EigenP
il lago

	<i>sopra (a)</i>	<i>su</i>	Total	<i>dentro (a)</i>	<i>in</i>	Total
Child	254 (67%)	126 (33%)	380	475 (59%)	329 (41%)	804
Adult	14 (10%)	122 (90%)	136	103 (28%)	261 (62%)	364
	$\chi^2=128.3, p<0.001$			$\chi^2=95.0, p<0.001$		

Table I. Child and adult production of heavy and light Main Ps.

Fig 1. Child Main P and Optional P production. Fig 2. Adult Main P and Optional P production.

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GALA 15 – Generative Approaches to Language Acquisition – www.galafrankfurt2022.com

Thursday

September 22, 2022

11:30–12:00

LI versus Dominant Language Transfer in L2 and Heritage Swedish Speakers of Italian

Francesco Romano¹ and Pedro Guijarro-Fuentes²

¹Halmstad University and ²University of the Balearic Islands

LI transfer is a hallmark of bilingualism. Studies describing how LI transfer affects late pubertal L2 grammatical systems abound in SLA research. This research has found LI transfer to be linked to 3 key phenomena, divergence between LI and L2 representations, interlanguages, and L2 fossilization (Vainikka & Young-Scholten 2011; Schwartz & Sprouse in Press). In contrast, far less is known of the role of LI transfer when the two grammars come into contact earlier in life, otherwise dominant language transfer in heritage language grammars (Polinsky, 2018). Unlike adult L2 speakers, the dominant language of the heritage speaker potentially affects the weaker language already from childhood. The best evidence to date of dominant language transfer comes from studies focusing on L2 syntax exploiting language production tasks (Fenyvesi 2005; Cuza & Frank 2015; Cuza & Strik 2012). These studies, however, employed elicited imitation which has been criticized for failing to evaluate capacity to produce (rather than imitate) language (Vinther 2002) and bias monolingual populations when compared to heritage speakers (Polinsky 2018). Another method which has been shown to tap into abstract representations fairly validly is structural priming (Jackson, 2018 for a state-of-the-art). Intrinsically linked to the use of priming and LI transfer is the Basic Continuity Hypothesis (BCH) (Romano 2018) which maintains the sentence production mechanisms of monolingual (LI) and highly proficient L2Ss are similar enough for the latter to be able to integrate semantic and syntactic information in native-like manner despite any associated structures being absent in the L2Ss' LI grammar. Thus, in the study we present, we extend the BCH to heritage speakers. The questions we address are as follows:

RQ1: To what degree does transfer affect L2 and heritage grammars?

RQ2: How similar are the language production mechanisms in L2 and HL to monolingual speakers, particularly when a structure requiring integration of semantic/syntactic information is absent from the LI/dominant language of the bilingual?

To address these questions, an oral structural priming task was employed to compare advanced Swedish speakers of Italian ($n = 13$), proficiency-matched adult heritage Italian speakers ($n = 14$) dominant in Swedish, and Italian monolinguals ($n = 18$). The production of 4 clitic structures requiring coordination of syntactic/semantic information, namely proclisis with lexical, modal, and causative verbs and *si*-passives which are only possible in Italian (1-4), in comparison to a structure shared by both Italian and Swedish, namely transitives (5) was measured. If LI transfer (RQ1) occurs, it was predicted that the transitive structures would lead to higher priming rates than clitic structures in the L2 and HL groups as the bilinguals are eased by an overlap in LI/L2 transitive structures. Moreover, if the BCH applies to both L2S and heritage speakers (RQ2), priming rates will be significantly high (above 60%) and comparable to native speakers. Results showed that bilinguals are not primed any more on transitives than some clitic structures,

rejecting transfer. Moreover, they are primed higher than 60% on all but clitics + modals structures with most contrasts by structure not being statistically significantly different from monolinguals, supporting the BCH. Finally, an analysis of divergent structures produced shows L2/HL passive structures to be remarkably compatible with those produced by monolinguals at earlier developmental stages reported in previous research.

(1) Lexical

- a. I pesci, Pietro li cucina all'aperto
 the fish Pietro cl.ACC.3PL cooks.v in-outdoors
 'the fish, Pietro cooks them outdoors'
- b. *I pesci, Pietro cucina li all'aperto
 The fish Pietro cooks.v cl.ACC.3PL in-outdoors

(2) Modal

- a. I pesci, Pietro li vuole cucinare all'aperto
 the fish Pietro cl.ACC.3PL want.MOD cook.V-INF in-outdoors
 'the fish, Pietro cooks them outdoors'
- b. I pesci, Pietro vuole cucin-ar-li all'aperto
 the fish Pietro cl.ACC.3PL cook.V-INF-cl.ACC.3PL in-outdoors

(3) Causative

- a. I pesci Pietro li fa cucinare all'aperto dalla zia
 the fish Pietro cl.ACC.3PL make.CAUS cook.V-INF in-outdoors by auntie
 'The fish, Pietro has them cooked outdoors by auntie'
- b. *I pesci Pietro fa cucin-ar-li all'aperto dalla zia
 the fish Pietro cl.ACC.3PL make.CAUS cook.V-INF in-outdoors by auntie

(4) *Si*-passives

- I pesci si cucinano all'aperto
 the fish cl.PASS cook in-outdoors
 'the fish need be cooked outdoors' or 'the fish cooks outdoors'

(5) Transitives

- Pietro cucina i pesci all'aperto
 Pietro cooks.v the fish in-outdoors
 'Pietro cooks the fish outdoors'

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Thursday

September 22, 2022

11:30–12:00

Empty or Non-empty Site? Evidence from the Acquisition of Najdi Arabic Sluicing

Nouf Alaowffi

Department of English Language & Translation, College of Arabic Language & Social Studies,
Qassim University, Buraidah, Saudi Arabia

Sluicing—an elliptical construction in which the only pronounced part of a question is the wh-phrase—has been controversial since its emergence.^[9] *Someone ate the apple, but I don't know who* <_{IP}> is an example of sluicing. The indeterminacy of the ellipsis site's content has led to an argumentative impasse. Some assume an isomorphic structure that involves regular wh-movement followed by IP-deletion,^[9] others assume a structure that does not involve movement,^[1] while others posit no structure whatsoever.^[10] This study offers experimental evidence from Child grammar that bears on this debate by examining the acquisition of sluicing in Najdi Arabic (NA), a variety spoken in the central region of Saudi Arabia. NA forms wh-questions either via wh-movement or wh-in-situ. Hence, examining sluicing in NA would provide cross-linguistic evidence upon this debate.

Using *intervention effects* as diagnostic of movement (i.e., (I)), and since features shared by DPs arguably elicit intervention effects,^[8] this study addresses two interrelated questions: (i) Do NA-children show a subject>object (S>O) asymmetry with respect to sluicing; and (ii) does a mismatch in animacy feature aid children's interpretation of object sluices? Assuming an isomorphic structure, children are expected to show an S>O asymmetry, as the object moves across an intervening subject (i.e., (I.b)). Also, their interpretation of object sluices is expected to be facilitated by a mismatch in animacy features. Neither of the two predictions is expected under the non-movement and non-structural accounts.

Thus, I conducted a yes/no question task with 48 NA-speaking children aged from 4;00 to 6;11 years (\bar{x} = 5;3), 16 for each year interval. 24 test items with a picture for each were pre-recorded and spoken by an animated puppet. Items were equally divided between subject/object sluices plus matched/mismatched animacy condition (e.g., (I.a) is coupled with Fig (1) to trigger a “yes” response; (I.b) is coupled with Fig (2) to trigger a “no” response).

A mixed effects logistic regression revealed a significant effect of age, $\chi^2(1) = 29.46$, $p < .001$, and extraction site (Subject, Object), $\chi^2(1) = 4.39$, $p = .036$. Yet, no significant effect was found with animacy $\chi^2(1) = 0.025$, $p = .874$, or the interaction between extraction site and animacy $\chi^2(1) = 0.939$, $p = .332$. Verb and Participant were analyzed as random effects. Since NA-children showed a S>O asymmetry, this supports the hypothesis that sluicing does have an elided structure that involves wh-movement. The ineffectiveness of the animacy condition was unanticipated (cf. [7]). As it is not part of the featural composition of the inflectional head in NA, animacy might not be an intervention effect's trigger in NA in the first place.^[2] Still, a deeper inspection of the effect of age and extraction site could lead to an additional conclusion.

In Fig 3, the S>O asymmetry emerges only at the age of 5. Such a delay was observed only in Mandarin, a wh-in-situ language, but not in English, a wh-movement language.^{[6][7]} As NA employs different wh-formation strategies, this suggests that the 4-year-old NA-children have not yet acquired the wh-movement strategy necessary for sluicing. The lack of movement at this stage entails the lack of intervention effects. Later, the acquisition of wh-movement emerges, and hence children show S>O asymmetry. This is supported by *Economy-Based Markedness*,^[4]

which claims that when a language permits different options, younger children will use the more economical one (i.e., that involves less movement). Likewise, the *Derivational Complexity Hypothesis*^[5] claims that younger children prefer External Merge over Internal Merge, as the latter is computationally complex. This also receives support from the notion that economy considerations constrain language development.^[3] Since no former study examined the acquisition of wh-question in NA, it is reasonable to argue for this conjecture. Thereby, I argue that sluicing in NA, by default, involves wh-movement followed by deletion; thus, the ellipsis site is non-empty. This interdisciplinary work contributes to the persistent debate on the content of the ellipsis site by providing an experimental argument that is based on the innate specification of sluicing in NA.

-
- (1) a. *ʔana ʔa-foof ʔahad ja-nyaz l-walad, ta-gdar t-foof meen_i <-t_i*
 I 1.Sg-see someone 3.Masc.Sg-poke the-boy, 2.Sg-can 2.Sg-see who_i -t_i
~~*ja-nyaz l-walad*~~?
 3.Masc.Sg-poke the-boy
 ‘I see that someone is poking the boy, can you see who_i <-t_i is poking the boy>?’
- b. *ʔana ʔa-foof l-walad ju-duff fai, ta-gdar t-foof*
 I 1.Sg-see the-boy 3.Masc.Sg-push something, 2.Sg-can 2.Sg-see

wʔoo_i <-l-walad ju-duff t_i>?
 what_i <the-boy 3.Masc.Sg-push t_i>
 ‘I see that the boy is pushing something, can you see what_i <the-boy is pushing t_i>?’

Fig 1
 “Yes” Scenario for (1.a)

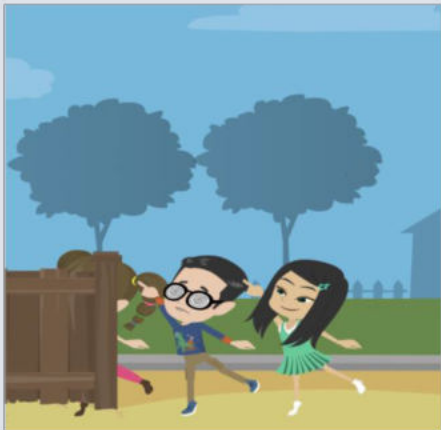
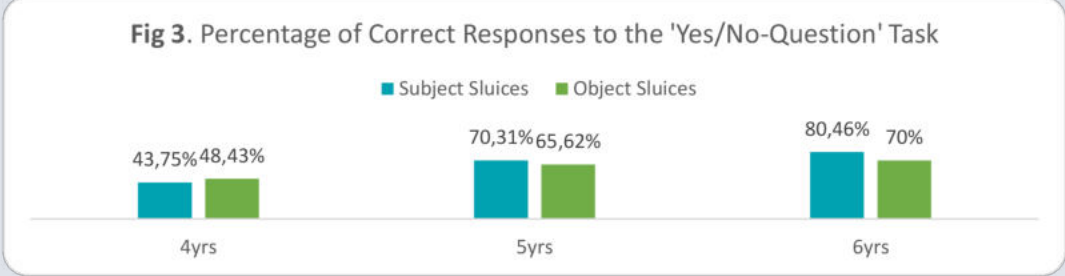


Fig 2
 “No” Scenario for (1.b)



Fig 3. Percentage of Correct Responses to the 'Yes/No-Question' Task



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Thursday

September 22, 2022

12:30–13:00

Boundedness and temporal reference in the oral narratives of European Portuguese speakers of L2 German

Duarte Oliveira

CEHUM, University of Minho

Temporal reference in discourse can be obtained by dint of an interplay of different mechanisms, which include lexical and grammatical devices, pragmatic principles of discourse organization and specific semantic properties. Similar strategies are found in L2 acquisition: before L2 speakers acquire temporal morphology, they resort to pragmatic and lexical means to express temporal notions (Meisel, 1987; von Stutterheim, 1991).

One of the fundamental concepts in the temporal organization of narrative discourse is the notion of *boundedness* ($[\pm b]$), which provides a shift in time and allows the narrative to move forward, by linking a topic time (TT) to the previous time of situation (TSit) (Klein, 2013; von Stutterheim et al., 2003). German does not grammaticalize aspect productively (except in certain varieties, cf. Behrens et al., 2013), which means that lexical and pragmatic apparatus, as well as implicit reference via (un)boundedness, carry a larger weight in the expression of temporal reference. Portuguese codes most of these relations explicitly, by means of verbal morphology and particular grammatical constructions. Given that the notion of boundedness is understood as an universal category, it is expected that Portuguese speakers of L2 German also rely on this notion to relate situations in a narrative, making up for the lack of explicit markings with implicit reference.

An exploratory study was conducted with 29 intermediate to advanced European Portuguese (EP) speakers of L2 German ($M_{Age} = 31.7$; $SD = 9.4$) and a control group of 18 LI German speakers ($M_{Age} = 28.1$; $SD = 6.5$). The participants were shown a 5-minute excerpt of Charlie Chaplin's *Modern Times* (cf. Bardovi-Harlig, 2000) and had to provide an oral retelling of the story, which was recorded, transcribed, and analyzed afterwards. An additional questionnaire (based on the LEAP-Q; Kaushanskaya et al., 2020) provided information about the L2 speakers' sociolinguistic background. Proficiency was determined by means of a C-Test.

The results of the study align with those of previous studies (Schmiedtová et al., 2011; von Stutterheim et al., 2009), which show that LI German speakers tend to narrate situations in the present tense ($M_{Present} = 69.2$, $SD = 29.3$), adopting a participative viewpoint on the story and relying on (un)boundedness to structure narrative time. On the other hand, EP speakers of L2 German tend to conceptualize their narratives deictically at the macrostructure, using past tenses to narrate situations ($M_{Past} = 54.5$, $SD = 36.4$), but they do not differ greatly from LI speakers in terms of general temporal structuring. There are statistically significant differences between LI and L2 speakers in their use of both the present ($U = 142.5$, $p < .05$) and the past tenses ($U = 143$, $p < .05$) to narrate the story. The use of temporal expressions does not appear to be a matter of language dominance ($r_s = .34$, $p > .05$), and is restricted to specific temporal notions which cannot be inferred from implicit reference alone (e.g., simultaneity, anteriority). Although the L2 speakers show similar narrative patterns to the LI speakers, those who are less proficient tend to leave out more complex temporal properties, which leads to an oversimplification of the temporal structure of the narrative. This exploratory study is the foundation for a future study including a group of native EP speakers, in which conceptualization

patterns and temporal reference will be analyzed crosslinguistically and related to possible effects of conceptual and/or linguistic transfer.

Examples from the oral narratives:

Ex. 1. Participant MOI, L1 German

	Text	[±b]	Temporal structure	Forms of representation
a)	<i>Ein junger Mann, gespielt von Charlie Chaplin, der einen schwarzen Hut trägt</i> 'A young man, played by Charlie Chaplin, who is wearing a black hat'	[-b]	TT (interval) $TT_a \subset TSit_a$	Implicit reference
b)	<i>und einen dicken Schnauzbart hat,</i> 'and has a thick moustache'	[-b]	TT maintained $TSit_b \subset TT_a$	Implicit reference
c)	<i>springt in die Bresche für eine junge Frau,</i> 'steps into the breach of a young woman'	[+b]	TT shifted $TT_c \subset TSit_c$	Implicit reference
d)	<i>die einen Laib Brot aus einer Bäckerei stiehlt.</i> 'who steals a loaf of bread from a bakery.'	[+b]	TT shifted TT_d precedes $TSit_c$	Context (past reference)
e)	<i>Als die Polizei ankommt,</i> 'When the police arrives,'	[+b]	TT shifted TT_e follows $TSit_d$	Temporal adverbial (simultaneity)
f)	<i>erzählt er der Polizei, er sei der Dieb gewesen.</i> 'he tells the police that he is the thief.'	[+b]	TT maintained $TSit_f \subset TT_e$	

Ex. 2. Participant P35, L2 German

	Text	[±b]	Temporal structure	Forms of representation
a)	<i>Das Mädchen war allein und hungrig</i> 'The girl was alone and hungry'	[-b]	TT (interval) $TT_a \subset TSit_a$	Implicit reference
b)	<i>und hat einen Laib Brot gestohlen.</i> 'and stole a loaf of bread'	[+b]	TT shifted $TT_b \subset TSit_b$	Implicit reference
c)	<i>Sie ist dann verhaftet worden,</i> 'She was then arrested,'	[+b]	TT shifted TT_c follows $TSit_b$	Temporal adverbial (posteriority)
d)	<i>aber ein netter Mann hat ihr geholfen</i> 'but a kind man helped her'	[-b]	TT maintained $TSit_d \subset TT_c$	Implicit reference
e)	<i>und zugegeben, dass er der Dieb war.</i> 'and admitted that he was the thief.'	[+b]	TT shifted TT_e follows $TSit_c$	Implicit reference

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Thursday

September 22, 2022

12:30–13:00

Control and inflected infinitives in ditransitive vs. transitive structures

Ana Lúcia Santos, Alice Jesus & Silvana Abalada
CLUL, Faculdade de Letras, Universidade de Lisboa

Previous work on the acquisition of control has focused on the contrast between subject and object control, suggesting a delay in subject control structures with *promise*-type verbs, which has received different syntactic explanations (C. Chomsky, 1969, Hornstein, 1999, Belletti & Rizzi 2012). In contrast, a semantic / processing bias favoring subject control readings has been suggested by Boland et al. (1990). Generally, it is assumed that at the age children are struggling with the subject / object control distinction (namely, pre-school years), the child has the relevant adult-like knowledge of the argument structure of the verbs. However, it might be that the child's task is more complex, namely since children need to first determine that the verb is ditransitive in order to identify the structure as an object (or subject) control structure.

The difficulty in the acquisition of object control verbs is very clear in European Portuguese (EP), a language in which the most common structure in which object control verbs (1) occur is superficially identical to structures under perception (2) or causative verbs (3), which are not ditransitive. Santos et al. (2016) have shown that children deviate from the target grammar by producing object control verbs as verbs taking a single propositional internal argument. Also Kirby (2011) suggests that structures which entail fewer theta-roles might carry a lower cognitive load (such as Raising-to-Object vs. object control). It is worth noticing that a reading which is non-distinct from object control (the second DP is the agent of the embedded action) is the necessary outcome if a structure such as in (2) or (3) is assumed for object control verbs.

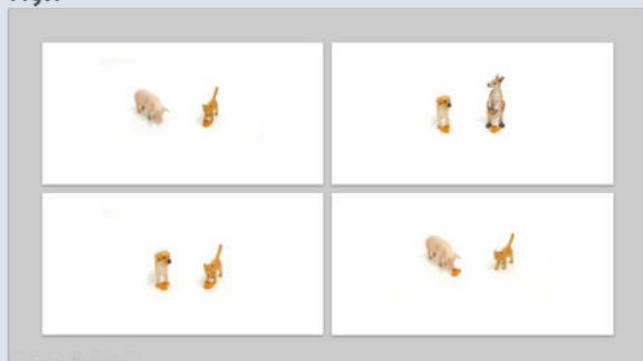
An important aspect distinguishing the structures in (1) vs. (2) and (3) is the distribution and interpretation of inflected infinitives. Whereas an inflected infinitive not matching the controller in number features is possible under an object control verb (4), giving rise to a partial ($k+\dots$) or split ($i+k$) control reading, this mismatching inflected infinitive is precluded under perception and causative verbs (5). In contrast, under transitive verbs the subjects of inflected infinitives are not controlled, and an inflected infinitive mismatching in number the matrix subject may be interpreted as disjoint in reference or including the matrix subject (a reading similar to partial control) (6). Therefore, an inflected infinitive as in (4) is a clue to identify a control structure. Santos et al. (2016) show that pre-school children produce inflected infinitives under causatives and under perception verbs (in structures of the type of (2)), as well as under object control verbs, but nothing is known about the interpretation of those inflected infinitives.

We present the results of a picture-choice experiment implemented in E-prime testing the interpretation of novel control verbs. Two factors were manipulated: transitive vs. ditransitive frame; inflected vs. non-inflected infinitives (see 7). 30 adults, 39 5 year-olds and 21 4 year-olds were tested. In the transitive frame, the pictures corresponded to subject control, partial control, no-control and a distractor; in the ditransitive frame, the pictures corresponded to subject control, object control, partial control and no-control (see Fig.1). A GLMM taking the default answer (object control in ditransitive frames and subject control in transitive frames) as the dependent variable and subject as a random factor identified an effect of group ($p<0.001$), inflection ($p<0.001$) and the interaction group*inflection*frame ($p<0.001$). In the adult group,

the inflected infinitive forces speakers to deviate from the default reading (subject control) in transitive frames, a case in which they give partial control readings; inflected infinitives also make adults deviate from the default reading in the ditransitive frame, but in that case they mostly give subject control readings, apparently ignoring the plural inflection in the infinitive. Children's results go in the same direction, but with general lower proportion of partial control readings. In general, it seems that partial control is not activated in a sentence such as (7d), what could be in line with a default analysis of the structure presenting the novel verb as closer to the structure of a perception verb (see (1)). Subject control was more frequent in children's (than adults') answers to ditransitives, signalling that the bias suggested by Boland et al. plays a role in children's novel verbs' interpretations. Overall, these results suggest that the acquisition of object control structures might be more complex than generally assumed.

- (1) O João convenceu [o Pedro] [a ____ cozinhar].
 the João convinced the Pedro PREP ____ cook.INF
 'João convinced Pedro to cook.'
- (2) O João viu [_{SC} [o Pedro] [a ____ cozinhar]].
 the João saw the Pedro PREP/ASP ____ cook.INF
 'João saw Pedro cooking.'
- (3) O cansaço / o menino deixou [o bebé a chorar].
 the fatigue the boy left the baby PREP cry.INF
 'The fatigue / the boy made the baby cry.'
- (4) [O João]_i convenceu [o Pedro]_k [a _____{k+.../i+k} cozinharem].
 the João convinced the Pedro PREP ____ cook.INF.3PL
- (5) *O João viu / deixou o bebé a dormirem.
 the João saw / left the baby PREP sleep.INF.3PL
- (6) [O João]_i lamenta _____i cozinhar / _____i / _____{i+...} cozinharem raramente.
 the João regrets ____ cook.INF ____ cook.INF.3PL rarely
 'João regrets that he rarely cooks.' / 'João regrets that they rarely cook.'
- (7)
- | | | |
|---|---|--------------------|
| a. O gato <i>pecatou</i> beber.
the cat verb drink.INF | } | transitive frame |
| b. O gato <i>pecatou</i> beberem.
the cat verb drink.INF.3PL | | |
| c. O porco <i>paritou</i> o gato a beber.
the pig verb the cat a drink.INF | } | ditransitive frame |
| d. O porco <i>paritou</i> o gato a beberem.
the pig verb the cat a drink.INF.3PL | | |

Fig.1



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Thursday

September 22, 2022

14:00–14:30

Over-use of overt subject pronouns in L2 Italian: The LI counts!

Elisa Di Domenico

Università per Stranieri di Perugia

A number of works, since Tsimpli *et al.* 2004, have shown that Late Bilinguals (LBs) over-use overt subject pronouns (OSPs) in Italian, and tend to interpret them also as co-referent with a subject/topical antecedent. This is so when one of their languages is English (in attrition, as in Tsimpli *et al.* 2004, or L2 acquisition, Sorace and Filiaci 2006; Belletti, Bennati and Sorace 2007 a.o.) but also when they speak two null subject languages (Bini 1993, Margaza and Bel 2006, Lozano 2006, 2018, Di Domenico, Baroncini and Capotorti 2020 a. o.). Interestingly, two of the above-mentioned studies, conducted with a similar methodology, reveal a comparable rate of OSPs in the productions of near-native LBs with LI English (14% in Belletti, Bennati and Sorace 2007) and near-native LBs with LI Greek (13.24% in Di Domenico, Baroncini and Capotorti 2020), while for native speakers of Italian a significantly lower rate of OSPs is reported in both studies (4% in BBS, 6% in DiDBC). Analyzing the OSPs produced in Italian by near-native LBs with LI Greek and by native speakers in terms of topicality and number/kind of active referents, DiDBC show that with respect to native speakers of Italian, LBs with LI Greek produce OSPs at a significantly higher rate in topic continuity and in contexts with two active referents which differ for gender and/or number [2rgn]. In this work we analyze the productions in Italian of a group of near-native speakers with LI English along similar lines, and we show that the distribution of OSPs is significantly different from that reported for LBs with LI Greek. We employed a Story Telling task analogous to the one employed by both BBS and DiDBC: participants had to watch a short movie and then tell the story. Productions were recorded and then transcribed. Participants ($N=8$) were English native speakers with age of onset of exposure to Italian >15 , and mean near-nativeness score (based on White and Genesee 1966), of 8.20/10. From the original corpus, we took off the sentences in which the kind of subject is grammatically constrained (e.g. infinitives, existential, subject relatives and so on), the sentences introducing a new referent (first mention is always lexical) and those referring to the narrator and/or the interviewer (first and second person are always pronominal), deriving a reference corpus of 307 sentences. Overt pronouns are the subject of 44 of these sentences (14.33%). The rate of OSPs, thus, is comparable to the one detected by BBS on LBs with LI English. It is also comparable to the one detected for Greek LBs by DiDBC, and significantly different from the one of Italian natives ($p=.005$). As for their distribution in terms of topicality, OSPs are used by English LBs in topic continuity at a rate (slightly higher but still) comparable to that of Greek LBs (40.90% vs. 32.65%) and significantly higher than that of native speakers ($p=.05$). The differences between the two groups of LBs emerge when considering the distribution of OSPs with respect to the number and kind of active referents: English LBs use OSPs in contexts with one active referent [1r] at a significantly higher rate with respect to Greek LBs ($p=.05$) and Italian natives ($p=.001$), see Figure 1. A significant difference, in the opposite direction, is also detected with respect to Greek LBs in 2rgn contexts, while in the other conditions (two referents with an animacy mismatch [2ra], two referents with no mismatch [2rno]) there are no significant differences. Furthermore, it is in the 1r condition (as well as in 2ra) that OSPs are mostly used in topic

continuity by English LBs (85.7%), while in the 2rgn condition only the 5.26% (i.e. one occurrence) is used in topic continuity (Figure 2).

Despite some similarities (which concern the amount of OSPs and their use in topic continuity), a quite different pattern emerges when comparing the productions of OSPs in Italian by LBs whose LI is a null subject language (Greek) and LBs whose LI is a non-null subject language (English). Their divergencies with respect to native speakers emerge in different contexts and possibly reveal different sources. While LBs with LI Greek possibly experience difficulties connected to referents' activation (see DiDBC in this respect), LBs with LI English mostly reveal an English- like use of OSPs, i.e. they mostly experience transfer from their LI.

Figure 1: OSPs in the different referents conditions in LBs with LI English, LBs with LI Greek and Italian natives.

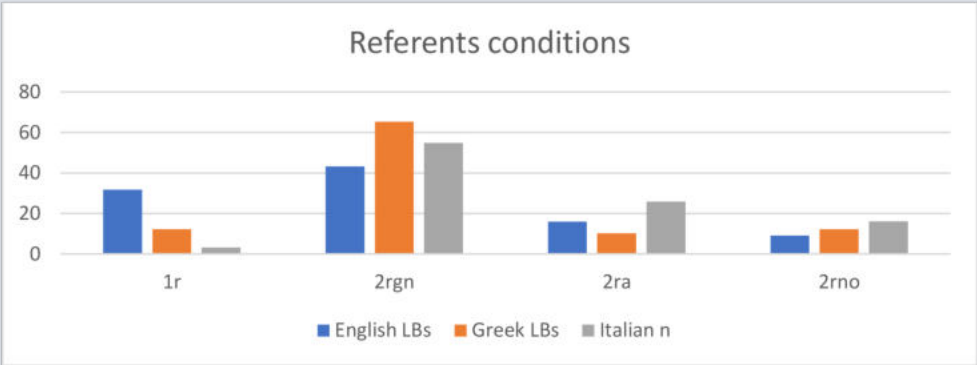
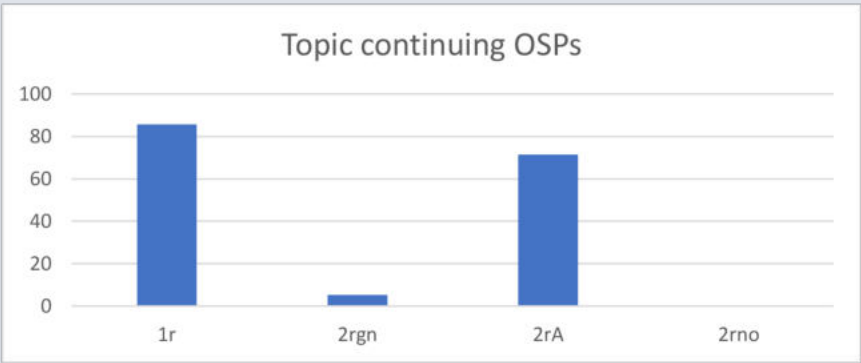


Figure 2: Topic continuing OSPs in the different referents conditions in English LBs.



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Thursday

September 22, 2022

14:00–14:30

A'-dependencies in acquisition: The role of pronominal interveners

Anamaria Bentea¹, Ur Shlonsky², Stephanie Durrleman³

¹University of Konstanz, ²University of Geneva, ³University of Fribourg

Object relatives (ORs) are harder for children to comprehend than subject relatives (SRs) [1–3], an asymmetry explained in terms of an intervention effect triggered by the featural similarity between the moved OR head and the intervening subject [1]. Such difficulties diminish with pronominal subject interveners [1,4], arguably because this configuration involves a mismatch in the +N feature between the head of the OR chain and the intervener [1]. However, a close examination of studies exploring this issue to date suggests that this facilitation could also be attributed to mismatches in the more fine-grained Number or Person features, because these features are attractors for movement and thus relevant for locality [2,6].

We therefore investigated the role of pronominal interveners in the acquisition of A'-dependencies in French with the aim of discovering *a.* whether intervention effects arise when the OR head and the (pronominal) intervener mismatch only in the +N feature, while all other relevant features are kept constant (Exp 1) and *b.* whether such effects can be alleviated by manipulating differences in Person and Number between OR head and the pronominal subject (Exp 2). In Exp 1, we compared performance on ORs with a 3rd person pronoun subject (1c) to those (*i*) with a 1st person pronoun intervener, thus engendering a mismatch in Person features (1d) and (*ii*) to SRs and ORs with two matched +N constituents (1a,b). In Exp 2, we tested ORs with 3rd person pronoun subjects mismatching only in Number with the head (2a,c) and ORs with 1st person pronoun subjects mismatching in both Number and Person (2b,d).

Two groups of participants (52 children aged 4;4 to 5;6 in Exp 1 and 54 children aged 4;2 to 5;9 in Exp 2) were tested on a character selection task (Fig. 1 & 2). The pronominal referent(s) were clearly identified in both experiments. The pink pony (Belle) introduced herself at the beginning of each task, explaining to the children that she will show them images about herself and her animal friends. Whenever she appeared in an image, she would refer to herself as *je*. In Exp 2, she also introduced her friend Stella at the beginning of the task and whenever they appeared together in an image, Belle would refer to Stella and herself as *nous*. The referent of 3rd-person pronouns was introduced with “Here is/are a mouse/some mice”.

The data were fitted to GLMER models with Type of Structure for Exp 1 and Person (1st vs 3rd) and Number (SG vs PL) of the intervener for Exp 2 as fixed factors. The results of Exp 1 (Fig. 3) confirm the poor performance often reported for ORs containing a fronted +N object and an intervening +N subject compared to SRs ($p < .001$). Crucially, low performance was also attested in ORs with a +N head and pronominal interveners, providing these were matched on phi-features (see also [7]). In contrast, SRs and ORs with pronominal interveners and a distinct Person feature yielded similarly high performance ($p > .05$). These results suggest that locality operates at a finer-grained featural level than lexical N: children continue to struggle with ORs containing pronominal subjects matching in grammatical features with the +N fronted object, while improvements arise when the pronominal intervener differs in Person from the OR head. The results of Exp 2 (Fig. 4) reveal a main effect of Person (better performance with ORs containing a 1st vs a 3rd person pronoun subject, $p < .001$) and a main effect of Number (ORs with a PL head and a SG subject (2a,b) are significantly better ($p < .05$) than ORs with a SG head and a

PL intervenier (2c,d)), in line with [6,8]. Comparing across experiments, a mismatch in Number improves comprehension of ORs with a 3rd person pronoun subject, while accuracy for ORs with a 1st person pronoun is equally high in both Number match/mismatch cases. Our findings show that grammatical features impact performance and suggest that Person has a larger impact than Number in locality computations. This is in line with processing studies on pronoun resolution and agreement violations which suggest the greater salience of the Person feature at multiple levels of representation [9-11].

Test items

(1) a. Montre-moi la souris Show me the mouse	qui tire la tortue. that is pulling the turtle.	X 10
b. Montre-moi la souris Show me the mouse	que la tortue tire. that the turtle is pulling.	X 10
c. Montre-moi la souris Show me the mouse	qu' elle tire. that she is pulling.	X 10
d. Montre-moi la grand-mère Show me the grand-mother	que je regarde. that I am watching.'	X 10
(2) a. Montre-moi les souris Show-me the mice	qu' elle tire. that she is pulling	X 8
b. Montre-moi les souris Show-me the mice	que je tire. that I am pulling	X 8
c. Montre-moi la chenille Show-me the caterpillar	qu' elles arrosent. that they are spraying	X 8
d. Montre-moi la chenille Show-me the caterpillar	que nous arrosons. that we are spraying	X 8

Figure 1a. Example of image associated with (1a-c).



Figure 1b. Example of image associated with (1d).



Figure 2a. Example of image associated with (2a).



Figure 2b. Example of images associated With (2d).



Figure 3. Results Experiment 1

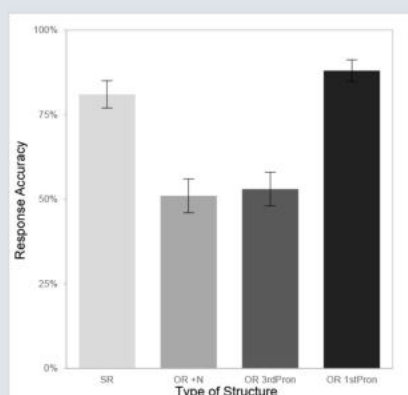
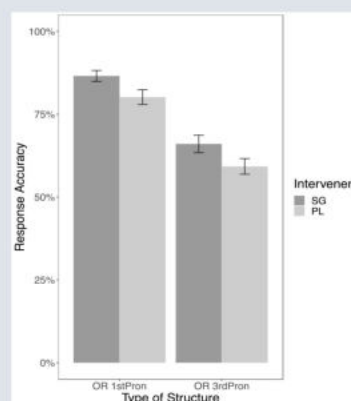


Figure 4. Results Experiment 2



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Thursday

September 22, 2022

14:30–15:00

The metalinguistic abilities of bilinguals with Prader–Willi syndrome

Estela Garcia-Alcaraz¹ and Juana M. Licerias^{2,3}

¹University of the Balearic Islands, ²University of Ottawa, ³Nebrija University

Previous research on the effects of bilingualism among the typically developing (TD) population has shown that speaking more than one language has more beneficial than detrimental effects (a.o., Adesope et al., 2010; Ardila, 2012). This research, although not exclusively, has been mainly devoted to analyzing the executive control (EC) abilities of bilingual speakers, with results that led to the formulation of the *Bilingual Advantage Hypothesis* (BAH). However, this hypothesis has been challenged, as different researchers defend that it may be the result of a publication bias (see de Bruin et al., 2015). Be that as it may, while the EC abilities of TD bilingual speakers have received a great deal of attention, other populations, as well as other cognitive and linguistic areas of knowledge, have been comparatively less studied, a relevant case in point being the non-typically developing (non-TD) population, on the one hand, and metalinguistic abilities, on the other. Investigation of the effects of bilingualism among non-TD individuals, although a growing field, is still limited and even more limited in the case of non-TD populations with intellectual disabilities, as is the case of individuals with genetic syndromes. In order to address this scarcity, in this paper we focus on how bilingualism shapes the linguistic and metalinguistic abilities of non-TD individuals with Prader–Willi Syndrome (PWS), a neurodevelopmental condition that entails intellectual disabilities (see Cassidy et al., 2012 for an overview). As for metalinguistic abilities, it is important to highlight that the term metalinguistics has been used polisemically and without consensus (Bialystok, 2001). For the sake of clarity, here we follow Bialystok and Ryans' (1985) metalinguistic cognitive framework, ulteriorly developed in Bialystok's work (see Friesen & Bialystok, 2012 for an overview). This framework contends that linguistic tasks entailing high demands of EC and low demands of linguistic knowledge are essentially metalinguistic measures while those entailing low demands of EC and high demands of linguistic knowledge are essentially linguistic measures. This implies that a potential BA is expected in the metalinguistic measures but not in the linguistic measures. In order to determine whether these predictions will hold among the PWS population, we created a Spanish version of Bialystok's experimental design (*Sentence Judgement Task [SJT]*) and administered it to seven Catalan–Spanish bilinguals and eight Spanish monolinguals with PWS (adolescents–adult speakers). This task included 24 oral experimental items in which grammar and semantics were manipulated resulting in four experimental conditions (6 items per condition): (i) grammatically correct–semantically correct (GCSC), (ii) grammatically correct–semantic violation (GCSV), (iii) grammar violation–semantically correct (GVSC), and (iv) grammar violation–semantic violation (GVSV) (see item examples). Targeted linguistically phenomena were evenly related to either morphology or word-order. Participants were asked to determine whether the sentence heard was (un)grammatical independently of the (un)feasibility of the meaning. Participants' binary response (correct vs. incorrect) was analyzed running a logistic regression mixed-effect analysis in *R* using RStudio. *Experimental Condition* (GCSC, GCSV, GVSC, GVSV), *Linguistic Dimension* (morphology and word-order) and *Group* (monolinguals and bilinguals), as well as their interactions, were introduced as fixed effects in phase I of the analysis. Participants and Items were entered as random effects. The best-fitting model of phase I was submitted to a phase 2 analysis with the *Intelligence Quotient*

(TONI-2), the *Receptive Vocabulary* (PPVT-3-Spanish) and the *Sentence Recall* abilities (CELF-5) measures as fixed effects. Overall, results revealed no differences between groups showing that both monolinguals and bilinguals displayed higher accuracy rates for GCSC items than for any other experimental condition. To conclude, it should further be emphasized that even though bilinguals were Catalan dominant, not finding significant differences between groups for the GVSC experimental condition not only evidences the bilingual capacity of these individuals but their having similar linguistic abilities to those of their monolingual peers.

Item examples:

Grammatically correct-semantically correct (GCSC)

La bandeja está encima de la nevera pero no puedo cogerla.

The tray is on top of the fridge but not can take it.

'The tray is on top of the fridge but I can't take it'.

Grammatically correct-semantic violation (GCSV)

En el museo hay muchas ballenas de pintores famosos.

In the museum there are many whales of painters famous.

'In the museum there are many whales by famous painters.'

Grammar violation-semantically correct (GVSC)

Aquella chica *alto [alta] no irá hoy a la escuela.

That girlFEM tallMASC not will go today to the school.

'That tall girl will not go to school today.'

Grammar violation-semantic violation (GVSV)

No puede *me recoger [recogerme] del colegio porque el elefante está en el mecánico.

Not can me pick up from the school because the elephant is in the mechanic.

'He/she cannot *me pick up [pick me up] from school because the elephant is at the mechanic'.

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Thursday

September 22, 2022

14:30–15:00

A Complex and Colorful Comprehension Task of German Case Marking in a Pilot Study on the Comprehension of Double Object Constructions among Primary-school-aged Children

Maja Stegenwallner-Schütz
University of Potsdam

Previous research on the development of thematic role assignment among German-speaking children has established the comprehension of morphological case marking to form a late acquired prerequisite for the correct interpretation of isolated sentences with word order variation (cf. Schipke et al., 2012). In German ditransitive sentences, the recipient of an action is dative marked and the theme is accusative marked. Dative and accusative case marking have recently been shown to have distinctive effects on children's correct comprehension of sentences with transitive verbs, that either take an accusative or a dative object (Gamper, 2019). Still, it remains unclear whether comprehension difficulty affected by lexical properties, because different verbs have been used, or rather reflects properties of the German case system. Following Lenerz (1977), (1a) in Table I represents the canonical order of dative-before-accusative objects of German double object constructions. Comprehension difficulty can be explained with the presence of a structurally intervening constituent in non-canonical word order, such as (1b-d) (cf. Grillo, 2005). This study addresses the questions of how the development of the comprehension of accusative and dative marking affects thematic role assignment of double object constructions. To this end, a testing paradigm has been developed that reduces potential effects of lexical knowledge on thematic role assignment, which consequently depends on the comprehension of case marking.

Twenty monolingual German-speaking children (12 girls) between 5 and 9 years of age (mean age: 7;10; $SD = 0;11$; including children with language impairment) participated in a pilot study. In a 2x2 design, the fronting of object constituents and the order of objects was manipulated, while balancing the gender property of the dative object and using only masculine accusative objects. Crucially, all noun phrases were nominalizations of the objects' colors. The task consisted of an auditory forced-choice task. Participants chose between the visual displays of two animate recipient figures of either color (see Fig.1) by touching the corresponding picture on a touchscreen. Accuracy was modelled with a generalized linear-mixed model.

There was a main effect of order of objects indicating overall higher accuracy for sentences with accusative-before-dative order ($p = 0.02$) as well as an interaction of object fronting and order of objects showing that accuracy was particularly low for sentences with fronted objects and dative-before-accusative order ($p = 0.04$) (see Fig. 2). This finding points to distinct effects of the type of case marking of the fronted object and the corresponding thematic role assignment indicated. Contrary to the assumption underlying an effect of canonicity, namely that dative-before-accusative order should be easier to comprehend than accusative-before-dative order, children show particular difficulty assigning the recipient role to fronted dative objects. While this is a first tentative conclusion based on the results of a small pilot study, the results indicate that the ability to use case marking in order to guide correct thematic role assignment develops on different time scales for accusative and dative marked forms. Future work needs to address

the type (and probably morphological form) of case marking of constituents, when assessing the role of unambiguous case marking in children’s comprehension of non-canonical word order.

Table I Experimental Conditions

No.	Object Fronting	Order of Objects	Examples of Stimulus Sentences
Ia	No Fronting	Dative-before-accusative	Du gibst dem Gelben den Roten. you give the.dat.masc yellow (one) the.acc.masc red(one) ‘You are giving the yellow one the red one.’
Ib	No Fronting	Accusative-before-dative	Du gibst den Gelben dem Roten. you give the.acc.masc yellow (one) the.dat.masc red (one) ‘You are giving the red one the yellow one.’
Ic	Object Fronting	Dative-before-accusative	Dem Gelben gibst du den Roten. the.dat.masc yellow (one) give you the.acc.masc red (one) ‘You are giving the yellow one the red one.’
Id	Object Fronting	Accusative-before-dative	Den Gelben gibst du dem Roten. the.acc.masc yellow (one) give you the. dat.masc red (one) ‘You are giving the red one the yellow one.’

Fig.1 Example Screen Display

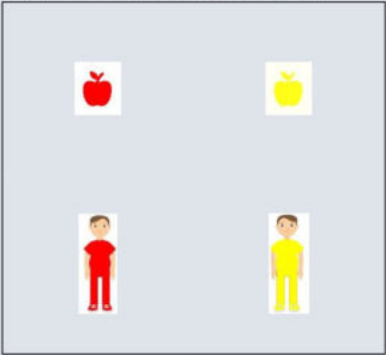
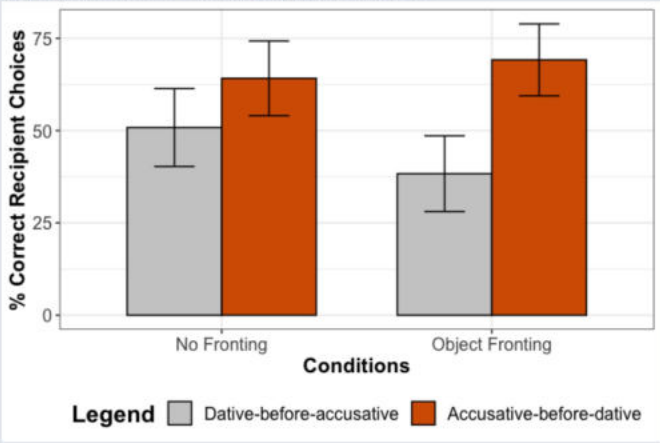


Fig. 2 Results of the Recipient Choices



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Thursday

September 22, 2022

15:00–15:30

Productive lexical knowledge predicts bilingual children's global accent in their heritage language

Liliana Correia, Chao Zhou, Cristina Flores
University of Minho

Heritage speakers (HSs) display considerable variability in the development of their heritage language (HL). Some HSs merely have limited productive abilities in the HL, whereas others exhibit a native-like mastery across grammatical domains (Montrul, 2016). Despite their robust HL phonological competence (Flores et al., 2017), many HSs are frequently identified by homeland native speakers as having a “heritage accent” (Polinsky & Scontras, 2020; Rao, 2015), which has been shown to be prone to the age of onset of bilingualism or to the amount of HL use (Lloyd-Smith et al., 2020; Wrembel et al., 2019). Among few studies on the perceived global accent of child HSs (e.g., Kupisch et al., 2021, Wrembel et al., 2019), to our knowledge, none has compared groups of child HSs of a target HL with different majority languages, thus evaluating potential effects of crosslinguistic influence (CLI) on accent rating. This study aims at expanding current knowledge on this field by investigating the degree of foreign accent in the HL (i.e., European Portuguese; EP) of EP-German and EP-French bilingual children living in Germany and France, respectively. We tested not only whether bilingual children's HL speech (i.e., accent) is perceived as different from that of EP monolinguals within the same age span (6–10 years), but also whether the bilinguals' degree of foreign accent differs as a function of the majority language. Regarding the role of the majority language, we predict that EP-French bilingual children would have less perceptible foreign accent than their EP-German bilingual peers. This is because speech prosody (rhythm) has been shown to constrain foreign accent judgment (Kolly & Dellwo, 2014; Polyanskaya et al., 2013) and the EP rhythmic patterns are perceptually closer to that of French (a syllable-timed language) than German (a stress-timed language) (Frota et al., 2002). Moreover, we intend to explore whether the HL proficiency predicts the degree of bilingual children's foreign accent. Naturally, one would expect that higher proficiency level leads to less perceived foreign accent.

With the purpose of reaching higher generalizability, we recruited 87 native Portuguese raters with heterogeneous sociolinguistic backgrounds (e.g., age, education level, dialect). In an internet-based rating task, they were instructed to rate on a 9-point scale the degree of foreign accent of EP-language speech samples of 45 bilinguals – 20 EP-German ($M_{\text{age}(\text{year})}=8.95$, $SD=1.15$) and 25 EP-French ($M_{\text{age}(\text{year})}=8.84$, $SD=1.14$) – and 20 monolinguals ($M_{\text{age}(\text{year})}=8.00$, $SD=1.45$). Speech samples ($M_{\text{duration}(\text{s}) \text{ per child}}=9.88$; $SD=0.99$) were drawn from an independent sentence repetition task (Correia et al., 2019). The bilinguals' HL proficiency was assessed by a vocabulary size task, i.e., the Portuguese version of the Expressive One-Word Picture Vocabulary Test (Cunha, 2011).

A mixed Bayesian cumulative model (Veríssimo, 2021) confirmed that bilingual children have more perceived foreign accent than their monolingual peers ($b_{EP-German}=1.18$, 95%HDI [0.55, 1.78]; $b_{EP-French}=2.51$, 95%HDI [1.94, 3.07]). Moreover, the prosodic CLI cannot account for our results, as EP-German bilingual children were judged to have less foreign accent than EP-French bilinguals ($b=-0.99$, 95%HDI [-1.74, -0.24]), as visualised in Figure 1. Another mixed Bayesian ordinal model focusing only on the bilingual group revealed that the productive

vocabulary size has a credible effect (-0.037, 95%HDI [-0.051, -0.024]) on a bilingual child's perceived foreign accent, rather than their age.

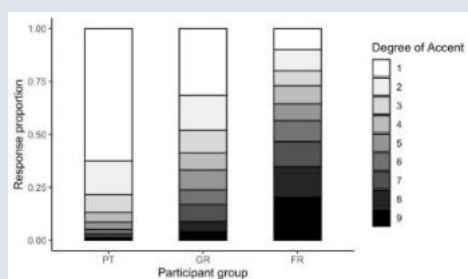


Figure 1. Degrees of perceived foreign accent as a function of bilingual children groups.

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Thursday

September 22, 2022

16:30–17:00

Children's morphological case comprehension: a dual task-and-language approach

Sofja Volkova, Raffaella Folli, Christina Sevdali, and Juliana Gerard
Ulster University

Introduction: Children's non-adult-like linguistic behaviour has often been explained through a non-adult-like grammar [1-5], hence: *the N(on)-A(adultlike)-grammar* account. Meanwhile, the *Processing* account argues for an extra-grammatical influence on their accuracy [6-8], raising the question: how can we interpret non-adult-like behaviour? One example is children's difficulty comprehending morphological case: they correctly identify argument roles when case aligns with word order (see 1a), but *often* fail when the cues are contradictory (see 1b). The *NA-grammar* approach explains this as children only being able to employ word order, thus re-assigning the object-verb-subject (-OVS) order a subject-verb-object (-SVO) interpretation. The *Processing* account holds the developing cognitive mechanisms responsible for the behavioral inconsistency.

Predictions: This study investigates with a dual-task-and language approach how the predictions of these approaches map onto children's comprehension and what they reveal about their underlying knowledge. For both accounts, children's behaviour is predicted to be more reflective in the low-demand task: For the *NA-grammar* account, this entails that children will behave more non-adult-like (= low accuracy on the OVS), whereas for the *Processing* account, it means that children will behave more adult-like (= high accuracy on the OVS).

Methodology: The predictions were tested by measuring case comprehension in Russian (3;10 – 5;10; mean age 4:9) and German (4;10 – 6;4; mean age 5:1) 3-to-6-year-olds. A picture- and a modified referent-selection tasks were administered [3, 7]: in the picture-section task (Russian N=21; German N=32), participants listened to SVO (1a) and OVS (1b) sentences with transitive verbs and matched them with one of an image pair (Fig. 1). One image matched the sentence argument roles, and one contained the reversed non-matching roles. For the referent-selection task (Russian N=24; German N=27), participants completed subject-, and object-first sentence fragments using different images (Fig. 1). Each fragment came with a sentence-initial case-marked argument and a masked follow-up (see 2). Participants saw the first argument on the screen with two potential follow-ups. Correctly interpreting the first argument's case would lead to point at either a prototypical patient or agent as follow-ups (in ex. 2, Seal.NOM leads to 'fish' and Seal.ACC leads to 'shark').

Results: A mixed effects logistic regression model with *Task*, *Condition* and Language as fixed effects revealed a main effect *Task* because Picture Selection task was easier ($p < .001$). Also, a main effect of *Condition* was revealed because all children had a higher accuracy on the SVO than the OVS sentences ($p < .001$). For the OVS sentences, posthoc tests revealed a *Task* effect for Russian ($p < .001$), but not German: Russian children had a higher accuracy on the picture-selection than the referent-selection task, while German children showed no difference. While Russian children's data offers full support for the *Processing* account, German children are inconsistent with both accounts: they did not perform above chance in the OVS condition in the low-demand task, as per *Processing* account. Their accuracy on the OVS conditions also did not differ across tasks, while a relatively lower accuracy on the OVS would be expected in a low-

demand task (behavior to be compared across tasks, not to *chance*). Concluding, German children’s non-adult-like behaviour does not hinge on the application of word-order-based rule in the OVS sentences alone and a more fine-grained explanation is required.

- 1a)

T'ulen'-∅

Seal.NOM.SG.

The seal

zabryzgivajet

splashes.3SG.PRES.

splashes

pingvin-a

penguin.ACC.SG.

the penguin

Russian
- 1b)

T'ulen'-a

Seal.ACC.SG.

The penguin

zabryzgivajet

splashes.3SG.PRES.

splashes

pingvin

penguin.ACC.SG.

the seal

Russian
- 2)

T'ulen'∅ / -a

Seal.NOM./ACC.SG.

The seal

jest

eat.3SG.PRES.

eats

?

?

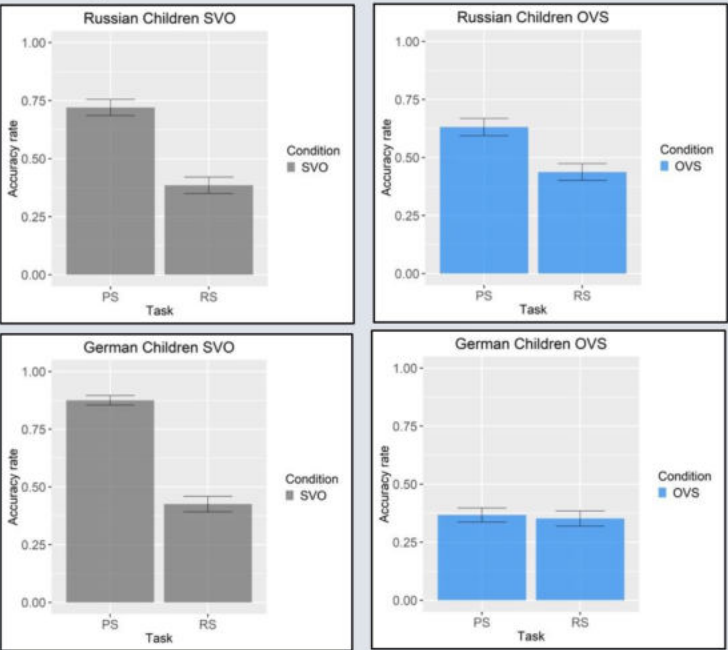
the [?]

Russian
- (fish for Seal.NOM/ shark for Seal.ACC)

Figure 1: Examples of visual trials in the Referent- and Picture Selection tasks respectively.



Figure 2: Children’s accuracy rates for the subject-initial and object-initial conditions for Picture-, and Referent Selection tasks in Russian and German respectively.



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Thursday

September 22, 2022

16:30–17:00

Moved vs. in situ DPs in Turkish: Wh-Questions and Relative Clauses in Hearing Impairment and in Developmental Language Disorder

Selçuk Güven, School of Speech-Language Pathology, University of Montreal, Canada

Naama Friedmann, Sagol School of Neuroscience, Tel Aviv University, Israel

Şadiye Bacık Tıranc, Dept. of Speech & Language Therapy, Gazi University, Turkey

Ayşın Noyan Erbaş, Dept. of Speech & Language Therapy, Hacettepe University, Turkey

Aim: We examined the nature of the difficulty in the comprehension and production of structures derived by syntactic movement in hearing impairment (HI) and in Developmental Language Disorder (DLD). This study explored how this deficit manifests itself in Turkish, a language that allows for in-situ questions. We compared minimal pairs of object wh questions with movement and in situ, as well as the comprehension and production of object and subject questions and object(OR) and subject relative(SR) clauses in these two groups.

Participants: The 113 participants were 27 school-age children with DLD (Mean age; 9;6), 26 school-age orally-trained children with HI (Mean age: 13;8), and 60 typically-developing school-age children (3rd-4th graders, Mean age: 8;9).

Structures tested and tasks: We investigated syntactic impairment in these children using a sentence-picture matching comprehension task (80 sentences) and a relative clause elicitation task (20 sentences). The structures we examined were object which questions with movement and in-situ, subject which questions, and subject and object relatives. We also examined an in-situ subject-question structure in which the subject-wh remains in-situ and the object is focalized before it, to a focP in the lower IP field, above vP and below WhP (İşsever, 2009, following Belletti, 2004).

Results & Conclusion: A significant main effect was found for the participant group, both for comprehension $F(2, 786) = 150, p < .001$, and the production, $F(2, 1310) = 340, p < .001$, with children with DLD and HI performing significantly below the TD children (Tukey HSD $p < .001$). No significant difference was found between the DLD and HI groups. A main effect for type of syntactic structures was also observed, for comprehension, $F(5, 786) = 21, p < .001$, and for production $F(9, 1310) = 26, p < .001$, with comprehension and production of OR clauses and questions significantly lower than that of SR questions (Tukey HSD, $p < .001$). Importantly, in both HI and DLD groups, the comprehension of object questions with movement was significantly lower than the parallel object questions in which the wh-element remained in-situ ($p < .001$). Object and subject in-situ questions did not differ from each other ($p > .05$) (Table I).

Two profiles of syntactic impairment: Within the children who showed impaired comprehension and production of object Wh-movement structures, we identified two different profiles. Most of the HI and DLD children showed a selective deficit in Wh-movement of lexical DPs crossing another lexical DP (object relatives and object questions with movement). A smaller group of 7 HI children and 3 DLD children, showed what may be considered a severe impairment, which affected all types of Wh questions and relative clause structures tested. We suggest that this second group has a deficit in the left periphery, in constructing the syntactic tree, which makes both subject- and object structures, and both in-situ and movement structures, impaired. Indeed, this distinction held also in their production of relative clauses: the movement-

impaired group produced SR instead of OR (Fig 1), whereas the tree-pruned group did not, and mainly produced simple and ungrammatical sentences for target OR. In the HI group, in-situ subject questions with focalization of the object was poorer than subject questions without focalization of the object ($p < .001$), but significantly better than object questions with wh-movement of the object ($p < .001$). We will discuss this result with reference to the difference in the involvement of the left periphery: object OSV questions involve CP, whereas subject OSV questions involve movement to a low FocP position in the IP field.

Table 1. The Comprehension and Production of Relative Clauses and Wh-Questions in children with HI and DLD (excluding children who performed at chance on all structures)

	HI (N=19)			DLD (N=18)			TD (N=60)	
<i>Comprehension</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>
SR	84%	22%		90%	8%		97%	5%
OR	65%	22%		70%	18%		89%	11%
Wh-O (Owh-SV)	43%	27%		45%	24%		75%	21%
Wh-S (O-Swh-V)	81%	26%		88%	10%		95%	11%
Wh-O Situ	86%	24%		89%	13%		96%	8%
Wh-S situ	92%	8%		91%	6%		97%	6%
<i>Production</i>	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>
SR	48%	19%		37%	16%		93%	4%
OR	23%	11%		10%	14%		63%	17%

Thursday

September 22, 2022

17:00–17:30

Are adolescent L2-learners with LI Dari sensitive to the strong relationship between verb placement and finiteness in German main clauses?

Magdalena Wojtecka, Roland Nenno & Stefanie Habertzettl
Universität des Saarlandes

This study investigates the acquisition of main clauses in adolescent L2-learners of German (AoO: 15;1, range: 12;6–16;7). In German matrix clauses the finite verb must move out of VP overtly to C to check finiteness features (Vikner 1995) since agreement, tense and finiteness features are strong in German (Chomsky 1995). Therefore, nonfinite verbs are unexpected in V2 throughout typical development.

Previous studies on German sentence structure show that nonfinite V2 is not attested in monolingual and eL2-children, suggesting a strong relationship between verb placement and finiteness (Chilla/Habertzettl/Wulff 2013, Rothweiler 2006, Tracy/Thoma 2009, Wojtecka/Schwarze/Grimm/Schulz 2013). Regarding adult and adolescent L2-learners, different observations are reported. Meisel (1997) assumes that their L2 grammar lacks agreement and that verb placement and finiteness are unrelated since he found non-finite forms in the V2 position in L2 German. According to the Missing Surface Inflectional Hypothesis (MSIH), Prévost & White (2000) suggest that bare verb forms in V2 are covertly finite and argue for a strong relationship between verb placement and finiteness. As stated by the Full Transfer/Full Access Hypothesis (FTAH), Schwartz & Sprouse (1994) suggest that L2-learners have the possibility to place finite verbs in V2 from early on. However, they do not exclusively rely on V2 and ungrammatical structures as V3 can be observed. These different assumptions on the relationship between verb placement and finiteness are mostly based on studies with adult L2-learners. To broaden the data base, we investigated spontaneous speech data of adolescent L2-learners.

Main clauses with subjects produced by 11 unaccompanied minor refugees with L2 German were analyzed. We coded verbs for placement (V2, V1, V3, V4, VF) and finiteness (correctly inflected, bare, infinitival, substitution). Adolescent L2-learners were 15;6 years old at T1 (range 13;6 – 17;2). They were matched by length of exposure to German and analyzed at four time points (T1: n=5, LoE: 6–7 months; T2: n=11, LoE: 9–10 months; T3: n=11, LoE: 12 months; T4: n=10, LoE: 16–18 months). All participants have Dari as LI, in which verbs are placed final in main clauses.

Results regarding verb placement are presented in Table 1. Adolescent L2-learners place verbs mostly in V2 at all four time points. However, in about 20% of the main clauses, verbs occur in ungrammatical positions, most frequently V3. Results considering finiteness are shown in Table 2. Adolescent L2-learners produce almost exclusively correctly inflected verb forms in main clauses with V2. In main clauses with non-target-like verb placement incorrectly inflected verb forms are also used very rarely.

Our findings show that adolescent L2-learners master finiteness marking in L2 German very early. This does not support Meisel's (1997) assumption on the impairment of finiteness in (adult) L2 acquisitions. These results are also not in line with the MSIH (Prévost & White 2000) since bare or infinitival forms were used only very rarely in V2. Notably, while incorrectly inflected verbs are almost absent in adolescent L2-learners, they seem to have more difficulties with verb placement in German main clauses. The results indicate that their interlanguage does not yet

have characteristics of a full V2 system since they place finite verbs in non-target-like positions even after 18 months of exposure to German. Thus, we suggest that our findings are also not conform with the FTAH (Schwartz & Sprouse 1994). To conclude, our findings indicate that adolescent L2-learners acquire finiteness marking in L2 German very early, but they are not sensitive to the strong relationship between finiteness and verb placement after 18 months of exposure to L2.

Table 1. Verb placement in main clauses for adolescent L2-learners across four time points (T1/T2/ T3/T4).

		T1 (LoE: 6-7)	T2 (LoE: 9-10)	T3 (LoE: 12)	T4 (LoE: 16-18)
Total of main clauses		320 (100%)	787 (100%)	726 (100%)	834 (100%)
V2	<i>Ich tanze mit ihr gerne.</i>	246 (77%)	574 (73%)	557 (77%)	677 (81%)
Incorrect:					
V1	<i>Und höre ich manchmal Musik.</i>	20 (6%)	57 (7%)	55 (8%)	35 (4%)
V3	<i>Manchmal ich spiele mit meine Handy.</i>	41 (13%)	112 (14%)	88 (12%)	102 (12%)
V4	<i>In Tag drei Mal wir müssen beten.</i>	4 (1%)	21 (3%)	6 (1%)	11 (1%)
VF	<i>Mit mein Handy ich manchmal spiele.</i>	9 (3%)	23 (3%)	19 (3%)	5 (1%)

Table 2. Group and individual percentage of correctly inflected verbs in main clauses with V2 across four time points (T1/T2/T3/T4) in adolescent L2-learners.

	Group	VaPe	KaPe	SePe	NaPe	AhPe	MoPe	HaPe	MaPe	SaPe	LoPe	HimPe
T1	91	100	90	87	84	83						
T2	89	100	94	98	92	25	96	90	92	80	97	100
T3	93	99	100	90	96	59	89	100	98	93	95	94
T4	96	98	95	96	98		85	100	99	95	95	96

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Thursday

September 22, 2022

17:00–17:30

Long-distance wh-dependencies in L3 German speakers of Dutch

Ankelien Schippers, Andreas Hiemstra & Esther Ruigendijk

Carl von Ossietzky Universität Oldenburg

Intro: We present a self-paced reading task combined with speeded grammaticality judgments investigating long-distance (LD) subject and object question processing in German L3 speakers of Dutch (L2 English) and an L1 Dutch control group. We contrasted LD questions (wh-phrase in matrix CP, embedded CP introduced by complementizer) with partial wh-movement questions (PM; matrix CP introduced by dummy *wat* 'what', embedded CP introduced by 'real' wh-phrase).

Patterns in L1/L2/L3: In Dutch, LD constructions are preferred over PM constructions, which are considered colloquial/dialectal [1]. German shows an opposite pattern: PM is preferred over LD constructions, which are considered dialectal/regional [2]. English only accepts LD movement, which show a subject/object asymmetry: subject traces cannot be immediately preceded by a complementizer (COMP-trace effect). The COMP-trace effect has been considered a universal constraint on LD movement but has been argued not to apply to Dutch (e.g. by assuming Dutch has some sort of work-around for it [3]). In German, COMP-trace violations are degraded, but not outright rejected [4]. We tested whether COMP-trace effects show up in L1 and L3 Dutch and whether German L3 learners of Dutch show transfer effects from English or German, since both L1 and L2 have been named as possible sources for transfer.

Method: Our experimental items are shown in Table 1. In Dutch, the only morphosyntactic way to distinguish between subject and object questions is by means of number agreement. In our study, the embedded clause therefore contained a plural DP that either agreed or did not agree with the clause-final finite verb, corresponding to an object or a subject reading of the wh-phrase. 16 German L3 learners of Dutch (B2 level) and 43 native Dutch speakers completed the experiment online. Further data are being collected, including data from English L3 speakers of Dutch (German L2). The data were analysed by means of mixed effect models: at the time of writing, the self-paced reading data had not been statistically analysed yet.

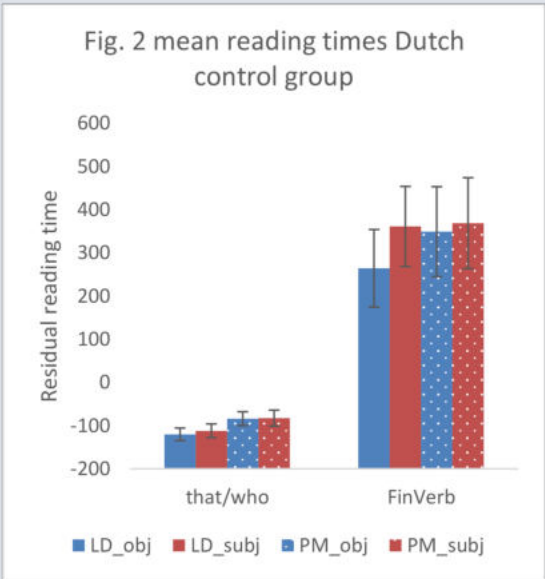
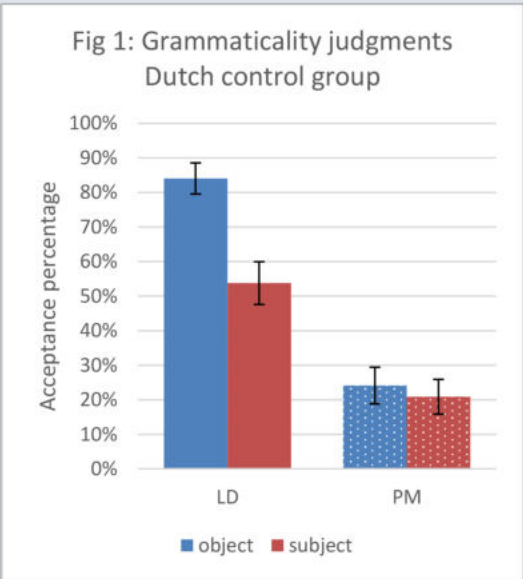
Results: The results for the native Dutch control group are in Fig. 1&2. A first surprising result is that native Dutch speakers do appear to show a COMP-trace effect for LD questions: subject LD questions were much less accepted than object questions [$p < 0.001$], but PM subject and object questions did not differ significantly. PM questions were less frequently accepted than LD questions [$p < 0.001$]. The self-paced reading data showed a slow-down at the medial wh-phrase for PM constructions relative to the complementizer in LD constructions. For LD constructions, there was a relative slowdown for subject questions at the disambiguating verb, suggesting readers preferred an object reading of the wh-phrase. The data from the German L3 group are in Fig. 3 and 4. The judgment data showed a main effect for type of wh-question [$p < 0.05$], but no significant subject/object asymmetry or interaction. The self-paced reading data showed no clear differences between LD and PM constructions at the complementizer/medial wh-phrase. At the sentence-final verb, PM but not LD constructions showed a subject/object asymmetry.

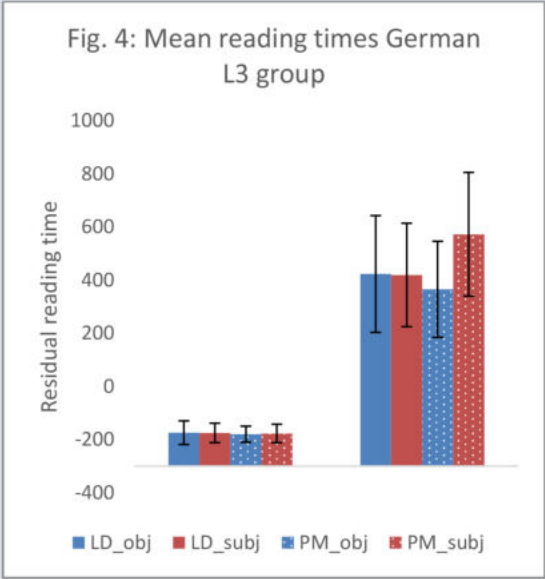
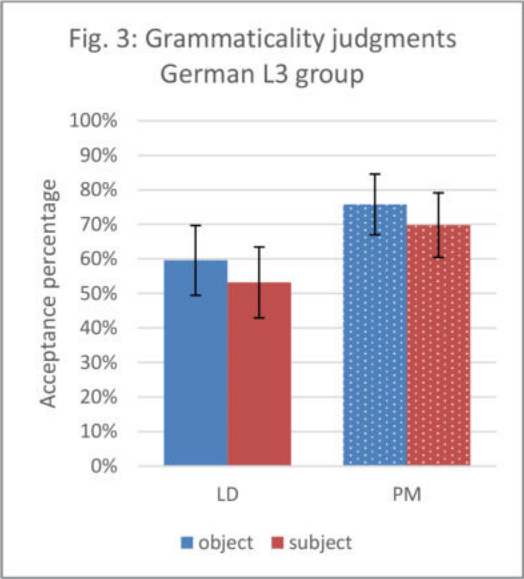
Discussion: The relatively high acceptability of PM constructions for the German L3 group and the fact that reading times did not diverge at the medial wh-phrase/complementizer suggests transfer from L1 German, where PM constructions are highly acceptable. However, the German group showed no signs of a COMP-trace effect for LD questions, which could be expected based on

transfer from L1, L2 or from knowledge of an UG-based constraint. Using German L1 processing and comprehension data, we propose that the absence of an LD subject/object asymmetry for the German group is due to processing difficulty: in L1 German, LD questions are rare and difficult to process and comprehend, especially in the absence of case-marking. We will also address the clear LD asymmetry for the Dutch native speakers, which has not been found using more traditional grammaticality judgement tasks. Finally, we will address the subject/object asymmetry for PM in the German L3 group and discuss possible consequences for the structural analysis of this construction.

Table I: Experimental conditions and examples

Condition	Example					
LD object	Wie	denk	je	dat	de officers	kuss-en?
	Who	think	you	that	the officers	kiss-PL
LD subject	Wie	denk	je	dat	de officers	kust?
	Who	think	you	that	the officers	kisses
PM object	Wat	denk	je	wie	de officers	kuss-en?
	What	think	you	who	the officers	kiss-PL
PM subject	Wat	denk	je	wie	de officers	kust?
	What	think	you	who	the officers	kisses





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Thursday

September 22, 2022

17:30-18:00

Morphosyntactic development in German-speaking individuals with Down syndrome – longitudinal data

Bernadette Witocy¹, Isabel Neitzel², Eva Wimmer² and Martina Penke¹

¹University of Cologne, ²TU Dortmund University

Introduction Individuals with Down syndrome (IDS) often display severe deficits in morphosyntax. Their development lags considerably behind their non-verbal cognitive development (Chapman et al., 1998). This protracted development raises issues regarding the time-frame in which morphosyntactic abilities are likely to develop further and on factors that determine progress in this language area. As yet, longitudinal data on the grammatical development of IDS are sparse. Existing research indicates that the development of receptive grammar levels off in adolescence or even starts to decline (Chapman et al., 2002; Laws & Gunn, 2004). There is conflicting evidence as to whether this also applies to the productive domain. Chapman et al. (2002) have found ongoing development in adolescence whereas there was no indication of growth at this age in Connors et al. (2018). Further, it is unclear which role verbal short-term memory (VSM), which has been suggested as a predictor for grammatical development (Laws, 2004; Laws & Gunn, 2004), plays in determining the developmental trajectories. Here, we present longitudinal data on the development of morphosyntactic abilities in German-speaking IDS to address these issues further.

Method 17 German-speaking IDS were assessed twice, 4;4 to 6;6 years apart. Chronological age at the first time of testing (T1) ranged between 4;6 and 17;1 years ($M = 9;10$ years). Receptive grammar was tested with the TROG-D (Fox, 2011). Elicitation tasks were performed to assess the production of subject-verb agreement (SVA) and of *wh*-questions. In addition, we tested VSM using a standardized nonword repetition test (subtest of SETK 3-5, Grimm, 2001).

Results At group level, the participants showed a significant increase in TROG-D raw scores from T1 ($M = 6.1$) to T2 ($M = 8.9$) ($t(16) = -4.741, p < .001$). However, progress diminished with increasing chronological age in the investigated sample ($r(15) = -.725, p = .001$).

In the expressive domain, 12 participants displayed good performance with respect to SVA at T1 (individual accuracy scores over 80%). The remaining participants achieved accuracy scores between 17% and 56% at T1. All of the latter showed improvement at T2, with two of them reaching scores over 80% (increase of 29 to 55%). Regarding the production of *wh*-questions, only four participants performed well at T1, displaying at least 90% correct *wh*-movement. The rest of the group achieved scores between 0 and 71%. At T2, we found considerable progress in question production in six subjects (scores between 79% and 100%, i.e. 29% to 80% increase). Looking more closely, all of them had shown good performance in SVA at T1.

Raw scores for VSM displayed no significant increase from T1 to T2 ($t(15) = -2.019, p = .062$) and change scores were negatively correlated to chronological age ($r(14) = -.587, p = .017$). Moreover, nonword repetition scores at T1 were neither correlated to the increase in TROG scores achieved from T1 to T2 ($r(14) = .239, p = .372$) nor to changes in question production ($r(9) = .138, p = .685$) (both controlled for chronological age at T1).

Discussion These results suggest a slowdown in the acquisition of receptive grammar which seems to start before the teenage years. In contrast, we found development in productive morphosyntactic abilities to be possible in adolescence. There was no indication that VSM

performance determined the receptive or expressive development. However, the data suggest that the acquisition of subject-verb agreement might have a trigger function for further grammatical development, as has been suggested for typically developing German children (e.g. Clahsen, Eisenbeiss, & Penke 1994).

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Thursday

September 22, 2022

17:30–18:00

Assessing structural language skills of autistic adults: focus on sentence repetition

Marta Manenti,¹ Laurie Tuller,¹ Jade Ridet,¹ Emmanuelle Houy-Durand,^{1,2} Frédérique Bonnet-Brilhault^{1,2} and Philippe Prévost¹

¹ UMR I253, Imagery and Brain (iBrain), University of Tours, INSERM, France

² Centre Universitaire de Pédiopsychiatrie, CHRU de Tours, France

Although Autism Spectrum Disorder (ASD) is a life-long neurodevelopmental disorder, research on outcomes after middle childhood is limited. ASD involves impaired communication and social interaction and while all autistic individuals have impaired pragmatics, many also have difficulties with formal language [1]. It has been shown that linguistic complexity is particularly affected in autistic children with language impairment (LI) and that sentence repetition (SR) is a sensitive tool for detecting LI in these children. Equivalent knowledge is lacking for the adult population, despite evidence that language skills in many autistic adults, while improving with age, may remain below norms [2]. Existing studies on language in autistic adults also suffer from methodological and sampling shortcomings. Most studies report on language performance based on indirect measures (e.g., questionnaires) and/or either omnibus language scores or single-domain language scores (e.g., vocabulary), leaving formal language abilities unassessed. Also, language tasks are generally ill-adapted to the autistic population, including adults. Finally, individuals with Intellectual Disability (ID), despite making up around 30% of the autistic population are rarely integrated into experimental cohorts, and little is known about the relationship between language abilities and the severity of autism symptoms [3]. In short, there is a lack of understanding of language abilities in autistic adults and of the interplay between language and non-linguistic cognition in this population [4]. Gaining such knowledge would allow for better language support for adults and improve language prognosis for autistic children, a great source of concerns for parents and clinicians.

Our study meant to fill this gap by using a language task specifically designed to ensure controlled assessment of morphosyntax, allowing for the investigation of formal language abilities across the spectrum of intellectual functioning and severity of autism symptoms. This task, LITMUS-SR-FR-Adults [5], was adapted from a child SR task shown to be efficient for identifying LI in both monolingual and bilingual children [6]. Ingredients of complexity (e.g., embedding, A- and A'-movement, and intervention) were manipulated to create 36 sentences that were longer and more complex than in the child version. The task was administered to 32 autistic adults (ages 18-50, $M = 30.1$) living in France, half of whom had been diagnosed in adulthood, either with (8/32) or without ID, and to 34 age-matched neurotypicals. Receptive vocabulary was also assessed, as well as non-linguistic cognition, including working memory and short-term memory (backward/forward digit span) and nonverbal IQ (WAIS-IV). Information about the social-communicative dimension of autism was gathered via the SRS-2 (French) [7].

Results on identical repetition showed greater variability in the ASD group compared to the control group (Fig. 1). Based on a -1.25 SD cut-off obtained from the latter group, 31% of autistic participants displayed low scores, suggesting probable language impairment (ASD-LI). Comparative analyses showed that all of the structures and the substructures of varying complexity included in the task (Table 1) significantly discriminated autistic adults with higher scores (labeled ASD-LN) from those with suspected LI (Fig. 2). Two participants in the control group had below-threshold scores. These initial results will be completed by an error analysis

comparing error types both within and across groups. This analysis is meant to investigate whether individuals with low scores tend to behave similarly by avoiding complexity. Concerning the interplay between language and non-linguistic cognitive abilities, although performance on SR was found to be significantly correlated with scores of working memory and short-term memory (in both the ASD and the control group) and nonverbal IQ (only in the clinical group), results from a mixed linear regression showed that SR was best explained by another language measure: lexical knowledge. Interestingly, no significant correlation was found between morphosyntactic performance and autism severity, suggesting that structural language profiles are distributed across the spectrum of autism symptoms.

Table 1. LITMUS-SR-FR-Adult

Structure	Comparatively LESS complex structure		Comparatively MORE complex structure	
SVO with complex Subj	SG/PL	<i>La nounou de ces enfants suit des cours de yoga</i> ('The nanny of these children takes yoga classes')	PL/SG	<i>Les patients de ce médecin connaissent bien le pharmacien</i> ('The patients of this doctor know the pharmacist well')
Accusative clitic (CL)	Subj-CL gender Match	<i>Christophe le regarde fréquemment, son album photos</i> ('Christophe looks at it frequently, his photo album')	Subj-CL gender Mismatch	<i>L'infirmière le voit tous les matins, son nouveau patient</i> ('The nurse sees him every morning, her new patient')
Argument clause	Non-tensed	<i>Céline a préféré partir à la mer cet été</i> ('Céline preferred to go to the sea this summer')	Tensed	<i>Cette petite fille croit encore que le Père-Noël existe</i> ('This little girl still believes that Santa Claus exists')
Passive	Non-reversible	<i>Ce livre a été acheté par tous les étudiants</i> ('This book has been purchased by all the students')	Reversible	<i>La vieille dame a été bousculée par ce garçon</i> ('The old lady was pushed by this boy')
Embedded question	Who	<i>Sébastien demande qui son amie a rencontré</i> ('Sébastien asks who his friend met')	Which N	<i>Sophie se demande quel médecin son frère a appelé</i> ('Sophie wonders which doctor her brother called')
Relative clause	SR	<i>La personne qui coiffe ma soeur travaille à domicile</i> ('The person who does my sister's hair works from home')	OR	<i>La personne que ma grand-mère critique râle tout le temps</i> ('The person that my grandmother criticizes complains all the time')

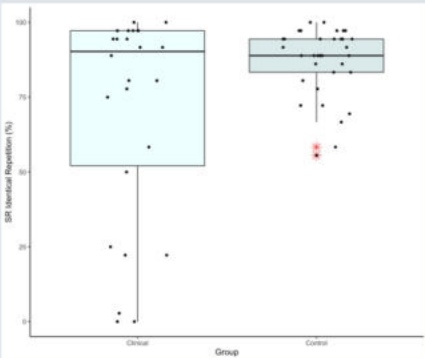


Fig 1. Percentage of correctly repeated sentences for each group.

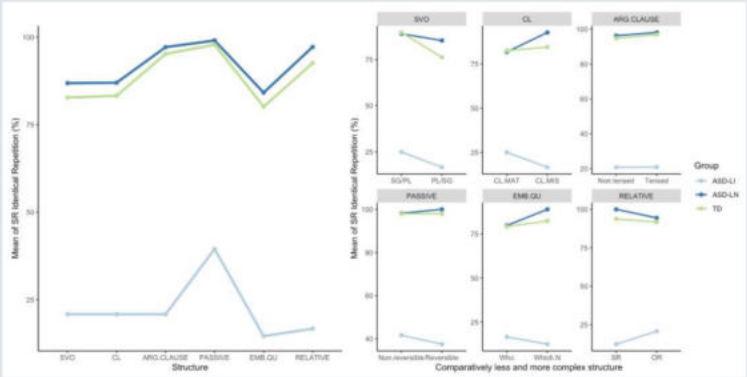


Fig 2. Percentage of correctly repeated sentences for each subgroup and for each structure and substructure. All ASD-LN vs ASD-LI and TD vs ASD-LI comparisons yielded significant differences ($p < .001$).

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Friday

September 23, 2022

09:00–10:00

Children and choices

Jacopo Romoli

Heinrich Heine Universität Düsseldorf

Free choice presents a well-known puzzle in the semantics and pragmatics of modals and connectives in natural language, going back to Kamp (1974), among many others. In its classical form, the problem has to do with the interpretation of sentences with a disjunction embedded under a possibility modal. For instance, a sentence like “Kung Fu Panda can push either the green car or the orange car” strongly suggests that he can push the green car *and* he can push the orange one. In other words, it conveys that Kung Fu Panda can choose between the two cars. This conjunctive interpretation is surprising because it does not follow from the standard meaning of modals and disjunction, and is absent in the corresponding sentence without the modal (i.e. “Kung Fu Panda pushed the green car or the orange car” doesn’t at all suggest that he pushed both). There are different approaches to the problem of free choice, which, for our purposes, can be divided into two main camps: One based on implicatures and one not. The two approaches are quite successful in covering the basic empirical landscape related to free choice, but make different predictions in different areas. Child language acquisition, in particular, has been used as an important testing ground for theories of free choice. I will go back to a study comparing free choice and implicatures with 4--6-year-old children (Tieu et al. 2016), the results of which challenge the implicature approach to free choice. I will then present a follow up study which replicates the initial result but adds a novel twist, which is equally challenging for both approaches. I will then outline another key divergent prediction of the two approaches having to do with non-classical configurations of free choice involving negated universal modals embedding conjunctions, such as “Kung Fu Panda doesn’t have to push both the blue car and the yellow car”. I will outline how the comparison between children and adults can be used to test this divergent prediction as well. Overall, children’s acquisition of free choice remains a critical perspective for refining our understanding of this fascinating long-standing puzzle.

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Friday

September 23, 2022

10:00–10:30

Semantic or pragmatic immaturity: The view from the acquisition of logical connectives in French children

Antoine Cochard¹, Hamida Demirdache¹, Angeliek van Hout²

¹ *Laboratoire de Linguistique de Nantes (LLING UMR 6310), Nantes University*

² *Center for Language and Cognition Groningen (CLCG), University of Groningen*

Background: Two separate strands in the LI literature have found non-adult-like interpretation patterns for sentences with disjunction (OR), and disjunction and conjunction with negation (NOT OR; NOT AND). For OR, (I), two types of non-adult-like patterns have been found in 4-6-year-old children: *inclusive* children interpret OR as “and/or”, (4b), (Chierchia et al., 2004), and *conjunctive* children interpret OR as AND, (4c), (Singh et al., 2017; Tieu et al., 2017b), even though more recent studies have shown that *conjunctive* responses disappear with better control of pragmatic infelicities in the task (Skordos et al., 2020). For NOT OR and NOT AND, (2-3), children are said to follow the Semantic Subset Principle (SSP, Crain, 2012) that states that initially prefer a *neither* reading, (4d), even though an exclusive reading (4a) is preferred in the adult language (Goro & Akiba, 2004, a.o.). However, Jing (2008) showed that children were able to access the target *exclusive* reading for NOT OR when it was made contextually more felicitous. So, it seems that pragmatic improvements in the experimental task can facilitate access to the adult-like reading for OR and NOT OR alike.

Our study: The interpretation of OR across positive and negative sentences in French preschoolers and school-age children brings together both research lines. The aim was to see if pragmatic felicitousness leads to adult-like interpretation for OR and NOT OR alike. A novel task made the ignorance inference of OR felicitous (the speaker doesn’t know whether p OR q). Moreover, our design allowed us to establish individual interpretation patterns for OR as well as NOT OR, thus improving the methodology from the above studies. It was expected that resolving pragmatic infelicity would lead to more target-like responses for OR. In contrast, if the SSP holds, the non-adult-like *neither* reading was still expected for NOT OR and NOT AND, as the SSP applies regardless of pragmatic manipulations.

Methods: 85 French children (M:6;1 – 3;5:8;5) and 83 adults (M:28 – 18:67) participated in a Truth-Value Judgment Task (modeled after Goro & Akiba, 2004). A prediction mode created a felicitous context for the ignorance inference. Participants heard sentences like (1-3) in three contexts: a situation with 2 true disjuncts was indicated by 2 biscuits (*fig. 1a*), 1 true disjunct by 1 biscuit (*fig. 1b*), and 0 true disjuncts by a red dot sticker (*fig. 1c*). These cues showed how many disjuncts were true in a given situation without revealing the actual situation. Participants could infer what happened and assess whether or not a puppet had made the right prediction.

Results: Mixed-model analyses were run to see if there was an effect of age within the child participants, but these only showed main effects of (i) *Sentence Type* and (ii) *Context* ($p < .0001$), suggesting that they differentiated the connectives across different situations. Figure 2 shows that there was still a substantial number of *conjunctive* responses for OR (49%). Table 1 shows that many children gave consistent readings, and moreover, were consistent across the two conditions. In particular, the 13 conjunctive children on OR always gave a *neither* reading for NOT OR. Children were adult-like for NOT AND which suggests that the experimental setting was

appropriate and did not create a bias toward a reading.

Discussion: Despite the pragmatically felicitous setting, a subset of the children consistently gave non-adult-like readings for OR and NOT OR. We will discuss various ways how this pattern can be explained in a uniform way. First, the SSP can derive the *conjunctive* reading for OR and the *neither* reading for NOT OR by always favouring the reading that makes a sentence true in the narrowest range of circumstances, i.e. the strongest meaning. An alternative explanation is that individuals differ in their strategies to handle pragmatic inferences (Marty & Nicolae, 2021). For some children, but not all, there might still have been some infelicity, which triggered a non-adult-like strategy that resulted in the *conjunctive* and *neither* readings.

- (1) Liz a colorié la fleur **ou** l'arbre.
"Liz colored the flower **or** the tree."
→ Target: *exclusive* reading (4a)

(2) Liz n'a pas colorié la fleur **ou** l'arbre.
"Liz did **not** color the flower **or** the tree."
→ French target: *exclusive* reading (4a)
- (3) Liz n'a pas colorié la fleur **et** l'arbre.
"Liz did **not** color the flower **and** the tree." → French target: *neither* reading (4d)
- (4) a. Liz colored either the flower or the tree, but not both.
b. Liz colored the flower or the tree, or both.
c. Liz colored the flower and the tree.
d. Liz colored neither the flower nor the tree.

Exclusive reading
Inclusive reading
Conjunctive reading
Neither reading

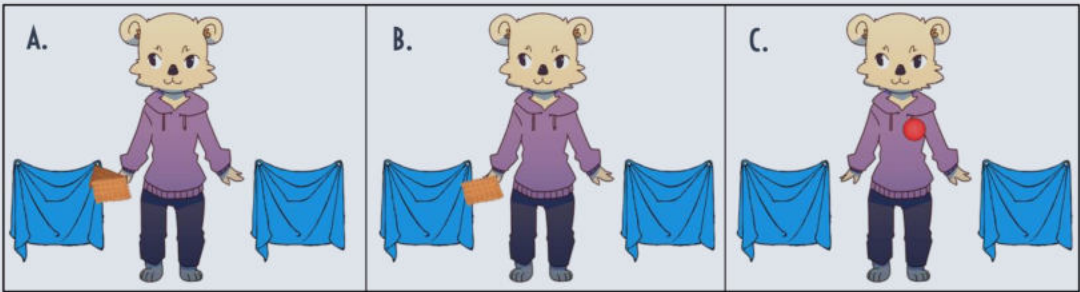


Figure 1: (a) “2 biscuits” condition, (b) “1 biscuit” condition, (c) “red sticker” condition

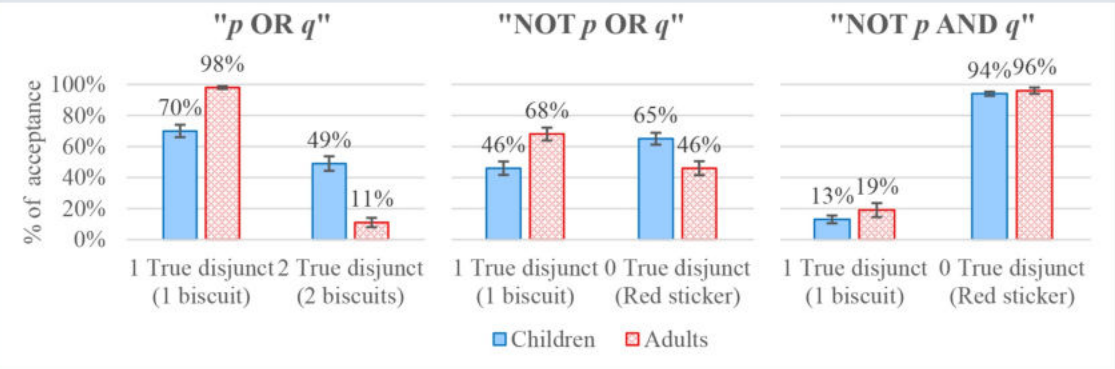


Figure 2: Mean percentages of acceptance for the critical conditions of OR, NOT OR and NOT AND for children and adults. Errors bars represent standard error.

N = 85 children		NOT OR patterns			
		Exclusive	Inclusive	Neither	Others
OR patterns	Exclusive	16	0	9	11
	Inclusive	0	2	4	4
	Conjunctive	0	0	13	5
	Others	1	0	7	13

Table 1: Distribution of children with consistent interpretation patterns for OR and NOT OR (i.e., the same response in 5, 6 out of 6 items).

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Friday

September 23, 2022

10:00–10:30

Bidialectal Exposure Modulates Neural Signatures to Conflicting Grammatical Properties: Norway as a Natural Laboratory

Maki Kubota¹, Jorge González Alonso^{1,2}, Merete Anderssen¹, Isabel Nadine Jensen¹, Alicia Luque¹, Sergio Miguel Pereira Soares³, Yanina Prystauka¹, Øystein A. Vangsnes^{1,4} & Jason Rothman^{1,2}
AcqVA Aurora Center, UiT the Arctic University of Norway¹, Centro de Investigación Nebrija en Cognición, University of Nebrija², Max Plank Institute for Psycholinguistics³, Western Norway University of Applied Sciences⁴

Recent advances in the neurocognition of bilingualism have been closely linked to an understanding of bilingual effects as a function of experiences, leaving behind categorical notions of monolinguals vs. bi-/multilinguals (e.g., Gullifer & Titone, 2020). This approach has been successful in identifying continuous effects of bilingual language experience on brain structure, function and biochemistry (e.g., Deluca et al. 2019). The present study uses this same fine-grained approach to bilingual language experience as a continuous variable, examining implicit language processing as a function of exposure to two closely related varieties (bidialectalism) of the same language.

Bidialectals acquire linguistic systems that align in most domains, but differ to a variable degree in lexical, morphosyntactic and/or phonological aspects. In some cases, misalignments between these grammars pull the licensing of certain grammatical structures in opposite directions. Instances where a grammatical structure in one dialect is patently ungrammatical in the other constitute an extreme test case to study the dynamic interaction of linguistic representations in bidialectal populations. *How do bidialectals deal with the processing of grammatical properties where their dialects clash?* We investigate this question examining the Norwegian context. Most Southern and Western Norwegian dialects have obligatory number agreement between a plural subject noun and a predicative adjective in copulative constructions (e.g., *Husene er nye*, House_{DEF-PL} are new_{PL}). However, in Northern Norwegian the adjective cannot be inflected in the plural for the sentence to be grammatical (*Husan er ny*(e)*, House_{DEF-PL} are new_{SG}).

We tested 112 Norwegian speakers living in Northern Norway, who displayed a wide range of exposure to Northern Norwegian (from native speakers to newcomers in the North from the South, and much in between). Exposure was calculated through a modified version of the Language and Social Background Questionnaire (Anderson et al., 2018). Participants completed an EEG/ERP experiment where they read sentences in Northern Norwegian word-by-word. The critical contrasts used two types of violations. In the Gender condition, a mismatch between a predicative adjective and the gender of the subject noun yielded in an ungrammatical string across all dialects of Norwegian. In the Number condition, however, an agreement between a plural subject noun and a predicative adjective is ungrammatical in Northern Norwegian, but otherwise licensed by most non-Northern varieties.

ERP results (Fig. 1) show a clear P600 effect for all participants in response to the gender violation. Although not as drastic as the gender condition, the number violation also shows a P600 effect with amplitudes being higher for the number mismatch trials. Next, we regressed the amplitude of the P600 effect (difference between agreement and mismatch trials in the

500-900ms window) to the composite score indexing relative exposure to Northern Norwegian. Regression analyses (Fig. 2) show a clear relationship between sensitivity to the number violation and exposure to Northern Norwegian—an interaction absent for gender. That is, participants who had more exposure to the Northern Norwegian dialect showed greater sensitivity to the *presence* of number agreement—a system that is indeed ungrammatical in Northern Norwegian. We discuss these results in light of recent proposals to approach bilingualism as a continuum and suggest that bidialectalism entails a similar phenomenon that should likewise be understood as a fine-grained spectrum with subtle linguistic effects.

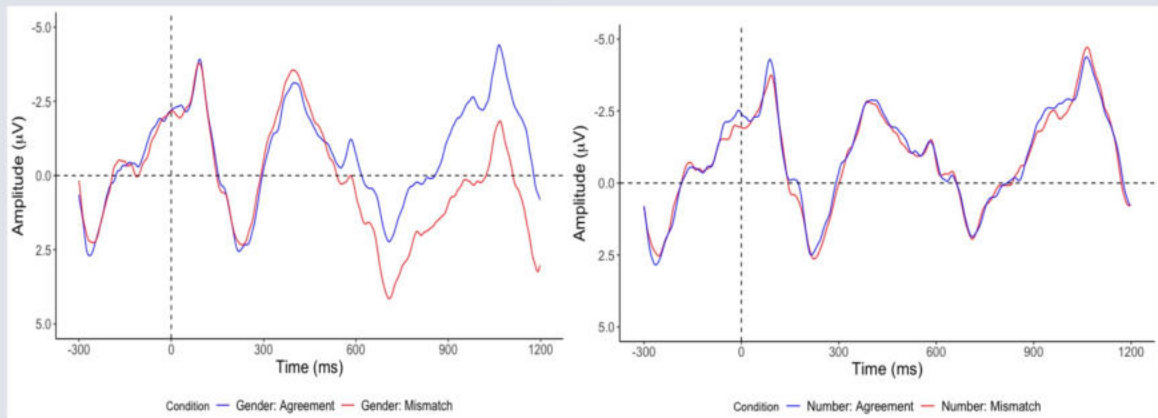


Figure 1. Event-related potentials for the gender (left) and number (right) violations at electrode Pz.

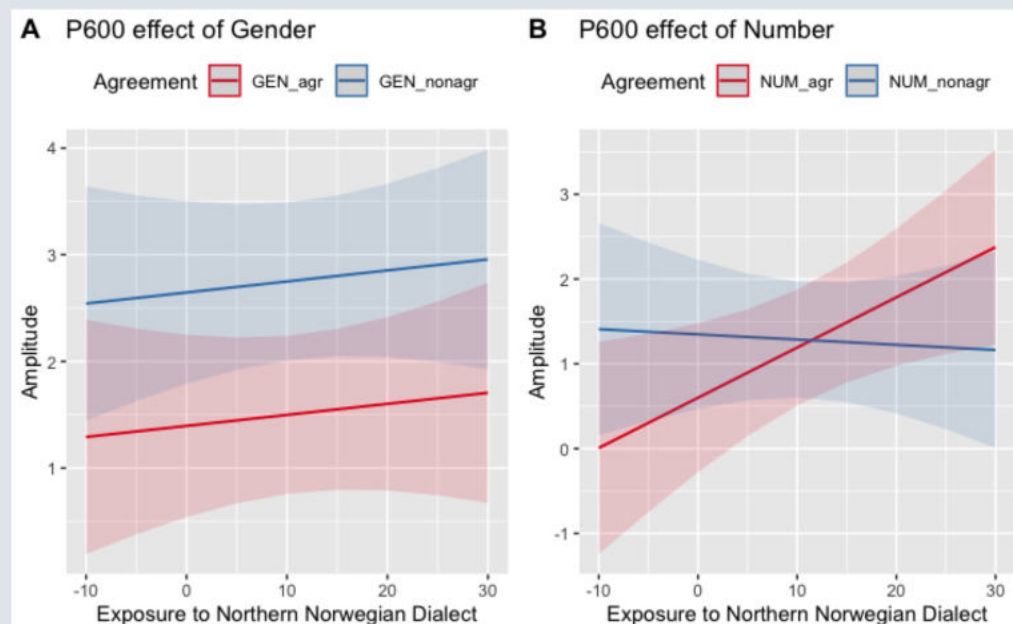


Figure 2. Correlation between average voltage in the P600 (500-900ms) time window and exposure to Northern Norwegian for the two pairs of conditions: gender (left) and number (right).

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Friday

September 23, 2022

10:30–11:00

When *some* excludes *all*: new evidence for a bilingual advantage in scalar implicatures

Francesca Foppolo & Flavia Adani

University of Milan-Bicocca & Free University of Berlin

Children's ability to derive Scalar Implicatures (SIs), i.e. the informative use of *some* meaning *some but not all*, is lively debated in theoretical linguistics, psycholinguistics and, most recently, also in research on bilingualism. One question under debate is the source of children's difficulty with pragmatic inferences that ensue from lexical scales like <*some*, *all*>, in which the alternatives are linguistically determined by their position on a scale (Horn, 1972). According to the *lexicalist* approach (Barner et al., 2011; Foppolo et al., 2012), children's failure stems from the fact that children have not lexicalized the scale yet. A more general *pragmatic* approach (Katsos & Bishop, 2011; Skordos & Papafragou, 2016) links children's failure with scalar inferencing to their yet immature pragmatic system. Compatibly with the former account, Foppolo et al. (2020) found that linguistic competence modulated monolingual preschoolers' performance on SIs. Results of bilingual children are mixed: Siegal et al. (2007; 2009) report a bilingual advantage in pragmatic tasks, while others (a.o., Antoniou et al., 2020; Syrett et al., 2016 & 2017) show no bilingual advantage with SIs.

Our study. We contribute to this debate with bilingual German-Italian pre-school children (N=28, Mean Age: 5;02; Age range: 4;8-6;2). All children were raised in families with at least one Italian parent, and they were tested in bilingual day cares in Germany. We employed the same task used in Foppolo et al. (2020) with Italian monolingual preschoolers, i.e., a picture selection task to test for SIs (Fig. 1) and to control their knowledge of the scalar quantifiers (Fig. 2). Children were tested with the Italian and the German version of the same task (in different sessions); they were also tested with standardized tests for receptive morphosyntactic competence in both languages (TROG) and for expressive vocabulary (an adaptation of the Boston Naming Task, BNT). Children's percentile TROG scores ranged from 1 to 99 in both languages (M = 68 in German and M = 65 in Italian); the BNT raw scores ranged from 5.5 to 28.5 (M = 20) in German and from 1 to 24.5 (M = 16.5) in Italian.

Results. Overall, performance on control items was above 90% in both languages; performance on SI items was lower than on controls, but above 70% (71% in German and 74% in Italian, Fig. 3) and, crucially, well above the Italian monolinguals of the same age tested using the same material (57%). To model the impact of linguistic abilities on children's performance, we first created a composite score for morphosyntactic abilities in the two languages (combining TROG scores in German and Italian) and for productive vocabulary (combining BNT scores in German and Italian). Given our interest in modelling children's knowledge of SI (rather than the difference between the two languages), we modeled Accuracy independently of the language of testing. We ran a logistic regression model with Accuracy as the dependent variable, Condition (SI vs. controls), composite TROG and BNT scores (centered) as fixed factors, and their interaction with Condition. The results (Table 1) revealed a significant effect of Condition (i.e., SI items were less accurate than control items) and no main effects of TROG or BNT. A significant

Condition by BNT interaction reveals that children with lower expressive vocabulary performed less accurately on SI.

Conclusions. We found an advantage of bilingual children in the derivation of SIs compared to existing results of monolingual children, in contrast with other published studies reporting on bilingual children. Furthermore, the performance on SI was more accurate for children with a higher expressive vocabulary. We interpret our findings within a lexicalist approach to SIs, and we will discuss the bilingual advantage observed in our group by considering children’s linguistic profile, also in comparison to the bilinguals tested in previous research.



Figure 1. Example of SI item.
Sentence: *Guess which one is my cake, I give you a clue: on my birthday cake, **some** of the candles are burning.*
Target picture (if SI): bottom right
Competitor picture (no SI): bottom left.

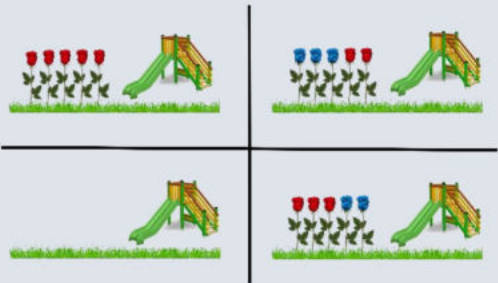


Figure 2. Example of control item.
Sentence: *Guess which one is my favorite playground: in my playground, **all** the flowers are red.*
Target picture (if they know the meaning of *all*): top left.

[materials adapted from Foppolo et al, 2020]

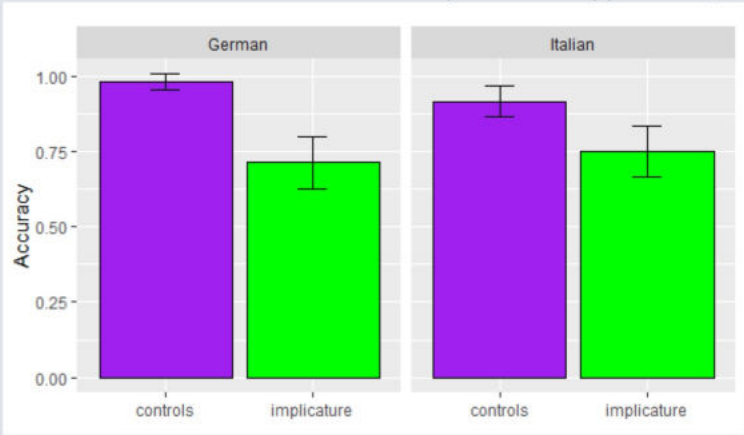


Figure 3. Children’s accuracy in control and scalar items in the two languages.

Table 1. Output of fixed effects of logistic regression [Accuracy ~ Condition*(TROG + BNT) + (I|Subj) + (I|Item)].

	<i>Estimate</i>	<i>Std. Error</i>	<i>z value</i>	<i>p</i>
<i>(Intercept)</i>	3.665	0.478	7.670	<.0001
<i>Condition (implicature vs. controls)</i>	-2.140	0.442	-4.846	<.0001
<i>TROG</i>	0.660	0.594	1.106	0.2689
<i>BNT</i>	-0.519	0.746	-0.695	0.487
<i>Condition : TROG</i>	-0.650	0.584	-1.115	0.265
<i>Condition : BNT</i>	1.637	0.781	2.096	0.036

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Friday

September 23, 2022

10:30–11:00

Processing and Similarity-Based Interference in Non-Native Sentence Comprehension

Shatha Alaskar and Ian Cunnings
(University of Reading, UK)

The processing of linguistic dependencies has informed debate about native (L1) and non-native (L2) sentence processing [1,2,3,4]. Some accounts posit L1/L2 differences based on L2ers' difficulty in computing syntactic structure [1], while others describe L1/L2 differences in terms of working memory demands [2,3]. Recently, the similarity between constituents in a sentence, which may make it difficult to retrieve the target constituent needed for dependency formation (a phenomenon known as similarity-based interference), has been proposed as a potential factor that may influence L2 processing more than L1 processing [4]. Whether L2ers violate constraints on linguistic dependencies during processing has been important in assessing these theories, but existing research has revealed mixed findings [e.g. 5,6]. We contribute to this debate by examining subject-verb agreement and reflexives as in (1/2). We are unaware of any existing study that has examined these two dependencies in the same L2 group. Two factors were investigated in each dependency; sentence grammaticality and 'interference'. For agreement, number match between the subject and the verb was manipulated to construct grammatical (1a-b) and ungrammatical conditions (1c-d). Interference was tested by manipulating the number properties of a distractor, which cannot grammatically enter into an agreement dependency with the verb. That is, (1c) is ungrammatical but the similarity between the distractor "patients" and the verb in number may attenuate the ungrammaticality effect, resulting in interference manifested as reduced reading times in (1c) relative to (1d). The same factors were examined in reflexives, but with a gender manipulation (see 2a-d).

In study 1, 176 L1 English speakers and 176 intermediate-advanced Arabic L2 English speakers completed a word-by-word web-based self-paced reading (SPR) experiment. 24 items were included for each dependency like (1/2). Results (Fig. 1-2) revealed a main effect of grammaticality and a significant grammaticality by group interaction in both dependencies, with larger grammaticality effects for L2 speakers in reflexives but for L1 speakers in agreement. There was also a main effect of distractor in reflexives, with shorter reading times in conditions with matching distractors. More importantly, we did not find any significant interaction with distractor and group in both dependencies.

In study 2 (conducted 6-11 months after study 1), number was manipulated in reflexives, as in (3). As L2 speakers in study 1 showed smaller grammaticality effects in subject-verb agreement compared to reflexives, study 2 examined if this is due to the number feature manipulation itself, or whether it is dependent on dependency type. 164 L2ers, who had previously participated in study 1, and 164 L1ers completed a web-based SPR experiment with conditions like (3a-d). Results (Fig. 3) showed a main effect of grammaticality, which did not significantly interact with group. This suggests that the smaller grammaticality effect in subject-verb agreement for L2ers in Study 1 may be due to the dependency rather than number per se.

These findings suggest that both groups applied similar parsing mechanisms during processing. Although the grammaticality effect was smaller in L2ers for subject-verb agreement, an additional analysis with proficiency indicated clearer grammaticality effects for higher proficiency learners. Contrary to some previous L1 studies, especially on subject-verb agreement [7,8], no consistent evidence of interference was detected during processing. This finding, however, should be taken with caution, as we found a significant effect of distractor in study I in reflexives. Taken together, the results imply that L2ers compute syntactic dependencies similar to L1ers, and potential differences might be driven by individual differences.

Agreement	Reflexives
(1) a. <i>Grammatical, Distractor Match</i> The nurses of the patients clearly were nervous about the ... b. <i>Grammatical, Distractor Mismatch</i> The nurses of the patient clearly were nervous about the ... c. <i>Ungrammatical, Distractor Match</i> *The nurse of the patients clearly were nervous about the d. <i>Ungrammatical, Distractor Mismatch</i> *The nurse of the patient clearly were nervous about the ...	(2) a. <i>Grammatical, Distractor Match</i> The grandmother of the girl probably supported herself during the ... b. <i>Grammatical, Distractor Mismatch</i> The grandmother of the boy probably supported herself during the ... c. <i>Ungrammatical, Distractor Match</i> *The grandfather of the girl probably supported herself during the ... d. <i>Ungrammatical, Distractor Mismatch</i> *The grandfather of the boy probably supported herself during the ...
Reflexives	
(3) a. <i>Grammatical, Distractor Match</i> The girls near the boys accidentally hurt themselves while playing... b. <i>Grammatical, Distractor Mismatch</i> The girls near the boy accidentally hurt themselves while playing... c. <i>Ungrammatical, Distractor Match</i> *The girl near the boys accidentally hurt themselves while playing... d. <i>Ungrammatical, Distractor Mismatch</i> *The girl near the boy accidentally hurt themselves while playing...	

Fig. 1 Reflexives (gender)

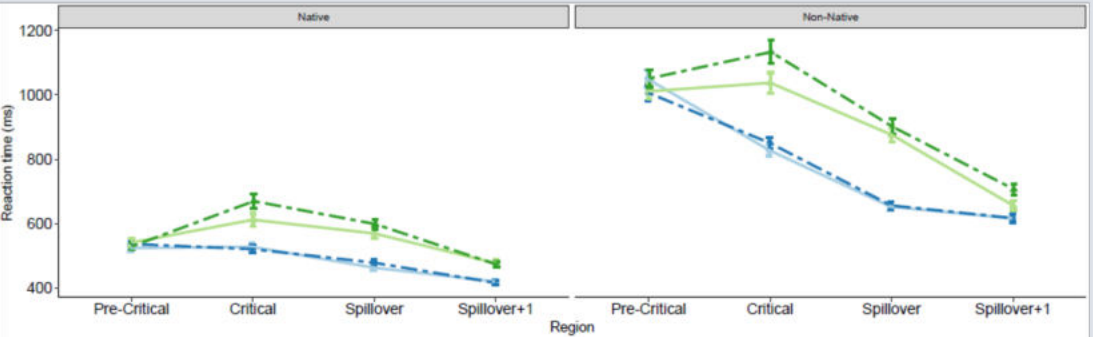


Fig. 2 Subject-verb agreement

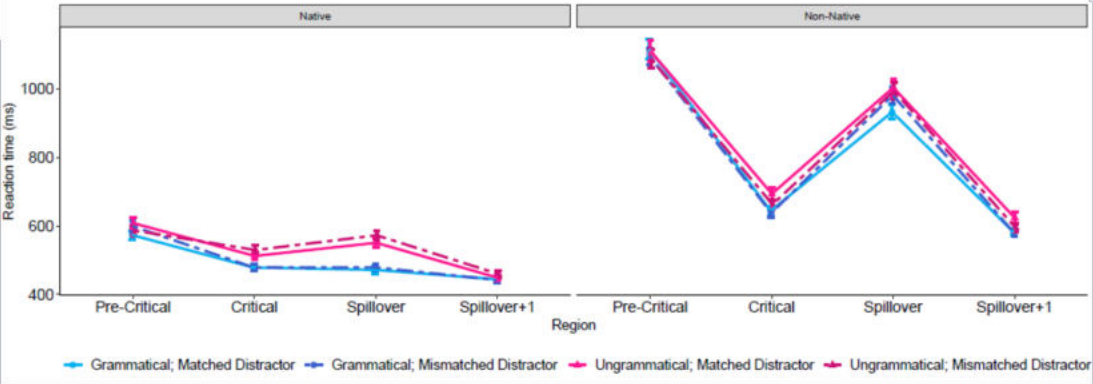
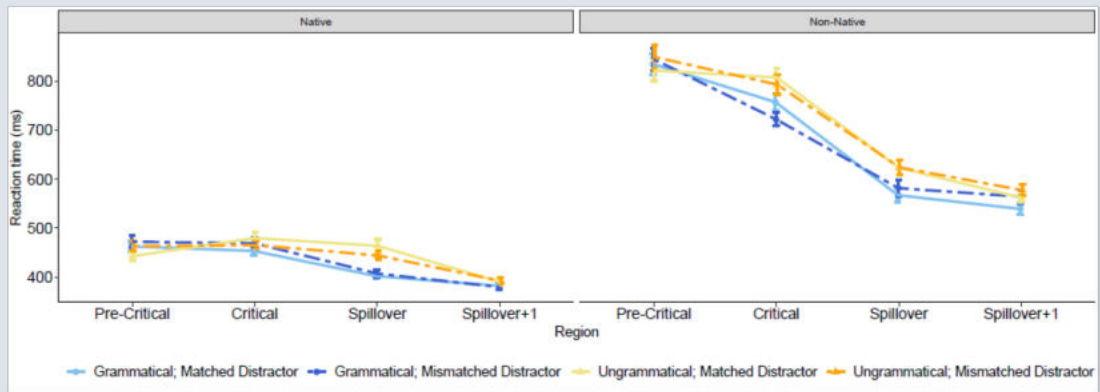


Fig. 3 Reflexives (number)



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- [4] Cunnings (2017);
- [5] Felser and Cunnings (2012);
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Friday

September 23, 2022

11:30–12:00

The event-semantic kindergarten-path effects in *before* and *after* sentences: evidence from monolingual Greek children

Christos Makrodimitris & Petra Schulz
Goethe University Frankfurt

Comprehension of complex sentences containing the temporal conjunctions *before* and *after* is challenging for children up to age 12 [1,7,8,9]. According to the order-of-mention principle [2], iconic sentences, in which the clause order follows the sequence of events as in (1a) for *after* and (1b) for *before*, are easier than non-iconic ones, see (1b) for *after* and (1a) for *before*.

- (1) a. *After/before* she put the plate on the table, she closed the window.
b. She closed the window, *after/before* she put the plate on the table.

Empirical evidence for iconicity effects on comprehension is mixed, however, with some studies [1,2,4,6] showing that children understand iconic better than non-iconic sentences, and others finding no [3,7,8,10] or partial [9] effects of iconicity. In order to shed more light on the effect of iconicity, we developed a novel sentence-picture matching task assessing comprehension of iconic and non-iconic *before* and *after* sentences in Greek; 60 monolingual Greek-speaking children (age: 6;1–11;11 yrs, mean=8;10) and 15 adult controls (mean age=34 yrs) participated. 12 items tested *prin* ('before') and 12 *afu* ('after'), each half iconic and half non-iconic (2a,b, Figure 1). Importantly, use of past tense allowed for a natural sequential interpretation, and the encoded events could not be ordered based on world knowledge. To control for effects of short-term memory [see 1,7] and overall language competence [see 7] on comprehension, the children performed a forward digit-recall and a sentence-repetition task.

The adults performed at ceiling, as expected (100% correct in all conditions). For the child-group (Figure 2), a GLMM was ran, with Iconicity (iconic, non-iconic) and Conjunction (*before*, *after*) as categorical predictors, and Age, Forward digit-recall, and Sentence-repetition scores as continuous predictors (Table 1). The model showed significant effects of iconicity, conjunction, and age, as well as a significant interaction of Iconicity by Conjunction. This interaction was further examined by running a separate model for each conjunction with Iconicity and Age as predictors: the model for *before* revealed no effect for iconicity ($\text{Pr}(>|z|)=0.308$) and only a tendency for Age ($\text{Pr}(>|z|)=0.069$), whereas in the model for *after* the effects of both predictors were very strong (both $\text{Pr}(>|z|)<0.001$). We argue that the asymmetry regarding iconicity results from an event-semantic kindergarten-path effect: non-iconic *after*-sentences (1b) are more difficult than their iconic variant (1a), because the sentence-medial conjunction forces the listener to integrate a subordinate event into the—already processed—main clause event *and* to revise the initial event order. Non-iconic *before*-sentences (1a) are not harder than their iconic variant, because sentence-initial *before* serves as an early cue signaling the non-iconic order, so no reanalysis of the event-representation is needed (see [5] for similar evidence from bilingual children, [9] for a similar account for reading).

The event-semantic kindergarten-path effect predicts that children master non-iconic *before* earlier

than non-iconic *after*. Therefore, we analyzed the individual child response patterns in these two conditions, defining mastery as above-chance performance (at least 5/6 items correct, see Table 2). Five children had mastered neither condition, and 32 children had mastered both. Importantly, 23 children had mastered non-iconic *before* but not non-iconic *after*, while no child had mastered non-iconic *after* but not non-iconic *before*. These findings suggest that non-iconic sentences with a clause-initial cue for reverse order may pave the way for mastering non-iconic sentences with a clause-medial cue for reverse order. Longitudinal studies across languages are needed to reveal whether the patterns found here indeed reflect a general acquisition path: (A) order-of-mention, (B) event-semantic kindergarten-path, (C) mastery.

Appendix

- (2) a. *Eklise* *to parathiro*,
closed^{-PST-PFV-3SG} the window
prin vali / *afu evale* *to piato sto trapezi*.
before put^{-NPST-PFV-3SG} / after put^{-PST-PFV-3SG} the plate on-the table
'She closed the window, before/after she put the plate on the table.'
- b. *Prin vali* / *afu evale* *to piato sto trapezi*,
before put^{-NPST-PFV-3SG} / after put^{-PST-PFV-3SG} the plate on-the table
eklise *to parathiro*.
closed^{-PST-PFV-3SG} the window
'Before/After she put the plate on the table, she closed the window.'

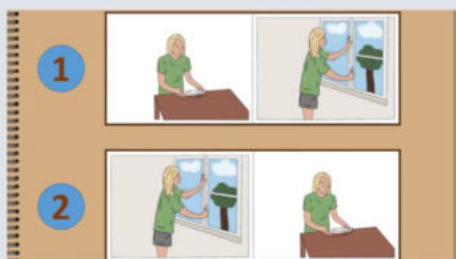


Figure 1. Example test item corresponding to sentences 1 and 2.

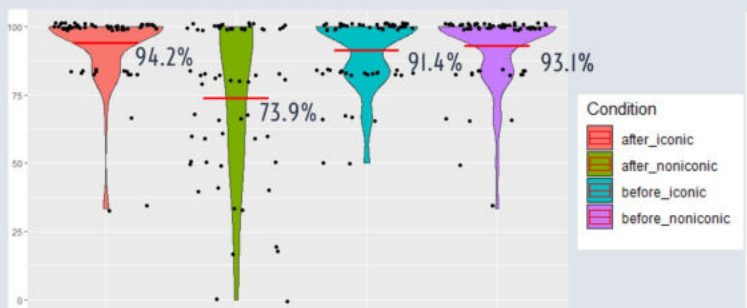


Figure 2. Violin plots for accuracy per condition. Red lines indicate the mean.

Table 1. Model output

	Estimate	Pr(> z)
Iconicity	0.817	0.036
Conjunction	0.591	0.041
Age	0.385	0.041
Forward digit-recall	0.112	0.200
Sentence repetition	0.223	0.585
Iconicity*Conjunction	-2.606	<0.001

Table 2. Distribution of children who do not master/master non-iconic *before* and *after*

		After non-iconic	
		+	-
Before_non-iconic	+	32	23
	-	0	5

Note: '+' = at least 5/6 items correct, '-' = less than 5/6 items correct

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Friday

September 23, 2022

11:30-12:00

Comprehension and production of direct object clitics in Italian children with phonetic-phonological disorder or morphosyntactic disorder

Maria Milan, Fabrizio Arosio, Elena Pagliarini

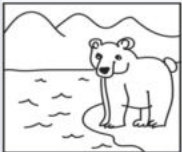
Logopedista ASUGI, Università degli Studi di Milano-Bicocca, Università degli Studi di Padova

Background. Previous research on Developmental Language Disorders (DLD) identified the failure on non-word repetition and on the production of third person singular direct object clitics (3DO) as two main clinical markers of DLD in Italian [1]. Different accounts have been proposed to explain difficulties with 3DO in DLD children: according to a grammatical account, difficulties are due to a maturational constraint on DP agreement checking [2] or syntactic complexity [3]; according to a prosodic account, they are due to the prosodic weakness of DO clitics which makes them difficult to acquire [4]. **Our study.** We differentiated DLD children in two subgroups: children with only phonetic-phonological deficit (DLD1) and children with phonetic-phonological plus morphosyntactic deficit (DLD2) in order to shed light on clinical and theoretical aspects of DLD. We compared the production and the comprehension of 3DO in DLD1 and DLD2 children and evaluated whether 3DO production failure can be considered a clinical marker for DLD1 children. On the one hand, difficulty in the production and the comprehension of 3DO by DLD1 children can provide evidence in favor of a prosodic account of clitic acquisition; on the other hand, if difficulties are experienced only by DLD2 children they will support a grammatical account. 15 Italian speaking monolingual children with DLD (age range 3;1- 6;0; mean 4;8), subdivided in 11 DLD1 children and 4 DLD2 children, and 15 Italian speaking typically developing age-matched children (TD) (age range 3;0- 5;11; mean 4;6) were tested in the clitic production task by Arosio et al.'s [5] and in a clitic comprehension task inspired by Grüter's [6] picture matching task. In the comprehension task, children were presented target sentences following a two-panel story (Figure 1); target sentences included four optionally transitive verbs, either in an object clitic condition (1a) or in an intransitive condition (1b), and four reflexive verbs, either in a reflexive condition (2a) or in a lexical condition (2b). While listening to target sentences, participants were presented a picture matching the sentence meaning and a competing picture: in the object clitic condition competing pictures represented verb intransitive meanings; in the intransitive condition, verb transitive meanings; in reflexive condition transitive meanings; in lexical condition reflexive meanings. Children had to choose the picture that matched the target sentence meaning in order to complete the story. The prediction is that a lack of an appropriate representation of the clitic would lead to interpret a sentence like (1a) as (1b), since (1b) is still grammatical without the clitic. **Results.** Children with DLD1 differed from TD in word ($p<0.001$) and nonword ($p<0.001$) repetition, but did not differ neither in the elicitation task ($p=0.30$) nor in the comprehension task ($p=0.40$). Most of the DLD1 children produced target responses in the production. Children with DLD2 differed from TD in word ($p=0.001$) and nonword ($p<0.001$) repetition and both in the production (by omitting the clitics) and the comprehension of 3DO ($p<0.001$). Children with DLD2 differed from children with DLD1 in both in the production ($p=0.013$) and the comprehension of 3DO ($p=0.034$). No difference was found between TD and DLD children in the comprehension of reflexive pronoun. **Conclusions.** The results suggest that the acquisition of clitics cannot be considered a purely a phonological-prosodic phenomenon, because if that was the case, we would have expected

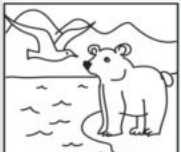
children with DLDI to underperform in clitic comprehension. As for clinical implications, results suggest that a clitic elicitation task is not an appropriate task to identify children with only phonetic-phonological deficit.

Example of target sentences


- (1) a. L' orso lo annega. [object clitic condition]
The bear CL.MASC.SING. drown.SING
'The bear drowns it.'
b. L' orso annega. [intransitive condition]
The bear drown.SING
'The bear drowns'.
(2) a. Il bambino si pettina. [reflexive condition]
The child CL.REFL.SING comb.SING.
'The child combs himself.'
b. Il bambino pettina il cane. [lexical condition]
The child comb.SING the dog.
'The child combs the dog'.




a. In questa storia un orso non sa nuotare. Ha tanta fame. È a caccia di uccelli. (In this story a bear is not able to swim. It is very hungry. It is hunting for birds.)



b. L'orso vede arrivare un gabbiano. (The bear sees a bird arriving.)



c.



d.

Picture-matching

Figure 1. A story from the picture matching task. Panel c depicts an intransitive action and it is the correct choice for the intransitive condition given in (1b); Panel d depicts a transitive action and it is the correct choice for the clitic condition given in (1a).

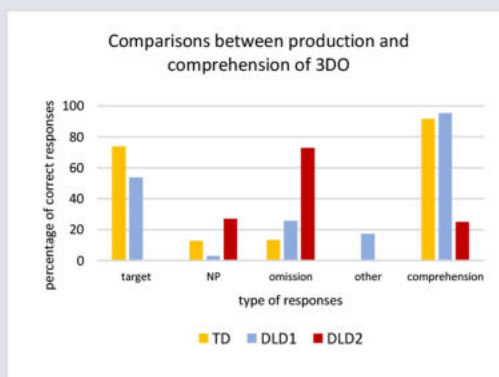


Figure 2. Results of the comprehension and production task.

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Friday

September 23, 2022

12:00–12:30

Do children distinguish *the green leaves and the yellow leaves* from *the green and yellow leaves*?

Adina Camelia Bleotu & Tom Roeper

ZAS Berlin, University of Bucharest & UMass Amherst

The paper brings experimental evidence that Romanian 4-year-olds differ from adults in their understanding/representation of coordinative structures involving nouns and adjectives, such as *frunzele verzi și frunzele/cele galbene* ‘the green leaves and the yellow leaves/ones’ and *frunzele verzi și galbene* ‘the green and yellow leaves’ (see Table 1).

Background: Children interpret and produce coordination in an almost adult-like manner from as early as 2 (*with wood and a hammer* (2;04), *nice and clean* (2;06)), though errors can sometimes be found (“the color is... *yellow and buttons*” (2; 04))-see Lust & Mervis (1980). Importantly, current work suggests that universal grammar has a default coordination structure even for recursive structures (Sevencio et al. 2017). Very young children acquire and interpret sequences of two adjectives as coordinated (*second, green ball*=*second and green ball* (Matthei 1982, Bryant 2006)). Despite relying on coordination a lot, children may not master all its subtleties, e.g., asymmetries, temporal relations between coordinated elements, a.o. (Lust et al. 2009).




Aim: Our experiment focuses on whether Romanian children are sensitive to the difference between *Noun Adjective and Noun Adjective (NA and NA)* or *Noun Adjective and Demonstrative Article Adjective (NA and DemA)* structures and *Noun Adjective and Adjective (NA and A)* structures (Table 1). We expect adults to interpret the coordination in the first two structures as coordination between 2 sets denoted by Determiner Phrases (DPs) and the coordination in the latter structure mostly as coordination between 2 properties denoted by Adjective Phrases (APs,) though the DP-coordination interpretation is also possible. **Participants:** 26 Romanian monolingual TD children (Age range: 4-5, Mean age: 4;35, M=14, F=12) and 16 adults. **Procedure:** Participants were administered a forced choice picture selection task. They were asked to show the experimenter pictures corresponding to 12 randomized noun-adjective sequences involving coordination. Three different structures involving nouns (*flowers, leaves, giraffes, squirrels*) and color adjectives were tested: a) *NA and NA*, b) *NA and DemA*, and c) *NA and A* (Table 1). The pictures they could select from (Table 2) involved: A. multiple sets of different colors (i.e., 2 green leaves, 2 yellow leaves), B. one set containing 2 different items, each of a different color (i.e., one green leaf, one yellow leaf), C. one set containing 2 items, both colored in two different colors (i.e., 2 leaves that are each both green and yellow). The **results** (Figures 1 and 2) show interesting differences between children and adults. Adults interpret *NA and NA* and *NA and DemA* structures as coordination between 2 different sets (A), while mostly interpreting *NA and A* structures as referring to a single set, described through two properties (C). In contrast, overall, 15 children (out of 26) consistently made the same choice for more than 7/12 test sentences (6-biased for the A picture, 8 for B, and 1 for C). The rest of the children offered varied responses. We conducted multiple logistic regressions with Answer as a Dependent Variable and Group and Condition as fixed effects, and random slopes per Item and Participant: children’s answers were significantly different from adults for each

structure tested ($p < .01$). **Account:** Adults interpret the coordination in *NA and NA* and *NA and DemA* structures as coordination between 2 DPs referring to 2 sets (1), while mostly interpreting the coordination in *NA and A* structures as coordination between APs modifying the same DP referring to a single set (3). In contrast, more than half of the children chose one single interpretation for all structures, while the rest showed ambiguity between three interpretations for each of the structures: (i) coordination between 2 plural DPs (see 1), (ii) coordination between 2 singular DPs which then get pluralized (2), and (iii) coordination between 2 APs applied to the same plural DP (3) (Goodall 2017). Unlike adults, children sometimes merge APs below NumP (2), applying the properties to the individual items of the set, not to their plurality. Thus, children seem to allow for collective and distributive readings of properties indiscriminately.

Table 1. Experimental conditions and items

Conditions	Examples of items
NA and NA	<i>frunzele verzi și frunzele galbene</i> leaves-the green and leaves-the yellow
NA and DemArt A	<i>frunzele verzi și cele galbene</i> leaves-the green and DEM.ART. yellow
NA and A	<i>frunzele verzi și galbene</i> leaves-the green and yellow

Table 2. Pictures used in the experiment, from which participants could choose one picture

A. multiple sets (two plurals): ‘[the green leaf-PLURAL] and [the yellow leaf-PLURAL]’	B. one set- multiple items of different colors ‘[the green leaf and (the) yellow leaf]-PLURAL’	C. one set- multiple items of the same colors each ‘the [green and yellow] leaf-PLURAL’
		

Legend: A, B, C- defined as in Table 2

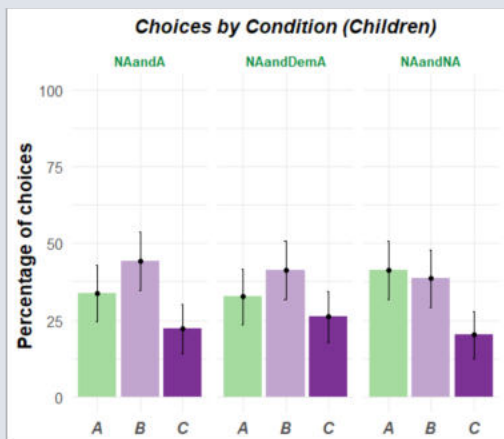


Figure 1. Answers provided by children



Figure 2. Answers provided by adults per condition

- (1) $[_{CoordP} [_{DP1} D+Num+N1 [_{NPAP1} t1]] [_{Coord'} Coord [_{DP2} D+Num+N2 [_{NPAP2} t2]]]]$ (Table 2: Picture A)
- (2) $Num [_{CoordP} [_{DP1} D+N1 [_{NPAP1} t1]] [_{Coord'} Coord [_{DP2} D+N2 [_{NPAP2} t2]]]]$ (Table 2: Picture B)
- (3) $[_{DP} D+Num+N [_{CoordP} AP1 [_{Coord'} Coord AP2]]]$ (Table 2: Picture C)

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Friday

September 23, 2022

12:00–12:30

Impersonal *si* in child Italian

Silvia Silleresi¹, Chiara Dal Farra¹, Artemis Alexiadou², Maria Teresa Guasti¹, Uli Sauerland³

¹ Università degli Studi di Milano-Bicocca; ² Humboldt-Universität zu Berlin; ³ Leibniz-Centre General Linguistics (ZAS)

Introduction Italian *si* appears in several contexts, some of which are listed with examples in Table 1. Despite extensive theoretical research, its exact role and interpretation is heavily debated. Previous accounts fall into two main approaches: (i) homonymous *si* (Belletti 1982; Burzio 1982; Cinque 1988; Pescarini 2015, a.o.) and (ii) unified *si* (Manzini 1986; Manzini et al. 2016). Specifically, (ii) argues for a further reduction of the reflexive *si* to a type of impersonal *si*, but this requires an enrichment mechanism as in *She talked to someone, namely she talked to herself*. We examine the following predictions for child language with respect to approaches (i) and (ii). The unified view predicts that children should acquire impersonal and reflexive *si*'s simultaneously and use them with a similar rate. The homonymous view, however, expects the opposite since ambiguous morphemes (i.e. homonyms) have been found to interfere with each other in acquisition (Doherty 2004). Studies on Romance languages suggested that reflexive *si* is acquired first (see Teomiro & Escobar 2013 for Spanish; Barrière et al. 2000 for French). However, the use of impersonal *si* is often not considered in this literature, and no acquisitional studies exist in Italian.

Method A corpora analysis in the CHILDES database (MacWhinney 2000) was run through an examination of all productions of *si* followed by a verb (*si+V*) by 16 typically-developing Italian-speaking children aged 1;8 to 3;4. We annotated all *si+V* occurrences ($n = 369$) according to the following criteria: (a) identification of *si*-type constructions (following the annotation in Table 1), (b) adult-like and non-adult like uses, (c) verb type used (transitive, unaccusative, unergative, alternating), (d) DP realization (pre- or post-verbal), or DP drop.

Results Our results show that children aged 1;8–3;4 use *si*-type constructions productively, adult-like and early-on (see Fig. 1 and Fig. 2). Impersonal *si* were produced significantly ($p < .001$) more than other attested *si* constructions: impersonal (56%), anticausative (25%), true reflexive (8.2%) and inherent reflexive (5.8%). No instances of passive or middle *si* were found. Among the impersonal *si* constructions ($n = 183$), 53.5% had a generic interpretation and 18.5% a speaker-inclusive one (the remaining 28% was ambiguous between the two readings). An effect of verb type emerged on impersonal *si*, which was significantly ($p < .001$) more likely to occur with transitive verbs than with all other verb types (Fig. 3). In particular, almost the totality of impersonal generics occurred with transitive verbs (93%) and DP (when realized) were equally distributed among pre- and postverbal.

Analysis Three main results emerged from our analysis: (i) four types of *si* constructions (impersonal, anticausative, true and inherent reflexive) were attested and produced grammatically by Italian children from very early on; (ii) passive and middle *si* constructions were not produced; (iii) impersonal *si*, and in particular generic impersonal *si*, was by far the most frequent production in the dataset. Focusing on (iii), we note that in our data *si* was realized (almost) exclusively with transitive verbs, even though they can occur with unergatives and unaccusatives in adult language. We propose that impersonal *si* saturates the external argument variable (see Schäfer 2017). In our analysis, impersonal *si* subsumes not only the function of impersonal, but also that of a passive, being a simpler structure to express the latter

interpretation. In fact, passives are more complex, given (i) an additional layer of structure (see Bruening 2013; Alexiadou et al. 2015), and (ii) the requirement of movement (see smuggling approaches in Collins 2005; Belletti 2019). Our hypothesis explains (i) the transitivity restriction we identified in our data, and (ii) the fact that DPs were realized both pre- and post-verbally. It also receives cross-linguistic support from languages that express passive via impersonals (see Koopman 2021 a.o.). Although reflexives were produced early on, we speculate that the low number we found in our results is due to the fact that reflexivity is an inference and hence more difficult than impersonal *si* for children. Overall the current data support an underspecification view of *si*, which leads children to an extended use of *si* as an impersonal, but also as a reflexive early on, in line with the unified analysis.

Table 1. Italian *si*: functions and examples

True reflexive (1) Maria <i>si</i> critica. Maria <i>si</i> criticizes	Inherent reflexive (2) Gianni <i>si</i> addormenta. Gianni <i>si</i> falls asleep	Anti-causative (3) Il vaso <i>si</i> è rotto. The vase <i>si</i> is broken
Middle (4) Quel libro <i>si</i> legge facilmente. That book <i>si</i> reads easily	Passive (5) <i>Si</i> sono vendute delle auto. <i>Si</i> were sold some cars	Impersonal generic (6a) Lì <i>si</i> spende molto. There <i>si</i> spends a lot Impersonal speaker-inclusive (6b) Domani <i>si</i> va al mare. Tomorrow <i>si</i> goes to the sea

Fig 1. Proportion of production per *si*-types

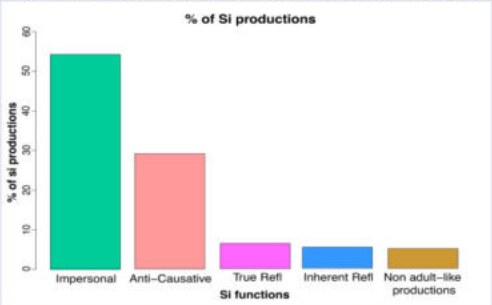


Fig 2. Production of *si* over time

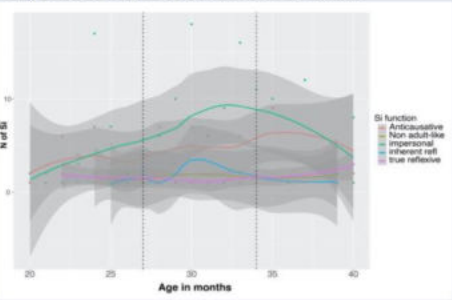
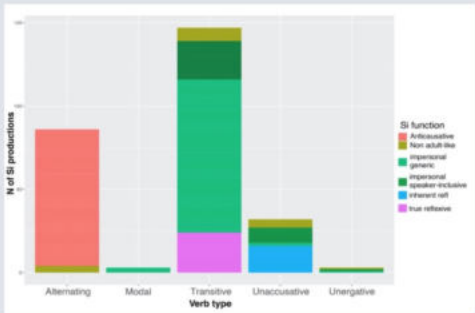


Fig 3. Production of *si* per verb-type



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Friday

September 23, 2022

12:30–13:00

PROCESSING SUBJECTIVE ADJECTIVES IN DEVELOPMENT: EVIDENCE FROM EYE-TRACKING

Michela Redolfi & Chiara Melloni

University of Verona, Universität Konstanz & University of Verona

Background. Combining information from adjectives with the nouns they modify is particularly challenging for children under 3 years of age. Previous research suggests that they may over-rely on noun information when processing noun-adjective phrases, which has been shown across languages that place nouns both before and after adjectives, ruling out a language-specific linear order bias ([3], [5], [1]). Ninio (2004) suggested that young children have difficulties in interpreting noun-adjective combinations because they require a *two-step* process, whereby one first needs to determine the object category, and then process the attribute to identify the relevant member of that category. This computational complexity leads children under 36 months to interpret the noun, but to delay or omit adjective interpretation. The question as to whether this interpretive difficulty is modulated by semantic differences among (subjective) adjectives, however, has rarely been tested with children as young as 3 years (e.g., [2], [4]), and never making use of online tasks.

Objectives and Methods. The current study analyzes eye movement data to investigate children's integration of nouns and adjectives, aiming to (i) investigate the processing strategies of children below and above 36 months of age and (ii) assess potential differences among semantic classes of adjectives. 38 Italian monolingual children (2;4 – 5;3) and 24 adult controls (19;1–29;9) were tested in a visual-world eye-tracking task. While looking at four pictures on the screen of two objects crossed by two properties (e.g., a black shoe, a white shoe, a black sock and a white sock), participants listened to a noun-adjective combination (e.g., *Dov'è la scarpa nera?*, lit. 'Where is the shoe black?'). Three subjective adjectives were used, namely intersective (e.g., *black*), relative (e.g., *big*) and absolute (e.g., *closed*) (see Fig. 1).

Results. We investigated how the variables age-group and adjective-condition modulated fixations to the target object through a series of linear mixed regression models. We found that children as young as 28 months are able to successfully integrate noun and adjective meanings to resolve reference. Although being slower, their looking pattern in the interpretation process was essentially the same as the adult controls. However, a closer look at children's age-groups revealed that children younger than 3 years of age have the most difficulties in interpreting noun-adjective combinations in comparison to 3- and 4-year-olds (see Fig. 2). Interestingly, the computation of intersective adjectives was faster than that of absolute and, especially, relative adjectives, showing that children are sensitive to the different ways in which each adjective class is interpreted within different contexts (as found in offline tasks as, e.g., [2], [4], see Fig. 3).

Conclusions. Contrary to previous studies with children as young as 30 months of age ([3], [5], [1]), our findings do not provide evidence in favor of the *two-step* process. The youngest as well as the oldest children did not show an asymmetry in noun and adjective interpretation and were able to accurately integrate their meanings. Findings from the current study demonstrate that,

once the meanings of nouns and adjectives are acquired, there is continuity in children's development of sophisticated, adult-like processing skills.

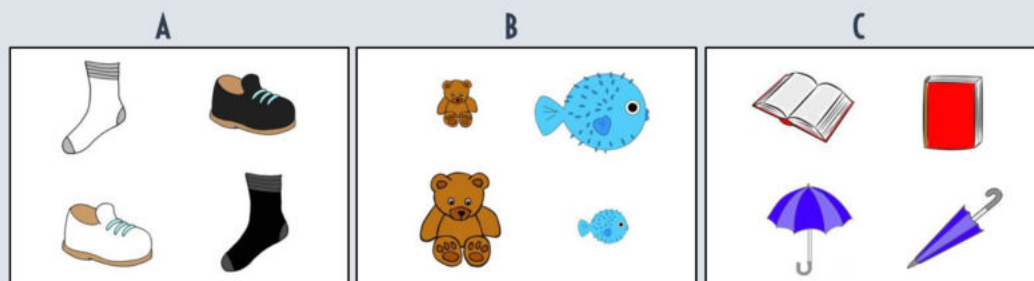


Figure 1. Example of visual stimuli: intersective (A), relative (B) and absolute (C) adjective-condition.

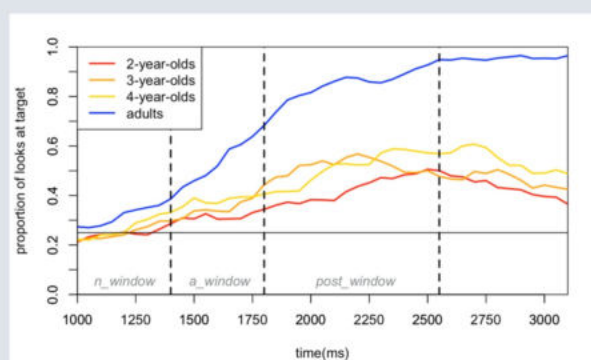


Figure 2. Proportion of looks at the target picture throughout the trial for the three age groups of children and for adults.

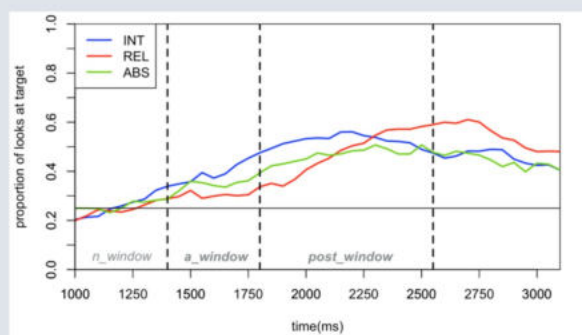


Figure 3. Proportion of looks at the target picture throughout the trial in each adjective-condition for children.

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Friday

September 23, 2022

12:30–13:00

On the comprehension of reflexive *si* in preschool Italian-speaking children

Letizia Raminelli¹ and Adriana Belletti²

¹Università degli Studi di Milano-Bicocca; ²Università degli Studi di Siena

The derivation of passive structures is known to be complex, which is why a full and productive mastery of passives appears cross-linguistically relatively late in development (around age 5-6) [1],[2],[7]. In Italian, production and priming experiments have shown that at the age of 5, children produce *si*-causative constructions in answering patient-oriented questions, a condition in which adults systematically opt for full (copular/periphrastic) passives [3],[4]. Interestingly, the same experimental setting has also led young children to use reflexive structures [1],[4]. This behaviour appears to contradict the robust conclusion that, by age 3-4, children master reflexive binding and thus do not misinterpret sentences with reflexives [6],[7]. Alternatively, as proposed by the “reflexive passive hypothesis” [5], these reflexive constructions attested in development may in fact represent first attempts at producing passives, via exploitation of *si* as an (impersonal-generic) middle/passive morpheme, rather than as a reflexive, thus overextending a grammatical option available in the target language.

With a view at verifying the “reflexive passive hypothesis” [5], we created a sentence-picture matching task as 2AFC task targeting comprehension of reflexive structures in contexts that can be ambiguous between a reflexive and a middle/passive reading of the sentence containing *si*. Specifically, couples of pictures involving the same characters and the same verbal action were presented to children. However, in one case, the action was depicted as reflexive; in the other, it was represented as transitive. Participants were told to look at the pictures and to select the one corresponding to what the experimenter said – which was always a reflexive prompt. An example of experimental item is provided in Figure 1.

Binomial logistic regression analyses in an intercept-only model with item as random intercept were conducted on the responses supplied by 33 out of the 42 TD Italian-speaking children tested, all aged 3;4-4;3. The analysis of item responses revealed that, even though some items received more *reflexive* answers and others more *transitive* ones, there was no item inducing significant preference for either type of answer. The examination of individual results, then, showed that most subjects pended towards either the target or the non-target option, but this tendency was never significant. Therefore, independently of whether performance was completely at chance or pending towards one interpretation, children generally appeared not to properly understand the reflexive structure they were presented with.

Consequently, 3-4-yos can be said to have troubles with the reflexive interpretation regulated by the binding Principle A when the experimental condition can induce a concurrent passive reading of the sentence containing *si*. In this situation, a correct, adult-like interpretation of the reflexive is hindered, and an oscillation between the reflexive and the passive reading is observed. This interpretation does not contradict previous findings on early mastering of Principle A: Principle A can be assumed to be in place and to be correctly computed by 3-4-yo Italian-speaking children. However, when a competing interpretational option is also available,

their behaviour becomes at chance due to the concomitant availability of the equally plausible transitive reading, with *si* playing the role of a passive voice.

These results are consistent with the previous findings from early elicited child production by Italian typically developing children [1],[4], thus confirming a homogeneous treatment of the same grammatical options in both production and comprehension.

Figures

Figure 1. An example of experimental item

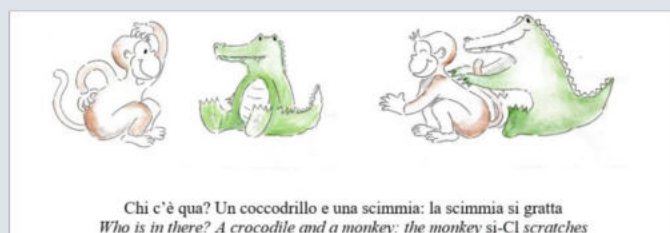
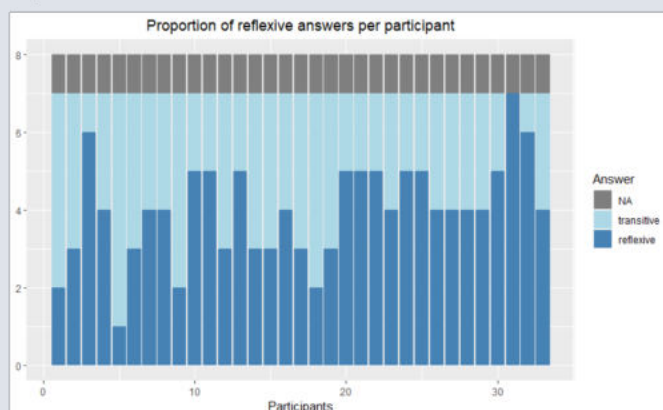


Figure 2. Individual results



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Friday

September 23, 2022

14:30-15:00

Lexical access in German-speaking children and adults: an eye-tracking study

Bénédicte Grandon

University of Oldenburg & Hearing4All Cluster of Excellence

Perceptual and lexical abilities are very closely related in language acquisition: children are able to categorize the speech sounds of their native language based on their acoustic characteristics by the end of their first year (e.g., Jusczyk, 1992, Pierrehumbert 2003) and they are able to build both phonetico-phonological and lexical representations of words using information available at segmental, syllabic or prosodic level (Nazzi, 2006). In adults, receptive lexical access results of a competition between words in the lexicon with sequential (Marslen-Wilson & Welsh, 1978) or whole-word processing (McClelland & Elman, 1986). Word characteristics such as phonological neighboring density have been shown to influence lexical access (Luce & Pisoni, 2001). Neighborhood density effects come from the number of phonological neighboring words to the target word. However, little is known about the role of the specific phonetico-phonological differences between words and their phonological neighbors and of the salience of their segmental information (e.g. how much a segment stands out in the speech stream and in the language's phonological system) in lexical access, both in adults and children. We investigate how children use different numbers and types of cues in a contrasting pair of phonological neighbors to make a lexical decision. Our goal is to understand what contributes to the salience of segmental information and how it affects lexical access.

Thirty-two adults (mean age: 24;9 (6;3), range: 18;11-46;8) and 28 children (mean age: 8;4(2;0), range: 5;1-11;10) participated in our study. All were native speakers of standard German spoken in Northern Germany. Table I below presents the characteristics of the word pairs of interest in our study: Segment type (Consonant vs. Vowel), and number of contrasting features. We presented simultaneously four pictures (target word, phonological competitor, two semantic distractors), and an audio recording of the target word. The participants' task was to click on the picture matching the target word presented orally (4 target words * 13 contrasts = 52 items, presented as 4 randomized blocks of 13 items). We measured the accuracy of the response, the reaction time (RT, measured from word offset), and gaze fixation using a Tobii Pro fusion eye-tracker (sampling freq. 250 Hz). For the gaze fixation analyses, we computed a percentage of fixations towards the target (vs. 3 competitors) in 100 ms timebins, centered on the start of the divergence between target and phonological competitor (e.g., start of the stem vowel in the /kɪstə/-/kʏstə/ pair - <box>-<coast>). We used generalized mixed-effect models for accuracy analyses, linear mixed-effect models for reaction times analyses, and generalized additive mixed-effect models for gaze fixation analyses (glmer, lmer and bam functions in R respectively).

Accuracy is high in both groups, yet significantly lower in children, $p < .001$, who also have longer RT, $p < .001$. We found no effect of the type of segmental contrast between words (Consonant vs. Vowel), of the number or types of contrasting cues between words (1, 2 or 3) alone or in interaction, on either accuracy or RT. As shown on Figure 1, fixation to the target picture occurs earlier and with more amplitude for the adults than for the children, $p < .001$. Results (using GAMM analyses and visual inspection of smooth differences) show differences for adults and children in processing certain contrasting word-pairs (see Table I). Further analyses

indicated a significantly earlier fixation when two cues are available in the segmental contrast (in comparison to 1 and 3 cues). Finally, no effect of age, vocabulary development and phonological working memory are observed in children. Our results indicate that children aged 5 to 11 need more time to process segmental information than adults. This is especially the case for all consonantal contrasts but less for certain vowel contrasts, which could indicate that children reach adult-like processing of vowel contrasts earlier than consonantal contrasts.

Table 1: Type and number of contrasting features under study

Target segment	Number of contrasting features	Features	Example (target-phonol. Distractor)	Results: Adult vs children
Consonant	1	manner	/pas/-/fas/	Sign. Diff.
		place (fricatives)	/vant/-/zant/	Sign. Diff.
		place (plosive)	/bɪlə/- /gɪlə/	Sign. Diff.
		voicing	/kabə/- /gabə/	Sign. Diff.
	2	manner + voicing	/bʊtə/-/fʊtə/	Sign. Diff.
		place + manner	/tɪʃ/-/fɪʃ/	Sign. Diff.
		place + voicing (plosive)	/tu:χ/-/bu:χ/	Sign. Diff.
	3	place + manner + voicing	/be:ʁə/- /ʃe:ʁə/	Sign. Diff.
Vowel	1	front-back	/ba:t/-/bɛt/	Sign. Diff.
		height	/mʊnt/- /mo:nt/	No difference
		roundedness	/kɪstə/- /kʏstə/	Sign. Diff.
	2	front-back + height	/rybə/-/rɔbə/	Sign. Diff.
		front-back + roundedness	/kɔfə/- /kɛ:fə/	No difference

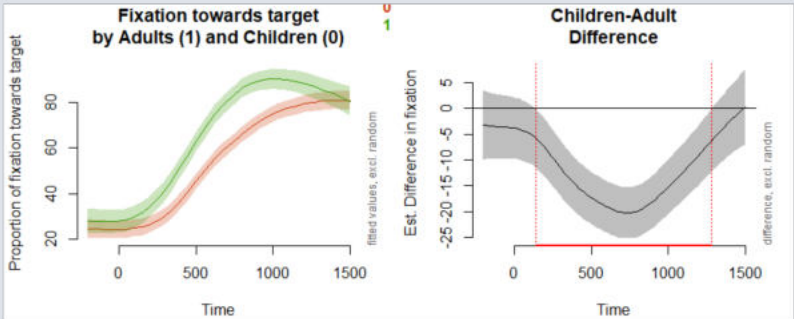


Figure 1: Differences in fixation towards target in adults and children (left) and difference in fixation between the two groups (right)

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Friday

September 23, 2022

14:30–15:00

Cumulative priming effects across development in a structurally biased language

Alina Kholodova, Michelle Peter, Caroline Rowland, Shanley Allen

University of Kaiserslautern, University of Manchester, Max Planck Institute of Nijmegen

Research has shown that structural priming effects become stronger with increasing statistical input in both adults and children (Bock & Griffin, 2000; Kidd, 2012b) and, that this effect mirrors implicit adaptation or learning. However, the literature on cumulative priming effects in children is limited to studies using blocked designs, often accompanied by post-tests (Gómez & Shimpi, 2016; Huttenlocher et al. 2004; Kidd, 2012a, 2012b). In such procedures, children are primed with one structural option throughout one block, which rather reflects reinforcement of one particular structure. Following the design of adult studies, we aimed to investigate cumulative effects across alternating structures preferably with intervening fillers, resembling more variation in the input. To our knowledge, only one study has taken this approach but did not find any cumulative effects (Messenger et al., 2011). In contrast to all previous child studies, we intended to examine more age groups across development and, look into ditransitive structures in German, which have received minor attention in the literature.

We conducted a video description priming study with alternating prepositional object (PO) ‘Dora bringt den Hasen zu Boots’ (*Dora brings the rabbit to Boots*) and double object (DO) structures ‘Dora bringt Boots den Hasen’ (*Dora brings Boots the rabbit*). This resulted in 16 prime-target trials interspersed with two intransitive filler-filler trials ‘Wendy schaukelt’ (*Wendy is swinging*). We recruited 193 native German-speaking children aged 3-4 (N=60), 5-6 (N=51), 7-8 (N=45) and adults (N=37). Importantly, German is a DO biased language and leads to the question: to what extent will German children adapt the PO across alternating trials?

The results of the logit mixed effect model revealed a main effect of trial suggesting that the PO production increases as a function of growing trial number in all groups. We also found a main effect of the 7-8 year olds indicating the largest PO production irrespective of priming compared to all other age groups. Furthermore, a two-way interaction of trial and the 3-4 year olds implied that the youngest children showed the strongest adaptation to the PO structure across trials compared to all older groups. Further post-hoc analyses revealed that susceptibility to adaptation weakens with growing age and is absent in the adults (see Fig.1). These results are in line with findings of Branigan & Messenger (2016) who found more priming in session 2 compared to session 1 for 3-5 year old children, but the opposite pattern for adults.

To our knowledge, this is the first demonstration of a developmental decline of cumulative effects across alternating trials with growing age in a language other than English which is in line with findings showing that learning rate decreases with age (McClelland et al., 1995). Our data supports claims that at some point in time our accumulated experiences stabilize in our internal representations up to an extent, when our internal system doesn’t experience the necessity to be overwritten (Branigan & McLean, 2016; Chang et al., 2006).

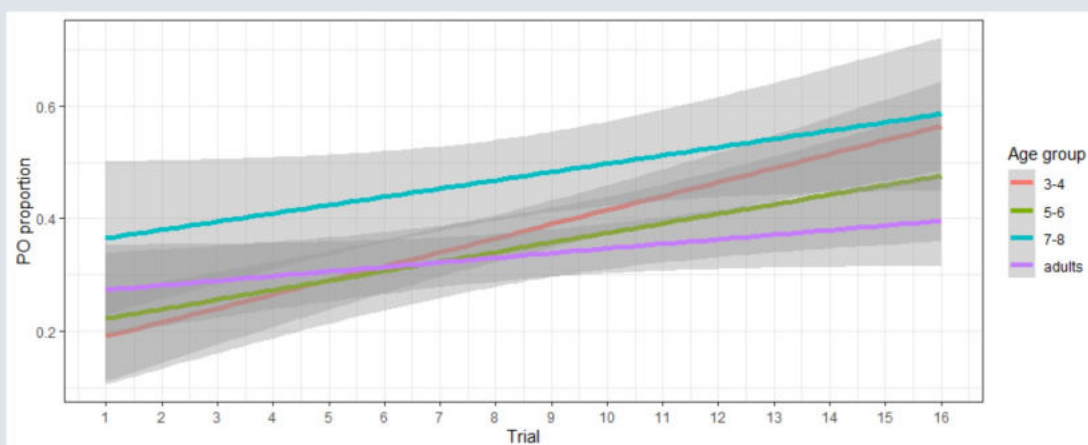


Fig. 1. Cumulative priming effects as a function of trial sequence across 16 PO/DO trials in four age groups.

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Friday

September 23, 2022

15:00–15:30

Predictive processing and language proficiency: the use of semantic and phonological cues in L1 and L2 in an eye-tracking study

Natalya Shirokorad, Marta Tagliani, Michela Redolfi, Chiara Melloni, Maria Vender
(University of Verona)

State-of-the-art. Predicting language requires comprehenders to activate linguistic information before processing the input carrying that information. Such pre-activation allows to perform some of the processing ahead of time, thereby explaining a facilitation in language comprehension [1]. Language prediction has been shown to occur at different levels (semantics, syntax, phonology [1,2]), as demonstrated by anticipatory looks (e.g., [3,4]) and pre-activation of brain areas devoted to lexical retrieval (e.g., [5]). The question as to whether prediction abilities in the L2 are as effective as in L1 is still open to debate. While some scholars support the idea of native-like predictive skills in L2 speakers [6,7] others find differences in prediction among L1 and L2 population groups [8,9].

Aim of the present study. The present study aims to explore possible differences in L1 and L2 predictive processing and to understand whether L2 proficiency plays a role in prediction. Further, we examine which kind of cues (semantic or phonological) is more likely to enhance prediction in each population.

The experiment. In a visual-word eye-tracking study, we compared the performance of 22 intermediate learners of English (B1 level according to CEFR) and 26 advanced learners of English (C1 level) to that of 11 English native speakers. All participants were adult and L2 learners had L1 Italian. Participants were presented with 4 pictures on the screen while listening to English sentences consisting of a subject NP expressing the Agent, a verb in the present progressive, and another noun phrase expressing the Patient (e.g., *A cat is chasing a rat*). The visual display was manipulated so to obtain three experimental conditions, in which the information conveyed by the combination of subject and lexical verb could provide either a semantic cue only or a semantic cue in combination with a phonological one (rhyme) for the prediction of the object. In the Semantic condition (Fig. 1A), the target picture (e.g., a peach) was related in semantics to the lexical verb (e.g., *eating*), and the three other pictures were unrelated. In the Semantic+Rhyme condition (Fig. 1B), the target picture (e.g., a carrot) was related in the semantics to the lexical verb (e.g., *eating*) and in the phonology to the Agent (e.g., a parrot). The other three pictures were unrelated on both dimensions. In the Competitor condition, (Fig. 1C), the target picture (e.g., pear) was again related in the semantics (e.g., *eating*) as well as in the phonology (e.g., *bear*), but a semantic competitor (e.g., *tomato*), and a rhyme competitor (e.g., *chair*) were included in the visual scene. Participants were not asked to perform any specific action.

Results and discussion. The effect of prediction was examined on the verb-window (i.e., from the lexical verb onset to its offset). No significant effect of group was found in the Semantic condition ($p = .37$), while a significant main effect of group was found for the Semantic+Rhyme condition (B1 vs. C1 English-learners, $p < 0.05$ and B1 vs. natives, $p < 0.05$, see Fig. 2). This indicates that, while all the groups made use of verb semantics in predicting the upcoming

object, intermediate learners did not benefit from phonological cues in the predictive process. To further investigate the rhyme effect, we analyzed the effect of group on fixations to the rhyme-competitor in the Competitor condition. Interestingly, a significant group difference was found between BI vs. natives ($p < 0.05$), but not between BI vs. CI nor CI vs. natives, indicating that L2 learners develop the ability to exploit phonological cues as their L2 language proficiency increases.

Conclusion. Our results provide compelling evidence that language proficiency modulates prediction mechanisms: while semantic cues are integrated regardless of the language level, phonological cues require more advanced language skills.

List of figures.

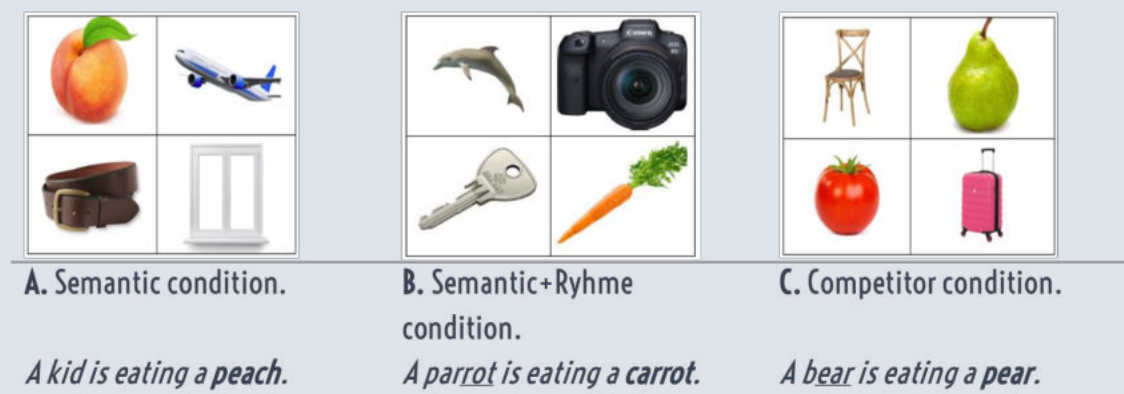


Figure 1. Examples of visual scenes for each condition.

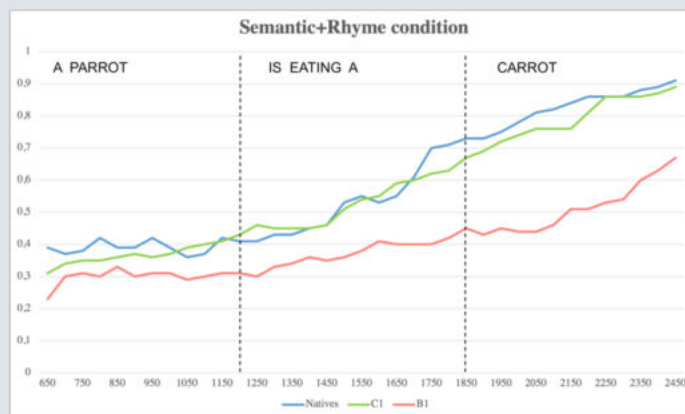


Figure 2. Proportions of fixations to the target object in the Semantic+Rhyme condition by natives (in blue), CI (in green), and BI (in red). The first vertical line indicates the verb onset, the second vertical line the object onset.

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Friday

September 23, 2022

15:00–15:30

Cross-linguistic influence as motivated by the combined role of structure and language activation using within- and across-languages priming experiments

Ioli Baroncini & Jacopo Torregrossa

University of Mannheim, Goethe University Frankfurt

Cross-linguistic influence in bilingual language production has been accounted for in terms of activation states of lexical and syntactic structures: the higher their activation in one language, the more likely they are to be reproduced in the other language (Serratrice 2016; Sharwood Smith and Truscott 2014). In this contribution, we investigate a structure which is available in only one of a bilingual's two languages. By triangulating the results of two within-languages priming experiments and one across-languages priming experiment, we will investigate if: i) it is possible to prime an ungrammatical structure in Language A, depending on whether the prime sentence is in Language A (in which the target structure is ungrammatical) or in Language B (in which the target structure is grammatical); ii) activation of Language B leads to the production of the ungrammatical structure in Language A, even if the structure is not directly primed. The target structure which we investigate is VSO word order. In Greek, VSO is found in broad focus sentences, while in Italian VSO is ungrammatical in this context (Roussou and Tsimpli 2006).

We tested 36 Greek-Italian bilingual children (15 females, age range 7;5-11;10, M: 9;5) attending an Italian immersion school in Athens (Greece). They were all simultaneous or early sequential bilinguals (AoO between 0 and 3). Considered as a group, they were relatively balanced between Greek and Italian (based on the analysis of background questionnaires and a Vocabulary Test).

We designed two within-languages priming experiments (Italian-to-Italian and Greek-to-Greek) and one across-languages (Greek-to-Italian) priming experiment. Children had to look at a picture, listen to a prime sentence and repeat it. The prime sentences were either VSO or SVO structures (SVO word order is allowed in both languages). Then they were asked to describe a new picture (Figure 1). In the Greek-to-Greek task prime and target sentences were in Greek, while in the Italian-to-Italian task they were in Italian. In the Greek-to-Italian task, primes were in Greek while target sentences were in Italian. Each task targeted the production of 40 sentences, 20 preceded by an SVO-prime and 20 by a VSO-prime.

Children mostly produced SVO(s) across all tasks. We ran a Generalized Linear Mixed Model (GLMM) of the probability of producing a VSO-structure as an effect of prime (SVO vs VSO) and type of task (Greek-to-Italian, Italian-to-Italian, and Greek-to-Greek). The children were more likely to produce VSO(s) after VSO-primers ($\beta=1.62$, $SE=0.31$, $z=5.16$, $p<0$).

The analysis also shows an effect of type of task, revealing a significant difference between the Greek-to-Italian (intercept) and the Italian-to-Italian task ($\beta= -2.84$, $SE(\beta)= 0.44$, $z= -6.51$, $p<0$). Children produce less VSO(s) in the Italian-to-Italian tasks. Very interestingly, we find no statistical difference between the Greek-to-Italian (intercept) and the Greek-to-Greek condition ($\beta= 0.30$, $SE(\beta)= 0.28$, $z= 1.07$), see Figure 2.

The results of the Italian-to-Italian task show that ungrammatical VSO-structures can be primed (even if to a low extent) – see research question (i) above. The results of the Greek-to-Italian task reveal that the activation of Greek alone leads to an increase in the production of VSOs in Italian, also following an SVO-prime (research question (ii)). The greatest increase in

the production of VSOs in Italian can be observed after a VSO-prime in Greek. Notably, the results of the Greek-to-Italian task do not differ from the ones of the Greek-to-Greek task. The results suggest an account of cross-linguistic influence in terms of the degree of activation not only of a syntactic structure, but also of a language in a bilingual's processing system.



Figure 1: Design of the cross-linguistic priming experiment

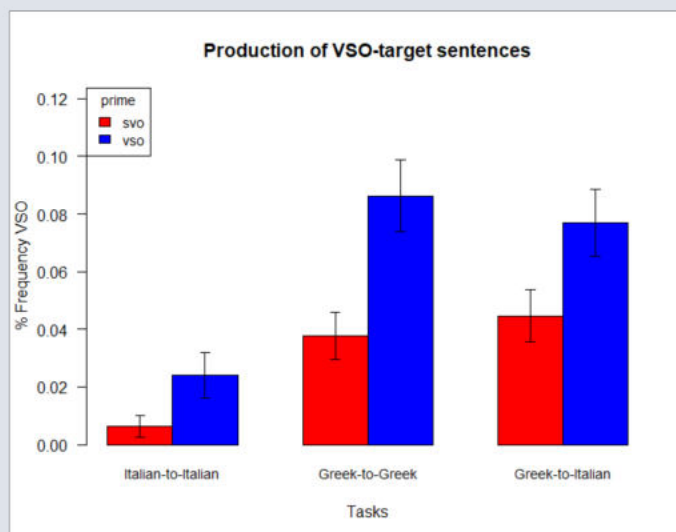


Figure 2: Frequency of production of VSO-target sentences in each task

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Friday

September 23, 2022

15:30–16:00

Does the segmental salience of noun plural marking influence its acquisition? An eye-tracking study of nominal plural in German-speaking children and adults

Bénédicte Grandon, Marcel Schlechtweg & Esther Ruigendijk
University of Oldenburg & Hearing4All Cluster of Excellence

Background: Nominal plural is marked in production by children as early as 3 or 4 years old (Berko, 1958). This production is also not completely mastered at 6 (Kauschke et al., 2011), and overregularizations are often cited as typical error in English (e.g., Marcus, 1995) or German (e.g., Clahsen et al., 1992). Comprehension studies have shown that plural is already understood by 2-year old children (Wood et al., 2009), with differences between allomorphs (Davies et al., 2019). However, little is known about the effect of segmental characteristics of plural marking and their salience (i.e., how individual speech sounds stand out when compared to other sounds of the language or within the speech stream) on their comprehension. The complexity of German plural marking (Wiese, 2009) allows to look at different types of segmental information and explore the role of the salience of these allomorphs on plural processing and acquisition: 1) Do children and adults process the plural information differently? 2) Does the number of cues available to mark plural play a role in comprehension and processing? 3) Are certain cues and their combinations more quickly processed than others?

Method: Thirty-two adults (mean age: 24;9 (6;3), range: 18;11–46;8) and 30 children (mean age: 8;3(2;0), range: 5;1–11;10) participated in our study. They were native speakers of standard German spoken in Northern Germany. Table 1 below presents the characteristics of the plurals of interest in our study. We presented simultaneously pictures of the singular and the plural (i.e., the same picture twice) version of each word, and an audio recording of the target word. The participant's task was to click on the picture matching the target word presented orally (8 words per category * 2 numbers (PL vs. SG) * 10 categories = 160 items, split in two sessions of 80 items, presented as 4 randomized blocks of 20 items). We measured the accuracy of the response, the reaction time (RT), and the direction of gaze fixation using a Tobii Pro fusion eye-tracker (sampling freq. 250 Hz). Accuracy is measured as the correct/incorrect identification of the target item presented orally, RT corresponds to the time between the word offset and the participant's response; for the gaze fixation analyses, we computed a percentage of fixations towards the target (vs. competitor) in 100 ms timebins, centered on the item's first singular-plural formal divergence (e.g., start of the stem vowel in the /fu:s/-/fy:sə/ pair - <foot>). We used generalized mixed-effect models for accuracy analyses, linear mixed-effect models for reaction times analyses, and generalized additive mixed-effect models for gaze fixation analyses (glmer, lmer and bam functions in R respectively). Items for the "no change" categories were excluded from the subsequent analyses, since they provide no differences between singular and plural forms.

Results & discussion: Accuracy is very high for both groups, yet significantly lower in children, $p < .001$, who also have a longer RT, $p < .001$. As shown on Figure 1, fixation towards the target is delayed in children when compared to adults, $p < .001$, and plural targets are processed faster than singular ones, $p < .001$. Results (using GAMM analyses and visual inspection of smooth differences) show different processing of different cues to plural markings (umlaut, suffix and voiced consonant) and of the number of cues available (earlier fixations with 1, then 2, then 3

cues). No sign. effects of age and vocabulary development are found in children. Taken together, our results suggest that the number and type of segmental information influence plural comprehension. Between-group differences point to a non-adultlike processing before teen years. Finally, earlier fixation towards plural target pictures shows that both adults and children have a stronger interest for plural forms. This might be an argument for plural as the default form of the noun, consistently to previous literature (e.g., Davies et al., 2019).

Table 1: Type and number of differences between PL and SG forms under study

Number of differences SG vs PL	Plural type	Example (SG – PL pairs)
0	No change	Kissen-Kissen [kisən] - [kisən], <i>pillow</i>
1	Umlaut	Vogel-Vögel [fo:ɡl] - [fø:ɡl], <i>bird</i>
	-/s/ suffix	Auto-Autos [aʊto] - [aʊtos], <i>car</i>
	-/ə/ suffix	Tisch-Tische [tɪʃ] - [tɪʃə], <i>table</i>
	-/n/ suffix	Katze-Katzen [katsə] - [katsən], <i>cat</i>
2	Umlaut + -/ə/ suffix	Ball-Bälle [bal] - [bɛlə], <i>ball</i>
	Umlaut + -/ɐ/ suffix	Schloss-Schlösser [ʃlɔs] - [ʃlɔesɐ], <i>castle</i>
	Voiced stem-final C + /ə/ suffix	Pferd-Pferde [pfɛɐ̯t] - [pfɛɐ̯də], <i>horse</i>
	Voiced stem-final C + /ɐ/ suffix	Kleid-Kleider [klaɪt] - [klaɪdɐ], <i>dress</i>
3	Umlaut + Voiced stem-final C + /ə/ or /ɐ/	Wald-Wälder [va:lt] - [vɛ:ldɐ], <i>forest</i>

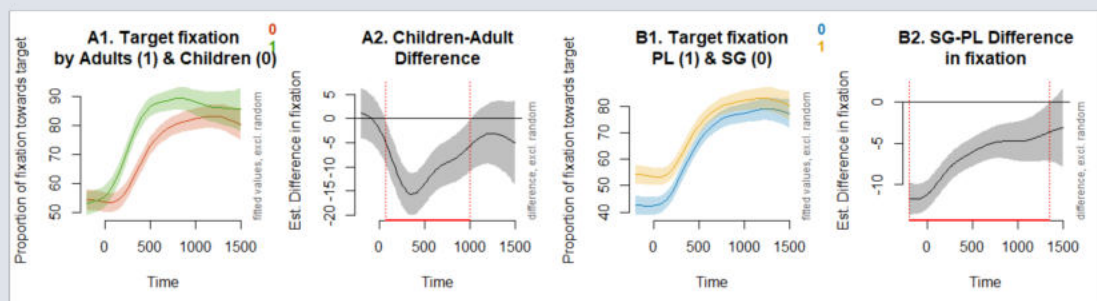


Figure 1: Differences in fixation towards target in adults and children (A1. & A2.) and between plural and singular targets (B1. & B2.). 0-point (Time): onset of first diff. between PL-SG paired items.

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Friday

September 23, 2022

15:30–16:00

Cross-linguistic Influence in Complex Syntactic Structures: The Case of Multiple Interrogatives in Bilingual Children

Anamaria Bentea and Theo Marinis
University of Konstanz

Multiple wh-questions (e.g. *Who pushed whom?*) provide a good case for exploring the extent to which bilingual children's productions in their two languages is affected by cross-linguistic influence (CLI) [1-4]. Multiple wh-questions vary across languages and display language-specific syntactic and semantic properties that children need to acquire although these structures are not frequent in the parental input [5]. In this study, we compare the production of multiple wh-questions in *a.* Romanian-English bilingual children living in the UK who have Romanian as a heritage language (L1) and English as a majority language (L2), *b.* Romanian monolingual children and *c.* English monolingual children. Romanian requires fronting of all wh-words, while English allows one wh-word to remain in-situ in multiple interrogatives. A differential object marker (DOM) *pe* precedes wh-objects in Romanian and *which*-objects are doubled by a clitic (1a-d). We examined whether differences emerge in the production of Romanian and English multiple wh-questions between bilingual and monolingual children with the aim to uncover to which extent similarities/differences in morphosyntactic properties between the native language (L1) and the second language (L2) systems affect the development of the two languages in bilingual children and, more specifically, the development of the heritage or minority language [6-7].

18 Romanian-English bilingual children, 32 Romanian monolinguals and 20 English monolinguals, all between 6 and 9 years of age, took part in an elicited production task in which they played a guessing game with a puppet (Paddington the Bear) and were prompted to produce 24 questions with two extracted *wh*-phrases (1a-d), in which we manipulated the type of wh-words (*cine* 'who' vs. *care* 'which') and their order (*Subject-Object* vs. *Object-Subject*) as within-subject factors. The bilingual children were assessed in both their languages.

Romanian heritage children and Romanian monolinguals produced three main types of questions in Romanian, at different rates (Fig. 1): MWHs with multiple wh-movement, MWHs with one fronted wh-phrase and one in-situ, as well as simple wh-questions. A GLMER revealed a significant Group x QuestionType interaction (heritage children produced significantly more MWHs with one fronted wh-phrase and one in-situ, while monolingual children produced these structures more in questions containing one or two *which*-elements (1b)). In addition, heritage children were also significantly more likely to omit the differential object marker *pe* and the clitic in *which*-questions. No difference appeared between Romanian-English bilinguals and English monolinguals in English: both groups produced MWHs with one fronted wh-phrase and one in-situ, as well as simple wh-questions, at a similar rate (Fig. 2).

Our results show that, as far as production is concerned, bilingual children show different performance in their two languages when they have to produce structures that are rarely present in the input, either in the L1 or the L2. This indicates that, when compared to monolinguals, quantitative differences emerge only in bilingual children's heritage, but not in their dominant language: bilinguals produce less complex MWHs in Romanian and avoid movement of two wh-phrases in all elicited structures. Language production in bilingual children's L1 seems to be affected by L2 properties, under CLI, but no CLI from Romanian to English emerged in the production of English MWHs. This asymmetry suggests that more complex structures are less likely to be transferred and that the

likelihood of CLI increases when one language offers a less complex structural option, especially if this is the dominant language.

Examples

- la. Cine pe cine fugărește ?
 who PE who chases
 ‘Who is chasing whom?’
- lb. Care urs pe care supererou_j îl_{MASC.SGj} fugărește?
 which bear PE which superhero_j him_j chases
 ‘Which bear is chasing which?’
- lc. Pe care urs_j care supererou îl_{MASC.SGj} fugărește?
 PE which bear_j which superhero him_j chases
 ‘Which bear is which superhero chasing?’
- ld. Pe care urs_j cine îl_{MASC.SGj} fugărește?
 PE which bear_j who him_j chases
 ‘Who is chasing which bear?’

Fig. 1. Overall distribution of responses for Romanian multiple wh-questions.

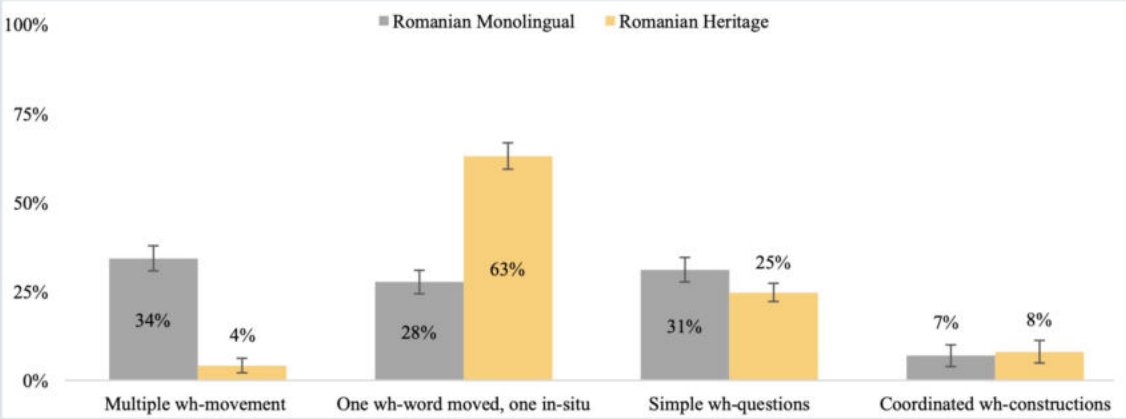
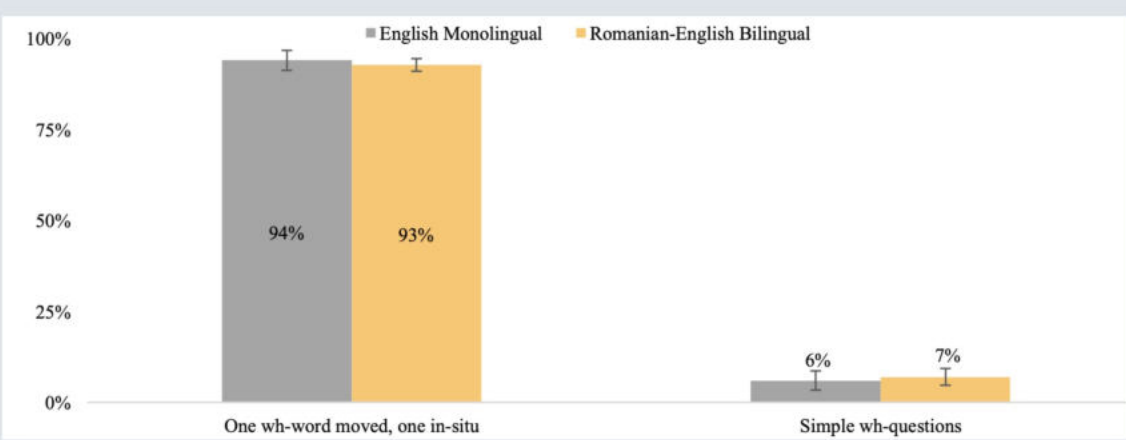


Fig. 2. Overall distribution of responses for English multiple wh-questions.



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Friday

September 23, 2022

17:00–18:00

Verb placement across different acquisition types. Evidences from German as heritage, second language and attrited language.

Cristina Flores

Various factors have been taken to distinguish heritage languages (HL) from second languages (L2), even though the distinction is not always clear-cut. Based on extra-linguistic factors, it is mainly the acquisition setting combined with the age of onset of acquisition that differentiates them: whereas HL are acquired from birth within the family as non-environmental language (Valdes 2000), L2 languages are acquired later in life, when a first language has already been fully or partially acquired. However, the linguistic outcome of these different acquisition types may not be distinct; some authors argue that HL speakers may become indistinguishable from late L2 speakers in various linguistic domains due to reduced language exposure (Montrul 2008). In the same vein, the effort to separate heritage language acquisition from language attrition has not always been effective (see the discussion in Polinsky 2011: "that both attrition and incomplete acquisition are implicated in the final shape of adult heritage grammars"). Taking a step further, picture gets even more complex if we look at linguistic phenomena, which present variation in monolingual speech (Flores & Rinke 2019). Certain non-standard constructions observed in HLs may, in fact, be the outcome of variation typical of the colloquial register of the target language, instead of the effect of delayed acquisition or of erosion. In addition, apparently deviant linguistic constructions may be the outcome of language change over several HL generations (see Rinke & Flores 2021). Furthermore, contradicting conclusions are often due to the comparison of studies using distinct methodology, different language pairs and looking at different types of grammatical structures.

In the present talk, I will hold constant the mentioned factors (i) the type of data (*oral/written corpus data*), (ii) the language pair (*Portuguese-German*) and (iii) the linguistic property under analysis (*verb placement*), while analysing the language competence of different populations of Portuguese-German bilingual speakers with focus on their *German*. Based on four different studies, I will discuss **verb placement patterns** in the speech of:

- **adult heritage speakers of German** living in Portugal with Portuguese as environmental language and **adult heritage speakers of Portuguese** living in Germany with German as environmental language (Oliveira & Flores, in preparation)
- **late second language learners of German**, with Portuguese L1 (Oliveira & Flores, in preparation)
- **child heritage speakers of Portuguese** living in Switzerland with German as environmental language (Flores et al. in press)
- Portuguese-German **returnee heritage speakers** who lost exposure to German (Flores 2010)
- **heritage speakers of Hunsrück German** living in Brasil as 6th / 7th generation descendants of German immigrants (Flores, Rinke, Wagner 2022).

The aim of this talk is to disentangle (to some degree) the effects of language attrition, language acquisition in contexts of varying environmental languages and varying age of onset, language

variation typical of non-standard German and language change. I argue that German verb placement (verb second and verb final, see 1a/b) is very stable in early bilinguals, even in contexts of minority language acquisition over several generations, as long as language exposure is not interrupted in childhood. Contrary, late learners and early bilinguals who experienced prolonged loss of exposure to German in childhood, show similar effects of unstable knowledge (with frequent verb third and non-final placement in subordinate clauses and complex predicates, see 2a/b). Furthermore, apparent non-final placement in verb clusters in the speech of Hunsrück heritage bilinguals (see 3) is the outcome of dialectal variation, and not an instance of language attrition.

- (1) a. Und am Ende **flüchten** der Mann und die Frau.
and at+the end flee the man and the woman
b. Als der Mann dann in die Konditorei reingegangen **ist**,
when the man then in the pastry shop entered has (Oliveira & Flores, in preparation)
- (2) a. Dort ich **spreche** nur Deutsch.
there I spoke only German
b. . . . damit sie **kann** essen.
so that she can eat (Flores, 2010)
- (3) . . . , wo net **het** défa passiera .
where not had should happened (Flores, Rinke & Wagner, 2022).

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Saturday

September 24, 2022

09:30-10:00

Gradient phonotactics in acquisition: A cross-linguistic corpus study

Rowena Garcia & Natalie Boll-Avetisyan
Uni Potsdam, MPI Nijmegen & Uni Potsdam

Among the first things that infants must learn in language acquisition are the phoneme repertoire and the permissible phoneme combinations (i.e., phonotactics) in their ambient language. It has been proposed that phonotactic acquisition is facilitated by universal well-formedness principles (Berent et al., 2007). One of these is the *Sonority Sequencing Principle* (SSP; Selkirk, 1984), which claims that syllables ideally rise in sonority from the edges towards the nucleus (Clements, 1990). Steeper sonority rises (big difference in sonority index between consonant2 & consonant1; e.g., /blik/) are more well-formed than flatter ones (small difference; e.g., /bnik/), while sonority plateaus (0 difference; e.g., */bdik/) and falls (negative difference; e.g., */lbik/) are typically ill-formed. Studies have shown that even newborn listeners prefer SSP-conforming structures compared to SSP-violating ones (Gomez et al., 2014).

Typically, languages are categorically described as either SSP-obeying (e.g., German; Wiese, 1988), or SSP-violating (e.g., Russian; Selkirk, 1984). The present study asks whether both SSP-obeying and -violating languages would show gradient effects of the SSP, and specifically, whether infant-directed speech (IDS) provides enough cues for acquiring an SSP generalization. For this, we calculated corpus-based lexical statistics over German and Russian: We assessed the probability at which consonants form word-initial CC clusters in German IDS to 0;6 to 1;8 infants (lexeme database from Stärk et al., 2021), and the adult lexicon (CELEX lemma database, Baayen et al., 1995). For Russian, we used the IDS to 0;10 to 2;0 infants (Lopukhina et al., 2022), and an adult lexical database (StimulStat, Alexeeva et al., 2018) which we lemmatized using pymorphy2 (Korobov, 2015) to make it similar to the German database. The entries were phonemized using espeak-NG (<https://github.com/espeak-ng/>), and then verified by native speakers of Russian. We then fitted Poisson logistic regression models to determine if sonority contour and index difference predict the log type frequency of a cluster (how many words begin with a given cluster) within each database. If combinations follow the SSP, more well-formed clusters should have higher lexical type frequency. Additionally, we looked at how this changes in sibilant-initial clusters (e.g. sC) which have been proposed to be exempt from the SSP (Goad, 2011).

The results (Fig. 1) show that German categorically follows the SSP in that sonority falls are absent, and most of the non-sibilant-initial clusters are rises in both IDS (15 rises vs 2 plateaus) and adult lexicon (21 rises vs. 5 plateaus). The logistic regression models show that in IDS, contour interacts with whether initial consonants are sibilant or not (Est.=0.97, SE=0.41, $p=0.02$), and so does index difference (Est.=0.53, SE=0.22, $p=0.02$): in non-sibilant-initial clusters, type frequency increases with rising contour and bigger sonority index, while it is the opposite for sibilant-initial clusters. However, the adult lexicon shows no significant effects once item variability is accounted for. In Russian, as expected, SSP does not seem to be followed categorically, as among non-sibilant initial clusters, there are falls and several plateaus (Fig. 2) in both IDS (14 falls, 47 plateaus, and 53 rises) and adult lexicon (3 falls, 30 plateaus, and 46 rises). However, the SSP seems to be followed in a gradient manner: the bigger the sonority index

difference, the higher the type frequencies are in non-sibilant-initial clusters (IDS: Est.=0.26, SE=0.11, $p<0.02$; adult lexicon: Est.=0.27, SE=0.10, $p<0.01$), and non-sibilant-initial rises have higher type frequencies than plateaus (IDS: Est.=0.54, SE=0.24, $p=0.02$; adult lexicon: Est.=0.46, SE=0.22, $p=0.03$).

Overall, the findings show that for German, IDS seems to present more consistent evidence for the SSP compared to the adult lexicon. In Russian, quantitative results from both databases suggest that the SSP can gradiently affect a language that has clusters that violate this principle (see Frisch, 2015). In sum, our study shows that IDS provides enough cues for SSP generalization, and that gradient relations must be considered in phonotactic acquisition.

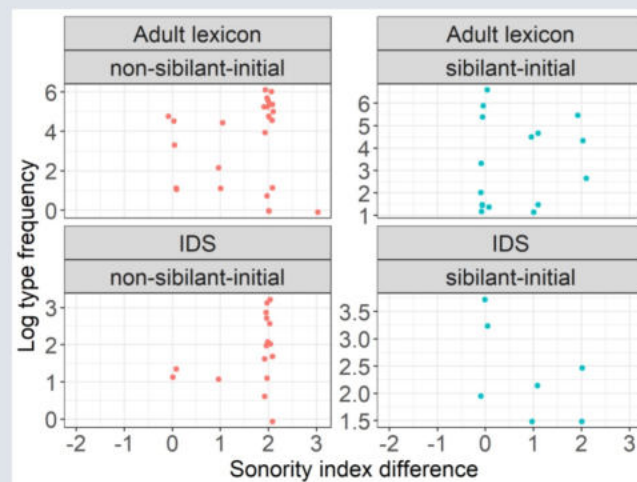


Fig. 1. Log type frequency of consonant clusters in German adult database (from CELEX) and infant-directed speech (IDS; Stürk et al., 2021 taken from CHILDES), categorized by sonority index difference between consonant2 and consonant1, and by the presence of an initial sibilant consonant. Each point refers to a consonant cluster (ex. “bl”, “kn”). Negative values refer to sonority falls, 0 to plateaus, and positive values to rises.

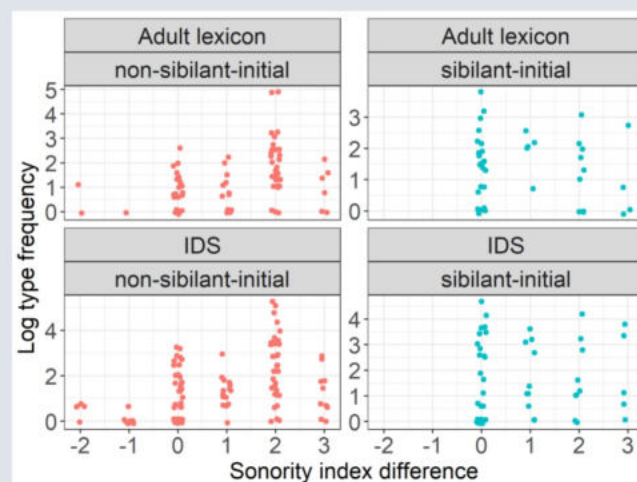


Fig. 2. Log type frequency of consonant clusters in Russian adult database (from StimulStat) and infant-directed speech (IDS; from Lopukhina et al., 2022), categorized by sonority index difference between consonant2 and consonant1, and by the presence of an initial sibilant consonant.

Saturday

September 24, 2022

09:30-10:00

A Parametric Connection between VP Ellipsis and Yes/No Questions

Evan Zysman and William Snyder

Department of Linguistics

University of Connecticut

Storrs, Connecticut, 06269 USA

Two distinctive characteristics of the English auxiliary system are the movement of an auxiliary to C to form yes-no questions (YNQs) as in (1), and the ability of an auxiliary to license VP ellipsis (VPE) as in (2). Do these two characteristics follow from a single, parametric property of English? To find out, we examined the time course of acquisition. If they have the same grammatical source, we expect a systematic relationship in the timing of acquisition: in the simplest case they should first appear together (i.e., at roughly the same age) in any given child acquiring English.

Analysis I: Ages of FRU. Longitudinal corpora for 10 children acquiring English in the U.S./U.K. were selected from CHILDES (Table I). Each child's ages of acquisition for YNQs and VPE were measured by locating the FRU (i.e., the first clear use that was followed soon after by additional, non-identical uses). As shown in Graph I, we found a significant correlation ($r=.8172$, 66.8% of variance explained, $t(8)=4.01$, two tailed $p=.004$), with a best-fit line approximating the identity function ($y=x$).

Analysis II: Controlling for Rate of Language Development. A possible concern is that this correlation could have arisen simply because the ages of onset for VPE and YNQs are both linked to the child's general rate of language development. To test this possibility we used a partial correlation procedure. Specifically, we obtained a control measure, based on MLU, for each child's "developmental readiness" to produce YNQs. First we obtained each child's MLU_w in the transcript containing the FRU of YNQs; mean=2.53 words. Next we determined the child's age in the first transcript with $MLU_w \geq 2.53$ words. This was the MLU_w -based prediction for when YNQs should begin to appear. Finally, we used partial correlation to assess the strength of association between YNQ and VPE when variance explainable by the MLU_w measure had been removed. Results showed that age of onset of VPE is still a significant predictor of the age of onset of YNQs, independently of the child's rate of development: $r_{YNQ, VPE, MLU}=.684$, $t(7)=2.48$, two-tailed $p=.0422$.

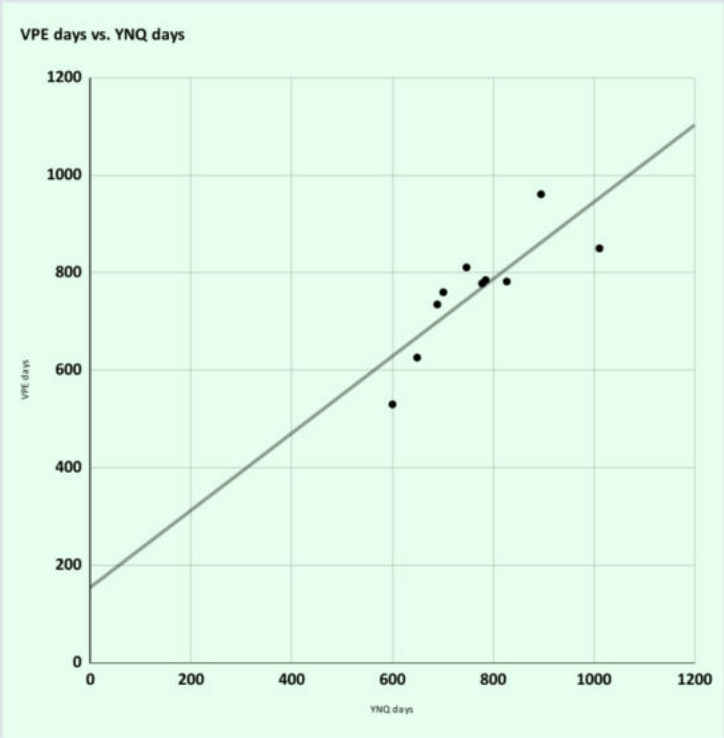
Discussion: Thoms (2010) argues for a close connection between (i) movement of an auxiliary verb (AUX) inside the inflectional system, and (ii) ability of that auxiliary to license VPE. Assuming Copy Theory of Movement, he proposes optionality in what is marked for PF-deletion: Either the lower copy of the AUX (3a), or the constituent to which the moved AUX merges (yielding VPE, as in 3b). Thoms contrasts English with Norwegian, where YNQs move the main V (not an AUX) into C, and where VPE is impossible. When a child recognizes that the AUX in an English YNQ must be moving inside the inflectional system, from a polarity-related position (in NegP/SigmaP) up to TP, it will follow that the movement licenses VPE. Thoms notes that movement of an AUX

to C, for purposes of V2, does not (by itself) license VPE. Given that English T-to-C movement in *wh*-questions is residual V2, this predicts that children's onset of VPE will be much more strongly tied to onset of YNQs than to onset of *wh*-questions - a prediction we are currently testing.

- (1) Can you come over? [YNQ]
- (2) Sure, I can come over, and Cynthia can <come over> too. [VPE]
- (3) a. [TP ... can [ModalP <can> [vp come over]]]
- b. [TP ... can <[ModalP can [vp come over]]>]

Table 1	Adam	Eve	Sarah	Naiomi	Laura	Peter	Nina	Lara	Carl	Naima
Corpus	Brown	Brown	Brown	Sachs	Braunwald	Bloom	Suppes	Rowland	Manchester	Providence
Age of YNQ FRU	2;05,12	1;11,00	2;09,06	1;10,19	1;07,21	2;01,18	2;03,05	2;00,17	2;01,25	1;09,10
Age of VPE FRU	2;06,03	2;01,00	2;03,28	2;00,05	1;05,13	2;01,18	2;01,22	2;02,21	2;01,25	1;08,18
Age of first WH	2;03,18	1;10,00	2;04,26	1;10,18	1;07,05	2;00,10	2;00,10	1;09,13*	1;08,22*	1;06,04

**These uses appear in the child's first recording*



Thoms, Gary., 2010. 'Verb-floating' and VP-ellipsis: towards a movement account of ellipsis licensing. *Linguistic Variation Yearbook* 10, p.252-297.

Saturday

September 24, 2022

10:00–10:30

On the monosyllabic and disyllabic truncations in child Greek

Eirini Ploumidi
University of Crete

In this case study, we investigate the parallel realizations of monosyllabic and disyllabic truncations by focusing on longitudinal data, obtained from spontaneous speech and a picture-naming task, from a monolingual typically developing Greek-acquiring child (ages range: 1;10.18–2;06.00). Studies show that stressed and/or final syllables surface in the truncated outputs due to perceptual saliency whereas the unstressed and/or non-final ones are deleted (e.g. English: Echols & Newport 1992, Dutch: Fikkert 1994, Japanese: Ota 2006, Hebrew: Ben-David & Bat-El 2017). Adam (2002) reports that, in child Hebrew, monosyllabic truncations consist of the stressed or the unstressed final or an unstressed non-final syllable.

In this study, we show that monosyllabic and disyllabic truncations occur in parallel, indicating intra-child variation in the course of phonological acquisition, and we claim that the initial consonant of the truncated form is selected on the basis of the favored LABIAL PLACE OF ARTICULATION (PoA). The child's grammar provides evidence for a LABIAL-LEFT effect since it favors a LABIAL consonant to be the initial onset in the realized form. Three patterns result in the LABIAL-LEFT effect:

PATTERN 1: As expected, if the initial onset of the target form is a LABIAL consonant, this segment is realized in this position (la-b, e, f-g).

PATTERN 2: Deletion of the initial syllable occurs in order that an input non-initial LABIAL onset be realized word-initially. The LABIAL consonant, which is marked in PoA, surfaces as initial onset despite that a CORONAL consonant, which is unmarked in PoA, is the initial onset of the target form (e.g. ld). Also, deletion of the initial syllable occurs even if a DORSAL consonant, which is marked in PoA, is the initial onset in the adult form (lc).

In PATTERNS 1–2, the vowel of the monosyllabic form is that of the stressed (e.g. la) or that of the rightmost syllable, i.e. the syllable which is at the right edge of the word (e.g. lc).

PATTERN 3: An input initial non-LABIAL onset is metathesized in order that the LABIAL consonant be realized word-initially (lh).

The formal analysis is couched in the framework of OPTIMALITY THEORY (Prince & Smolensky 1993/2004). In the initial developmental phase, the constraint ranking is MARKEDNESS >> FAITHFULNESS. In the intermediate phase, due to the constraint reranking, some M constraints are demoted and are dominated by some F ones. Our data reflect an intermediate grammar which demands the initial onset be LABIAL. The selection of the LABIAL as initial onset reflects (i) a LABIAL-LEFT effect due to the higher ranked ALIGNLAB/LEFT and (ii) a case of conspiracy (Kisseberth 1970) and of heterogeneity of process and homogeneity of target given that the LABIAL consonant surfaces word-initially as a result of PATTERNS 1–3. The patterns of syllable deletion and metathesis provide evidence that the F constraints MAX (no deletions) and LINEARITY (no metathesis) are ranked relatively low.

We argue that the parallel productions of monosyllabic and disyllabic truncations, even for the same target form (e.g. la, f), are instances of intra-child variation, which normally occurs during the prosodic development. The parallel realizations of mono- and disyllabic truncations

provide evidence that PRWd=σ (Prosodic word = one syllable) and PRWd=FT (Prosodic word = one foot) are ranked relatively high in the constraint hierarchy. Note that, in the literature, it is reported that monosyllabic truncations occur during the SUB-MINIMAL WORD STAGE (e.g. Demuth & Fee, 1995) and that disyllabic ones occur during the MINIMAL WORD STAGE (e.g. Demuth & Fee 1995). In this study, we claim that the *co-occurrence* of the mono- and disyllabic truncations reflects the pre-minimal word stage in the child's grammar. We argue that this stage serves as a transitional one, e.g., it gradually guides the transition from the sub-minimal word stage to the minimal word stage and can be seen as the precursor for the gradual establishment of the disyllabic prosodic forms in the child's typically developing system.

Data

(I)	Adult form	Child form	Gloss	Age
MONOSYLLABIC TRUNCATIONS				
a.	pa.de.'lo.ni	'po	'trousers- NEU. NOM. SG.'	1;11.01
b.	mo.'ro	'mo	'baby- NEU. NOM. SG.'	1;11.01
c.	ka.'pe.lo	'po	'hat- NEU. NOM. SG.'	1;11.08
d.	le.'mo.ni	'mo	'lemon- NEU. NOM. SG.'	2;00.06
e.	ma.ka.'ro.ɲa	'mo	'spaghetti- NEU. NOM. PL.'	2;03.15
DISYLLABIC TRUNCATIONS				
f.	pa.de.'lo.ni	'po.ni	'trousers- NEU. NOM. SG.'	1;11.01
g.	ma.ka.'ro.ɲa	'ma.na	'spaghetti- NEU. NOM. PL.'	1;11.08
h.	ka.na.'pe	pe.'te	'sofa- MASC. ACC. SG.'	1;11.08

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Saturday

September 24, 2022

10:00–10:30

When locality matters: on the acquisition of nominal ellipsis in Italian

Caterina Tasinato & Emanuela Sanfelici

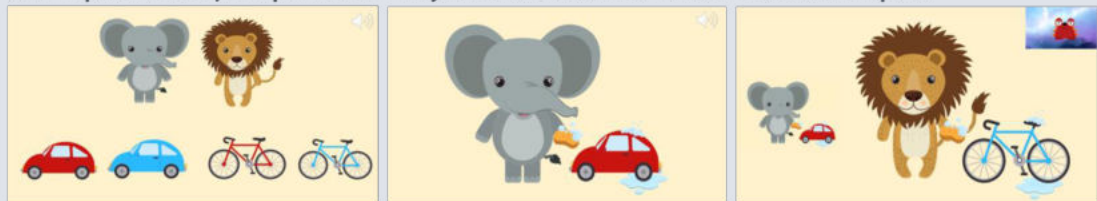
University of Padua

This paper investigates the comprehension of nominal (NP) ellipsis in typically developing Italian children. Ellipsis is the operation that allows syntactic constituents to be unpronounced but still interpreted, as their meaning is recoverable from the context. Ellipsis applies under specific syntactic and semantic conditions, most notably locality and identity between the elided material and the antecedent (Merchant 2001). The usual form-meaning mapping appears to break down in ellipsis since there is meaning without form (Merchant 2016). Understanding how a child acquires a meaningful silent form is a challenge (Roeper 2007, 2018). Previous studies have mainly investigated NP ellipsis in children's spontaneous speech (Snyder/Senghas 2001; Ntelitheos/Christodoulou 2005; Sleeman/Hulk 2013). Conversely, the comprehension of NP ellipsis was studied experimentally only by Wijnen & Roeper (2004). Testing NP ellipsis licensed by a discourse antecedent, the authors found that children successfully comprehended the ellipsis, although residual non-adult interpretations were found. It is still open whether and how other structural types of NP ellipsis can be comprehended by children. Theoretical studies have indeed noticed that, depending on the syntactic portion targeted by ellipsis and the position of its antecedent, i.e., local vs. discourse, elliptical structures exhibit different properties (van Craenenbroeck/Merchant 2013). To address this issue, we developed a novel picture-supported Truth Value Judgment Task that tested children's comprehension of NP ellipsis in two structures differing for locality: discourse ellipsis, where the antecedent and the elided NP sit in two independent sentences (1a); coordination ellipsis, where the antecedent and the elided NP form a coordinated DP (1b). 85 3- to 5-year-old monolingual Italian-speaking children (Age 3 $n=22$; Age 4 $n=32$; Age 5 $n=31$) and 22 adults were tested. The experiment comprised 8 test items divided for two conditions: (i) the Identity relation between the elided NP and its antecedent, identical vs. non-identical; (ii) the Structure, discourse vs. coordination ellipsis. 6 controls were included to verify the non-elliptical counterparts of the tested conditions. Each test item consisted of a story paired with three pictures (2). A narrator introduced the characters of the story (2a), then an animal performing an action on an object DP, which was the ellipsis antecedent (2b). In the target image (2c) another animal was depicted performing the same action as in (2b) but on a DP object manipulated for the Identity condition. The narrator asked an animated dragon puppet what the animal was doing. Puppet's answers were manipulated for the Structure condition (1). Participants were asked to judge whether the puppet's answer matched the target image or not. We calculated how many true and false responses participants gave (Graphs 1/2). These responses were analyzed statistically (generalized linear mixed-effect model, followed by Tukey multiple comparisons). Children's amount of true responses was overall higher than adults' (Age $p<.001$), but it did not differ across age groups. True responses were more frequent when the elided NP and its antecedent were identical than when they were non-identical (Identity $p<.001$) and when the elided NP occurred in discourse ellipsis than when it was in coordination (Structure $p=.001$). In the Non-Identity condition, children replied in a target-like fashion more often in coordination than in discourse ellipsis (Identity * Structure $p=.02$). Our findings reveal that overall NP ellipsis is comprehend by children already at age 3,

although non-target interpretations are also attested as in Wijnen/Roeper (2004). Moreover, in licensing ellipsis children exhibit sensitivity to locality. While in coordination they recovered the elided NP from its local antecedent, recoverability of the elided NP was harder with discourse antecedents. In this case, children interpreted the remnant as an ostensive deictic pronoun, thereby diverging from adults. We account for children's difficulty in terms of intervention (Rizzi 2004): the recoverability of NP ellipsis with a discourse antecedent is problematic because the subject DP, featurally identical to the object DP, intervenes in the chain formation between the antecedent and the elliptical site (3). Conversely, no intervener is present in coordination ellipsis and therefore, the chain can be formed overcoming intervention.

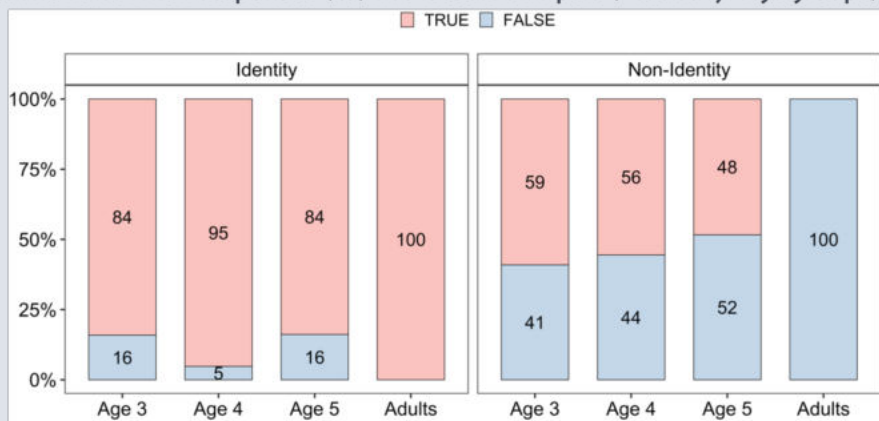
- (1) a. [_{CP1} L'elefante lava [_{DPant} la macchina rossa]] [_{CP2} Il leone lava [_{DPellipsis} quella_azzurra]]
 'The elephant washes the red car. The lion washes the blue one'
 b. [_{CP} Il leone lava [_{CoordP} [_{DPant} la macchina rossa] e [_{DPellipsis} quella_azzurra]]]
 'The lion washes the red car and the blue one'

(2) Tripartite story: sequence of images for the test item (1a) (Discourse ellipsis)

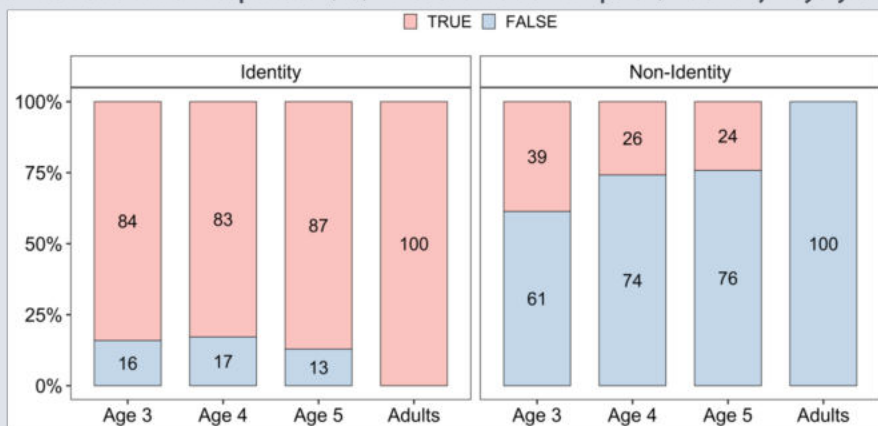


a. The characters of the story b. The antecedent 'the red car' c. The elided NP 'the blue one'

Graph 1. TRUE and FALSE responses (%) in Discourse Ellipsis (*Identity*Age groups)



Graph 2. TRUE and FALSE responses (%) in Coordination Ellipsis (*Identity*Age groups)



(3) [_{CP1} ... [_{DPant} la macchina rossa]] [_{CP2} (Il leone) lava [_{DPellipsis} quella_azzurra]]

✗

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Saturday
September 24, 2022
11:00–11:30

A' and A movement in Portuguese cochlear implanted children: The effects of length of language exposure

Mara Moita^{1,2}

¹Centro de Investigação Interdisciplinar em Saúde (ICS-UCP)

²Centro de Linguística da Universidade NOVA de Lisboa (FCSH-NOVA)

In the period in which language should be acquired, auditory input deprivation compromises oral language exposure. The literature reports difficulties in the oral production and comprehension of wh-questions and relative clauses in hearing-impaired children as a consequence of language deprivation in the first year(s) of life (1–4). These difficulties are pointed out as arising from the inability to establish dependencies resulting from A' movement (2,5). However, in the acquisition of syntactic structures with A-movement, divergent results are reported. If, on the one hand, in the acquisition of passive sentences, hearing-impaired children without hearing aids show difficulties in reading and writing (6,7), on the other hand, hearing-impaired children with hearing aids do not show difficulties in the comprehension and production of passives (8,9).

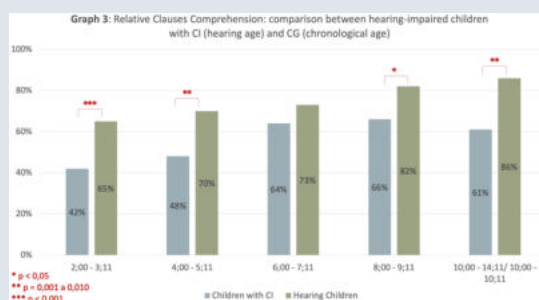
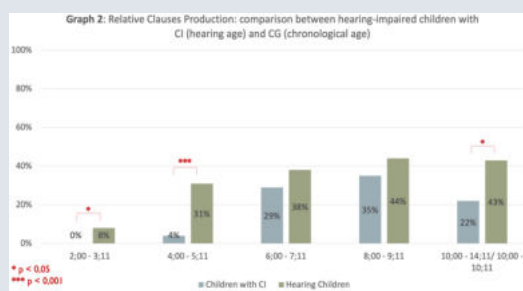
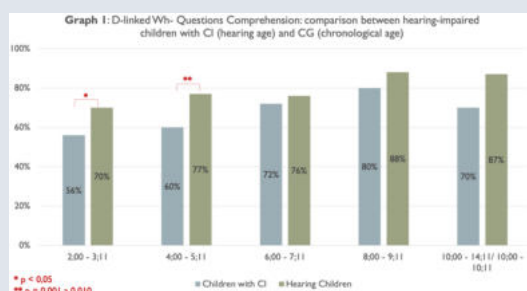
The main goal of this study is to analyse and describe the effects of the total deprivation of linguistic input during the first year(s) of life and length of language exposure on the acquisition of dependencies with A and A-bar movement in Portuguese hearing-impaired children with cochlear implants. For this purpose, we analysed data from 47 Portuguese children with profound to severe bilateral and prelinguistic hearing impairment, and with cochlear implant(s) (CI) (with hearing ages between 2;00 and 14;11 years) in oral production and comprehension tasks of wh-questions, relative clauses, and passive sentences. The performance of the target population was compared with that of the control group (CG) paired by hearing age and chronological age. We also considered the effect of age of activation of the CI.

In general, the results in the oral production of wh-questions and passive sentences reveal that Portuguese hearing-impaired children with CI have difficulties and significantly lower performance compared to their hearing peers. Asymmetries between subject and object wh-questions show that these children are sensitive to intervention effects (10,11).

However, when the target population reaches 6/7 length of oral language exposure (hearing age) and presents a CI activation before 3 years of life, Portuguese hearing-impaired children's performance is not statistically different from the CG in d-linked wh-questions comprehension (graph 1), relative clauses production (graph 2) and comprehension (graph 3). These results contradict the existence of a syntactic deficit (2,5), indicating the possible existence of a delay in the acquisition of wh-questions and relative clauses dependent on the length of language exposure and the age of CI activation - variables that, when combined, reveal to be the best predictors of comprehension of these structures.

Passive comprehension proves to be problematic for Portuguese hearing-impaired children with CI even at the higher length of language exposure and early CI activation, corroborating the results from studies on children with severe to profound hearing loss (6,12) and contradicting the results from studies on children with hearing aids (8,9).

Figures:



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Saturday

September 24, 2022

11:00–11:30

Alternative representations for CL strings in atypical phonological development

Aliza Ellner & Heather Goad

McGill University & Boston University, McGill University

Introduction: In adult languages, the presence of branching onsets implies the presence of a liquid contrast (Archibald 1989). If typically-developing children have access to the same structures and constraints as adults (e.g., Pinker 1984; Gnanadesikan 1995/2004; Pater & Barlow 2003), we expect their grammars to mirror the patterns observed across adult languages. Thus, although branching onsets (e.g., Smit 1993a; Fikkert 1994) and liquids (e.g., Smit 1993b; Dodd et al. 2003) both emerge late in phonological development, any difficulties that children exhibit should not result in a grammar that permits branching onsets but lacks a liquid contrast. Although the relationship between atypically-developing and adult grammars has been less widely explored, we provide support for this prediction in atypical phonological development.

We investigate the status of Archibald's implicational universal in the grammars of eight atypically-developing children, using data from the Clinical German Neumann/Fox-Boyer Corpus (Fox-Boyer 2002, 2014) available on PhonBank (Rose & MacWhinney 2014). This corpus provides recordings and broad transcriptions from 29 German children diagnosed with a phonological disorder performing a picture-naming task. In the corpus transcriptions, eight children appear to have obstruent+liquid (CL) branching onsets but no stable contrast between /l/ and /ʁ/. However, Munson et al. (2017) urge caution in interpreting broad transcriptions because some documented patterns in child phonology involve covert contrast (Scobbie 1989): genuine contrasts misidentified by transcribers because they are filtered through the adult perceptual system. We use phonotactic and acoustic evidence from narrow transcription undertaken with the assistance of Praat (Boersma & Weenink 2017) to support an alternative representation of CL strings in these children's productions, namely the presence of a nucleus between C and [l].


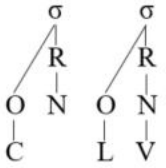

Analysis: Obstruent+liquid (CL) strings separated by a nucleus can be found in adult languages. They display phonotactic and acoustic profiles which differ from CL branching onsets. For example, unlike in branching onsets (e.g., German [kʰlasə] 'class', (1a); cf. *[tʰlasə]), place sharing is permitted (e.g., Hindi [titli:] 'butterfly' (1b); Mokha & Goad 2021). Further, C and L may be separated by an interval which is either filled with an overt vowel (e.g., Japanese loans and L2 English outputs [bʊru:] 'blue' (1c); Yazawa et al. 2015) or left empty, signalled by an optional pause (e.g., Hindi [tit__li:] (1b); Pandey 1989). Finally, liquids do not devoice following aspirated stops (e.g., English fast speech [tʰrein] 'terrain' (1b); cf. [tʰrein] 'train' (1a)).

Of the children's attempts at CL which appear target-like in broad transcription, in narrow transcription only 14% show the phonotactic and acoustic profile of branching onsets. In 4%, CL was transcribed but only C was produced. Notably, the remaining 82% have profiles matching those in adult languages where C and L are separated by an empty or filled nucleus; see (2) and (3). In the former case, the empty nucleus is evidenced by a pause between C and [l] (2a) and place sharing can hold between C and [l] (2b), both parallel to Hindi (1b). Also, [l] fails to devoice following aspirated

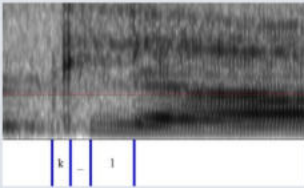
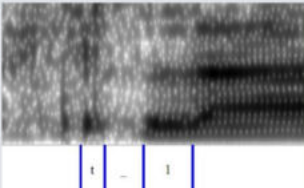
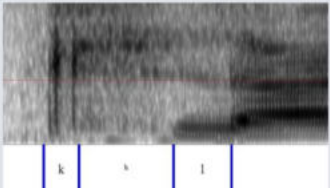
stops (2c), parallel to English fast speech (1b). In the latter case, the nucleus can be filled by schwa (3a), parallel to Japanese loanwords and L2 English (1c), or by aspiration (3b), parallel to ‘syllabic’ stops in Nxạmxcín (Hoard 1978), sometimes with anticipation of features resulting in a voiceless lateral fricative [ɬ] between C and [l] (3c).

Discussion: We argue that these children employ an alternative syllabification of Cl strings which is also found in adult languages: a nucleus, empty or filled, interrupts C and [l]. Their grammars thus conform to the implicational universal identified above for adult grammars. We propose that this syllabification for Cl strings is motivated by immature speech motor patterns that cannot coordinate two consonants within a single constituent, as such immaturities are often found in children with phonological disorders (Namasivayam et al. 2020). These findings highlight the contribution of acoustic data and phonotactics for informing the representation of phonological systems, especially those of children.

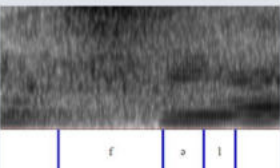
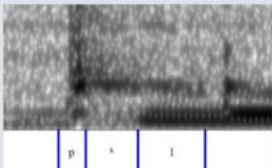
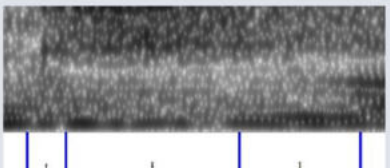
(1) Syllabification of CL strings:

a. Branching onset	b. Empty nucleus	c. Filled nucleus
 <p>German: [kʰ]asə ‘class’ English: [tʰreɪn] ‘train’</p>	 <p>Hindi: /titəli:/ → [titli:] ~ [tit_li:] ‘butterfly’ English fast speech: /tʰəreɪn/ → [tʰreɪn] ‘terrain’</p>	 <p>Japanese loanwords and L2 English: /blu:/ → [buru:] ‘blue’</p>

(2) Empty nucleus:

a. Pause: [kl] → [k_l]	b. Place sharing: [fl] → [t_l]	c. No devoicing: [kʰl] → [kʰl]
 <p>24ms</p>	 <p>24ms</p>	 <p>24ms</p>

(3) Filled nucleus:

a. Epenthesis: [fl] → [fəl]	b. Aspiration: [pl] → [pʰl]	c. Frication: [kl] → [tɬl]
 <p>52ms</p>	 <p>32ms</p>	 <p>94ms</p>

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Saturday

September 24, 2022

11:00–11:30

The “Growing Trees” approach and the development of the left periphery in Brazilian Portuguese

Miguel Meira, Elaine Grolla
(University of São Paulo)

Based on longitudinal data from Hebrew, [1] propose that the process of language acquisition follows the geometry of the syntactic tree in its cartographic design, as described by [2] and [3]. The authors [1] traced three phases for the acquisition of Hebrew, having observed that 1) the order of those phases is constant; 2) the onset of a new phase is marked by the simultaneous emergence of a set of syntactic phenomena in the child's linguistic production; 3) the syntactic tree always grows “from the bottom to the top”, i.e., the acquisition of higher functional layers also occurs later. This approach, coined “Growing Trees”, considers that the functional projections above IP are added to the tree in two steps: in the first, so-called Stage 2, the lower left periphery is added, allowing the emergence of the different structures shown in fig 1 below (such as WH-questions, polar questions, S-V inversion, preposed adverbs and cleft sentences); and subsequently in Stage 3, the upper left periphery is added, which sets off the remaining structures (topicalizations, relative clauses, embedded declaratives and interrogatives and *why*-questions).

This paper analyzes the spontaneous, longitudinal data of one child acquiring Brazilian Portuguese (BrP) having the ‘Growing Trees’ approach as its theoretical background. Our corpus is comprised of 150 sessions and 75 hours of audio of the child Lz, who was recorded weekly between the ages of 1;07;12 and 5;00;02. We collected and coded all of the child’s utterances that involved the activation of projections from the left periphery.

We observe that the first structures to emerge in the child’s productions are Wh-questions and polar questions at 1;7. S-V inversion emerges at 1;10 and cleft sentences and preposed adverbs both emerge at 2;0. All of these structures are claimed to be from Stage 2. After all of them had emerged, at 2;2 the first structure related to Stage 3 is produced: topicalization. At 2;4, embedded declaratives are produced for the first time, followed by relative clauses at 2;5. Embedded interrogatives emerge at 2;9 and finally *why*-questions are produced for the first time at 2;10.

This data indicates that all the syntactic structures from Stage 2 had already been present in the child’s speech for at least two months before the first appearance of a Stage 3 construction. We take it as corroborating evidence (from a language unrelated to Hebrew) to the universality of the order of emergence of syntactic phenomena according to the cartographic representation, and hence to the maturational pattern suggested by the “Growing Trees” approach.

Our data is also relevant in teasing apart proposals concerning the internal structure of cleft interrogatives (as (1)) in the adult language. [4] proposes the ‘*que*’ (‘that’) present in these questions is the lexicalized head of Q, the head of QP. [5], on the other hand, states that this is a complementizer that sits in Force, the head of ForceP. In the ‘Growing Trees’ approach, QP is claimed to be a Stage 2 projection, while ForceP is a Stage 3 projection. This type of cleft question emerges quite early in the child’s production, at 2;0 years of age. At this stage of her

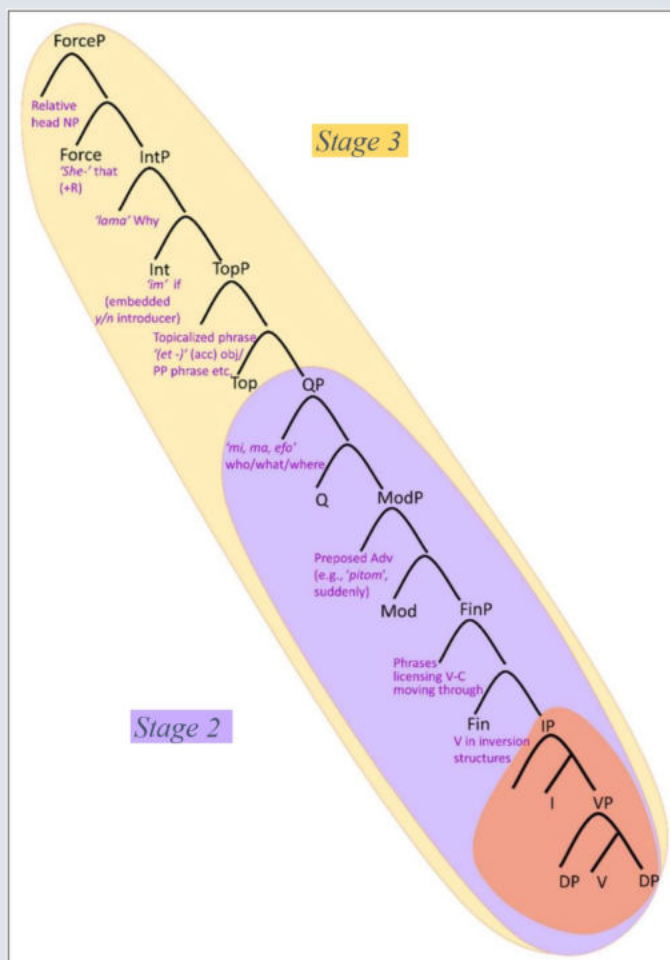
development, Lz had not activated projections from Stage 3 yet. So, we are led to the conclusion that [4]'s analysis is on the right track as it is in accordance with the acquisition data.

We conclude that our BrP data is in accordance with what the 'Growing Trees' approach predicts. The emergence of all of the child's structures related to the left periphery are produced respecting the cartographic hierarchy, starting with the internal layers (FinP, ModP and QP) and ending with the external ones (TopP, IntP and ForceP). Our child data makes it possible to tease apart competing proposals about the structure of cleft questions in adult BrP, providing a clear example of a case where language acquisition studies can offer new types of evidence to address issues that are hard to settle purely with adults' data.

Example

- (1) O que que ele viu?
What that he saw
'Who did he see?'

Figure 1: the full cartographic representation, showing the structures acquired with each stage (from Friedmann et al. (2021)).



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Saturday

September 24, 2022

11:00–11:30

Applying Constraint Demotion algorithm to Parameter-setting

Kangzheng Gao

University of Connecticut

Background: In Principles-and-Parameters syntax, acquisition takes the form of parameter-setting: Universal Grammar provides limited options, and learners use the input to choose. Trial-and-error approaches (Gibson & Wexler 1994, Yang 2002) predict far more commission errors than children produce, and may have difficulty with superset traps*. Snyder (2016) advocates a more conservative model like Fodor's Structural Trigger Learner (STL). Yet, while STL predicts few commission errors, it requires parametrically unambiguous input, which is rare. Tested on a realistic parameter space (CUNY-CoLAG domain), STL failed on some of the possible grammars.

New Approach: Tesar & Smolensky's RIP/CD algorithm ('Robust Interpretive Parsing-Constraint Demotion'), developed for OT (Optimality Theoretic) phonology, is modified to set syntactic parameters. We investigate (1) this learner's ability to avoid superset traps, and (2) the expected errors during language production.

Methods: Our version of RIP/CD was tested on CUNY-CoLAG domain. Each parameter was translated into a pair of OT constraints. Then, in a computer simulation, the learner had to distinguish "CoLAG-English" from 13 "competitor" languages, each differing by a single parameter-setting. These languages are part of CoLAG domain (3,072 languages). In the learner's initial ranking, the more restrictive constraint for each subset parameter, and all the constraints for non-subset parameters, were placed together in a single stratum. For subset parameters, the less restrictive constraints began together in a second stratum, ranked below the first. The learner received CoLAG-sentences*, one after another, from the target language. For each new 'datum', OT's 'GEN' function generated candidate structures containing the same elements (in any order). The most harmonic structure (under the current constraint-ranking) was the "**production**" parse; the most harmonic structure matching the datum's linear order was the "**interpretive**" parse. **Constraint Demotion** applied until these two parses were the same; then the learner moved to the next datum. "Success" was a stable-state ranking corresponding to the target parameter-settings.

Results and discussion

(a) **Target=CoLAG English:** The learner successfully **avoids all superset traps**. **Production:** Relative to trial-and-error models, **far fewer commission errors** are expected. Assuming that a given target utterance has similar frequency in the input and production, there should be few erroneous attempts before a relevant input datum arrives; at that point, Constraint Demotion will bring the learner's production parses into (near) conformity with the input. Interestingly, some of the parameters that take the longest to set pertain to English **Affix Hopping & V-to-I movement**, a major locus of commission errors in children's spontaneous speech.

(b) **Target=Competitor:** Acquiring the 13 "competitor" languages, no superset errors occurred.

(c) **Non-target results (Table I):** when the parameters are not set to the target value, they remain in default setting; this is not a superset situation. In the simulation, for these constraints, there were no unmatching "production" and "interpretive" parse pairs to trigger constraint demotion.

Summary Initial testing of a first-pass implementation is successful at avoiding superset traps. The expected frequency of commission errors during language production is commensurate with findings from children. Adapting RIP/CD to set syntactic parameters is a promising new approach to parameter-setting.

[499 words]

1. number of languages in which the parameter is set to the target value (out of 14 languages)

Subject Position	Headedness in IP, VP, PP	Headedness in CP	Topic marking	I to C & Question Inversion	Preposition Stranding	Wh-movement	Null Argument	V to I & Affix hopping
14	14	14	13	I*	8	13	I*	9

*I to C movement & Question Inversion and Null Argument parameters stay in the default setting (subset options).

2. Types of production errors when learning English

	CoLAG parameter	Example of errors
1	Subject Position	[_{IP} [_{VP} V] S] (correct: [_{IP} S [_{VP} V]])
2	Headedness in IP, NegP, VP, PP	[_{VP} O V] (correct: [_{VP} V O])
3	Headedness in CP	[_{CP} [_C C IP]] (correct: [_{CP} [_C IP C]])

3. additional explanations and examples:

(a) **Superset trap:** subset parameters are parameters whose different values result in grammars that are subsets of one another. A learner provided with only positive evidence may be trapped in a superset grammar because there is no evidence for the subset value.

(b) an example of CoLAG sentence (=a string of syntactic constituents): S Aux[+Fin] Verb Adv

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Saturday

September 24, 2022

11:30–12:00

Growing trees: How children climb the syntactic tree

Naama Friedmann

Tel Aviv University

In the beginning of their language acquisition, children do not master yet the whole array of syntactic structures. With time, they acquire more and more syntactic structures. In my talk I will suggest that as the children grow, their syntactic tree grows as well, and I will show that the stages of the growing trees follow closely the cartographic structure of the tree.

I will mainly present a recent work done in collaboration with Adriana Belletti and Luigi Rizzi (Friedmann, Belletti, & Rizzi, 2021), on the basis of data collected by Friedmann and Reznick (2021). The analysis combines:

- a. an analysis of the spontaneous speech of 65 typically developing Hebrew-acquiring children aged 1;6–6;1 (27,696 utterances).
- b. the cartography of the clausal structure, drawing articulated maps of different zones of the syntactic tree, in particular of the left periphery (Rizzi 1997).
- c. a Guttman scale approach (Guttman 1944), which captures implicational dependencies between grammatical properties in acquisition.

Based on the data analysis results, we suggest a **growing trees approach** for capturing the acquisition of syntactic structures. The heart of our account is that stages of acquisition follow the geometry of the syntactic tree, with early stages corresponding to small portions of the adult syntactic tree, which keeps growing bottom-up with the growth of the child. The lower parts of the tree are acquired first, and higher parts are acquired later (for previous bottom-up acquisition accounts cf. Radford 1990; 1996; Guilfoyle & Noonan 1992; Clahsen 1990/1991; Clahsen et al. 1993/1994; 1996, Armon-Lotem 2008).

The three stages of the growing tree that we suggest are:

- 1) a stage solely involving the IP structure, including the lexical and inflectional layers, including **A-movement** of the object of unaccusative verbs to subject position, alongside SV sentences with inflected unergative/transitive verbs, but no manifestation of left peripheral positions (stabilizing at age 1;10);
- 2) a stage in which the lower field of the left periphery is acquired, including finiteness (Fin), Mod (attracting preposed adverbials) and Q (possibly identical to Foc). This allows for the acquisition of **root argument Wh-questions and some adjunct Wh-questions, yes/no questions**, and declaratives with **preposed adverbs** (stabilizing at age 2;5);
- 3) a stage in which the higher field of the left periphery is acquired, including Top, Int (hosting the embedded question marker *if* and *why*) and Force (introducing all finite embedded clauses, including relatives). This allows for the acquisition of **relative clauses, topicalization**, and **why questions** (main and embedded); importantly, this stage is concomitant to the appearance of **finite clause embedding**, of both declaratives and interrogatives (stabilizing 3;3–4;0).

Time of appearance of a given structure varied significantly between children. Nonetheless, the relative order of acquisition of the various structures remained constant across children, and created a perfect Guttman Scale. We suggest that these stages are fully defined in terms of the growth of the cartographic tree.

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Effect of temporary ambiguity in Mandarin-speaking children's comprehension of relative clauses

Jiawei Shi, Peng Zhou
(Tsinghua University)

While the predominant focus in relative clause (RC) research is on the extraction site of the head noun, some other processing factors are also claimed to influence the comprehension of RCs (Lau & Tanaka, 2021). One factor that often causes difficulties in comprehending Mandarin RCs as in (1) is temporary ambiguity. For example, due to Mandarin's SVO word order and RCs' prenominal position, in (1) the RC embedded subject *xiaoyang* 'sheep' is processed immediately after the main clause verb *daizou* 'take', so it could be first misinterpreted as the direct object of the main clause, and thus to correctly understand (1) requires later revision that is often considered challenging for young children (e.g. Trueswell et al., 1999). Our study investigates how temporary ambiguity influences Mandarin-speaking preschoolers' comprehension of relative clauses, by manipulating the (in)compatibility between the main clause verb and the RC embedded subject.

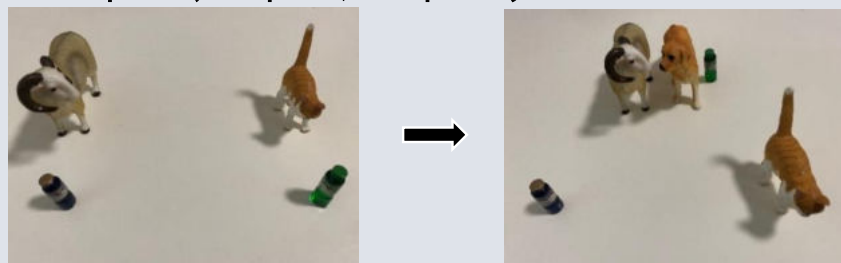
Twenty-seven Mandarin-speaking 3-year-olds, 30 4-year-olds and 30 5-year-olds participated in a Truth Value Judgment Task. 6 test items were constructed, each containing a story and three sentences of Type A, B and C respectively. Type A (e.g., (1)) and Type B (e.g., (2)) were target sentences, both of which contained object-modifying, object-extracted (OO-type) RCs, but differed in the (non)existence of temporary ambiguity. In (1), the main clause verb *daizou* 'take' could take an animate or inanimate noun as its complement (*OO-Neutral*), whereas in (2), the verb *hexia* 'drink' could only take an inanimate noun as its complement (*OO-Biased*). If the parser incrementally used verb information, then when processing (1) but **NOT** (2), it might initially misinterpret the animate RC embedded subject *xiaoyang* 'sheep' as the direct object of the main clause. Thus, to correctly understand (1) a later revision of the initial misinterpretation was required, but no such revision was needed for (2). Type C sentences served as controls, containing object-modifying, subject-extracted (OS-type) RCs. The 6 test items were divided into three experimental lists. Each list contained two sentence types, each type having 3 stories. Participants were randomly assigned to one of the lists. On a typical trial, participants were presented with a story (see the example story). When the story concluded, a puppet in the computer described what happened in the story using the recorded prosody-controlled sentence in (1). Responses were coded as correct only when participants correctly justified their rejections.

The results (see Fig. 1) were analyzed using GLMMs. We found that age and sentence type were both reliable predictors. Post-hoc analysis showed that 3-year-olds provided correct responses significantly less often than 4- and 5-year-olds in *OO-Neutral* condition, and significantly less often in *OO-Neutral* condition than in *OO-Biased* condition. However, 3-year-olds were similar to 4-year-olds in *OO-Biased* condition, and so did the older groups between *OO-Neutral* and *OO-Biased* condition. The findings suggest that the OO-type RCs in our study were difficult for 3-year-olds, but **NOT** for older children. However, the difficulties by 3-year-olds in OO-type RCs could be alleviated when there was no temporary ambiguity in the structure. These results further

enhance our understanding of the important role of processing factors in children's language acquisition, and call for more comprehensive research on child RC processing.

- (1) Xiaogou daizou le xiaoyang mai DE guozhi (OO-type, V-neutral)
 dog take ASP sheep buy DE juice
 "The dog took the juice that the sheep bought."
- (2) Xiaogou hexia le xiaoyang mai DE guozhi (OO-type, V-biased)
 dog drink ASP sheep buy DE juice
 "The dog drank the juice that the sheep bought."

An example story (simplified, corresponding to sentence (1))



This was a story about the sheep (S), the cat (C) and the dog (D). Both S and C bought a bottle of juice. D came and asked them to go swimming. In the end, D took S, but not C, to swim, along with this juice (that C bought), but not that juice (that S bought). **Note:** there was no explicit use of RCs in the story, and the bracketed RCs were indicated by pointing to the relevant objects. **The correct justification** to reject (1) should be "D didn't take that juice (that S bought)".

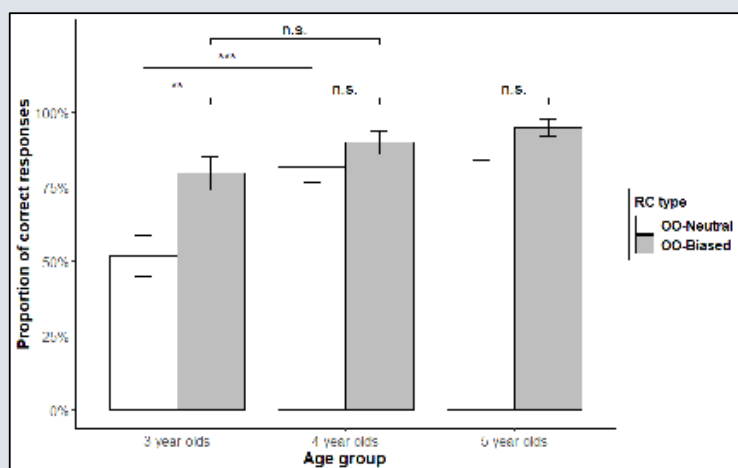


Fig.1 Mean proportions of correct responses by three age groups. Significance levels of selected post-hoc comparisons are represented in lines (n.s.= not significant, ** $p < .01$, *** $p < .001$).

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Abstracts

- Posters -

Thursday

September 22, 2022

Poster I

The role of number, gender and case mismatch in the comprehension of object relative clauses in child Greek

Ioanna Kolokytha¹, Dimitra Arfani², Spyridoula Varlokosta²

¹Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Unter den Linden 6, 10099 Berlin, Germany, ²Department of Linguistics, University of Athens, 15784 Ilissia, Greece

Introduction. Difficulties in the comprehension of non-canonical structures in child grammar have been discussed within the *Relativized Minimality* (RM) approach to locality (Rizzi, 1990, 2004). According to RM, object dependencies are easier to comprehend when the moved and the intervening subject DP are structurally dissimilar. Structural dissimilarity between the two DPs has been defined in terms of mismatch in lexical NP restriction (Friedmann et al., 2009) or mismatch in feature specification (e.g., Adani et al. 2010; Belletti et al., 2012). According to the feature-based approach, only syntactically active features, i.e. features attracting movement, count in the computation of the A-bar-moved object chain and can reduce minimality effects (e.g., Belletti et al., 2012; Friedmann et al., 2017). The aim of the present study is to examine the comprehension of object relative clauses (ORCs) by Greek-speaking typically-developing children in light of the feature-based approach to RM, focusing on the role of number, gender, and case mismatch. Number is a syntactically active feature in Greek, whereas gender and case are not. Thus, the feature-based approach predicts better performance in conditions with number mismatch compared to conditions with gender or case mismatch between the moved and the intervening DP in the comprehension of ORCs in child Greek.

Method. An off-line sentence comprehension task was administered to 80 typically developing Greek-speaking children (age range: 5;42 - 7;25 years; mean age: 6;42 years; SD: 0.46) and 20 healthy adults. Stimuli consisted of 80 ORCs divided in 8 conditions to systematically manipulate number, gender, and case match and mismatch (see table 1) as well as 10 fillers (SV0 matrix clauses).

Results. Overall, higher performance was observed in the gender, case and number mismatch condition (95,9%) compared to the gender, case and number match condition (72,9%) (see Figure 1 and 2). A significant interaction was observed between number and case (Repeated Measures ANOVA ($F(1,78) = 9,97$; $p = 0.002$)), as participants performed better in the number and case mismatch condition (95.9%) compared to the number and case match condition (72.9%). In addition, participants showed independent main effects of number ($F(1,78) = 112,7$; $p < 0.001$), gender $F(1,78) = 7,6$; $p = 0.007$) and case ($F(1,78) = 22,95$; $p < 0.001$), as mismatch in phi-features significantly improved their performance.

Discussion. The prediction of the feature-based approach regarding the effect of number mismatch in the two DPs was confirmed. Thus, it appears that features triggering syntactic movement (i.e. number in Greek) are relevant for computing locality and reducing intervention effects in the comprehension of ORCs by typically-developing children. However, children's performance was also more accurate in the gender mismatch compared to the gender match condition and in the case mismatch compared to the case match condition. We argue that children may also use mismatch in morphological features (i.e. gender and case in Greek) as a cue to reduce the processing cost of ORCs.

[473 words]

Condition	Gender	Case	Number
1	match	match	match
2	match	match	mismatch
3	match	mismatch	match
4	match	mismatch	mismatch
5	mismatch	match	match
6	mismatch	match	mismatch
7	mismatch	mismatch	match
8	mismatch	mismatch	mismatch

Table 1. The 8 match and mismatch conditions of Gender, Number and Case in critical stimuli.

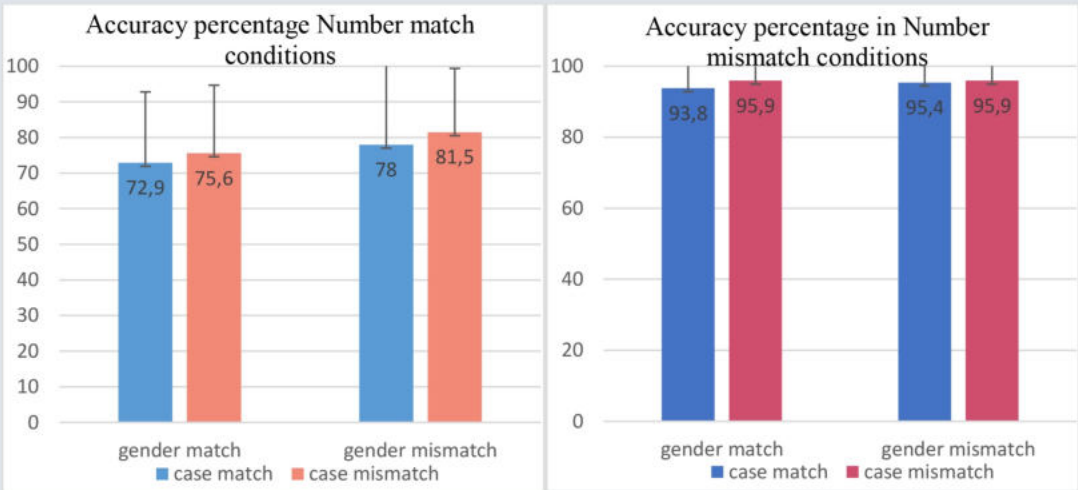


Figure 1. Average accuracy of children in % in **Number match** conditions.

Figure 2. Average accuracy of children in % in **Number mismatch** conditions.

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Discourse markers in L1 and L2 Italian

Elisa De Cristofaro, Linda Badan & Adriana Belletti
(Ghent University, Ghent University, University of Siena)

In this paper, we compare the use of discourse markers (DMs) in Italian as a second language (L2) with the DMs produced by Italian native (L1) speakers. The group of L2 speakers is constituted of 44 university students of Italian with different proficiency levels (24 intermediate and 20 advanced), all native speakers of Belgian-Dutch. They were audio-recorded while performing different tasks, for a total of 8:35 hours. As a control group, we selected 45 oral dialogues between Italian L1 speakers from the online corpus CLIPS (9:26 hours in total). The quantitative analysis of the data shows that L1 speakers produce a significantly higher number of DMs than L2 speakers and that more advanced L2 speakers produce more DMs than learners with an intermediate level, revealing a developmental path in the acquisition of DMs (Jafrancesco 2015). The qualitative analysis reveals interesting discrepancies between the L1 and the L2 use of DMs, especially those uttered in sentence-internal position (Cardinaletti 2015). In particular, our study shows that the Italian L1 speakers exploit the sentence-internal position with DMs expressing epistemic modality, i.e. the speaker's epistemic judgment about the truth of the proposition (Cinque 1999), as illustrated in examples (1) below:

- (1) p1G#41 *Devi **diciamo** aggirarla*
'You must **let's say** circumvent it'

The DM *diciamo* 'let's say' exemplified above is prosodically integrated into the turn (cf. figure 1). It is used as a mitigating device (Voghera & Borges 2017), expressing the speaker's epistemic stance. Interestingly, to express the same epistemic function in the same syntactic position, the Italian L2 speakers produce a somewhat infelicitous marker that is never attested among the Italian L1 speakers, namely *veramente* 'truly' (Ricca & Visconti 2014):

- (3) p2g#53 *E adesso sono **veramente** al lato destro della pagina ok?*
'and now I am **truly** to the right-hand side of the page ok?'

We offer an analysis within the Cartographic approach (Cinque 1999; Rizzi 1997), and we demonstrate that the sentence-internal DMs with an epistemic value realize specific syntactic positions within the high portion of the IP dedicated to the expression of modality (Cinque 1999 and related work). We also show that, when displaying a focusing function, sentence-internal DMs can occupy an even lower syntactic position within the Low Periphery of the clause (Belletti 2004; Poletto 2008). On one side, our syntactic analysis is in line with previous work on IP-internal particles (Cardinaletti 2011, 2015; Munaro & Poletto 2008; Del Gobbo, Munaro & Poletto 2015) and with the account proposed by Coniglio (2008 and following works) for modal particles occurring in the so-called "mood field" within the IP. On the other side, our work shows that DMs have a more free distribution than modal particles and that more options are available to IP-internal DMs, depending on their discursive and pragmatic import. For what concerns the L2 acquisition, our data shows that L2 speakers "fill in" the modal positions with a marker that is never used by L1 speakers. We suggest that the infelicitous use of *veramente* by L2 speakers could result from a functional transfer from the Belgian-Dutch form *echt* 'really' (Eynde 2009). We

conclude that both native and non-native speakers exploit the IP-internal positions for the expression of modality. Nevertheless, the L2 learners, despite projecting the correct syntactic structure, realize it with pragmatically infelicitous forms as a result of linguistic interference.

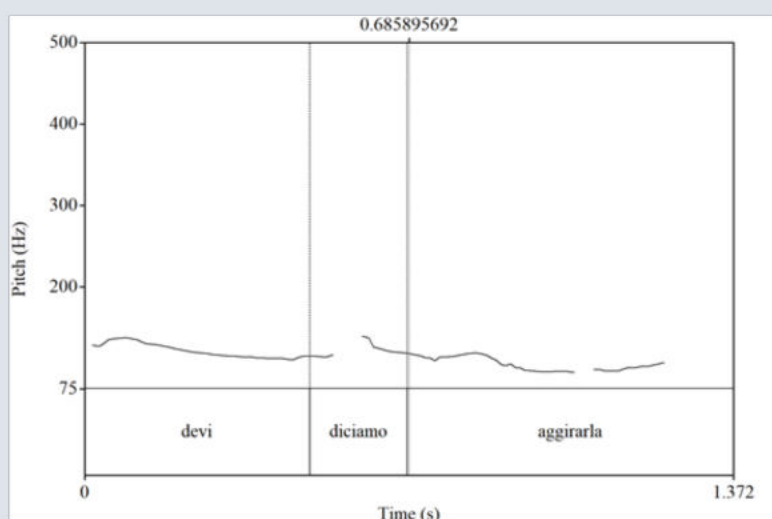


Figure 1: prosodic contour of the example (1). *Diciamo* ‘let’s say’ is integrated in the turn, i.e. no pitch break is detected before and after the DM.

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Thursday

September 22, 2022

Poster 3

How children convey attitude in speech - Canonical and non-canonical questions by German monolingual children

Miriam Geiss
University of Konstanz

Rhetorical questions (RQs), e.g. “Who likes paying taxes?!” are considered to be non-canonical, because unlike canonical, information-seeking questions (ISQs), they do not request information. Instead, they are used to signal the speaker’s attitude (Biezma & Rawlins, 2017). Speakers can do so by using linguistic cues (words used) and paralinguistic cues (prosodic features of the question). The paralinguistic cues involve pitch, duration, and voice quality (see Braun et al., 2019 for RQs in German). Children start to exploit paralinguistic cues around the age of eight to ten (Friend, 2000) to comprehend emotions. According to Recchia et al. (2010), 4-year-olds are able to produce RQs in spontaneous speech, but it is unclear which cues children use in their production. To our knowledge, the production of paralinguistic cues in child speech has not been investigated.

This study aims to fill this gap by investigating the paralinguistic and linguistic cues monolingual German primary-school-aged children use when producing RQs and ISQs and whether those are adult-like. Therefore, we conducted an elicitation task that provided RQ- and ISQ-eliciting contexts, together with a recorded model sentence, as in (1). A comprehension task ensured that children understood the concept of RQs.

- (1) *Wer mag denn schon Bananen?! (RQ prosody)*
‘Who likes bananas?!’

Data have been collected for 63 children (16 6-, 17 7-, 17 8-, 13 9-year-olds) and 40 adult controls. Data collection with a target of 80 children will be completed by May 2022. Similar to adults, children produce RQs with a smaller pitch range ($\beta = 2.1$, $SE = 15$, $t = 13.94$, $p < .001$), a longer duration of the final object (e.g., *Bananen*; $\beta = -.04$, $SE = .01$, $t = -4.78$, $p < .001$) and a higher rate of non-modal voice quality (e.g., breathy, creaky) than ISQs ($\beta = -1.63$, $SE = .24$, $z = -6.67$, $p < .001$). Child and adult RQs are characterized by a low rising pitch accent (L*+H), while ISQs exhibit more variation (see Figure 1). For some of those paralinguistic cues, quantitative differences between the groups were observed. Similar to adults, children modify ISQs around 30% of the time by adding the particle *denn* (making reference to a previous topic; Bayer & Obenauer, 2011) or lexical additions such as *gern* ‘with pleasure’ or *auch* ‘as well’, while RQs are modified more often (70%), predominantly by discourse particles (*denn*, *schon*, *denn schon*; Figure 2). The high number of those discourse particles compared to the other linguistic cues might be a task effect, as *denn* and *denn schon* were included in some of the model sentences. However, some children also modify RQs by adding *bitte(schön)* or *bittesehr* ‘please’ (see Figure 2 ‘other particles’) which is hardly ever observed in the adults in this study although it is possible in German RQs.

Overall, the results show that primary-school-age children are able to produce RQs using multiple cues. Child RQs resemble those of adults as they use the same linguistic and paralinguistic cues, showing that they have acquired the relevant cues. The quantitative differences between the groups with respect to the paralinguistic cues might be attributed to general characteristics of child speech. With respect to the linguistic cues, children were using

the same cues, possibly even more than adults, proving that they understood the concept of RQs and demonstrating their command of pragmatic means to express attitudes in non-canonical utterances, such as RQs.

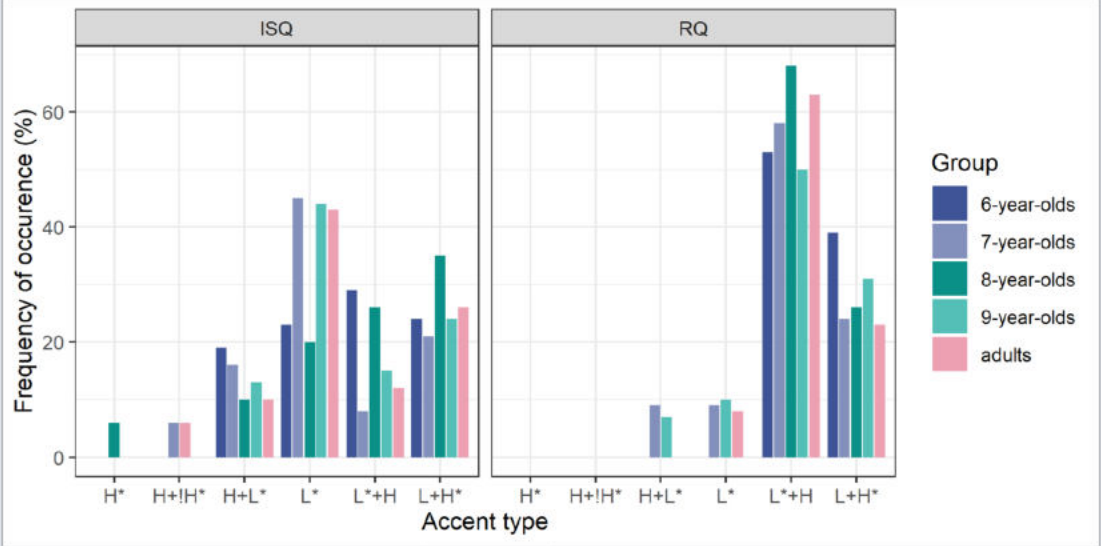


Figure 1 Distribution of accent types (in percent) across groups and illocution types. Nuclear accents were predominantly associated with the object noun.

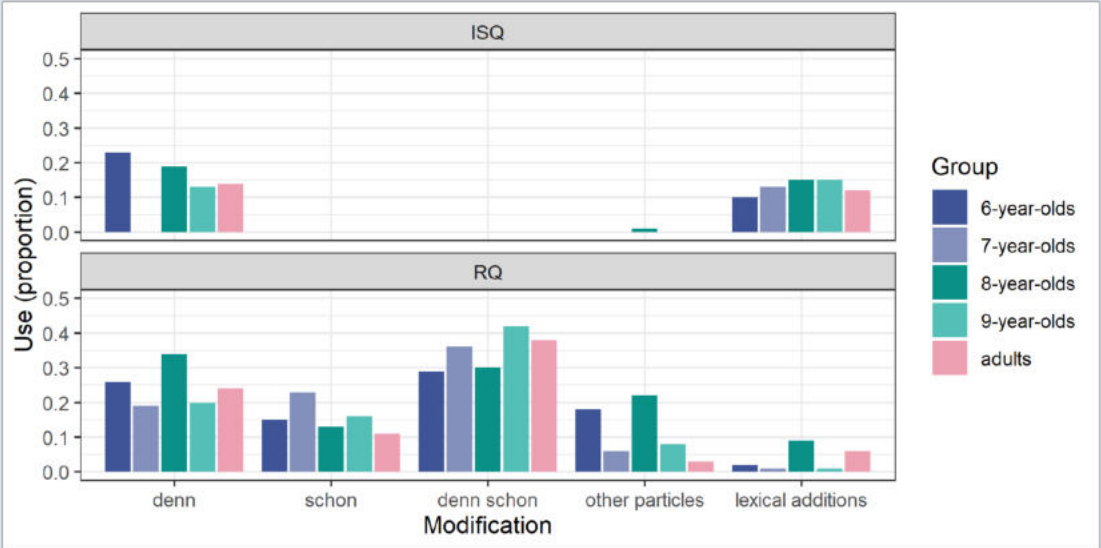


Figure 2 Proportion of ISQs and RQs modified by different linguistic cues, divided by age group.

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Processing limits can delay children's computation of scalar implicatures

Shuyan Wang

University of Connecticut

Many studies have shown that young children cannot derive scalar implicatures (SIs) at an adultlike level (e.g., Barner et al. 2011; Chierchia et al. 2001; Foppolo et al. 2012, 2020; Janssens et al. 2014; Kampa & Papafragou 2019; Noveck 2001; among many others). Children's difficulties have been attributed to their immature pragmatic capacities, their lack of lexical scales, or their processing limits. This paper aims to examine the processing account that argues that the involved computation of SIs is costly and beyond children's processing capacities (e.g., Chierchia et al. 2001; Pouscoulous et al. 2007; Tieu et al. 2016). It predicts that when children have more processing resources available, their computation of SIs should improve. For example, if the alternatives are provided by the context, children do not need retrieve alternatives from mental lexicon. In this case, the processing load should be reduced and thus children's performance may improve. This paper presents a priming study, to investigate whether there is any effect of priming alternatives on children's computation of SIs. Moreover, this paper explored the detailed developmental path by testing children from a wide age range (5;00-8;11).

Method (Covered-box task): Participants are asked to choose one picture that matches a spoken sentence. One option is hidden in a box and children cannot see it. Children can choose the hidden one if they think all the visible choices are incorrect (see Table 1).

The target scale was <*yixie* 'some', *suoyou* 'all'>. A 2*2 design was used. One variable was the target interpretation: logically true & pragmatically informative (LI) (as control) and logically true & pragmatically under-informative (LU) (as illustrated by Table 1). Another variable was about the presence of the alternative in the context: no-priming condition and priming condition. There were 4 items for each condition (n=16) and 4 fillers. A between-subject design was used, so each participant only saw no priming or priming condition. We tested 110 Mandarin-speaking children (5;00-8;11, mean 6;10), with 103 passed the inclusion criteria.

Results: In the critical LU condition, if children derived the SI with 'some', they should reject the visible 'all' picture but choose the hidden picture, which in their mind should represent the strengthened interpretation (i.e., 'some but not all'). As shown in Figure 1, the 5-year-olds did not compute SIs regardless of the presence/absence of the alternative. There was no significant difference between them ($t(22) = .22, p = .828$). The 6-year-olds derived SIs at 25% for no priming and at 26.92% for priming, and there was still no priming effect ($t(27) = .12, p = .905$). Importantly, the 7-year-olds derived significantly more SIs for the priming (39.29%) than for the no priming (8.93%): $t(26) = 2.14, p = .042$. The 8-year-old children computed a high rate of SIs in both conditions and there was no priming effect ($t(20) = .13, p = .898$).

Conclusion: To sum up, the findings have provided evidence for the processing account, by showing that priming alternatives in the context can improve 7-year-old children's computation of SIs. Furthermore, the current findings have revealed a more detailed developmental path for SIs. In

particular, the results suggest that 5- and 6-year-olds may still lack the relevant grammar for SIs and thus merely presenting the relevant alternative in the context cannot help them. Only when children have fully developed the relevant grammar, can processing capacities begin to modulate their computation of SIs. The 7-year-olds seem to be at an intermediate stage: the grammar is in place but processing capacities are immature. Therefore, a priming effect was observed. The 8-year-olds are at a later stage where both the relevant grammar and processing capacities for SIs are in place. Thus, they displayed relatively good performance in both conditions.


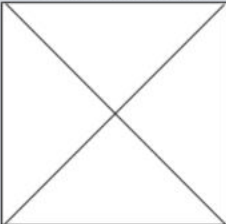



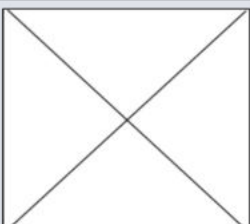
Test sentence: Peppa Pig planted some flowers.			
Target: Logically True & Pragmatically Informative (LI)			
	'some but not all' Picture	Hidden Picture	Distractor
Target: Logically True & Pragmatically Under-informative (LU)			
	'All' Picture	Hidden Picture	Distractor

Table I: Examples of two different target interpretations

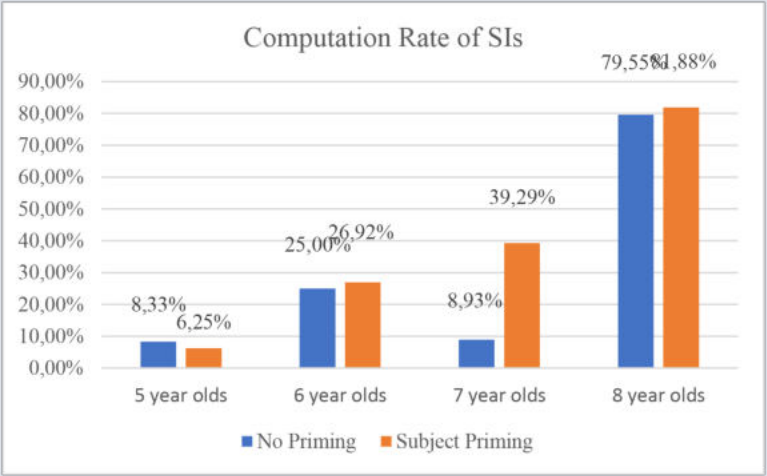


Figure I: The computation rates of SIs in two priming conditions (error bars represent standard error)

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Thursday

September 22, 2022

Poster 5

Two experiments on verbal agreement in Catalan and some implications

Anna Gavarró and Alejandra Keidel
(Universitat Autònoma de Barcelona)

Agree is taken to be a central operation of the language faculty and subject-verb agreement is one of its manifestations. Here we present two new experiments carried out with Catalan-speaking children and which shed some light on previous, seemingly contradictory results. The literature on the acquisition of subject-verb agreement shows that in the null subject languages production is adult-like from the beginning (Torrens 1995 for Catalan and Spanish). In the non-null subject languages the optional infinitive stage obscures the fact that children do not err in the selection of number and person features. In contrast, the literature on comprehension is mixed, with some work indicating that comprehension lags behind production (Johnson et al. 2005 for English, Pérez-Leroux 2005 for Spanish).

Here we replicate for Catalan the experiment in Pérez-Leroux, which tests comprehension of number (singular, plural) and sentences with overt and null subjects (1)–(2). In a second experiment, we use the same experimental items, but introduce a numeral distractor, numerals for small numerosities being early in acquisition (see Hackl et al. 2021). A total of 111 Catalan-speaking children (age range: 2;4–6;9) and 62 adults were tested by means of a sentence-picture matching task run on a touch-sensitive screen. As in Pérez-Leroux (2005) the children were grouped in a younger and older age group, due to a certain imbalance in the number of 3 and 4-year-olds and the 5 and 6-year-olds. The statistical analysis of the results involved a GLM and the results by each condition and age group appear in Figure 1.

In experiment 1 performance was above chance (mean = 74.84%) for all conditions except the singular, null subject where children were at chance (57.6%, $IC_{95\%} = [52.9\%, 62\%]$). Failure with singular subjects is amenable to the explanation of Forsythe and Schmitt (2021), according to which pointing at an event performed by several agents is consistent with a singular agent if the uniqueness presupposition is not applied (as is often the case with children); in fact performance is lower with singular subjects than with plural subjects, even in experiment 2. In experiment 2, performance is above chance for all conditions and age groups (mean = 77.7%). The responses on the null subject condition are significantly better than in experiment 1 (F Value = 8.39; p -value = 0.0046) reaching 66.1% of correct responses ($IC_{95\%} = [61.8\%, 70.2\%]$). Introducing numerals as distractors has had the effect of making children, in the context of the experiment, more aware of number contrasts, which must on all cases be part of their competence.

The results of our two experiments therefore corroborate the impact of method in the results on agreement comprehension – something already noted by Brandt-Kobe & Höhle (2010), who used eye-tracking and pointing, and by Gonzalez-Gomez et al. (2017), who alternated pseudo-objects with existing objects. The results in Gonzalez-Gomez et al. (2017) and those for Catalan here (given that Catalan is a closely related language, with a very similar verbal agreement system) implies that the results from Spanish in Pérez-Leroux (2005) can only be an experimental artifact. The proposals according to which delay in agreement comprehension depends on language-specific properties cannot be maintained. We can conclude that the

alleged contrast between production and comprehension of agreement marking does not stem from a grammatical source.

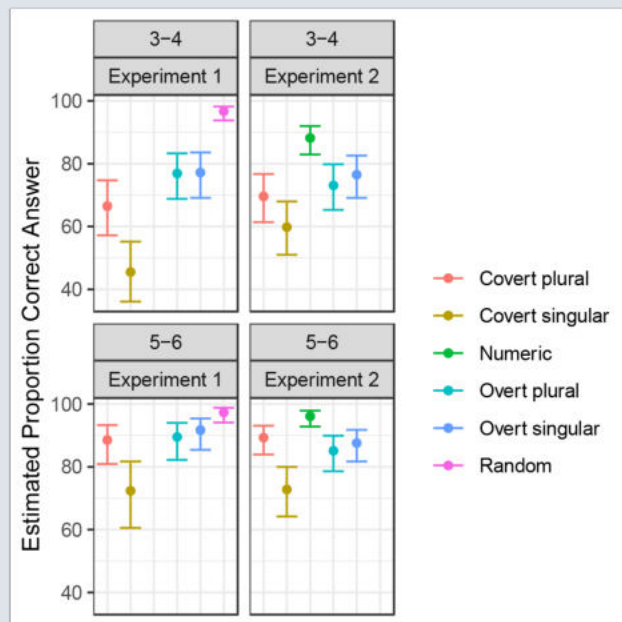


Figure 1: Estimated proportion of correct answers

- | | | | |
|--------|--------------------------------|----|--|
| (1) a. | L'ànec corre.
the duck runs | b. | Els ànecs corren.
the ducks run.3pl |
| (2) a. | Corre.
runs | b. | Corren.
run.3pl |

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Thursday

September 22, 2022

Poster 6

The acquisition of non-canonical questions in Italian: lexical and syntactic markers in elicited production

Maria F. Ferin¹, Miriam Geiss¹, Theodoros Marinis^{1,2}, Tanja Kupisch^{1,3}

¹University of Konstanz, ²University of Reading, ³UiT The Arctic University of Norway

Rhetorical questions (RhQs) are non-canonical questions, that is, they have a different pragmatic function than canonical information-seeking questions (ISQs). When uttering an RhQ, the speaker signals that its answer is obvious in the context (Biezma/Rawlings 2017; Caponigro/Sprouse 2007), and (s)he may do so by marking the question with additional linguistic cues, e.g., prosody (Dehé et al. 2021), particles (Coniglio 2008), lexical elements, or gestures (Ippolito 2021). To date, no study has investigated how and at what age the cues marking RhQs are acquired. A corpus study by Recchia et al. (2010) suggests that RhQs are present in spontaneous child speech as early as age 4, but it is not clear what form they take in child speech, that is, whether they were modified by any cues. Our study aims at filling this gap by investigating the acquisition of non-canonical questions by Italian monolingual children aged 6 to 9, focusing on morpho-syntactic and lexical markers. We address the following questions: i) Do children mark non-canonical (rhetorical) questions with morpho-syntactic and lexical cues? ii) Is their use of linguistic cues adult-like?

80 primary school children and 42 control adults took part in an elicited production experiment. Participants were presented with a model question within a context and were instructed to produce similar questions within the context. There were four contexts, two RQ- and two ISQ-eliciting contexts, each eliciting 6 questions. The model question was either neutral (as in (1)) or modified by the particle *ma* 'but' and clitic right dislocation (as in (2)).

Preliminary results from 57 children (19 6-, 18 7-, 10 8-, 10 9-year-olds) are shown in Figure 1. The most frequent cue in adults' RhQs is the adversative particle *ma* 'but', which has a counter-expectational value and is found in several types of non-canonical questions (Ippolito 2021). It is followed by clitic right dislocation, an information structure device that marks a familiar topic. Other cues include cleft questions (where *chi* 'who' is clefted), the particle *e* 'and', the particle *mai* 'ever', often in combination with a conditional verb, and a reflexive verb with affective value, among others. *Ma* and dislocation are also the most frequent cues in children's production. The pattern across age groups resembles the adult one, although with some differences, with a progressive expansion in the variety of cues and in the number of modified sentences. However, the use of *ma* and dislocation was also primed by one of the model sentences (2). Figure 2 shows the results for the sentences that were not yet primed (model sentence (1)). While adults and 9-year-olds present approximately the same pattern of use also when not primed, younger children use notably less cues to mark RhQs, and especially make less or no use of *ma* and dislocation. In the talk, each cue will be examined in relation to its semantic/pragmatic contribution to the question. In conclusion, our study shows that, in the age period investigated, children undergo the acquisition of the appropriate use of syntactic and lexical cues marking non-canonical questions. When primed with certain cues, children show the ability to exploit them from the age of 6; at 9, they can produce them also when not primed. The study contributes to our understanding of the acquisition of optional pragmatic marking in non-canonical questions, a yet understudied field of research in language acquisition.

Examples

(1) Chi mangia le zucchine?! (RhQ model sentence: neutral)
 who eats the zucchini
 'Who eats zucchini?!'

(2) Ma chi lo mette, il maglione?! (RhQ model sentence: modified)
 but who it.CL wears the jumper
 'Who wears a jumper!?'

Figures

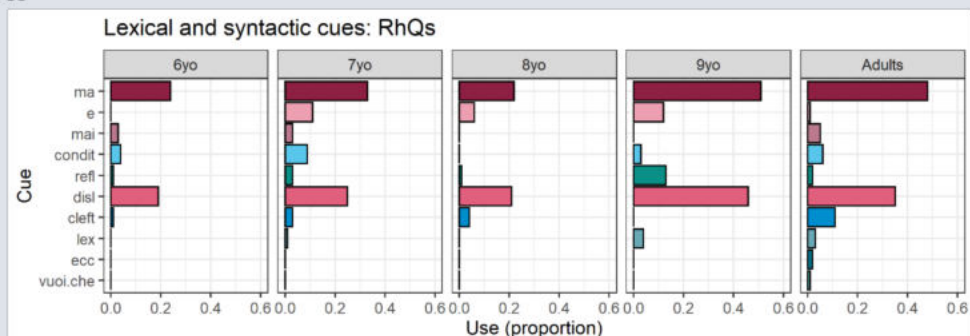


Figure 1. Proportion of sentences modified by each cue divided by age group. *Condit* = conditional verb, *refl*= reflexive verb, *disl*= clitic right dislocation, *lex*= lexical expression, *ecc* = extra-clausal constituent (interjection), *vuoi.che* = periphrasis with verb *want*.

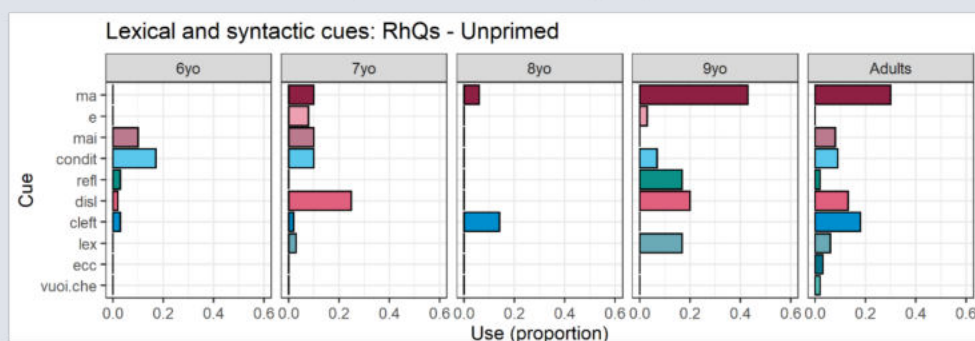


Figure 2. Proportion of sentences modified by each cue divided by age group, including only sentences that were not primed by the model sentence in (2).

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Thursday

September 22, 2022

Poster 7

Does Branching Directionality Impact Bilingual Children's Understanding of Recursive Structures in Their Stronger Language? Evidence from Recursive Adjectives and Possessives in English

Usha Lakshmanan, Deborah Foucault, Tom Roeper
SIUC, UMass, UMass

Introduction: Most research on children's acquisition of adult-like recursion has focused on monolinguals with little attention to bilinguals. The few existing studies on indirect recursion (i.e., iterative embedding of one phrasal category inside another of the same type) with simultaneous bilingual children found that they performed similarly to monolingual counterparts (Pérez-Leroux et al., 2017; Pérez-Leroux et al., 2021) and occasionally outperformed them (Leandro and Amaral, 2014). We hypothesize that right, left, and mixed branching directionality (as found in English and other languages), may influence the acquisition path of recursive nominal phrases in bilingual children, an issue that remains unexplored to our knowledge. Specifically, we predict that branching directionality of possessive and adjectival nominals (i.e., in bilingual children's non-English language/s vis-à-vis that of English), impacts comprehension and production of indirect recursion.

Methods: A story-cum-picture task (Foucault, et al., 2022) (Fig. 1) administered via Zoom was used to assess children's adult-like use (comprehension and production) of 4 recursive types in English: 2-Level and 3-Level left-branching recursive gradable (set/subset) adjectives and recursive possessives (e.g., *small big mushrooms*, *big small big mushrooms*; *the deer's friend's mushrooms*; *the deer's friend's sister's mushrooms*). Our sample to date comprises 45 English-speaking children (age-range 4;0-12;0) in the US and Canada (Table 1). Based on a language background questionnaire, 21 children were identified as bilinguals (Simultaneous=16; Sequential=5) who regularly use another language besides English (mean age: 7;6 [6 < 7 and 15 ≥ 7], with all, except one, reporting English as their stronger language. The remaining 24 were monolinguals (mean age: 6;11 [14 < 7; 10 ≥ 7]). The bilingual children's non-English languages were categorized into three types based on the branching directionality of possessive and adjectival nominal phrases: (Group 1) *Left-branching* (Hindi, Mandarin, Marathi, Cantonese, Kannada; N=8; 6 simultaneous and 2 sequential), (Group 2) *Right-Branching* (Spanish, Italian, French; N=7; 4 simultaneous and 3 sequential), (Group 3) *Mixed-directionality* (German, Russian, Bulgarian; N=6; all 6 simultaneous).

Results: Bilingual children had numerically lower Median Accuracy scores (comprehension and production combined) compared to their monolingual counterparts for all except 2-Level adjectives (Tables 1-2). However, the results of a Kruskal-Wallis test showed the differences to be non-significant, with both groups patterning similarly across the four different recursive types. The results of a Friedman test of Repeated Measures revealed statistically significant differences in Accuracy scores according to the four Recursive Types for both groups. Post-hoc analyses showed that both groups performed significantly worse on 3-Level Adjectives than 3-Level possessives (Monolingual: Chi-square = 14.135; df=3; $p=.003$; Bilingual: Chi-square = 14.005; df=3; $p=.003$). As for the impact of branching directionality (Table 3), the Left-branching group

(group 1) received the lowest scores, even though the branching directionality of their other language matched that of the target recursive possessive and adjectival phrases in English. The Mixed-branching group (group 3) received the highest Accuracy scores on all except the 3-Level recursive adjectives, for which the Right-branching group received slightly higher scores. A Kruskal-Wallis test failed to find the differences to be significant.

Conclusion: The numerical accuracy scores of the three branching groups for left branching recursive possessives and adjectives in English suggest a possible advantage for bilingual children whose other language also instantiates mixed branching directionality. However, the non-significance of the numerical differences underscores the idea that there exists a more abstract representation of recursive relations prior to linear order projection. In the current research, only the stronger language (English) and only Left-branching (prenominal) recursives were assessed. Further research, where bilinguals are assessed in both of their languages, and on both left and right branching recursives, is necessary for a fuller understanding of the impact of branching directionality on bilingual children’s use of recursive structures.

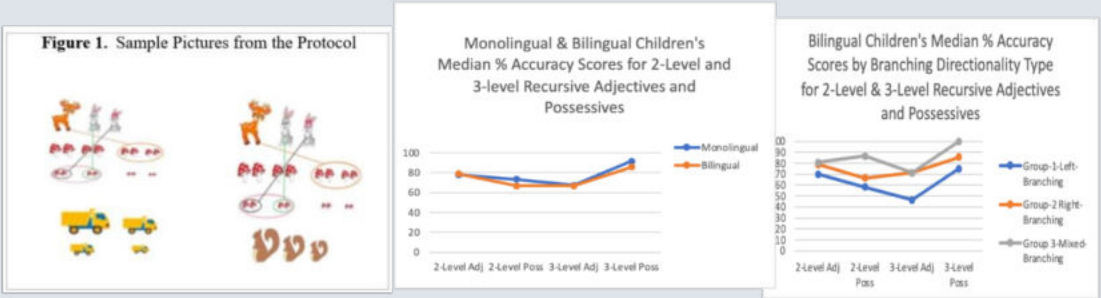


Table 1: Recursion Accuracy (Mean and Median) Monolingual

Recursive Type	N	Mean %	Std. Dev	Min	Max	Median%
2-Level Adj	24	78.40	18.93	36.36	100.00	77.94
2-Level Poss	24	69.86	27.34	0.0%	100.00	73.22
3-Level Adj	24	65.96	20.98	16.67	100.00	67.34
3-Level Poss	24	80.67	29.58	0.0%	100.00	91.67

Table 2: Recursion Accuracy (Mean and Median) Bilingual

Recursive Type	N	Mean%	Std. Dev	Min	Max	Median%
2-Level Adj	21	76.30%	19.04%	18.18%	100.00%	78.95%
2-Level Poss	21	68.78%	30.08%	14.3%	100.0%	66.67%
3-Level Adj	21	55.01%	31.37%	0.0%	100.0%	66.67%
3-Level Poss	21	79.56%	26.39%	0.0%	100.0%	85.71%

Table 3: Recursion Accuracy (Mean and Median) by Branching Directionality Type (four types of recursive phrases) Bilingual.

Branching Direction Type	RecursiveType	Mean%	Std. Dev	Minimum	Maximum	Median%
Gp1 (N=8)	2-Level Adj	67.11	24.47	18.18	94.12	70.00
Gp2 (N= 7)		80.78	15.34	58.82	100.00	78.95
Gp3 (N=6)		83.34	10.39	72.22	100.00	80.95
Gp1 (N=8)	2-Level Poss	59.08	38.04	14.3	100.00	58.34
Gp2 (N= 7)		68.85	26.69	33.3	100.00	66.67
Gp3 (N=6)		81.65	19.75	50.0	100.00	86.61
Gp1 (N=8)	3-Level Adj	40.45	38.01	0.00	100.00	46.53
Gp2 (N= 7)		66.38	20.77	33.30	88.90	71.43
Gp3 (N=6)		61.16	28.83	11.10	88.90	71.27
Gp1 (N=8)	3-Level Poss	70.00	34.41	0.00	100.00	75.00
Gp2 (N= 7)		82.48	19.55	50.00	100.00	85.71
Gp3 (N=6)		88.89	20.18	50.00	100.00	100.00

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The acquisition of long *bei*-passives in Mandarin by children with DLD

Stephanie Durrleman¹, Lijun Chen^{1,2}, Xiaowei He²
(1. University of Fribourg; 2. Guangdong University of Foreign Studies)

Syntactic movement has been argued to increase complexity ^[1-2]. According to the Derivational Complexity Metric (DCM), complex structures involve more computational load ^[3-4], explaining why they remain affected in children with developmental language disorder (DLD), who often display working memory (WM) deficits ^[5].

In Mandarin Chinese, an SVO language (1), long *bei*-passives involve movement of the object from its canonical post-verbal position, such that the patient in these structures is realized before the agent (2) ^[6]. According to the DCM, the derivation involved in structures such as (2) should render them more complex for children with DLD than (1), and performance on such structures should relate to WM capacities ^[7]. This study tested these predictions. More specifically, we explored the comprehension and production of sentences of the type (1-2) alongside WM abilities, in children with DLD and their age-matched typically developing (TD) peers. Seventeen four- to six-year old children with DLD (mean: 5;0) and 23 TD controls (mean: 5;0) participated in a sentence-picture matching task and a syntactic-priming picture-description task. The same pictures were used for both SVO and *bei*-structures in each of these tasks (Figure 1), which also contained a total of 2 warm-up practice items, 14 fillers and 20 test items (5 testing SVO comprehension, 5 testing *bei*-passive comprehension, 5 eliciting SVO and 5 eliciting *bei*-passives). WM was measured with the WPPSI-IVⁱ.

The results showed that children with DLD performed significantly worse than their TD peers on comprehending and producing both the SVO and *bei*- constructions (Figure 2; all $p < .001$). For comprehension, TD children performed similarly well for both constructions ($p = .931$) while their peers with DLD performed better on the SVO construction than the *bei*-construction ($p = .03$). The errors by the DLD group for the *bei*-construction only involved choosing agent and patient thematic role reversals, suggesting that children with DLD tend to analyze the passive as an active, without capitalizing on the passive particle (*bei*) to apply a movement analysis ^[8]. In the elicitation task, children with DLD also produced the *bei*-construction significantly less than the SVO construction ($p = 0.018$), while their TD peers showed ceiling effects on both constructions ($p = .317$). The main errors by children with DLD in producing the *bei*-construction was the use of SVO or *ba*-constructions (3). While the *ba*-construction has also been argued to involve movement ^[9], this movement contrasts with that involved in the *bei*-construction in that it does not trigger locality effects, arguably another factor increasing syntactic complexity ^[10,11] including in passives ^[12]. The complexity associated with the *bei*-construction was further highlighted by the fact that performance on this construction in children with DLD significantly correlated with WMⁱⁱ scores, both for comprehension ($p = .029$) and production ($p = .017$).

Taken together, the findings of this study suggest that children with DLD find *bei*-constructions difficult compared to simple SVO constructions, arguably due to the movement and locality effects involved, and the complexity associated with *bei*-constructions seems to solicit more computational resources, as predicted by the DCM.

(1) shizi da-LE laohu. lion hit-LE tiger “The lion hit the tiger.”	(2) laohu BEI shizi da-LE. tiger BEI lion hit-LE “The tiger was hit by the lion.”	(3) shizi BA laohu hit-LE. lion BA tiger hit-LE “The lion hit the tiger.”
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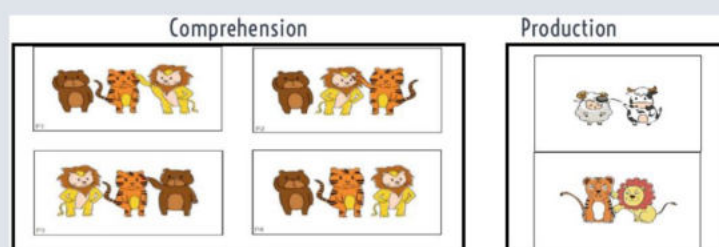


Figure 1. Illustrations of the two experimental tasks

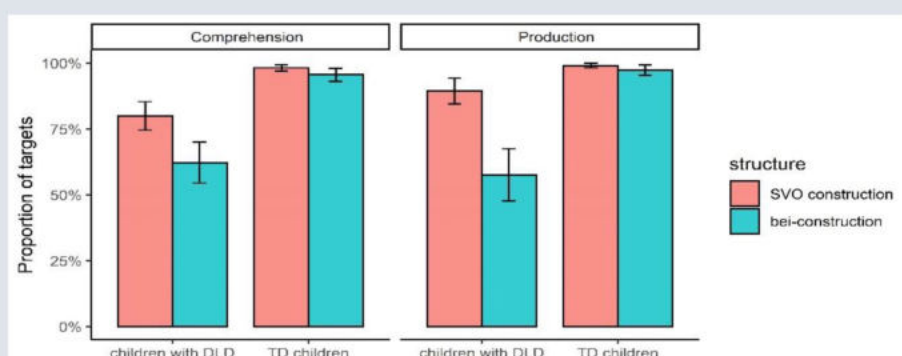


Figure 2. Overall results of the comprehension and production tasks

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ⁱ The fourth edition of Wechsler Preschool and Primary Scale of Intelligence.

ⁱⁱ Visual working memory, measured in this study, has been shown to relate to verbal working memory ^[13], and to predict proficiency in morphosyntactic processing by children with DLD ^[14].

Thursday

September 22, 2022

Poster 9

On the reduction of plateau clusters in child Greek

Ioanna Kappa
University of Crete

This study focuses on the reduction pattern of a special group of (non-rising) plateau clusters in Greek child speech, that of voiced fricatives [vð], [ɣð], [vɣ]. In Standard Modern Greek (SMG) clusters of *voiced fricatives* are of equal sonority according to the language-specific sonority scale (cf. Kappa, 1995). For the purposes of the study we examine naturalistic data of spontaneous conversational speech from eight, typically developing, children, acquiring Greek as L1 (ages 2;04.16–2;11.25, 4 boys and 4 girls). All children are in the intermediate developmental phase, i.e. segments with a marked *Manner of Articulation* (MoA), such as (un)voiced fricatives, namely [f, θ, x, s], [v, ð, ɣ, z], occur faithfully in their grammar as single onsets in (un)stressed word (non)initial position. All children exhibit the following common properties in their grammars: (i) the word-internal Coda is yet to be acquired, (ii) the word-final Coda [s] is realized, due to the progress of morphological development (inflection), (iii) not any systematic realization of word-initial tautosyllabic [OBSTRUENT+SONORANT] clusters (~30% faithful realizations), (iv) the falling sonority clusters [FRICATIVE+STOP] /ft/, /xt/, /st/, /sp/, /sk/ and [s+FRICATIVE] /sf/, /sx/ are reduced (100%) to the less sonorous STOP and FRICATIVE, respectively, in (un)stressed word-initial/-non initial position, e.g. /spáo/ → /páo/ 'break', /ftinó/ → /tinó/ 'cheap', /sféra/ → /féla/ 'sphere', /sxára/ → /xála/ 'grill'. The data in (1-3) show that the children can not accommodate plateau clusters of voiced fricatives yet, both word-initially, i.e. in a perceptually strong position, and word-internally, thus reduction occurs (100%). The formal analysis is couched in the framework of Optimality Theory (Prince & Smolensky, 1993/2004).

RESEARCH QUESTION: What guides the reduction of plateau clusters in Greek child speech?

SONORITY plays no role in the reduction of the target plateau clusters (1-3), due to the equal sonority of C₁ and C₂. POSITIONAL FAITHFULNESS also seems to be irrelevant for the preservation of either C₁ or C₂, namely positional faithfulness to a word-initial position or to a stressed syllable is not involved in the reduction/preservation pattern. CONTIGUITY, which guides the reduction of plateau clusters [STOP+STOP] in child Hebrew, e.g. /k₁t₂a'na/ → [t₂a'na], 'small' FEM.SG (Bloch 2011:50), also seems to be irrelevant in child Greek, which exhibit an unified reduction strategy, regardless of their target (un)stressed word-(non)initial position. Specifically, all children favor the faithful realization of the more marked *Place of Articulation* (PoA), namely, in the case of target clusters [C_{1-LAB}C_{2-COR}] (1) and [C_{1-DOR}C_{2-COR}] (2) the preservation of the PoA features LABIAL and DORSAL, respectively, is preferred to preserving the unmarked CORONAL feature, as in other languages too, e.g. Dutch (e.g. Fikkert, 1994) or English (e.g. Pater & Barlow, 2003). In the case of the target cluster [C_{1-LAB}C_{2-DOR}] the DORSAL PoA (3) is realized faithfully. The children's simplified outputs (1-3) conform to the *Preservation of the Marked*, namely 'the marked elements can be specifically targeted for preservation than the less marked ones' (de Lacy 2006:146). The dominance relations among the PoA features in (1-3), i.e. DOR > LAB, DOR > COR, and LAB > COR imply the *relative markedness hierarchy ranking of PLACE features* in children's phonological grammar, i.e. DORSAL > LABIAL > CORONAL, which accounts for the preservation of either C₁ or C₂ and results in a unified account of all children's outputs in (1-3). Our data show clear evidence that, when the children cannot prosodically license any extrasyllabic consonants in their grammar, they

employ different patterns for the simplification of non-rising clusters. We claim that (i) in the case of (target) falling sonority clusters reduction is *sonority-driven*, e.g. /ft, xt, st/ → [t] etc. or /sf/ and /sx/ → [f] and [x], respectively, i.e. reduction to the less sonorous consonant, which conforms to the widely attested crosslinguistic pattern; (ii) In the target (flat-sonority) plateau clusters *with the same sonority* as the [vð, ʏð, vʏ] ones, sonority, positional faithfulness and contiguity are irrelevant to the preservation of either C₁ or C₂. The realization of the latter is *PoA-driven*, i.e. the faithful realization as onset of the consonant with the more marked PoA.

Data

Target (adult like)	Child's output	Child(ren): Age	Gloss
1) [C _{1-LAB} C _{2-COR}] → C _{1-LABIAL} (LAB > COR)			
a) vðēla	vēla	VAR: 2;10.21	'leech' FEM.NOM.SG
b) ra vð	la í	MA:2;11.18/LUK:2;09.2	'cane'
c) ra vðistikó	i ñistikó	VAR: 2;11.18	'special cane'
2) [C _{1-DOR} C _{2-COR}] → C _{1-DORSAL} (DOR > COR)			
a) ʏðño	jíno	AL: 2;04.16	'undress(sb)' PRS.ISG
b) ʏðtós	jítós	ST:2;05.18/MA:2;11.18	undressed
c) míʏðala	míʏala	DE:2;11.18	'almonds'
3) [C _{1-LAB} C _{2-DOR}] → C _{2-DORSAL} (DOR > LAB)			
a) ʏázi	yázi	NEF:2;09 / VAL:2;08.28	'take out' PR.3SG
b) éʏale	íyale	AL:2;04.25/LUK:2;06.24	'take out' PAST.3SG
c) a ʏó / a ʏá	aʏó / aʏá	ST:2;06.15/VAR:2;08.28/VAL:2;08.28	'egg/eggs'

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Poster 10

Syntactic complexity in early written development

Maria Lobo¹, Joana Batalha¹, Antónia Estrela², Bruna Bragança¹

¹NOVA-FCSH/CLUNL, ²IPL-ESE/CLUNL

Linguistic complexity, and more specifically syntactic complexity, is a construct that has been discussed in the literature in language acquisition both from the L1 and the L2 perspectives [1, 2]. It is usually assumed that syntactic complexity will play a role in development with a later emergence or mastery of more complex structures and differences between the development of typical and atypical populations [3]. Although there have been different proposals for the measure of syntactic complexity, there is no consensus yet on how to define this construct precisely and on how it relates to other extralinguistic systems. Developmental and complexity measures have considered the proportion of complex sentences and subordinate clauses in the number of utterances and the type of subordinate structures [4], as well as the rate of grammatical utterances and subordinate clauses, among other aspects [5, 6]. More technical measures of complexity have considered syntactic movement and also (depth of) embedding [7, 8], assuming that a processing cost is associated to the number and nature of syntactic operations [9]. Different authors have also used syntactic complexity measures to assess the quality of written productions, comparing written and spoken modalities, and the influence of the type of text [10-14].

Our study aims at contributing to the discussion on the nature of syntactic complexity by considering the structures that children use in their early written compositions and the syntactic development that occurs in writing at this early school age. One of the difficulties that we encounter, however, is how to measure syntactic complexity, and in particular embedding, in early written productions, in which the delimitation of clausal units is not stabilized yet. Therefore, we considered multiclausal sentences by taking into account the type and number of complementizers and connectives. For our study we analysed written narratives from 126 typically developing children, native speakers of European Portuguese, produced at two different times: the beginning of the second grade and at the beginning of the third grade. In both cases, the narratives were elicited via a sequence of three images that depicted a sequence of events (initial situation, problematic event, resolution). This task was part of a diagnostic instrument, applied collectively, which assessed different language abilities: phonological awareness, syntactic awareness, early literacy, and reading and writing skills [15].

The results (see table in (1)) show that there is a considerable increase: i) in the number of clauses introduced by connectives, ii) in the proportion of subordinate clauses, and iii) in the diversity of connectives. They also show that the emergence and frequency of connectives in the written productions reflect the frequency and emergence found in oral spontaneous production [16, 17]. As for the type of subordination, although we find an increase in different types of subordination (finite complement clauses, adverbial clauses and relative clauses), the difference is most expressive in relative clauses, which involve syntactic movement. A qualitative analysis shows that clause-combining processes are still developing, with some deviant productions in syntactic processes, clausal tense-matching and referential cohesion.

Our study shows that there is a rapid increase in the syntactic complexity of early written productions, measured by the proportion and diversity of clausal embedding, with three

different profiles of early writers: i) those who only write simple sentences; ii) those who mostly use coordination processes; iii) those who already use subordination processes, although without a complete mastery of other abilities, such as punctuation rules, tightly linked to syntactic structure (see examples in (2)). We conclude that assessment of early written linguistic development may thus rely on syntactic complexity measured by the proportion of subordinate clauses and type of subordinate clause, following Hamann & Tuller [3] and Peristeri et al. [4], although other measures (number and type of non-clausal modifiers, mastery of punctuation, and text length) may also prove to be relevant indicators.

(1) Table

	Time 1	Time 2
Number of simple sentences	221	262
Number of clauses introduced by coordinators	269	724
Number of clauses introduced by subordinators	56	265
Number of different connectives/complementizers	12	24

(2) Examples of early writers' profiles

(i) A historia do balão

Amai do Gonçalves copro um balão pra o Gonçalves

O balão vou para o céu

O passarinho levou um balão

(ii) O João e o balão

A mãe do João deu-lhe um balão azul mas o João largou-o e o João ficou muito triste mas apareceu um pássaro e apalhou-o e deu-lhe o balão.

(iii) O balão voou

Num lindo dia de sol o menino e a mãe estavam a passear e enquanto isso o menino viu um senhor que tinha balões e ele quis compra e a mãe foi lá com ele quando chegaram lá só havia um balão azul e o senhor viu que o menino queria muito o balão então deu o balão e o menino ficou muito feliz quando estava a brincar com a mãe e com o balão com não agarrou bem o balão voou.

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Poster II

Past and Non-Past Tense Morphology in Early Turkish Speaking Children with Autism Spectrum Disorder

Aysin Noyan Erbas¹, Merve Dilbaz Gürsoy¹, Ayşe Nur Demirci¹, Hazel Zeynep Kurada¹

¹Department of Speech and Language Therapy, Faculty of Health Sciences, Hacettepe University, Ankara, Turkey

Theoretical Background: The production of finite verbs is mostly impaired in several language-impaired populations including autism spectrum disorder (ASD), which is a neurodevelopmental disorder characterized by language and social communication problems (APA, 2013; Modyanova, Perovic & Wexler, 2017). Difficulties with both past and present tense marking in spontaneous speech of children with ASD have been reported for many languages (Bartolucci and Albers, 1974; Botting and Conti-Ramsden, 2003; Roberts, Rice, & Tager-Flusberg, 2004), whereas there is less evidence for Turkish; an agglutinative language with a rich verb morphology regarding the tense coding in production of ASD children.

Aim/ Objectives: The purpose of this study is to examine and compare the past and non-past verb forms used by Turkish-speaking children with ASD and their typically developing peers, as well as to look for the early language signs of ASD.

Methods: The study enrolled children between the ages of 16 and 36 months with ASD (n=20) and typically developing children (n=20). The Turkish version of the MacArthur-Bates Communicative Development Inventory-Words and Sentences (TIGE II, Aksu-Koç et al. 2019) was used to investigate children with ASD and TD's production of finite verb forms that are inflected for both the past and non-past tense.

Results: The compliance of the data to normal distribution was examined using visual (histogram graphs) and analytical (one-sample Kolmogorov-Smirnov test) methods and descriptive statistics were analyzed. The mean and standard deviation of numerical variables are provided, while percentage values are provided for categorical variables. The Chi-square or Fisher's exact test was used to determine the difference in the use of tense inflections between the two groups. A p-value of < 0.05 was considered significant statistically. When the usage of the past and non-past tense forms were compared, a difference between the groups was observed ($p < 0.05$).

Conclusion: Our results revealed that the acquisition sequence of tense morphemes among two groups seems consistent with earlier findings (Aksu-Koç et. al, 2009; Aksu-Koç, 2000) whereas children with ASD perform at a lower level of finiteness than TD controls. Comparison of the usage of finite verb forms inflected for both past and non-past verb forms between TD and ASD groups revealed that ASD group is significantly less proficient than the TD group regarding both past and non-past tense forms. It has been observed that in ASD productions; past tense forms (-*D*/and -*mış*) are more frequent than non-past verb forms (-*yor*, -*AcAk*, -*Ar*). While the frequency of non-past tense usage is consistent among different non-past tense forms (-*yor*, -*AcAk*, -*Ar*), the comparison of past reference between -*D*/and -*mış* showed that past reference with -*mış* is less produced than -*D*. The difference between -*D*/and -*mış* in Turkish is that -*mış* indicates indirect

or hearsay evidence, and, as such, involves a lower degree of speaker and event certainty compared to the perceptual *-DI*. Depending on context, the presence of *-mİş* indicates that the information is novel for the speaker's consciousness. This pattern is also consistent with Aksu-Koç (2000) proposed that children first acquire the markers of direct experience *-DI*, using them in statements about situations in the here-and-now and in early language development, indirect or hearsay evidence (*-mİş*) is acquired latter than direct experience (*-DI*). Thus, our results clearly show that Turkish speaking children with ASD acquire grammatical tense morphemes in the same order as their TD peers, but their finiteness performance is significantly lower than their chronological age in comparison to TD controls

Keywords: Autism spectrum disorder, tense morphology, verb inflection

Table 1. Demographic Characteristics of Children with ASD and TD

	ASD Group	TD Group
Age (Months), Mean ± SD	28,6 ± 6,6	28,7 ± 6,64
Male: Female (n)	16:4	15:5
Mother's Education Level, n (%)		
Secondary School	3 (15)	2 (10)
High School	6 (30)	6 (30)
University	11 (55)	12 (60)

Table 2. Performance of children with ASD and TD for tense inflection forms

		ASD Group	TD Group	<i>p</i>
Tense Inflections		%	%	
Past	<i>-DI</i>	15	85	<0,001*
	<i>-mİş</i>	10	65	<0,001*
Non-past	<i>-yor</i>	5	70	<0,001*
	<i>-Ar</i>	5	70	<0,001*
	<i>-AcAk</i>	5	65	<0,001*

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Poster 12

Spontaneous production of generic null subjects in a partial null subject language

Karina Bertolino (University of São Paulo)

This study investigates the production of generic null subjects (GNSs) by Brazilian Portuguese (BP)-speaking monolingual children.

The presence of GNSs, together with the restricted use of definite null subjects (DNSs) in main clauses, distinguishes partial null subject languages (PNSLs), which include BP, from canonical null subject languages (CNSLs) (e.g., Italian) (1), (2).

CNSLs have rich agreement. Most of them also have a rich determiner system, in the sense that ϕ -features on determiners and/or clitics are overtly manifested. According to Roberts (2019), because of the existence of D(efiniteness)-features in both D and T, CNSLs have DNSs.

PNSLs do not always have rich agreement, and even when they do, agreement does not license DNSs. As a result, PNSLs lack a D-feature on T. Articles are frequently absent in PNSLs (e.g., Finnish). BP has articles, however the D projection is not required, as bare single count nouns in subject position are productive in BP.

We assume that no innate parametric specifications guides the acquisition of null subjects. Instead, we assume that parameters are located in the Lexicon (Baker, 2008; Borer, 1984). UG only says that there are interpretable [iF] and uninterpretable features [uF] and that the precise list of FFs will emerge as the child progresses through the learning process (Biberauer, 2018, 2019; Biberauer & Roberts, 2016).

This account predicts that acquirers will convey to the adult grammar quickly, since they only need to look at the morphological representation of ϕ -features to incorporate them into their grammar (i.e., the ϕ -features of T and D). Several studies have shown that children are attentive to functional elements even before their first word (Dye et al., 2019; Shi & Lepage, 2008; Shi et al., 2006).

Bertolino (2020) found that BP-speaking children as young as 4-years-old correctly accept GNSs and reject ungrammatical DNSs. The present study searches for evidence of earlier knowledge of GNSs by looking at the spontaneous production. We analyzed data of three BP-speaking children: Túlio (1;09 - 3;09, n = 16), Maria Eliza (1;0 - 4;04, n = 21) and Nino (1;02 - 2;10, n = 51). We looked for GNSs followed by the modal verbs *pode/não pode* (can, cannot) and *tem que* (have to), since there is significant evidence that BP-speaking adults accept GNSs in these environments (Bertolino, to appear).

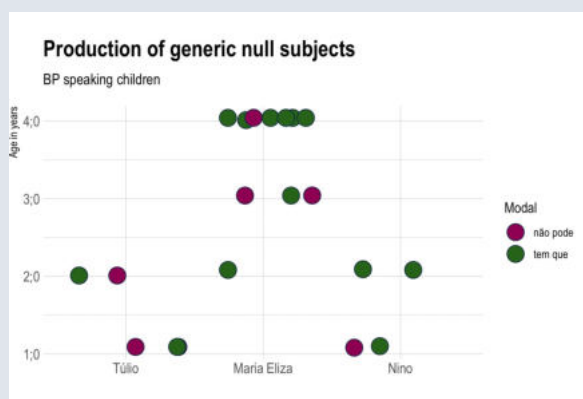
For Túlio, the first use of GNSs was at the age of 1;09. Maria Eliza produced the first GNS at the age of 2;08 and Nino at the age of 1;08 (Figure 1). Although we found evidence of early use of GNSs, the number of instances was only 20 total. No correlation between age and number of occurrences was found ($\rho = 0.147$, p-value = 0.535).

A greater quantity of GNSs may not have appeared because the recordings were centered on the child's relationship with the caregiver and activities performed by the child. GNSs are used when we talk about rules and laws applied to *people in general* or when they talk about inclinations, patterns, and habits that people have.

Our results are compatible with the hypothesis of early knowledge of GNSs. Although GNS were not frequently found in the child's speech due to discourse related restrictions, they emerge before or around the age of 2;0.

- (1) Em São Paulo não pode andar sem máscara. BP (PNSL)
 In São Paulo not can-3SG walk-INF without mask
 'In São Paulo one cannot walk without a mask.'
- (2) Em São Paulo não pode andar sem máscara. EP (CNSL)
 In São Paulo not can-3SG walk-INF without mask
 'In São Paulo s/he cannot walk without a mask.'

Figure 1



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September 23, 2022

Poster I

Verbal agreement inflection in children with hearing loss – the role of hearing device, perceptual prominence and syllable structure

Martina Penke* & Laura Gerkens#

*University of Cologne, #DIE Bonn

Children with a sensorineural hearing loss (HL) have only restricted access to spoken language input during ‘critical’ years for language acquisition. Despite modern hearing technology, their access to spoken language is limited, both qualitatively and quantitatively. Hearing aids (HAs) and cochlear implants (CIs) differ fundamentally in their technical operation and in the hearing impression they provide. These differences in the quality of the auditory signal are likely to affect language acquisition differentially, leading to distinct and characteristic difficulties. So far, however, the evidence regarding treatment-specific differences in the language development of children with HL are mixed: some studies report such deficits (e.g. Arya et al. 2018), others found no evidence for the effect of different hearing devices (Hammer & Coene 2016). The aim of our study is to contribute to this issue by investigating whether German children with HL treated with HAs or with CIs differ with respect to the production of verbal agreement affixes that are expressed by high-pitched (/s/ and /t/) and lower-pitched (/n/) consonants. For German-speaking children treated with HAs, Penke et al. (2016) reported selective deficits of the verbal agreement markers *-st* and *-t* that they attributed to problems related to the perception of the high-pitched consonants /s/ and /t/. For CIs, in contrast, research suggests deficits in discriminating lower frequency ranges (e.g. Gfeller et al. 2006). We compared the production of the German verbal agreement markers *-st*, *-t*, and *-n* in preschool children with bilateral sensorineural HL fitted with HAs or with CIs to test whether the two different types of hearing device differentially affect these verbal agreement markers.

We report data from 20 monolingual German-speaking preschool children with HL, 10 children fitted with HAs (age range 3;06-4;10, mean 4;03) and 10 children fitted with CIs (age range: 3;01 - 4;11, mean 4;06). The two groups displayed no significant difference with respect to age ($p = .312$), nonverbal IQ ($p = .165$) and aided hearing level ($p = .912$).

We analysed data from an elicitation test on verbal agreement morphemes where the children were asked to describe 30 short video scenes in which children were expected to produce sentences in 2nd and 3rd person singular and 3rd person plural contexts (i.e. verbal suffixes *-s(t)*, *-t* and *-n*, $n = 10$ each). All target verb forms were frequent verbs controlled for phonological complexity. In addition, we analysed recordings of discourse between experimenter and each child where the child was asked to explain a game to the experimenter or both were looking at a picture book. These data allow for checking our findings in a more natural and less controlled setting as in the elicitation test.

The data indicate that all children with HL tended to omit or replace the affixes *-s(t)* and *-t* in obligatory contexts for these affixes (fig. 1), whereas the affix *-n* was realized in almost all contexts. This discrepancy was observed for both data types, the elicitation test and the discourse data. Statistical testing yielded no significant differences between the two participant groups in any of the tested grammatical contexts and data types (Mann-Whitney-U-test $p > .05$).

each). Error analysis indicated that most errors with the verbal affixes *-s(t)* and *-t* were omissions of these inflectional markers (between 47-76%). Moreover, errors with these affixes were dependent on syllable position, they were more error-prone if they had to be realized in the appendix position than when they had to be realized in the syllabic coda position (fig. 2).

Our findings indicate a selective vulnerability of the affixes *-s(t)* and *-t* that is due to the perceptual prominence of these affixes in word-final position. Differences between children treated with HAs respectively CIs could, however, not be confirmed, suggesting that perceptual factors related to the syllabic position of the critical consonants /s/ and /t/ affect children with HL independent of their hearing device.

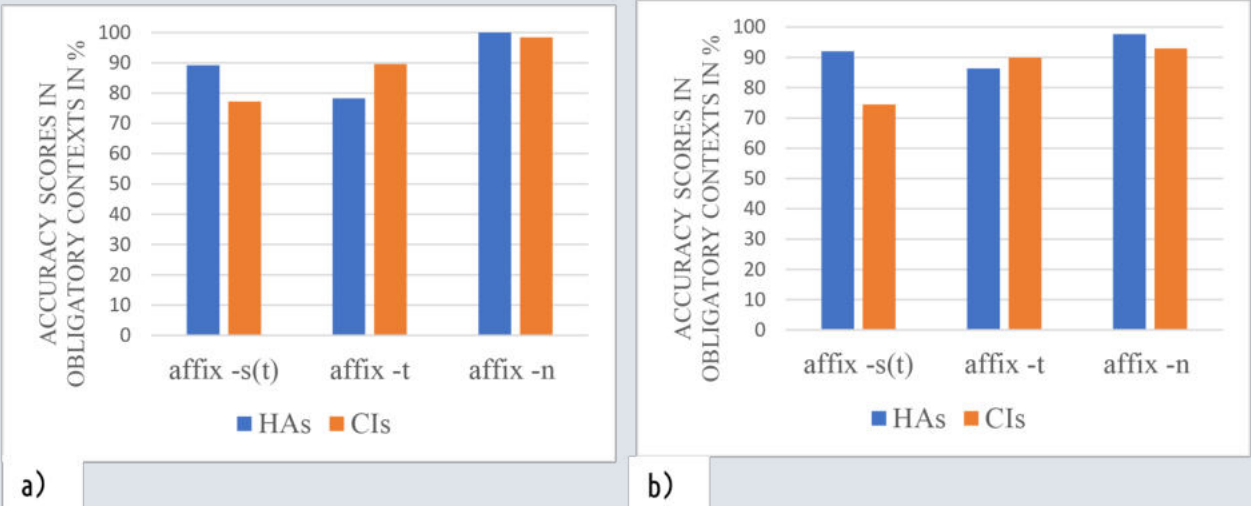


Figure 1: Accuracy scores for the verbal agreement affixes *-s(t)*, *-t* and *-n* for children treated with HAs and CIs in (a) the elicitation test and (b) the discourse data.

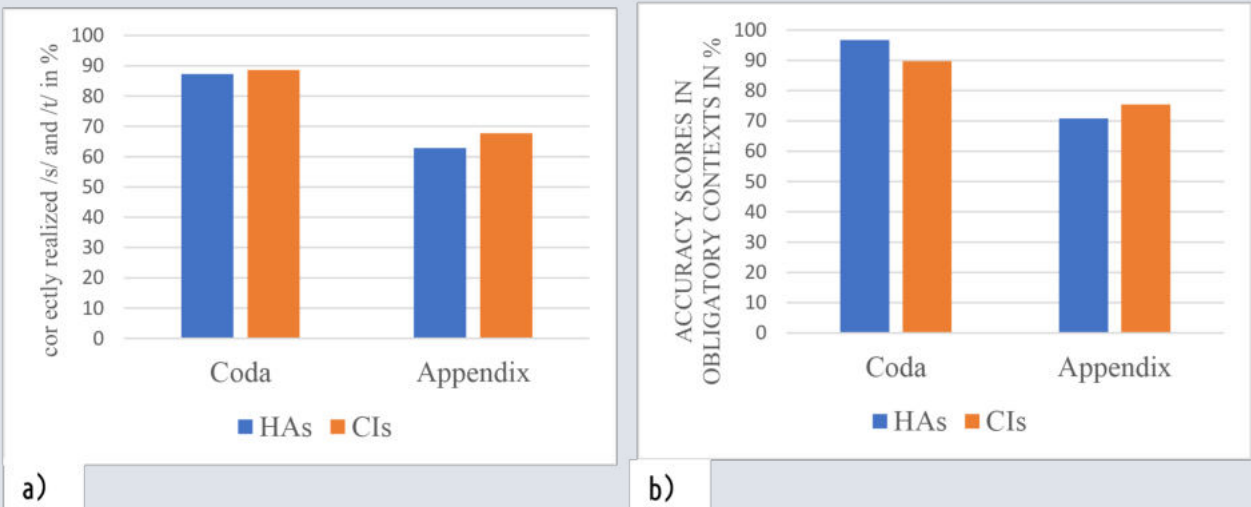


Figure 1: Realization of /s/ and /t/ for children treated with HAs and CIs in (a) the elicitation test and (b) the discourse data.

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Poster 2

Do child languages have negative concord? A corpus study

Johannes Hein¹, Cory Bill², Imke Driemel¹, Aurore Gonzalez³, Ivona Ilić¹, Paloma Jeretič²

¹ Humboldt University of Berlin, ² ZAS Berlin, ³ University of Milan-Bicocca

Introduction. Languages differ in whether sentences with two negative elements convey a single negation meaning (negative concord, NC, e.g. Hebrew, BCS (1)) or double negation meaning (DN, e.g. English (E), German (G) (2)). This child corpus study investigates the developmental trajectory of negative indefinites (NI) in natural speech production. We find that children acquiring G and E produce NC sentences, where sentence negation and NIs cooccur conveying a single semantic negation, though errors are quantitatively and qualitatively different in E and G. The errors are expected by a decomposition analysis of NIs (Penka 2007, 2011, Deal 2021). An analysis of NIs as negative existential quantifiers (Zeijlstra 2004, 2011) overgenerates. **Methods.** We selected corpora from CHILDES (MacWhinney 2000) of German (43 children; 0-14;10) and English (6 children; 0;7-8;0). We checked if the input matched a NC dialect of E or G leading to exclusion of one child for E. The number of utterances (E N = 328, 972; G N = 363, 028) and their distribution across ages was similar. We extracted all child utterances that contained at least one NI. They were tagged for type of NI, presence of NC, whether the NI was pre- or post-verbal (excluding fixed word order, e.g. V-final in G), and whether negation was n't or not in E. We excluded fragment answers. Coding was done by native speakers. **Results.** In all utterances with a NI (E N = 909; G N = 3, 106), we found NC 186 (E) and 45 (G) times. Figs. 1 and 2 show the proportion of NC utterances in all NI utterances by month. While the distribution of errors is different in E and G we do find a contiguous span of ca. 10 months in both E (45-58) and G (25-35) where the error proportion is not zero. Errors are found with all types of NIs. There is a preference for errors with postverbal NIs in E ($p < 10^{-5}$, χ^2) but with preverbal NIs in G ($p = .0043$, Fisher exact) (Fig. 3). In E, errors occur both with n't (3a) and not (3b). There were no errors with two NIs in the same sentence (e.g. No man saw no child.). **Discussion.** The non-sporadic occurrence of NC in the corpora dovetails with and supplements previous findings in comprehension (Thornton et al. 2016, Nicolae and Yatsushiro 2020) and artificial learning (Maldonado and Culbertson 2021) where a double negation reading of NIs alongside sentence negation is dispreferred. That NC errors in E occur with both n't and not supports Maldonado and Culbertson's finding that negation type has no influence on the availability of NC readings (pace Zeijlstra 2004). The results fall out from a decomposition analysis such as Penka (2007, 2011). She treats NIs across NC and DN languages as semantically non-negative existential quantifiers, licensed by an interpretable overt (NC) or covert (DN) negative operator. Building on Zeijlstra's (2004) Agree system for NC languages, she argues that NIs in DN languages come with [uNeg \emptyset], requiring a covert licenser [iNeg \emptyset] (not [iNeg]), see (4). If children follow a one-to-one mapping principle (Slobin 1973, van Hout 2008, Sauerland and Alexiadou 2020) from syntax to phonology, this predicts that G and E children produce NC-type structures (1), as they are prone to pronounce all parts of the structure, including the covert NEG operator in (4). Zeijlstra (2004, 2011) treats NIs as negative existential quantifiers, see (5). The NI first undergoes quantifier raising (QR), leaving a lower copy (5a). The existential part is reconstructed at LF (5b), the entire low copy is spelled out at PF (5c). Erroneous (partial) spellout of the high copy may create NC errors but also predicts several unattested errors (Tab. 1). Outlook. The peak of errors is higher

and occurs later in E than in G (Figs. 1–2). The presence of two types of negation and a much richer system of NPIs could lead to an overall more difficult acquisition of negation in E. The difference in error position (Fig. 3) might be due to the V2-status of G. As NIs are decomposed into NEG and an indefinite, preverbal NIs violate the V2 constraint. Thus, NIs must reconstruct for NEG licensing below C. If reconstruction is difficult for children, in particular to below a covert licenser, making NEG overt could be a means to ease it. Children in E, however, seem to follow a non-strict NC grammar – an asymmetry that could arise from the avoidance of Multiple Agree, argued to be involved for strict NC patterns like (1).

- (1) Milan *(ne) vidi ništa. **BCS**
Milan not sees nothing
‘Milan cannot see anything.’
(Progovac 1994: 40)

(2) Milan sieht nicht nichts. **German**
Milan sees not nothing
‘Milan doesn’t see nothing.’
- (3) a. We don’t want no gas. (Adam 3;11, Brown)
b. Nobody’s not drying him. (Fraser 3;00, MPI-Manchester)
- (4) *NIs in non-NC languages via Agree* (Penka 2011)
a. NEG_[iNegθ] NI_[uNegθ]-Subject Verb Object *subject NI*
b. Subject NEG_[iNegθ] Verb NI_[uNegθ]-Object *object NI*
- (5) *NIs in non-NC languages via partial copy deletion* (Zeijlstra 2011)
a. Subject Verb [NEG-∃-Object] *step 1: QR in syntax*
b. <NEG-~~∃-Object~~> Subject Verb <~~NEG~~-∃-Object> *step 2: partial copy deletion at LF*
c. <~~NEG-∃-Object~~> Subject Verb <NEG-∃-Object> *step 2: partial copy deletion at PF*

Fig. 1: Proportion of NC in German over time

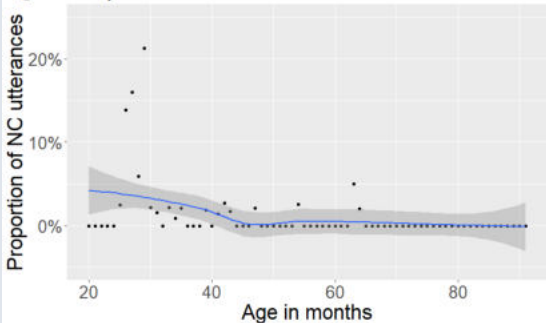


Fig. 2: Proportion of NC in English over time

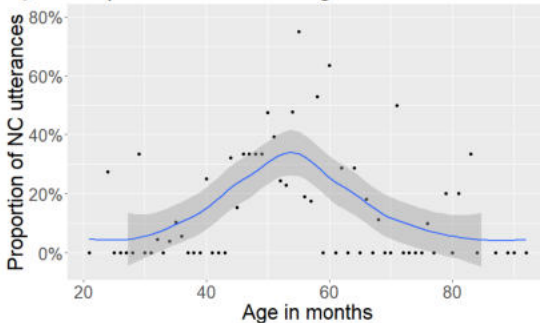
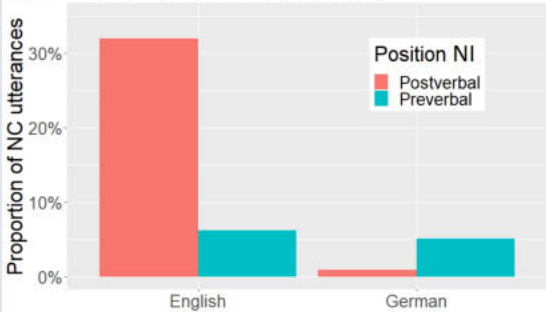


Fig. 3: Proportion of NC by NI position



Tab. 1: High copy (partial) spellout errors

high copy	low copy	attested?
NEG- ∃-Obj	NEG-∃-Obj	yes
<i>Milan doesn't see nothing.</i>		
NEG- ∃-Obj	NEG-∃-Obj	no
<i>Milan no sees nothing.</i>		
NEG-∃-Obj	NEG-∃-Obj	no
<i>Milan nothing sees nothing.</i>		

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September 23, 2022

Poster 3

Case and word order in children's online processing of relative clauses: evidence from heritage Greek

Kalliopi Katsika¹, Maria Lialiou² & Shanley Allen¹

1. Technische Universität Kaiserslautern, 2. Universität zu Köln

Long distance dependencies such as relative clauses (RCs) are known to be vulnerable in heritage grammars (e.g. Montrul 2008). Previous studies in heritage children (h-children) have shown that h-children have native-like comprehension but not native-like production of RCs (Jia and Paradis 2016), while non-native performance in comprehension has also been shown (Kidd, Chan and Chiu, 2015). This study aims to contribute to a better understanding of h-children's parsing strategies in moment-to-moment RC processing in heritage Greek in contact with German. The investigation of the online RC processing in this language pair is particularly interesting because Greek and German have different word order configurations. Greek is a free-word order language with an SVO preference, and German is a V2 language with verb final word order in subordinate clauses. Previous research in monolingual adults in Greek and German shows that predictive processing is the main parsing strategy in German-speaking adults (Konieczny 2000, Konieczny and Döring 2003) while a combination of predictive and memory limitation parsing strategies is found in Greek-speaking adults' RC processing (Katsika and Allen 2014). On the assumption that there is continuity in children's parsing of complex structures (see Clahsen and Felser 2006; Guasti et al. 2018), we expect monolingually raised Greek children to follow similar strategies as monolingual adults. We predict, however, that 11-to-13-year-old h-children of Greek may not follow their L1 parsing strategies but they may adopt the strategies of their dominant language (German).

We conducted a self-paced listening task in Greek in which we manipulated the type of RC (subject vs. object), and the RC internal word order (canonical vs. scrambled). RCs were introduced with the complementizer *pu* ('that') (see examples 1a-1d). Sentences were presented in a segment-by-segment fashion, and in the end of each sentence participants judged the grammaticality of the sentence by pressing one of two buttons. We recorded online listening times and grammaticality judgments from 22 monolingual and 18 heritage Greek/majority German 11- to 13-year-old children.

The statistical analysis of the listening times (LTs) on the RC verb segment showed faster LTs for ORs than SRs in h-children and no significant difference between ORs and SRs for monolingual children. This significant time advantage for ORs in h-children stems from faster processing of OSV structures (such as 1d) than SOV and SVO structures (such as 1a and 1b). Monolingual children also processed OSV structures faster than SOV ones, but this difference only reached significance in the final segment. In the off-line grammaticality judgments that children provided for each of the experimental sentences, monolingually raised and h-children showed the same pattern of results; both groups judged SVO sentences as the most grammatical ones with all other conditions receiving equally lower scores. These results show that monolingual and h-children process RC clauses in Greek similarly in the off-line task, but show parsing differences in the online task. These differences do not seem to stem from h-children's following German parsing strategies but rather from their difficulty to integrate morphosyntactic cues (such as case) in the online processing of Greek.

Examples

- I.
 - a. 0 majiras-NOM pu **esprokse** ton servitoro-ACC ekapse to fajito. (SR, SVO)
the-NOM cook-NOM that **pushed** the-ACC waiter-ACC burned the food
 - b. 0 majiras-NOM pu ton servitoro-ACC **esprokse** ekapse to fajito. (SR, SOV)
the-NOM cook-NOM that the-ACC waiter-ACC **pushed** burned the food
'The cook that pushed the waiter burned the food'
 - c. 0 majiras-NOM pu o servitoros-NOM **esprokse** ekapse to fajito. (OR, OSV)
the-NOM cook-NOM that the-NOM waiter-NOM **pushed** burned the food
 - d. 0 majiras-NOM pu **esprokse** o servitoros-NOM ekapse to fajito. (OR, OVS)
the-NOM cook-NOM that **pushed** the-NOM waiter-NOM burned the food
'The cook that the waiter pushed burned the food'

Figures

Figure 1. Listening times (in ms) in monolingual children.

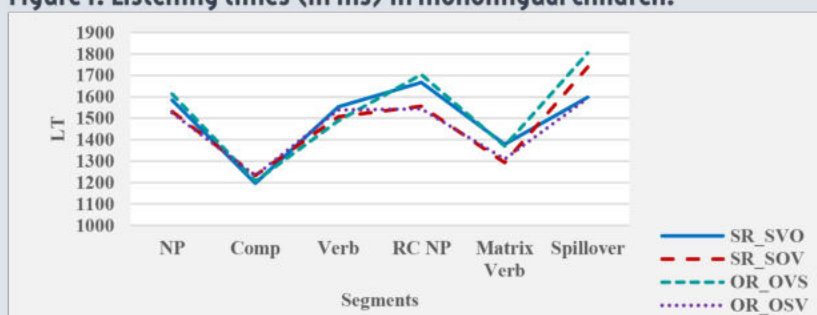
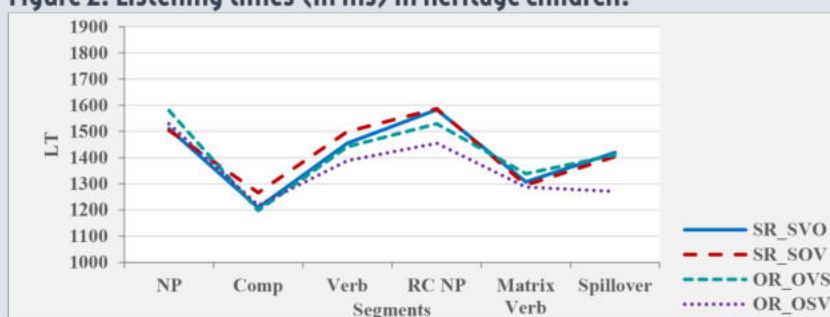


Figure 2. Listening times (in ms) in heritage children.



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Poster 4

Adjective ordering preferences are not rigid: evidence from elicited production in child and adult German

Lydia Grohe & Petra Schulz
Goethe University Frankfurt

This study investigates whether children and adults follow the adjective ordering preferences (AOPs) argued to hold universally for attributive adjectives. These AOPs are commonly explained via hierarchies of notion-based classes like (1). Accordingly, (2a), for instance, should be preferred over (2b) [1,2].

- (1) SUBJECTIVE COMMENT>EVIDENTIAL>SIZE>LENGTH>HEIGHT>SPEED>DEPTH>WIDTH>
WEIGHT>TEMPERATURE>WETNESS>AGE>SHAPE>COLOR>NATIONALITY/ORIGIN>
MATERIAL
- (2) a. the big round clock (SIZE>SHAPE) b. #the round big clock (#SHAPE>SIZE)
- (3) a. the square blue table (SHAPE>COLOR) b. ?the blue square table (?COLOR>SHAPE)

Theoretical arguments [3,4] and experimental evidence [5], however, suggest that some adjective classes allow both orders (3a,b). Moreover, additional factors such as communicative efficiency [6,7] and subjectivity [8] are claimed to affect AOPs. Accordingly, controlled acquisition and adult production data are crucial for uncovering how rigid AOPs are and whether they are in place from early on. Previous child studies found that in general, eliciting AA(A)N sequences is difficult without training [9]. Evidence for AOPs is mixed: some studies on preschool-aged children report clear preferences [9,10], and some studies only for few adjective class combinations [11]. These studies reported group results, leaving open whether individual differences exist. We asked whether children and adults (Q1) produce AAN in contexts where both adjectives are needed to provide a referentially successful response and (Q2) show an ordering preference for SIZE-SHAPE and SHAPE-COLOR. 24 German-speaking children (3;06-5;10, mean=4;05) and 24 adults participated in a novel elicited production task, comprising the conditions SIZE-SHAPE and SHAPE-COLOR (8 items each, Fig. 1). Looking at a picture book, participants had to name the ‘magic’ object out of four objects: the target, two ‘adjective distractors’ (one adjective different), one ‘noun distractor’ (noun different from target). To introduce the vocabulary, in each trial the experimenter first mentioned the relevant nouns and adjectives (Table 1).

Ad (Q1), all adults consistently produced AANs (343/384 items). As expected, children produced AANs infrequently (90/384 items); a GLME-model for the child-group with age as a continuous factor showed that the rate of AAN-responses increases with age ($p=.011$). Due to the data distribution, non-parametric tests were used to address (Q2). The rate of AAN-responses in line with the hierarchy (1) was different from chance in children and adults for SIZE-SHAPE (Binomial test, $p=.008$, and $p<.001$), but not for SHAPE-COLOR (children: $p=.111$, adults: $p=.705$) (see Fig. 2). Regarding SIZE-SHAPE, the individual data (Table 2) confirms this pattern, with 96% of the adults preferring the order SIZE>SHAPE. Regarding SHAPE-COLOR, however, the adults showed a bimodal distribution: 50% preferred the order SHAPE>COLOR and 47% the unpredicted order COLOR>SHAPE. The children showed the same pattern as the adults: 69% of the children who produced AANs

preferred the order SIZE>SHAPE. Regarding SHAPE-COLOR, children opted consistently either for SHAPE>COLOR (20%) or for COLOR>SHAPE (67%).

Our findings provide only partial support for the hierarchy in (1): AOPs clearly exist for SIZE-SHAPE, and 4-year-olds are aware of them, but the results for SHAPE-COLOR show that at least some sections of the hierarchy are not as rigid as postulated. The individual data analysis reveals that language offers two options, and that adults and children select one of them. This speaks against the assumption that AOPs are universally available as part of grammar and supports non-grammar approaches that may involve cognitive, frequency, or multifactorial aspects. More research is needed to discover how children acquire AOPs, how they acquire which AOPs are rigid and which are not, and to uncover which factors determine the individual choice in the latter case.

Appendix

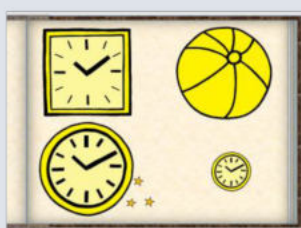


Fig. 1a. Example item SIZE-SHAPE

Intro: *'Look! There are clocks and one ball. There are big things and one small thing. And there are round things and one square thing.'*

Prompt: *'What is bewitched?'*

Target: *die große runde Uhr* (the big round clock)

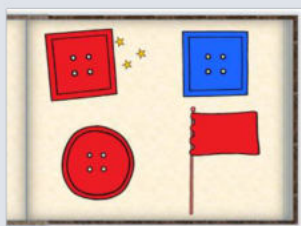


Fig. 1b. Example item SHAPE-COLOR

Target: *der eckige rote Knopf* (the square red button)

Table 1. Adjective material in the task

Class	Adjectives
SIZE	big, small
SHAPE	round, square
COLOR	blue, red, yellow, green

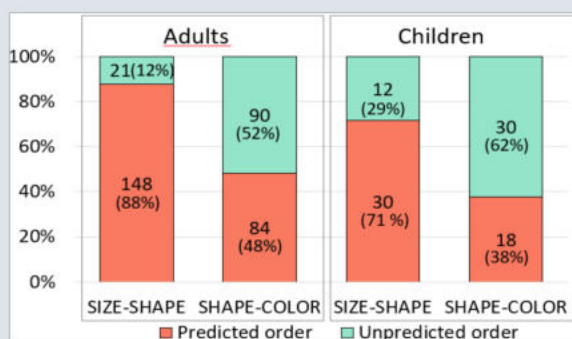


Fig. 2. Proportion of orders produced, predicted and unpredicted by hierarchy (1), by group

Table 2. Number of participants who consistently responded in line with the hierarchy (1), contra the hierarchy, without any order preference, and participants without AAN-responses

Consistent responders ¹				
Condition	Predicted order	Unpredicted order	No preference ²	No AAN responses
Children (n= 24)				
SIZE-SHAPE	9 (69%)	2 (15%)	2 (15%)	11
SHAPE-COLOR	3 (20%)	10 (67%)	2 (13%)	9
Adults (n = 24)				
SIZE-SHAPE	23 (96%)	1 (4%)	0	0
SHAPE-COLOR	12 (50%)	11 (46%)	1 (4%)	0

¹More than 50% of the AAN-responses in one direction, ²equal response rates for both orders

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September 23, 2022

Poster 5

The problem of pseudoclefts in French: intersection configurations and intervention effects in language acquisition

Carla Soares-Jesel, Maria Lobo, Ana Lúcia Santos

Université Paris Cité, Universidade Nova de Lisboa, Universidade de Lisboa

The concept of intervention became central in acquisition research. To explain the difficulties that children show in producing and comprehending object A'-dependencies in questions, relatives and clefts, several researchers proposed that intervention plays a role and tried to define the factors that are relevant to characterize intervention configurations (Friedman, Belletti & Rizzi 2009; Belletti & Contemori 2010, 2012; Belletti & Rizzi 2013; Lobo, Santos & Soares-Jesel 2016, a.o.). We argue that by investigating the acquisition of clefts in French, namely pseudoclefts, we may contribute to advance our knowledge of a hierarchy of configurations that may justify different intervention effects in acquisition. Rizzi (2018) proposes that in an intervention configuration ...X...Z...Y... there are different types of relations that may arise between the target of the local relation (X) and the intervener (Z): disjunction, identity and inclusion. Identity configurations are excluded in the adult grammar and inclusion configurations are excluded by children, the latter creating well-known subject-object asymmetry effects (Friedmann et al. 2009 and subsequent work). The possibility of intersection relations is proposed by Belletti et al. (2012) and explored in Durrleman & Bentea (2021). The following hierarchy was suggested: **disjunction** > **intersection** > **inclusion** > **identity**. According to Belletti et al. (2012), intersection configurations are accepted by children but probably harder to compute. We explore intersection configurations in French pseudoclefts, which we compare to French standard clefts.

Intervention effects caused by an inclusion configuration, and therefore subject-object asymmetries in production/comprehension of clefts by children, are expected in standard clefts (1). In the object cleft (1b), the subject of the embedded clause is marked +NP, since it is a definite description with a lexical (nominal) restriction. The clefted constituent is also a lexically restricted DP object and crosses the subject. The comparison with pseudoclefts in French (2) is particularly interesting: if *celle* and *celui* are analyzed as D +NP (as suggested by Bentea, Durrleman & Rizzi, 2016 for relatives headed by demonstratives), we may not expect differences between standard clefts and pseudoclefts; however, if *celle* and *celui* are not D +NP, but carry other relevant features, namely number, an intersection configuration occurs, as in (3), and we should expect effects in children's comprehension, but probably milder effects, when compared to the effects expected in standard clefts.

We present the results of a truth-value judgment task, replicating for French the experiment of Lobo et al. (2019). In the experiment, the child must judge whether a puppet, who utters a sentence with a cleft (standard or pseudocleft) is correctly describing a picture, which might represent the situation denoted by the sentence or the reverse situation. We manipulate two factors (type of cleft - pseudocleft vs. standard cleft; grammatical function of the extracted constituent - subject vs. object), resulting in four conditions. Each condition was tested by 6 items (4 false and 2 true items). We tested 15 4 year-olds and 22 5 year-olds, as well as a control group of 20 adults. A generalized linear mixed model (GLMM) applied to the results obtained showed significant main effects of Grammatical relation ($F(1,877) = 117.931, p < .001$), of

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Poster 6

Variable input effects and language domains in sequential bilingualism

Susan Logue, Christina Sevdali, Raffaella Folli, Juliana Gerard
Ulster University

Language outcomes depend on biological, cognitive, and environmental factors. How do these factors impact development in bilingual language acquisition? This is especially relevant for sequential bilingual children whose proficiency varies widely due to differences in these factors (Granena, 2014). While factors like age, memory and linguistic input can all impact language proficiency in sequential bilinguals, results are mixed for particular language features (e.g., Armon-Lotem et al., 2011; Chondrogianni & Marinis, 2011; De Cat, 2020; Paradis, 2011; Paradis et al., 2017; Rothman et al., 2018; Unsworth, 2016). Our research questions are: (1) How do biological, cognitive, and environmental factors affect proficiency in sequential bilinguals? (2) Do the effects vary across language features?

Participants were 40 children with L1 Arabic acquiring L2 English, aged 5;7-12;2 ($M=8;4$) with length of L2 exposure 0;7-10;6 ($M=4;1$) and age of L2 onset 0;5-10;0 ($M=4;3$). Individual difference factors and language domains were selected based on previous studies, and assessments were in the L2 (English). As biological and cognitive factors, we investigated the effects of chronological age, age of onset, and short-term memory (a non-word repetition task [20]). Environmental factors were measured with a parent questionnaire which was adapted from the Alberta Language Environment Questionnaire and translated to Arabic [5], and included length of L2 exposure, richness of the L2 environment (i.e., play and social activities in the L2), L2 use at home, and socioeconomic status (Table.1). Language domains were vocabulary [4-5,8-16], morphology (third person singular and past tense [3,5,17-18]), and syntax (active and passive voice, and subject and object relative clause sentences [19]) (Table.2).

Generalised linear mixed effects modelling revealed that while vocabulary and morphology were both predicted by longer L2 exposure (both p 's < .001, Fig.1-2), accuracy on each of the syntactic structures was predicted by richness of the L2 environment (p =<.001, Fig.3). However, for the structures with more complex syntax (i.e., passive voice and object relative clauses), this effect of richness of the L2 environment was driven by older children, with a significant interaction between richness of the L2 environment and chronological age (p =<.001, Fig.4): while higher accuracy was observed with a richer L2 environment for older children, L2 richness did not predict accuracy for younger children. Age of onset, short-term memory, L2 use at home, and socioeconomic status did not predict any language features.

These results suggest that in child sequential bilingualism, lexical and morphological development depend on overall language experience. Input also impacts syntax; however, it is a specific type of input namely, L2 exposure through activity- or play-based situations, which drives proficiency of these structures. Moreover, for complex syntax, the effect of this richer input is observed only in older children. This suggests that for younger sequential bilinguals, complex syntax is less input-dependent. Results also suggest that age of onset, short-term memory, L2 use at home, and socioeconomic status do not predict language measures when other factors, including fine-grained input, are accounted for. Future research will further investigate these input effects, as well as the role of the L1.

Table.1

Demographic & environmental factors	Measurement of factor
Chronological age	Participant’s age at time of testing.
Age of onset	The age of first meaningful (consistent and significant) exposure to L2 English.
Length of exposure	Difference between the child’s chronological age and age of onset (as above).
Richness of the L2 environment	Participation in social/extracurricular activities with the L2 as the language of instruction and L2 English use during play with friends.
L2 use at home	L2 language use to the child by each household member (all adults and siblings present at home, if applicable), and from the child to each household member.
Socioeconomic status	A combination measure of maternal education & maternal L2 proficiency.

Table.2

Assessment task	Language feature	Example
Vocabulary: The Renfrew Word Finding Vocabulary Test (1995) (Expressive lexical task)	Vocabulary	Nouns e.g., moon, cup, key, window, snake, pineapple, helicopter, finger, kite, guitar
Morphology: Test of Early Grammatical Impairment, Screening test (Rice & Wexler, 2001) (Elicitation task)	Third person singular	The dog barks He has a hat
	Past tense	She played football They went to school
Syntax: The Coloring Book Task (Pinto & Zuckerman, 2018) (Comprehension task)	Active voice	The cow washed the yellow sheep
	Passive voice	The cow was washed by the blue sheep
	Subject relative clause	There’s the sheep that washed the cow
	Object relative clause	There’s the sheep that the cow washed

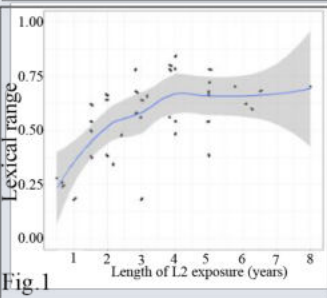


Fig.1

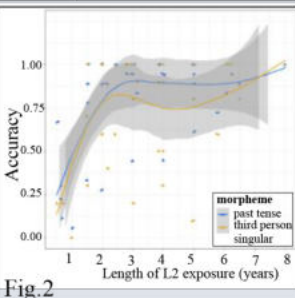


Fig.2

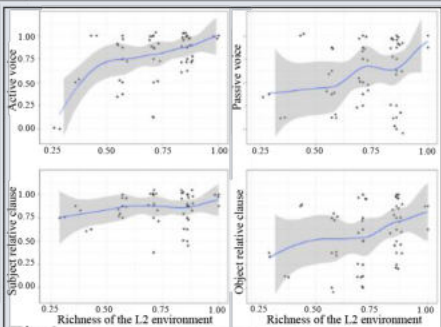


Fig.3

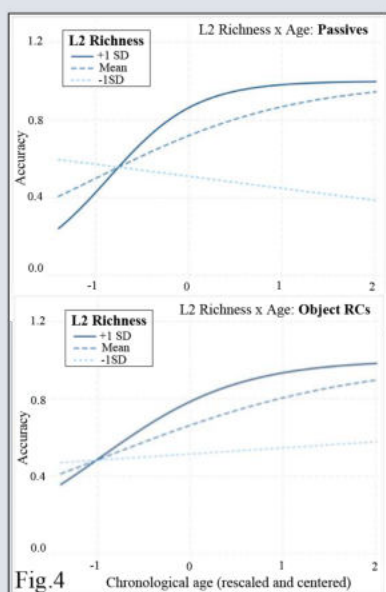


Fig.4

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Poster 7

Asymmetries in the acquisition of Italian cliticisation

Giuditta Smith¹, Federica Mantione² & Chiara Finocchiaro²

¹*School of Health Sciences, University of East Anglia, UK*

²*Dipartimento di Scienze Cognitive, Università di Trento, Italy*

In several Romance languages, clitic pronouns are elements that are mastered early in the child. In Italian, children show a fully-fledged use of clitics by age 4 approximately (Schaeffer 2000, Leonini 2006). Cliticisation is a syntactic operation that concerns the movement of direct object (DO, *la_{CL} saluto* 'I greet her') or indirect object (IO, *gli_{CL,DO} dà il maglione*, 'he/she gives him the jumper') deficient pronominals outside of their originating position. In Italian, this is to the left of the host verb with finites (proclisis), and to the right of the host verb with iussives and non-finites (enclisis, *darlo_{CL,DO} al bambino* 'to give it to the child'). In the case of cluster constructions, Italian also has a fixed rule on linear ordering (IO>DO as in *gliela_{CL IO+DO} ruba* 'he/she steals it from her/him').

While robust findings indicate that DO proclitics are early phenomena in Italian children, already appearing around 2 years of age in small structures (Guasti, 1993/4), other occurrences seem to behave differently, with some data showing IO clitics to be less prone to omission than DO clitics (Caprin & Guasti 2009), and proclisis to be more accurate than enclisis in 4-year-old children (Mantione 2016).

In this study, we present data from acquisition of DO and IO clitics in proclitic and enclitic position, aiming to establish whether there is an underlying chronological pattern in clitic acquisition. Three groups of children were included: preschool children (number = 18, mean age in years 4;5), young primary school children (number = 20, mean age 6;7), and older primary school children (number = 20, mean age 8;5). The experimental tasks were picture-prompt-with-question elicitation tasks consisting of 8-12 balanced items per condition (see examples in page 2).

The results are presented in Table 1 (page 2). The data, analysed via Generalized Mixed Models, show that young children produce more target IO clitics than DO clitics ($\beta = -0.78$, $z = -5.6$, $p < .001$) in both preschool and young primary school children, and more proclitics than enclitics ($\beta = -0.96$, $z = -6.8$, $p < .001$) in both preschool and young primary school children. Clitic clusters are dispreferred across the board, with no effect of Group, but still higher accuracy in proclisis over enclisis ($\beta = 1.38$, $z = 6.7$, $p < .001$). Qualitative analyses of non-target responses showed that the lower accuracy of enclisis was not due to the biclausal structure, which was correctly produced 90% of the time in the preschool children.

Our data confirm that clitics are produced with no omissions and feature errors already at 4 years of age. Furthermore, they highlight a preference for the cliticisation of IOs over DOs, for cliticisations within the same clause (proclisis over enclisis), and for single argument extraction (single clitic over cluster). The present data suggest the existence of a specific order in the acquisition of Italian clitic pronouns.

Task examples

a. Production of 3rd person clitics:

IO proclitic probe: In questa scena, ci sono un commesso, una signora, e un maglione. Che cosa fa il commesso alla signora_{fem}?

In this scene, we have a clerk, a lady, and a pullover. What does the clerk do to the lady?

Expected answer: pro le_{CL, IO fem} dà (/passa/mostra) il maglione

(she) gives (/hands/shows) her the pullover

b. Production of 3rd person clusters:

Enclitic probe: In questa storia la mamma dice a Marco di togliere oppure di ridare il giornale a Sara. Qui la mamma dice a Marco di togliere il giornale a Sara. E qui cosa dice?

In this story, the mother tells Marco to take away or give back the newspaper to Sara. Here the mother tells Marco to take away the newspaper from Sara. What does she say here?

Expected answer: di ridarglielo_{CL, IO+DO, masc}

to give it back to Sara

Tables

	preschool (4;5)	young primary (6;7)	old primary (8;5)
3 rd p clitic proclisis	7.1/12 (60%, sd 3.29)	8.8/12 (73%, sd 3.12)	10.6/12 (88%, sd 2.24)
3 rd p clitic enclisis	4.8/12 (40%, sd 3.26)	7.1/12 (59%, sd 3.61)	8.8/12 (73%, sd 3.12)
3 rd p cluster proclisis	3/8 (37%, sd 2.73)	3.2/8 (40%, sd 2.43)	4.2/8 (52%, sd 3.1)
3 rd p cluster enclisis	1.7/8 (21%, sd 2.21)	1.3/8 (16%, sd 1.82)	2.7/8 (34%, sd 3.09)

Table I. Raw scores, percentages, and standard deviations of accuracy on the production tasks grouped by sentence type (proclisis and enclisis) and age group.

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Poster 8

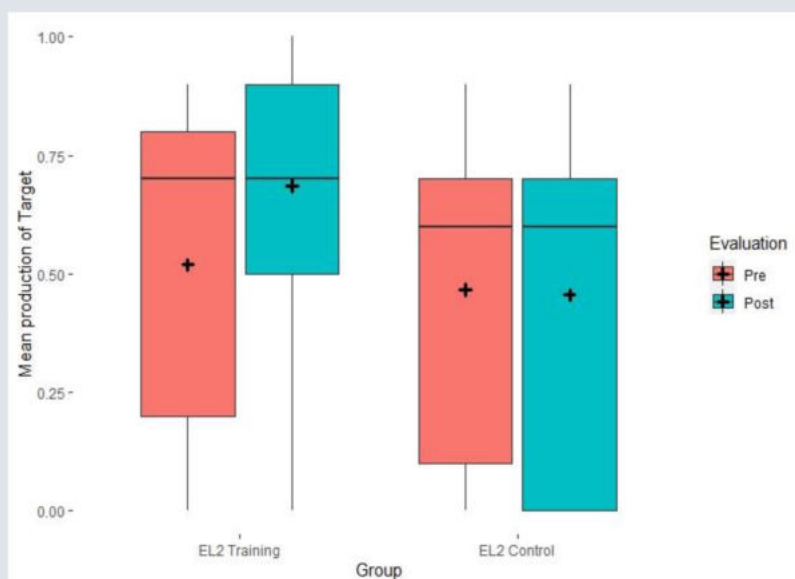
Can a priming-based training enhance the production of direct object clitics in early L2 Italian children?

Giulia Bettelli & Fabrizio Arosio
University of Milano-Bicocca

With this study, we wanted to assess whether a new training instrument based on morphosyntactic priming can help early L2 Italian (EL2) children in their production of specific structures, as third person direct object clitic pronouns (3DOCI). Children who learn Italian as a second language have been proven to have an impaired production of 3DOCI [12] compared to their monolingual peers [5;7;8;9]. Problems in 3DOCI production are also a clinical marker for developmental language disorders (DLD) in Italian [1;3]; however, morphosyntactic priming has resulted to be significantly effective in enhancing the production of 3DOCI in children with DLD [2]. To verify the effectiveness of a priming-based training in L2 learners, we administered this new instrument to a group of 21 EL2 children (mean age: 72 m); to verify the impact of the training, 9 EL2 children (mean age: 76 m) participated in an alternative picture-book reading-comprehension activity of the same length of the training program. 3DOCI production was evaluated before and after the training with different versions of Arosio et al.'s elicitation task [1]. Additionally, we administered the TROG2 test [3] to evaluate their grammatical abilities, the TNL test [6] to evaluate their vocabulary, and the Raven's test [10] to evaluate their non-verbal abilities. A parents' questionnaire was used to assess the linguistic background of the EL2 children. An additional group of 15 age-matched Italian-speaking monolingual children (mean age: 77 m) was evaluated with the aforementioned tasks. Linear regression analysis showed no differences between the three groups in their non-verbal abilities [10]. However, the monolingual children performed significantly better than the EL2 children in the TNL [6], the TROG2 [3], and the 3DOCI production task [1]. Their clitics production, in particular, was very high (mean=0.89), while EL2 children, overall, produced a correct 3DOCI only half of the time (mean=0.50). The two EL2 children's groups then took part in the second phase of the study: 21 participated in the 3DOCI training program, while 9 EL2 children participated in the alternative activity. The training program lasted around one month and consisted of 12 training sessions (around three sessions per week for four weeks), including 12 items each. Each item consisted of three pictures accompanied by pre-recorded sentences. The second sentence introduced the prime, namely the 3DOCI, while a prompt accompanied the third picture to induce in children the production of the target answer containing a 3DOCI. Around one week after this second phase, all EL2 children were administered a new 3DOCI production task to evaluate the effectiveness of the training program. Logistic regression analysis in a generalized mixed model on target 3DOCI responses with evaluation (Pre vs. Post) and group (EL2 Training vs. EL2 Control) as fixed factors showed that the production of 3DOCI significantly increased ($p=0.002$) in the EL2 children who participated in the training. In contrast, no significant difference has been found in the EL2 control group (Figure 1). These preliminary results show that morphosyntactic priming is significantly effective in EL2 children and that our training can enhance the production of 3DOCI. All EL2 children will be re-evaluated in their 3DOCI production around 3,5 months after the training/alternative activity to see if these effects we found are persistent in time. Preliminary results of 10 EL2 Training children confirmed this hypothesis, showing a significant difference

between their 3DOCI production before and at 3,5 months from the training ($p < .0001$), while no difference has been found between their production after and at 3,5 months from the training.

Figure 1. Mean production of 3DOCI before and after the training and the alternative activity in EL2 children.



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Poster 9

Sensitivity to event mutability in children's spontaneous counterfactuals

Ioana Grosu and Ailis Cournane
New York University

Introduction. The mutability of an event (i.e., ability to be undone) affects how adults reason counterfactually. Research shows that adults prefer to use counterfactual (CF) utterances where conceptual features (e.g., controllability, recency) result in more mutable events ([2],[6],[4]). While the effects of these features on adult CFs has been studied through behavioral tasks (e.g.,[5]), their effect on children's reasoning remains an open question. Prior studies have mostly focused on the age at which CF reasoning becomes adult-like (e.g., [12]), or on differences between CF and similar forms of reasoning (e.g., basic conditional reasoning, [10]). Additionally, developmental studies have primarily relied on comprehension tasks (e.g., [1], [10]), or to a lesser extent, elicited production tasks (e.g., [13], [3]). In this study, we conduct a novel analysis of the spontaneous CF utterances that 4-year-olds hear and produce, aiming to answer the following: Do children show the same mutability effects in their reasoning as adults? And, can we get a better sense of child and adult natural preferences by looking at spontaneous data (which remains understudied for counterfactuality)? One contributor to mutability is the controllability of events: whether the event can be controlled by somebody (ex. 1a, controllable) or not (ex. 1b, uncontrollable). A prior experiment found that children exhibit an overall preference for undoing controllable events (vs. uncontrollable) in the context of a CF utterance, with a diminished effect in children younger than 5 [13]. This preference also arises for adults ([8], [11]). In contrast, we find that 4-year-olds produce CFs with uncontrollable events more frequently, despite controllable events being more mutable [9]. We also find likely correlations with previously unexplored features (e.g., predicate type).

Methods. We extracted all utterances containing "if" produced by 4-year-olds and their adult input speakers in the NA-English section of CHILDES (31 corpora) [3]. We exclude utterances in which the antecedent is not false in the real world (determined by surrounding context), and utterances in which the consequent is not given. From 3200 utterances with "if" (anticipated \approx 5700), we identify 132 child CFs and 118 adult CFs (anticipated \approx 160 each).

Results and Discussion. We find that children tend to produce utterances about events that are not controllable, whereas adults show the opposite effect (consistent with experimental results from [8], and supported by [11]). Production of controllable events could be affected by proportions of individual vs. stage-level predicates: both adults and children show a strong relationship between predicate type and controllability (\sim 78% of adult CFs and \sim 75% of child CFs described controllable events with stage level predicates, or non-controllable events with individual-level predicates (e.g., ex. 2)). However, 4-year-olds tended to use more stage-level predicates with uncontrollable events than adults (e.g., ex. 3: 51% of children's stage-level predicates described uncontrollable events (vs. 29% for adults)). It is possible that children's overproduction of

uncontrollable events is related to their more flexible use of stage-level predicates. We aim to analyze other features (e.g., person, agency) in a similar manner.

Our findings indicate that 4-year-olds can undo even immutable events in order to reason about the possibilities arising from them. This differs from prior experimental work on children's use, as well as from expectations given adults' preference for undoing mutable events. One explanation is that the CF features in stimuli may have influenced reasoning preferences (e.g., in [13] only stage-level predicates were used with uncontrollable events), masking natural correlations. As we've seen in the case of predicate type, certain linguistic and conceptual features can pattern in interesting ways with children's controllable events. Through studying what children actually hear and produce in detail, we can better understand the linguistic, conceptual, and task contributions to our existing knowledge about counterfactual development.

Feature		Child	Adult	P < 0.05
Controllability	Uncontrollable	88 (0.68)	57 (0.48)	☆
	Controllable	42 (0.32)	61 (0.52)	
Type of predicate	Stage-level	86 (0.66)	83 (0.70)	
	Individual-level	44 (0.34)	35 (0.30)	

Table 1: Counts and relative proportions of CF utterances by features, for adults and children. Proportions show feature use among all CFs (e.g., 32% of child CFs have controllable antecedent event) Bolded percentages indicate asymmetries between child and adult usage patterns. Star indicates significance, which is calculated using 2x2 Pearson Goodness-of-Fit chi-square tests.

Examples:

(1) Controllable vs. uncontrollable antecedent events:

- a. Controllable: *If he had slammed the door*, the door would have been closed
- b. Uncontrollable: *If the wind had blown*, the door would have been closed

(2) Antecedent event is uncontrollable + individual-level predicate:

- a. “*if we were bad babies* we would go wee wee but not bad babies”
(4;10, Eng-NA/MacWhinney/041027a)
- b. “*if they had a shell* then they would could hide if they’re scared”
(4;09, Eng-NA/Gelman/2014-IndDiff/37C-PI)

(3) Antecedent event is uncontrollable + stage-level predicate:

- a. “*if you was sick* you would have stayed home”
(4;09, Eng-NA/Hall/BlackWork/kig)
- b. “*if my ice cream was melting* I’d hafta eat it real fast right”
(4;04, Eng-NA/Kuczaj/040401)

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Poster 10

A' and A movement in Portuguese cochlear implanted children: The effects of length of language exposure

Mara Moita^{1,2}

¹Centro de Investigação Interdisciplinar em Saúde (ICS-UCP)

²Centro de Linguística da Universidade NOVA de Lisboa (FCSH-NOVA)

In the period in which language should be acquired, auditory input deprivation compromises oral language exposure. The literature reports difficulties in the oral production and comprehension of wh-questions and relative clauses in hearing-impaired children as a consequence of language deprivation in the first year(s) of life (1-4). These difficulties are pointed out as arising from the inability to establish dependencies resulting from A' movement (2,5). However, in the acquisition of syntactic structures with A-movement, divergent results are reported. If, on the one hand, in the acquisition of passive sentences, hearing-impaired children without hearing aids show difficulties in reading and writing (6,7), on the other hand, hearing-impaired children with hearing aids do not show difficulties in the comprehension and production of passives (8,9).

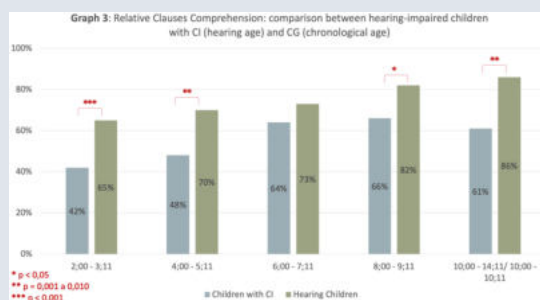
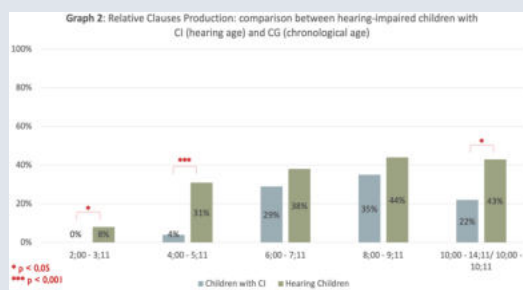
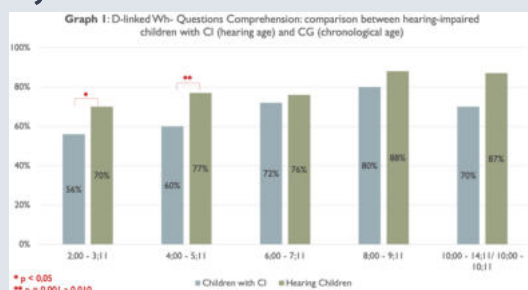
The main goal of this study is to analyse and describe the effects of the total deprivation of linguistic input during the first year(s) of life and length of language exposure on the acquisition of dependencies with A and A-bar movement in Portuguese hearing-impaired children with cochlear implants. For this purpose, we analysed data from 47 Portuguese children with profound to severe bilateral and prelinguistic hearing impairment, and with cochlear implant(s) (CI) (with hearing ages between 2;00 and 14;11 years) in oral production and comprehension tasks of wh-questions, relative clauses, and passive sentences. The performance of the target population was compared with that of the control group (CG) paired by hearing age and chronological age. We also considered the effect of age of activation of the CI.

In general, the results in the oral production of wh-questions and passive sentences reveal that Portuguese hearing-impaired children with CI have difficulties and significantly lower performance compared to their hearing peers. Asymmetries between subject and object wh-questions show that these children are sensitive to intervention effects (10,11).

However, when the target population reaches 6/ 7 length of oral language exposure (hearing age) and presents a CI activation before 3 years of life, Portuguese hearing-impaired children's performance is not statistically different from the CG in d-linked wh-questions comprehension (graph 1), relative clauses production (graph 2) and comprehension (graph 3). These results contradict the existence of a syntactic deficit (2,5), indicating the possible existence of a delay in the acquisition of wh-questions and relative clauses dependent on the length of language exposure and the age of CI activation - variables that, when combined, reveal to be the best predictors of comprehension of these structures.

Passive comprehension proves to be problematic for Portuguese hearing-impaired children with CI even at the higher length of language exposure and early CI activation, corroborating the results from studies on children with severe to profound hearing loss (6,12) and contradicting the results from studies on children with hearing aids (8,9).

Figures:



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Friday

September 23, 2022

Poster II

Alternative Routes to Verb Learning: Beyond Syntactic Bootstrapping

Akari Ohba and Kamil Deen
(University of Hawai'i at Mānoa)

This study investigates the acquisition of a class of verbs in Japanese which exhibits some semantic characteristics that are not predicted by argument structure. These verbs (henceforth, empathy verbs) encode a property referred to as *speaker's empathy* (henceforth EMPATHY): which discourse participant the speaker mentally places themselves closest to. We compare whether children can learn novel Japanese empathy verbs using either a linguistic cue that is linked with EMPATHY in Japanese (the distribution of first-person pronouns) or an observational cue (the physical location of the speaker relative to the argument being empathized with), and we find that the linguistic cue is far stronger than the observational cue. We conclude that when syntactic bootstrapping is unavailable, children may use linguistic distributional information to acquire aspects of the semantics of empathy verbs, and thus need not rely on observational cues.

In Japanese, *ageru* and *kureru* (both meaning 'give') must encode EMPATHY to a specific argument in a sentence (e.g., Kuno, 1987). *Ageru* encodes EMPATHY to the subject; *kureru* encodes EMPATHY to a non-subject (e.g., dative object). The argument on which EMPATHY is encoded is referred to as the EMPATHY LOCUS. Acquisition of the empathy-encoding properties yields a potential learnability problem because these verbs describe the same event ((1)), and which discourse participant the speaker mentally empathizes with is invisible unless children can read the speaker's mind. Syntactic bootstrapping (Gleitman, 1990) is not useful because these verbs (unlike, for example, *mora(w)-u*, 'receive') have the same argument structure: a giver as the subject and a recipient as the dative object. We consider two possibilities: (i) children may be sensitive to the physical location of where the speaker is relative to certain other actors in a scene, and associate empathy with the one who seems to share group membership with the speaker, or (ii) children may use certain linguistic cues that track EMPATHY. For example, first-person pronouns can only appear in the empathy locus ((2) & (3)) because first-person pronouns always refer to the speaker, and the speaker cannot empathize with anyone else more than with themselves.

In a corpus analysis using MiiPro corpus (Miyata, 2012) in CHILDES database (MacWhinney, 2000), 927 out of 1,354 instances of *ageru* appeared with first-person subjects, and 625 out of 863 instances of *kureru* appeared with first-person non-subjects, while no instance of *ageru* or *kureru* appeared with a first-person pronoun in unacceptable argument positions. This indicates that the distribution of first-person pronouns may be a useful cue for children to learn the empathy-encoding properties of these verbs.

Experiment: We experimentally examine whether children can learn the empathy-encoding properties of *novel verbs* based on the distribution of first-person arguments and/or an observational cue (i.e., physical viewpoint of the speaker). The experiment consisted of two phases: a novel-verb learning phase and a testing phase.

In the learning phase, we used two novel verbs – *nekeru* and *chimoru* both of which refer to the same novel transfer event (something is moved by magic). *Nekeru* and *chimoru* have the same argument structure, but they differ in terms of empathy locus – *nekeru* encodes speaker’s empathy to the subject (akin to *ageru*), while *chimoru* to the dative object (akin to *kureru*). We provided two types of cues as a between-subject factor. Nine children (so far, 4;10–6;1) were exposed to the novel verbs with ***the first-person cues*** where *nekeru* only occurs with first-person subjects and *chimoru* with first-person dative objects (Fig 1). Eight children (so far, 4;9–6;1) were exposed to the novel verbs with ***the viewpoint cues*** where the speaker character utters either novel verb depending on which discourse participant (a subject or a dative object) is right next to them (Fig 2). The testing phase used sentences with null subject and null dative object in order to see to which null argument the speaker referent is reconstructed based on the novel verbs (Fig 3).

Results: Children learned the empathy-encoding properties of both the novel verbs based on the first-person argument distributions (Fig 4). However, after getting the viewpoint cues, children correctly reconstructed the speaker referent to the subject argument with *nekeru*, but they incorrectly reconstructed the speaker referent to the subject argument with *chimoru* as well. This shows that i) linguistic cues such as the first-person distributions seem to be much more useful for children than the observational cues, and ii) assigning the speaker’s empathy to a subject referent might be a default for learners as an initial state to learn new verbs.

Overall, we show that children can learn the empathy-encoding properties by using the distribution of first-person arguments. This further indicates that children can use linguistic cues to learn unobservable aspects of verbs even when syntactic bootstrapping is not useful.

- (1) John-ga Mary-ni hana-o { AGE-ta / KURE-ta}.
 John-NOM Mary-DAT flower-ACC give-PST give-PST ‘John gave a flower to Mary.’
 (2) ***Watasi-ga*** Mary-ni hana-o { AGE-ta / *KURE-ta}.
 I-NOM Mary-DAT flower-ACC give-PST give-PST ‘/gave a flower to Mary.’
 (3) John-ga ***watasi-ni*** hana-o { *AGE-ta / KURE-ta}.
 John-NOM I-DAT flower-ACC give-PST give-PST ‘John gave a flower to *me*.’

Learning phase

Fig 1: Learning phase with **the first-person cues** (empathy loci are bold and italicized)


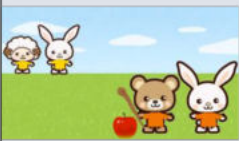
Before the apple is transferred by magic	Speaker	Learning Utterance
	Bear	<i>Watasi-ga</i> hitsuzi-ni ringo-o <i>neke-ru</i> yo. I-NOM sheep-DAT apple-ACC novelV-PRES SFP ‘/transfer the apple to the sheep by magic.’
	Sheep	Kuma-ga <i>watasi-ni</i> ringo-o <i>chimo-ru</i> yo. bear-NOM I-DAT apple-ACC novelV-PRES SFP ‘The bear transfers the apple to <i>me</i> by magic.’

Fig 2: Learning phase with the viewpoint cues (empathy loci are bold and italicized)

Before the apple is transferred by magic	Speaker	Learning Utterance
	Orange Rabbit	<i>Kuma-ga</i> hitsuzi-ni ringo-o <i>neke-ru</i> yo. bear-NOM sheep-DAT apple-ACC novelV-PRES SFP 'The bear transfers the apple to the sheep by magic.'
	Yellow Rabbit	<i>Kuma-ga</i> <i>hitsuzi-ni</i> ringo-o <i>chimo-ru</i> yo. bear-NOM sheep-DAT apple-ACC novelV-PRES SFP 'The bear transfers the apple to the sheep by magic.'

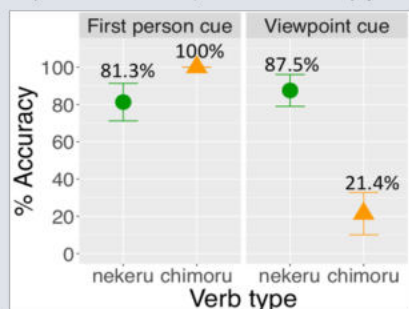
Testing phase (Question-answer task)

Fig 3: Sample story of the testing phase (for both groups of children)

<p>The mouse transfers the teddy bear to the cow by magic</p> 	<p>A witch changes both animals to identical frogs</p> 	<p>One of the frogs utters (4); children are asked who the speaker frog is: the mouse or the cow.</p> 
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(4) *Kinou* [Null_{subject}] [Null_{dative.object}] *teddy.bear-o* {*neket* / *chimot*}-*ta* *yo*.
Yesterday teddy.bear-ACC novelV-PST SFP
With *nekeru*: 'Yesterday, I transferred the teddy bear.' → Answer: The mouse
With *chimoru*: 'Yesterday, the mouse transferred the teddy bear to *me*.' → Answer: The cow

Fig 4: % accuracy in the testing phase by Verb Type and Cue Type.



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- 3 Conference Room IG 4II
- 4 Rotunde (Reception)
- 5 Conference Office/ Baggage Room IG 254

all rooms are on the ground floor

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60314 Frankfurt am Main
www.oosten-frankfurt.com

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Neue Mainzer Str. 52-58
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www.maintower.de/restaurant-lounge/

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60594 Frankfurt
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Römerberg 23
60311 Frankfurt am Main
<https://www.domroemer.de/>

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