



CoLeaP Workshop

Language Processing and Learning



Thursday, March 7, 2024
8:50 AM – 18:00 PM



Geschwister-Scholl-Platz 1
Room A120

CoLeaP

Cognition, Learning, Processing

CoLeaP is a research project (2020-2024) on language processing and learning, funded by the German Research Foundation (DFG) and jointly led by Sarah Schimke (LMU Munich), Holger Hopp (TU Braunschweig), and Greg Poarch (University of Groningen).

The project investigated the contributions of processing to language acquisition. Focusing on non-canonical word orders in syntax, the project explored how linguistic development is shaped by experience with processing syntactic structures in an L1 and an L2 (within domain, i.e., linguistic processing) and cognitive control abilities (across domain, i.e., cognitive to linguistic processing). In the first phase of the project, we tested how L1 German adolescent learners of English at low proficiency *Learn to Process* (object) relative clauses by assessing correlations of (cross-)linguistic and cognitive variables with processing. In the second phase, we investigated how learners *Process to Learn* by testing effects of language and cognitive processing on acquisition in an implicit learning study, using structural priming.

We are looking forward to welcoming you to our workshop in Munich on March 7, 2024!

Sarah Schimke
Holger Hopp
Greg Poarch
Freya Gastmann
David Öwerdieck





program

8:50 – 9:00

Welcome

9:00 – 10:00

CoLeaP talk I

10:05 – 11:30

Poster session I & Coffee break

11:30 – 12:30

Keynote talk I

LUNCH BREAK

14:00 – 14:45

CoLeaP talk II

14:50 – 16:15

Poster session II & Coffee break

16:15 – 17:15

Keynote talk II

17:15 – 18:00

Final discussion & Goodbye

18:00

Drinks

overview

08:50

–

Welcome

09:00

09:00

Project talk

–

Processing to learn: Exploring linguistic and cognitive predictors in noncanonical sentence comprehension

10:00

Sarah Schimke
Greg Poarch
Freya Gastmann
David Öwerdieck
Holger Hopp

10:05

–

Poster session I & Coffee break

11:30

Case-Marking and Word Order in Czech and German Four-Year-Olds

Anna Chromá
Claudia Friedrich
Filip Smolík
Jolana Treichelová

Learning or Boredom? Task adaptation effects in sentence processing experiments

Jan Chromý
Fabian Tomaschek

Processing and learning pronominal forms in French and Chinese

Saveria Colonna
Ching-Chun Wang
Coralie Vincent
Sarah Schimke

Exploring the boundaries of statistical learning - Word segmentation in a natural language

Marie-Christin Flohr
Katie Von Holzen
Sarah Schimke

Language co-activation in adolescent second language learners' word recognition: Evidence from pupillometry

Freya Gastmann
Sarah Schimke
Greg Poarch

The processing of passive sentences in German and French, L1 and L2: Evidence from an eye-tracking study targeting adults

Cyrille Granget
Isabel Repiso
Pierre-Vincent Paubel
Martin Haiden

Prediction of grammatical gender: Do children get the picture?

Katja Häuser

The acquisition of gender in adolescent German learners of Spanish: Evidence from production and perception

Clara Valerie Terlaak
Sarah Schimke
Johanna Wolf

Untangling literacy and predictive processing: Evidence from spoken language comprehension in low-income Afro-Colombian speakers

Jessica Vélez Avilés
Paola (Giuli) Dussias

11:30

Keynote

–

Neural signatures of accented speech processing: the roles of speaker identity and listener experience

12:30

Janet van Hell

overview

12:30 – 14:00	Lunch break	
14:00 – 14:45	Project talk Learning via processing: Structural priming across grammatical structures and languages in early L2 development	Holger Hopp Sarah Schimke David Öwerdieck Freya Gastmann Greg Poarch
14:50 – 16:15	Poster session II & Coffee break	
	Across-Language Priming and the Translation Equivalent Boost in Comparison to Within-Language Priming Across Development	Alina Kholodova Fenia Karkaletsou Shanley Allen
	Schema consistency effects on source memory during L2 word learning	Elena Markantonakis Kristin Lemhöfer
	Sentence imitation and its relation to working memory and language skills in children with developmental language disorder	Klara Matiasovitsova Filip Smolík
	Never too old to learn: a pilot study on later life language learning and a combined physical-cognitive intervention	Louisa Richter Jascha Rüsseler Greg Poarch Merel Keijzer
	Prediction-error-based priming during L2 sentence comprehension	Duygu Safak Holger Hopp
	Verb bias effects in short-term and longer-term L1-to-L2 and L2-to-L1 cross-linguistic structural priming	Chantal van Dijk Holger Hopp
	Cognitive Predictors of L2 Sociolinguistic Development by Adult Migrants in Austria	Mason Wirtz
	L2 acquisition of French adjective position: transfer or overgeneralization?	Zhanglin Xie Claire Saillard Maria Copot Barbara Hemforth
16:15 – 17:15	Keynote The process of acquiring word meanings: How making rapid interpretive commitments shapes word learning in children and adults	John Trueswell
17:15 – 18:00	Final discussion & Goodbye	
18:00	Goodbye drinks	

abstracts

abstracts

page

- 8** Sarah Schimke, Greg Poarch, Freya Gastmann, David Öwerdieck, & Holger Hopp
Processing to learn: Exploring linguistic and cognitive predictors in noncanonical sentence comprehension
- 9** Anna Chromá, Claudia Friedrich, Filip Smolík, & Jolana Treichelová
Case-Marking and Word Order in Czech and German Four-Year-Olds
- 11** Jan Chromý & Fabian Tomaschek
Learning or Boredom? Task adaptation effects in sentence processing experiments
- 12** Saveria Colonna, Ching-Chun Wang, Coralie Vincent, & Sarah Schimke
Processing and learning pronominal forms in French and Chinese
- 14** Marie-Christin Flohr, Katie Von Holzen, & Sarah Schimke
Exploring the boundaries of statistical learning - Word segmentation in a natural language
- 16** Freya Gastmann, Sarah Schimke, & Greg Poarch
Language co-activation in adolescent second language learners' word recognition: Evidence from pupillometry
- 18** Cyrille Granget, Isabel Repiso, Pierre-Vincent Paubel, & Martin Haiden
The processing of passive sentences in German and French, L1 and L2: Evidence from an eye-tracking study targeting adults
- 20** Katja Häuser
Prediction of grammatical gender: Do children get the picture?
- 22** Clara Valerie Terlaak, Sarah Schimke, & Johanna Wolf
The acquisition of gender in adolescent German learners of Spanish: Evidence from production and perception
- 24** Jessica Vélez Avilés & Paola (Giuli) Dussias
Untangling literacy and predictive processing: Evidence from spoken language comprehension in low-income Afro-Colombian speakers
- 26** Janet van Hell
Neural signatures of accented speech processing: the roles of speaker identity and listener experience

abstracts

page

- 27** **Holger Hopp, Sarah Schimke, David Öwerdieck, Freya Gastmann, & Greg Poarch**
Learning via processing: Structural priming across grammatical structures and languages in early L2 development
- 28** **Alina Kholodova, Fenia Karkaletsou, & Shanley Allen**
Across-Language Priming and the Translation Equivalent Boost in Comparison to Within-Language Priming Across Development
- 30** **Elena Markantonakis & Kristin Lemhöfer**
Schema consistency effects on source memory during L2 word learning
- 32** **Klara Matiasovitsova & Filip Smolík**
Sentence imitation and its relation to working memory and language skills in children with developmental language disorder
- 34** **Louisa Richter, Jascha Rüsseler, Greg Poarch, & Merel Keijzer**
Never too old to learn: a pilot study on later life language learning and a combined physical-cognitive intervention
- 36** **Duygu Safak & Holger Hopp**
Prediction-error-based priming during L2 sentence comprehension
- 38** **Chantal van Dijk & Holger Hopp**
Verb bias effects in short-term and longer-term L1-to-L2 and L2-to-L1 cross-linguistic structural priming
- 40** **Mason Wirtz**
Cognitive Predictors of L2 Sociolinguistic Development by Adult Migrants in Austria
- 42** **Zhanglin Xie, Claire Saillard, Maria Copot, & Barbara Hemforth**
L2 acquisition of French adjective position: transfer or overgeneralization?
- 44** **John Trueswell**
The process of acquiring word meanings: How making rapid interpretive commitments shapes word learning in children and adults

Processing to learn: Exploring linguistic and cognitive predictors in noncanonical sentence comprehension

Sarah Schimke¹, Greg Poarch², Freya Gastmann^{1,2}, David Öwerdieck³, & Holger Hopp³

¹LMU Munich, ²University of Groningen, ³TU Braunschweig

In this talk, we investigate the linguistic and cognitive contributions to the processing and acquisition of complex syntax in an early foreign language. In two visual world eye-tracking experiments, we tested the online and offline comprehension of WH-questions and relative clauses in a group of 141 low-intermediate L1 German adolescent learners of English as a foreign language. Moreover, we assessed the language learning history and language use, L1 German and L2 English proficiency, cognitive control, and cognitive capacity in all participants.

Based on this data set, we conducted three sub-studies. Study 1 looked at the influence of cognitive and linguistic predictors on the reanalysis of object relative clauses in the L2 English. The results showed a strong subject preference for L2 relative clauses. Learners' L2 proficiency and their processing of an easier syntactic structure in the L2, object questions, predicted reanalysis for object relatives in eye movements, reaction times, and comprehension accuracy. In contrast, there was no evidence that cognitive control or working memory systematically affected the processing of object relatives. This suggests that the specific linguistic (processing) experience of learners in the L2 affects their syntax comprehension. Study 2 compared participants who were monolingual speakers of German as a first language to those who spoke an additional first language other than German or English. As multilingual speakers sometimes have been found to have superior conflict resolution skills, we looked at whether multilingual learners differed from the monolingual ones in their comprehension of object relative clauses in English and German - which requires resolving a conflict between a heuristic agent-first strategy and the target-like object initial interpretation - as well as in their performance in a cognitive conflict resolution task (the Flanker task). While the results showed a multilingual advantage for non-verbal conflict resolution and for linguistic conflict resolution in German, this advantage did not extend to linguistic conflict resolution in English. This suggests that the language background of learners also affects their syntax comprehension. Finally, Study 3 looked at how participants employed heuristic processing strategies while comprehending WH-questions in German and English. The results showed that while an agent-first strategy was dominant in the L2 English, particularly in early measures, processing in the L1 German was more strongly influenced by an animacy-based strategy. This suggests that heuristics differentially affect syntax comprehension, depending on learners' linguistic experience.

Taken together, these results suggest that L2 proficiency and experience with processing the L2 are the predominant determinants in L2 syntax comprehension, while L1-specific experience and processing strategies as well as differences in cognitive variables and in the linguistic background are comparatively less important. These findings pave the way to investigating whether supporting these determinants can boost the L2 learning of complex syntax (see talk in the afternoon).

Case-Marking and Word Order in Czech and German Four-Year-Olds

Anna Chromá¹, Claudia Friedrich², Filip Smolík³, & Jolana Treichelová¹

¹ Charles University, ² University of Tübingen, ³ Czech Academy of Sciences

Introduction The preference for the canonical word order (often SVO) over the non-canonical one (often OVS) has been shown in many languages allowing for word-order variation, including Czech and German (Slobin & Bever 1982; Ditmar et al. 2008; Smolík 2015). However, Czech-learning children appear to comprehend the non-canonical OVS word order earlier than their German-learning peers. In a cross-linguistic study, we directly compare Czech- and German-learning children's comprehension of closely matched sentences with varying word orders.

Method We use identical pictorial stimuli, parallel Czech and German picture descriptions, and an identical experimental procedure. Based on eight items combining one unambiguous noun (*der Igel/ježek*) and one ambiguous noun (*die Maus/myš*), 32 stimuli were created, with each item appearing in four conditions (Table 1). Children are presented with all stimuli in pseudorandomized order, each time seeing two pictures with reversed role assignment and listening to the verbal descriptions, while having their gaze tracked. After each trial, children are asked to point at the correct picture.

Participants Nineteen German-learning children aged 3;06 – 4;10 years have been tested so far. Another eleven German-learning and thirty Czech-learning participants are to be tested yet.

Results For initially ambiguous sentences, German-learning children's gaze or pointing did not differ across the word order conditions. Two separate models revealed significant effects of word order for the initially unambiguous sentences. The analysis of gaze using linear mixed-effects model yielded an effect of word order within the sentence-final time window: children spent less time looking at the SVO picture if the word order was OVS than if it was SVO (Figure 1). The analysis of pointing using logit mixed-effects model yielded a corresponding effect: children pointed less to the SVO picture if the word order was OVS than if it was SVO (Figure 2).

Conclusions With an initial unambiguous morphological cue, German four-year-olds can distinguish SVO and OVS word order. Although they show a general above-chance preference for the SVO interpretation (which confirms the prior research), the preference is clearly the strongest in the unambiguous SVO condition. The implicit (gaze direction) and the explicit (pointing) measure matched. At the conference, comparison to the not-yet-available Czech data will be presented.

Case-Marking and Word Order in Czech and German Four-Year-Olds

Chromá, Friedrich, Smolík, & Treichelová

References

Slobin, D. I., & Bever, T. G. (1982). Children use canonical sentence schemas: A crosslinguistic study of word order and inflections. *Cognition*, 12(3), 229-265.

Dittmar, M., Abbot-Smith, K., Lieven, E., & Tomasello, M. (2008). German children’s comprehension of word order and case marking in causative sentences. *Child development*, 79(4), 1152-1167.

Smolík, F. (2015). Word order and information structure in Czech 3-and 4-year-olds’ comprehension. *First language*, 35(3), 237-25.

Tables & Figures

Condition	German	Czech	English translation
SVO initially unambiguous	Der Igel zieht die Maus.	Ježek táhne myš.	<i>The hedgehog is pulling the mouse.</i>
OVS initially unambiguous	Den Igel zieht die Maus.	Ježka táhne myš.	<i>The mouse is pulling the hedgehog.</i>
SVO initially ambiguous	Die Maus zieht den Igel.	Myš táhne ježka.	<i>The mouse is pulling the hedgehog.</i>
OVS initially ambiguous	Die Maus zieht der Igel.	Myš táhne ježek.	<i>The hedgehog is pulling the mouse.</i>

Table 1 The four conditions in one example item.

Figure 1 Looking at the agent-initial picture

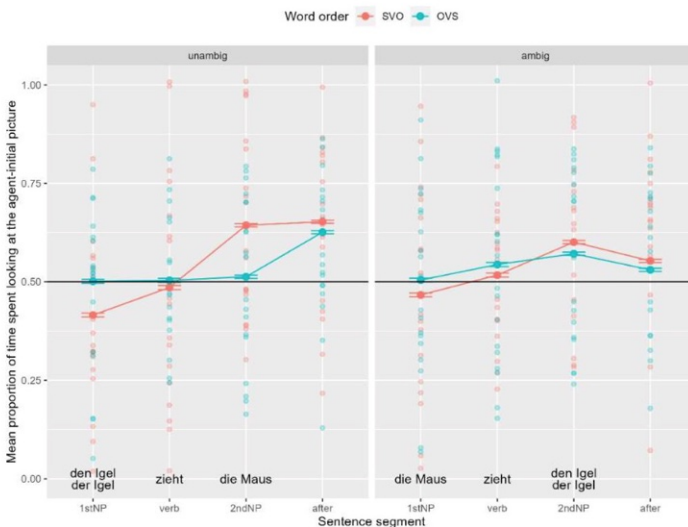
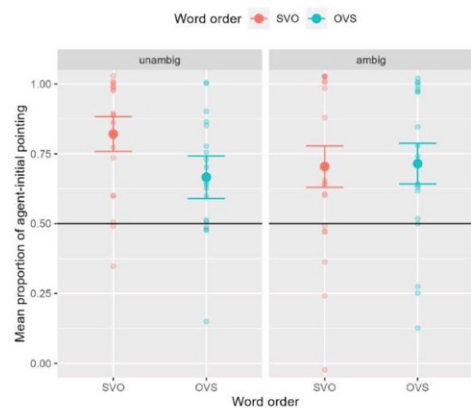


Figure 2 Pointing to the agent-initial picture



Legend to Figures 1 and 2: Big points = group means with 95% confidence intervals; small points = individual participant means.

Learning or Boredom? Task adaptation effects in sentence processing experiments

Jan Chromý¹ & Fabian Tomaschek^{2,3}

¹ Charles University, ² Universität Tübingen, ³ Universität Bern

The paper examines the extent to which participants improve their performance in the course of an experiment. By doing so, it presents findings from six self-paced reading experiments investigating the interplay between reaction times, immediate recall, and trial order.

Six self-paced reading experiments were conducted with large samples of native Czech speakers (N = 230; 223; 207; 237; 329; 292), each containing 96 items of four types. The items differed in their word order, but always contained seven words with a similar syntactic structure (subject, verb, locative modifier modified by an adjective, direct object modified by an adjective). Experiments 1–3 examined processing of short sentences (7 words), whereas Experiments 4–6 examined processing of the same sentences with a subordinate clause attached (13 words). Open-ended comprehension questions were used which targeted either adjectives, or nouns. The ratio of the questions targeting the nouns and questions targeting the adjectives was manipulated in the three experiments (50–50 in Exp1 & Exp4, 75–25 in Exp2 & Exp5, 25–75 in Exp3 & Exp6).

Robust learning effects are documented. Mixed-effects models showed that participants not only read progressively faster during the experiment, but they also get better in responding to comprehension questions. Additionally, the analysis of recall accuracy reveals systematic differences between direct objects, locative nouns, and attributive adjectives, with objects yielding the highest recall accuracy and adjectives the lowest. These outcomes are explained through attentional mechanisms: the longer participants process a targeted word, the better they recall it and conversely, longer reading of non-targeted words leads to diminished recall of the targeted ones. Furthermore, adjectives are recalled better in experiments with a higher proportion of adjective-targeting questions than in experiments with a higher proportion of noun-targeting ones. This underscores participants' strategic allocation of attention to sentence parts they learn to recognize as crucial for their task. This exploration sheds light on the complex dynamics of learning within the context of reading experiments.

Processing and learning pronominal forms in French and Chinese

Saveria Colonna¹, Ching-Chun Wang², Coralie Vincent³, & Sarah Schimke⁴

¹ University Paris 8, ² University Paris Nanterre, ³ Ircam, ⁴ LMU Munich

The present study investigated how native and L2 speakers interpret different pronominal anaphoric forms. We examined the differences of interpretation of null and overt pronouns in a nonprodrop language, French, compared to a discourse prodrop language, Chinese. We looked at pronoun interpretation in sentences such as “John met Peter before he went home” for which language-specific preferences have been reported. The interpretation of the ambiguous pronoun is influenced by the existence in the language of an alternative construction that allows to express the subject-interpretation unambiguously (Hemforth et al., 2010). Two offline experiments were conducted to investigate how native and L2 speakers interpret pronominal forms in anteposed and postposed temporal subordinate clauses (corresponding to backward vs forward anaphora respectively). French native speakers and Chinese learners of French were tested in Experiment 1, Chinese native speakers and French learners of Chinese in Experiment 2. Examples of materials are presented in Table 1. The percentage of subject-interpretations given by the native and the L2 speakers of French are shown in Figure 1, those for the native and the L2 speakers of Chinese in Figure 2. The results showed that the PRO form in French was interpreted as referring to the subject of the main clause by both natives and learners. Furthermore, in both languages, native and L2 speakers applied the active filler strategy when the ambiguous pronominal form appears before its potential antecedents (backward anaphora), that is they complete the pronoun-antecedent dependency as soon as possible and interpreted the pronominal form as referring to the subject antecedent. By contrast, in the overt postposed condition (1a in Table 1), cross-linguistic differences as well as differences between native and L2 speakers were observed. There were more object-interpretations in French, which has an alternative infinite construction (1b) to express the reference to the subject, than in Chinese, which has no such alternative. Learners of French did not interpret the overt pronoun as referring to the object as often as native French speakers. In the Chinese postposed conditions, learners tended to refer the null pronoun to the object more often than the native speakers even though, like natives, they had more subject interpretations for the null than the overt pronouns. Overall, the data showed differences between native and L2 speakers in the more ambiguous constructions, but not with the unambiguous PRO form in French, nor with backward anaphors for which the active filler strategy applies.

Processing and learning pronominal forms in French and Chinese
Colonna, Wang, Vincent, & Schimke

References

Hemforth, Barbara, Lars Konieczny, Christoph Scheepers, Saveria Colonna, Sarah Schimke, Peter Baumann & Joël Pynte. 2010. Language specific preferences in anaphor resolution: Exposure or gricean maxims? In Stellan Ohlsson & Richard Catrambone (eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society*, 2218–2223. Portland: Cognitive Science Society.

Tables & Figures

Table 1 Examples of materials used in Experiment 1 and 2.

Conditions	Experiment 1	Experiment 2
(1a) Postposed finite subordinate clause (overt pronoun)	<i>Éric a observé Albert avant qu'il range ses affaires.</i> Eric observed Albert before he put his things away.	<i>Jùndé zhuàng le Jiànháo, zài tā zhènglǐ dōngxī qián</i> Junde hit Jianhao, before he put his things away.
(1b) Postposed subordinate clause (PRO in French, pro in Chinese)	<i>Éric a observé Albert avant de ranger ses affaires.</i> Eric observed Albert before putting (literally: “to put”) his things away.	<i>Jùndé zhuàng le Jiànháo, zài zhènglǐ dōngxī qián</i> Junde hit Jianhao before (he) put his things away.
(1c) Anteposed finite subordinate clause (overt pronoun)	<i>Avant qu'il range ses affaires, Éric a observé Albert.</i> Before he put his things away, Eric observed Albert.	<i>Zài tā zhènglǐ dōngxī qián, Jùndé zhuàng le Jiànháo</i> Before he put his things away, Junde hit Jianhao.
(1d) Anteposed subordinate clause (PRO in French, pro in Chinese)	<i>Avant de ranger ses affaires, Éric a observé Albert.</i> Before putting (literally: “to put”) his things away, Eric observed Albert.	<i>Zài zhènglǐ dōngxī qián, Jùndé zhuàng le Jiànháo</i> Before (he) put his things away, Junde hit Jianhao.

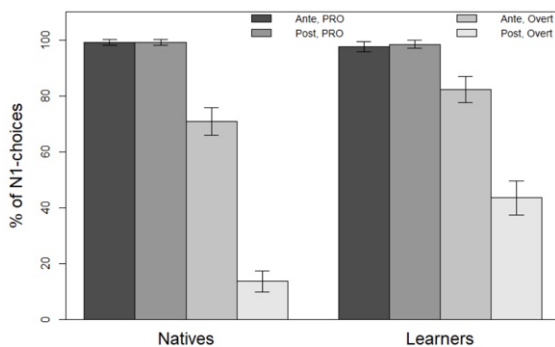


Figure 1 Percentage of N1 interpretations for the native and the L2 speakers of French in the four conditions of Experiment 1.

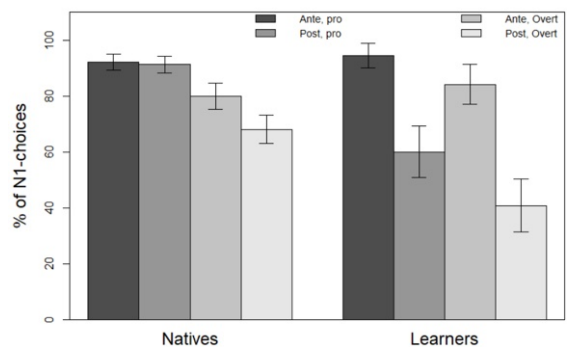


Figure 2 Percentage of N1 interpretations of native and the L2 speakers of Chinese in the four conditions of Experiment 2.

Exploring the boundaries of statistical learning. Word segmentation in a natural language

Marie-Christin Flohr¹, Katie Von Holzen², & Sarah Schimke¹

¹ LMU Munich, ² TU Braunschweig

The current study explores statistical learning, more precisely, the usage of transitional probabilities between syllables, in second language (L2) learners' word segmentation at first exposure. While we know that SL is an important mechanism in first language development (Jusczyk & Aslin, 1995), less is known about SL in L2 acquisition. Most studies rely on artificial input, which limits ecological validity (Saffran et al., 1996). Studies with natural languages rarely compare different L1s although language-specific cues crucial for the L1, such as prosody, may influence word segmentation (Kittleson et al., 2010; Tyler & Cutler, 2009). We therefore examine how adults use TPs to segment words from an unfamiliar, natural, foreign language (German) when that foreign language either matches (Spanish, Experiment 1) or mismatches (French, Experiment 2) the language-specific stress cues of the listeners' native language.

In Experiment 1, thirty Spanish adults with no prior exposure to German were familiarized with German input. In a subsequent forced choice task, they heard bisyllabic target words and were to indicate whether they heard the respective word in the familiarization phase (FP) (word acceptance) or not. Critical words appeared in the FP, absent words were not presented in the FP, and part words consisted of syllables that were present in the FP, but its syllables never appeared in combination with one another. In Experiment 2, 29 French participants underwent the same tasks as their Spanish counterparts.

For both groups, the effect of condition was significant for absent words compared to critical words and part words compared to critical words. Critical reached more word acceptances than part and absent words. A cross-experimental analysis revealed no significant effect of L1 and no significant interaction of condition and L1.

These results suggest that, irrespective of stress placement cues in their L1, listeners can exploit transitional probabilities to segment words from the continuous speech stream of a foreign language. Sharing comparable stress placement with the input does not influence segmentation. We will discuss theoretical implications and directions for future research.

Exploring the boundaries of statistical learning. Word segmentation in a natural language

Flohr, Von Holzen, & Schimke

References

- Jusczyk, P. W., & Aslin, R. N. (1995). Infants' detection of the sound patterns of words in fluent speech. *Cognitive Psychology*, 29, 1–23.
- Kittleson, M. M., Aguilar, J. M., Tokerud, G. L., Plante, E., & Asbjørnsen, A. E. (2010). Implicit language learning: Adults' ability to segment words in Norwegian. *Bilingualism: Language and Cognition*, 13(4), 513–523.
- Saffran, J. R., Newport, E. L., & Aslin, R. N. (1996). Word segmentation: The role of distributional cues. *Journal of Memory and Language*, 35(4), 606–621.
- Tyler, M. D., & Cutler, A. (2009). Cross-language differences in cue use for speech segmentation. *The Journal of the Acoustical Society of America*, 126(1), 367–376.

Tables & Figures

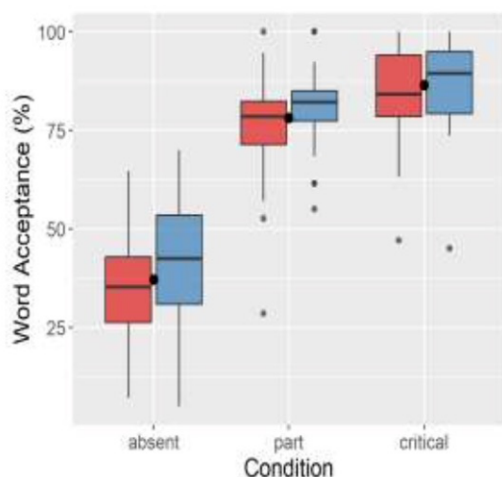


Figure 1: Descriptive statistics of Word Acceptance in % for the different conditions (critical, part, or absent word) for L1 French listeners (red boxes) and Spanish listeners (blue boxes). Horizontal lines indicate the median, points inside of the boxes indicate means, points outside of the boxes indicate outliers.

Language co-activation in adolescent second language learners' word recognition: Evidence from pupillometry

Freya Gastmann^{1,2}, Sarah Schimke¹, & Greg Poarch²

¹ LMU Munich, ² University of Groningen

Research on bilingual language processing has yielded ample evidence that multilingual speakers cannot simply “deactivate” one language while using the other. To examine language co-activation in bilinguals, a word type frequently used to assess cross-linguistic influences in bilingual lexical processing is cognates. Cognate words are translation equivalents that share the same or similar form and meaning across languages (e.g., German-English *Kaffee-coffee*) and have been found to be processed faster and more accurately than translation equivalents without such overlap (i.e., noncognates, such as German-English *Tasse-cup*). This so-called cognate facilitation effect is considered evidence for language co-activation in bilinguals and has been extensively demonstrated in both children (Gastmann & Poarch, 2022) and adults (Dijkstra et al., 2010). However, one population that has been studied comparatively less is adolescents.

In a previous study on L2 word recognition in adolescent second language learners (Gastmann et al., 2023), cognate effects could not be replicated in either accuracy or reaction time (RT) data. Post-hoc analyses, however, revealed that cognate processing was modulated by word frequency and learners' L2 proficiency, with less-frequent items inducing a cognate effect in low(er)-proficient learners' RTs.

Consequently, the present follow-up study aims to further investigate potential modulating factors of cognate processing in adolescents. For this purpose, 47 L1 German low-intermediate learners of L2 English ($M_{\text{age}} = 13.5$) performed an English Lexical Decision Task on cognates and noncognates that were equally distributed across a wider range of frequency (SUBTLEX-US Lg10; Brysbaert & New, 2009). In addition to decision accuracies and RTs, changes in participants' pupil dilations were measured to assess cognitive effort during word recognition. Specifically, larger pupil dilations indicate higher mental effort and cognitive load (Mathôt, 2018).

Mixed effects analyses revealed cognate and frequency effects in both accuracies and RTs, with cognates and high(er) frequent words being processed faster and more accurately. In line with our predictions, cognates induced smaller changes in pupil dilations, and thus less mental effort, than noncognates (Guasch et al., 2017). Presumably, the form overlap between languages facilitated the processing of cognates. Contrary to our predictions, high(er) frequent items induced larger pupil dilations, indicating greater mental effort, although more frequent words are considered to be processed more easily (Haro et al., 2017). We will discuss the results against the backdrop of findings from previous research and aim to add to the literature on potential modulating factors of the cognate facilitation effect (e.g., Peeters et al., 2013).

Language co-activation in adolescent second language learners’ word recognition: Evidence from pupillometry

Gastmann, Schimke, & Poarch

References

Brysbaert, M., & New, B. (2009). Moving beyond Kučera and Francis: A critical evaluation of current word frequency norms and the introduction of a new and improved word frequency measure for American English. *Behavior Research Methods*, 41(4), 977-990.

Dijkstra, T., Miwa, K., Brummelhuis, B., Sappelli, M., & Baayen, H. (2010). How cross-language similarity and task demands affect cognate recognition. *Journal of Memory and Language*, 62(3), 284-301.

Gastmann, F., & Poarch, G.J. (2022). Cross-language activation during word recognition in child second-language learners and the role of executive function. *Journal of Experimental Child Psychology*, 221, 105443.

Gastmann, F., Schimke, S., & Poarch, G.J. (2023). Limitations of the cognate effect: How L2 proficiency and stimulus frequency modulate adolescent second language learners’ word recognition. Talk, *EuroSLA 32*, Birmingham, UK.

Guasch, M., Ferre, P., & Haro, J. (2017). Pupil dilation is sensitive to the cognate status of words: further evidence for non-selectivity in bilingual lexical access. *Bilingualism: Language and Cognition*, 20(1), 49-54.

Haro, J., Guasch, M., Vallès, B., & Ferré, P. (2017). Is pupillary response a reliable index of word recognition? Evidence from a delayed lexical decision task. *Behavior Research Methods*, 49, 1930-1938.

Mathôt, S. (2018). Pupillometry: Psychology, physiology, and function. *Journal of Cognition*, 1(1), 16.

Peeters, D., Dijkstra, T., & Grainger, J. (2013). The representation and processing of identical cognates by late bilinguals: RT and ERP effects. *Journal of Memory and Language*, 68(4), 315-332.

Tables & Figures

Table 1. *Example stimuli set-up: Cognate status x Word frequency*

		Cognate status	
		Cognate	Noncognate
Word frequency (Brysbaert & New, 2009)	Low-frequent	<i>crocodile</i> (<i>Krokodil</i>)	<i>toddler</i> (<i>Kleinkind</i>)
	High-frequent	<i>music</i> (<i>Musik</i>)	<i>money</i> (<i>Geld</i>)

The processing of passive sentences in German and French, L1 and L2: Evidence from an eye-tracking study targeting adults

Cyrille Granget¹, Isabel Repiso², Pierre-Vincent Paubel¹, & Martin Haiden^{3,4}

¹ Université de Toulouse 2 Jean Jaurès, ² Paris-Lodron-Universität Salzburg, ³ Université de Nantes, ⁴ Centre national de la recherche scientifique (CNRS)

While Ferreira (2003) and Lee & Doherty (2019) show that processing passive sentences in English and Spanish L1 respectively represents a greater cost for the adult than processing active utterances, Cristante and Schimke (2019) show that in German, passive utterances are no more difficult to process than active ones. Following Sauppe and Flecken (2021), we assume that processing passive sentences activates representations, changes the apprehension of events and the proportion of fixations in the agent Aol.

Our study focuses on the role of L1, French versus German, in the online processing of active and passive sentences in L2, German and French, and the apprehension of the visually related events. Based on previous studies, we aim to test whether German natives have an advantage over French natives in the processing of passive sentences in L1 and in French L2. Behavioral and eye-tracking data were collected from 38 participants (22 German L1 and 16 French L1) who were tested using an ELAO test in both French and German. Participants heard a sentence (active or passive), then saw an image (congruent vs. incongruent, depending on whether the left-right position of the characters corresponded to the order of the sentence's constituents) (1000ms) and indicated whether the image represented the sentence. The task was performed by half of the participants in L1 and two weeks later in L2, and conversely for the other half. Our analyses focused on 16 target trials carrying 4 transitive verbs (i.e., *washing, styling, hitting, pinching*) x 2 syntactic conditions (active vs. passive) x 2 image orders (agent in front left vs. agent behind right), for which we analyzed the accuracy rate, reaction times and proportion of fixations in the agent Aol.

Initial results invalidate the hypothesis of a German advantage: the accuracy rate in L1 German is not significantly better than in L1 French, and responses are more than 97% correct in both L1 groups. The accuracy rate in French L2 (German L1) is as high as in German L1 and French L1. The analyses also show a significant effect of syntactic priming on the rate of correction, which is lower with a passive sentence, and no effect of congruence. Reaction time analysis corroborates these results. This study does not show an influence of the L1 on the processing of passive sentences in L2 but suggests an effect of the developmental stage in L2.

The processing of passive sentences in German and French, L1 and L2: Evidence from an eye-tracking study targeting adults

Granget, Repiso, Paubel, & Haiden

References

Ferreira, F. (2003). The misinterpretation of noncanonical sentences. *Cognitive Psychology* 47, 164–203.

Lee, J., & Doherty, S. (2019). Native and nonnative processing of active and passive sentences: The effects of processing instruction on the allocation of visual attention. *Studies in Second Language Acquisition*, 41(4), 853-879.

Sauppe, S., & Flecken, M. (2021). Speaking for seeing : Sentence structure guides visual event apprehension. *Cognition* 206.

Tables & Figures

Table A. Auditory input in German

	Sentence	Experimental item
1	<i>Die Tochter gibt der Mutter ein Geschenk</i>	Filler
2	<i>Der Opa wird von der Oma gezwickt</i>	Target [Passive]
3	<i>Der Mann und der Polizist grüßen einander</i>	Filler
4	<i>Der Sohn wird vom Vater gewaschen</i>	Target [Passive]
5	<i>Die Mutter und die Tochter spielen Ping-Pong</i>	Filler
6	<i>Der Mann verfolgt den Polizisten</i>	Filler
7	<i>Die Oma redet mit dem Opa</i>	Filler
8	<i>Der Vater wäscht den Sohn</i>	Target [Active]
9	<i>Die Tochter wird von der Mutter frisiert</i>	Target [Passive]
10	<i>Der Junge gibt dem Vater ein Buch</i>	Filler
11	<i>Der Vater und der Junge bauen eine Mauer</i>	Filler
12	<i>Die Oma zwickt den Opa</i>	Target [Active]
13	<i>Der Mann wird vom Polizisten geschlagen</i>	Target [Passive]
14	<i>Die Oma verabschiedet sich vom Opa</i>	Filler
15	<i>Die Mutter frisiert die Tochter</i>	Target [Active]
16	<i>Der Polizist schlägt den Mann</i>	Target [Active]

Table B. Auditory input in French

	Sentence	Experimental item
1	<i>La fille offre un cadeau à la mère</i>	Filler
2	<i>Le grand-père se fait pincer par la grand-mère</i>	Target [Passive]
3	<i>L'homme et le policier se saluent</i>	Filler
4	<i>Le fils se fait laver par le père</i>	Target [Passive]
5	<i>La mère et la fille jouent au ping-pong</i>	Filler
6	<i>L'homme poursuit le policier</i>	Filler
7	<i>La grand-mère parle avec le grand-père</i>	Filler
8	<i>Le père lave le fils</i>	Target [Active]
9	<i>La fille se fait coiffer par la mère</i>	Target [Passive]
10	<i>Le fils donne un livre au père</i>	Filler
11	<i>Le père et le fils construisent un mur</i>	Filler
12	<i>La grand-mère pince le grand-père</i>	Target [Active]
13	<i>L'homme se fait frapper par le policier</i>	Target [Passive]
14	<i>La grand-mère dit au revoir au grand-père</i>	Filler
15	<i>La mère coiffe la fille</i>	Target [Active]
16	<i>Le policier frappe l'homme</i>	Target [Active]

Prediction of grammatical gender: Do children get the picture?

Katja Häuser¹

¹ Saarland University

During language comprehension, readers anticipate upcoming words, including morpho-syntactic features such as grammatical gender [1]. When reading gender-marked words that are prediction- inconsistent, young-adult and older readers normally incur a processing cost [2, 3], generally thought to indicate switching or updating. Crucially, reliance on grammatical gender has been demonstrated for children too: German-speaking 9-year olds can reliably use gender information provided by indefinite articles to anticipate upcoming nouns ([4], also see [5, 6]). But do children, like adults, incur processing costs when reading words with prediction- inconsistent gender-marking?

We present data from an online self-paced reading experiment that investigated whether German- speaking children aged 8-12 years (initial $n = 43$, after subject exclusion, $n = 40$ ¹) incur a processing cost when reading prediction-inconsistent gender-marked words. Stimuli were German sentences such as

*Da Petra Angst vor Spinnen hat, geht sie nur ungerne nach unten in
den_{Article} meist schlecht belüfteten Keller_{Noun} ihrer Eltern (prediction-consistent)
die_{Article} meist schlecht belüftete Garage_{Noun} ihrer Eltern (prediction-inconsistent),*

where the gender-marked article and the three-word spill-over region foreshadowed a more or less predictable noun. Offline cloze probability ratings from 55 young- and old-adult native speakers of German (ratings on children are being collected) showed high cloze probabilities for predictable gender-marked nouns and articles (> 0.8), and low cloze probabilities for unpredictable nouns and articles (< 0.01). Sentences were presented word-by-word; child participants controlled their own pace during reading.

Results showed no reading times differences between prediction-consistent or - inconsistent items on any word before the critical noun (all p 's $> .5$), except for a small effect on the third spill-over word (see Figure 1, Article+3) after the article where reading times were slower for prediction- inconsistent compared to prediction-consistent items ($p = .03$). At the noun and the following word (see Figure 1, Noun and Noun+1), reading times for prediction-inconsistent items were slower compared to prediction-consistent ones ($p = .01$ and $p = .05$, respectively).

Taken together, our results indicate that German-speaking primary and middle-schoolers are able to leverage linguistic information provided by gender-marked articles. However, since the critical effect was small and did not surface on all prenominal words, our preliminary conclusions are that children use gender information less readily than has been reported for adult language users [3]. We are currently collecting data from young adult participants to further substantiate this claim.

¹ Three children were excluded due to lower than 80% accuracy on behavioral comprehension questions.

Prediction of grammatical gender: Do children get the picture?

Häuser

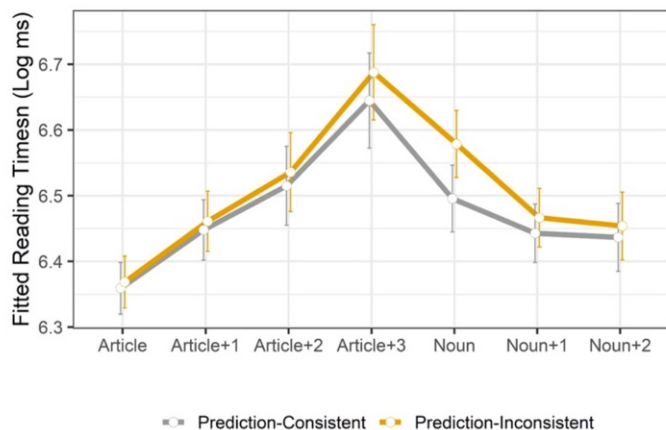
References

- [1] Wicha, N. Y., Moreno, E. M., & Kutas, M. (2004). Anticipating words and their gender: An event-related brain potential study of semantic integration, gender expectancy, and gender agreement in Spanish sentence reading. *Journal of cognitive neuroscience*, 16(7), 1272-1288.
- [3] Van Berkum, J. J., Brown, C. M., Zwitserlood, P., Kooijman, V., & Hagoort, P. (2005). Anticipating upcoming words in discourse: Evidence from ERPs and reading times. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 31(3), 443– 467.
- [2] Haeuser, K. I., Kray, J., & Borovsky, A. (2022). Hedging Bets in Linguistic Prediction: Younger and Older Adults Vary in the Breadth of Predictive Processing. *Collabra: Psychology*, 8(1), 36945.
- [4] Cholewa, J., Neitzel, I., Bürsgens, A., & Günther, T. (2019). Online-processing of grammatical gender in noun-phrase decoding: An eye-tracking study with monolingual German 3rd and 4th graders. *Frontiers in Psychology*, 10, 2586.
- [5] Lew-Williams, C., & Fernald, A. (2007). Young children learning Spanish make rapid use of grammatical gender in spoken word recognition. *Psychological Science*, 18(3), 193-198.
- [6] Brouwer, S., Sprenger, S., & Unsworth, S. (2017). Processing grammatical gender in Dutch: Evidence from eye movements. *Journal of Experimental Child Psychology*, 159, 50-65.
- [7] Brysbaert M., Buchmeier M., Conrad M., Jacobs A. M., Bölte J., Böhl A. (2011). The word frequency effect: A review of recent developments and implications for the choice of frequency estimates in German. *Experimental Psychology*, 58, 412– 424.

Tables & Figures

Figure 1

Partial effects plot of log-transformed reading times on critical region words. Error bars indicate 90% SE.



Note. All models specified control predictions for word length, Zipf frequency [7], word position in the sentence, trial number, and reading time of the previous word.

The acquisition of gender in adolescent German learners of Spanish: Evidence from production and perception

Clara Valerie Terlaak¹, Sarah Schimke¹, & Johanna Wolf¹

¹ LMU Munich

The acquisition of L2 gender assignment and agreement is a well-known challenge even for highly proficient learners, who often struggle to produce correct agreement markings spontaneously (Dewaele/Véronique 2001; Franceschina 2005; Ayoun 2018). Previous research has identified the transparency and salience of the agreement assignment and marking system in the respective L2 (Arnon/Ramscar 2012) as important factors of influence.

The current study looks at German-speaking instructed adolescent learners of Spanish and focuses on salience of agreement targets and the relation between language perception and production. We ask:

- whether agreement errors on different agreement targets disrupt processing equally, using an eyetracking-during-reading paradigm.
- whether markings that appear not to be salient during reading are more error-prone in spontaneous written production.
- whether learners, who are sensitive to agreement markings during reading, produce more correct markings in a gender production task.

We collected written frog story retellings (n = 51) as well as data from an eyetracking-during-reading task and scores in a written gender assignment and agreement task (n = 22 so far, data collection is ongoing). In the stimuli of the reading task, we manipulated whether critical noun phrases (underlined) contained an agreement error (conditions 2,4) or not (conditions 1,3), and whether agreement was marked on the article only (conditions 1,2) or also on an adjective (conditions 3,4).

1) agreement, adjective invariable

Allí el escritor triste caminó durante dos horas.

2) no agreement, adjective invariable

Allí la escritor triste caminó durante dos horas.

3) agreement, adjective variable

Allí el escritor lindo caminó durante dos horas.

4) no agreement, adjective variable

Allí la escritor linda caminó durante dos horas.

“There the_{MASC/FEM} sad_{INVARIABLE} /cute_{MASC/FEM} writer_{MASC} walked for two hours.”

Preliminary analyses of data from twenty learners suggest that agreement errors significantly increased first-pass and total reading times on the critical region, and that this was not modulated by adjective agreement. Moreover, there was a moderate positive relation between individual learner’s difference score (reading times for ungrammatical minus grammatical items) and production task performance. Finally, a corpus analysis of the frog story data revealed particular high variability and error rates on adjectives.

We conclude that article-noun combinations are salient markers of agreement in L2 Spanish, and that learners, who are sensitive to violations during reading, tend to be more successful in producing correct gender markings. We discuss these findings against different gender acquisition models and relate them to concurrent L2 French data collection outcomes.

The acquisition of gender in adolescent German learners of Spanish: Evidence from production and perception

Terlaak, Schimke, & Wolf

References

- Arnon I. & Ramscar, M. (2012). Granularity and the acquisition of grammatical gender: How order-of-acquisition affects what gets learned. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 31(31), 2112–2117.
- Ayoun, D. (2018). Grammatical gender assignment in French: Dispelling the native speaker myth. *Journal of French Language Studies*, 28(1), 113-148.
- Dewaele, J.-M. & Véronique, D. (2001). Gender assignment and gender agreement in advanced French interlanguage: a cross-sectional study. *Bilingualism: Language and Cognition*, 4(3), 275-297.
- Franceschina, F. (2005). *Fossilized Second Language Grammars. The Acquisition of Grammatical Gender*. Benjamins [Language Acquisition and Language Disorders, 38].

Tables & Figures

Figures

Figure 1: First-pass and total reading times in four experimental conditions

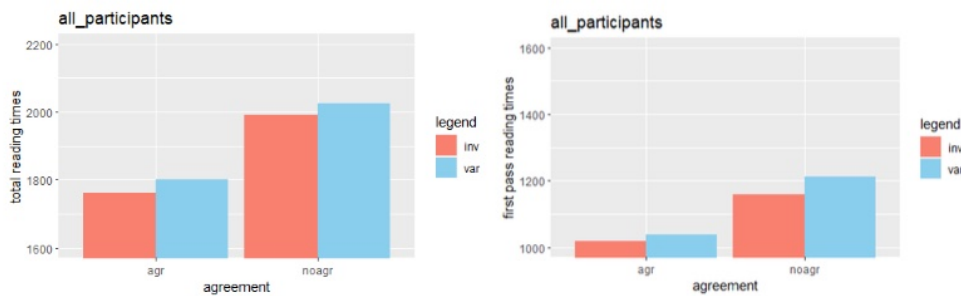


Figure 2: Relation between difference score in total reading times and performance in a gender production task



Untangling literacy and predictive processing: Evidence from spoken language comprehension in low-income Afro-Colombian speakers

Jessica Vélez Avilés¹ & Paola (Giuli) Dussias¹

¹ Pennsylvania State University

Comprehenders use grammatical gender information encoded in prenominal modifiers to facilitate the processing of upcoming nouns [1]. This processing advantage is modulated by literacy [2-4], with high-literacy individuals predicting target information sooner relative to lower-literacy individuals. However, past research has not consistently controlled for socioeconomic status (SES), an important confounding variable related poor language development [5-7]. Thus, the advantage in predictive processing reported in past studies for higher-literacy individuals may be due to SES-related disparities and not to literacy skill per se. We employ lab and field methods to investigate literacy's impact on predictive processing in adults with different literacy levels who belong to the same SES.

We recruited high ($n=21$) and low literacy ($n=20$) Spanish speakers from San Basilio de Palenque, a small Afro-Colombian village that offers a unique opportunity to keep SES constant while varying participants' literacy level. The village faces economic difficulties that impede social mobility. Palenqueros (residents of San Basilio de Palenque) are from low SES and live in substandard living conditions (e.g., intermittent access to electricity; no running water; limited sources of employment). Participants were matched on SES ($p = 0.902$) but differed in literacy level as determined by a PCA.

In a visual world eyetracking study, participants heard spoken instructions in Spanish ("*Encuentra el*_{MASC}/*la*_{FEM}...", 'Find the...') that named one of two objects displayed on a computer monitor. Participants were asked to click on the object named in the instruction. Target objects were preceded by a feminine or masculine article that agreed in gender with two objects in the visual scene (same-gender trials; e.g., *pelota*_{FEM} 'ball' displayed alongside *galleta*_{FEM} 'cookie') or with only one of the two objects (different-gender trials; e.g., *pelota*_{FEM} 'ball' displayed with *carro*_{MASC} 'car'). The data were analyzed by comparing the proportion of eye fixations on target objects in each condition using a divergence point analysis.

Results (Figure 1) show that high- and low-literacy speakers looked sooner at the target object on different-gender trials than on same-gender trials, replicating results from past studies with WEIRD populations [8-9]. Both literacy groups predictively looked at the upcoming target object *before* target word onset, but the higher-literacy group anticipated targets earlier. We discuss the results in light of previous studies that have found differences in predictive processing between high- and low-literacy speakers [2-4]. Our findings highlight the potential impact that testing speakers in diverse environments has for our theorizing.

Untangling literacy and predictive processing: Evidence from spoken language comprehension in low-income Afro-Colombian speakers

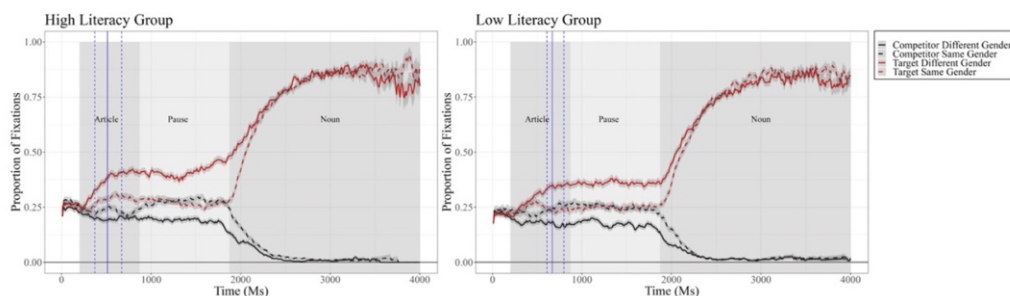
Vélez Avilés & Dussias

References

- [1] Lew-Williams, C., & Fernald, A. (2007). Young children learning Spanish make rapid use of grammatical gender in spoken word recognition. *Psychological Science, 18*(3), 193-198.
- [2] Favier, S., Meyer, A. S., & Huettig, F. (2021). Literacy can enhance syntactic prediction in spoken language processing. *Journal of Experimental Psychology: General, 150*(10), 2167-2174.
- [3] Kukona, A., Braze, D., Johns, C. L., Mencl, W. E., Van Dyke, J. A., Magnuson, J. S., Pugh, K. R., Shankweiler, D. P., & Tabor, W. (2016). The real-time prediction and inhibition of linguistic outcomes: Effects of language and literacy skill. *Acta Psychologica (Amst.), 171*, 72-84.
- [4] Mishra, R. K., Singh, N., Pandey, A., & Huettig, F. (2012). Spoken language-mediated anticipatory eye-movements are modulated by reading ability – Evidence from Indian low and high literates. *Journal of Eye Movement Research, 5*(1), 1-10.
- [5] Hackman, D. A., Farah, M. J., & Meaney, M. J. (2010). Socioeconomic status and the brain: mechanistic insights from human and animal research. *Nature Reviews Neuroscience, 11*(9).
- [6] Fernald, A., Marchman, V. A., & Weisleder, A. (2013). SES differences in language processing skill and vocabulary are evident at 18 months. *Developmental Science, 16*(2), 234-248.
- [7] Morgan, P. (2009). Risk factors for learning-related behavior problems at 24 months of age: Population based estimates. *Journal of Abnormal Child Psychology, 37*(7), 401- 413.
- [8] Arnett, J. J. (2008). The neglected 95%. Why American psychology needs to become less American. *American Psychologist, 63*(7), 601-614.
- [9] Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*, 61-135.

Tables & Figures

Figure 1. Proportion of fixation to targets and competitors over time for different-gender and same-gender trials



Plotted are the proportion of fixations to target (red) and competitor (black) items in same- (dashed) and different-gender (solid) trials for high (left) and low (right) literacy individuals. Solid vertical lines indicate the mean of the first point of divergence and dotted vertical lines represent confidence intervals.

Neural signatures of accented speech processing: the roles of speaker identity and listener experience

Janet van Hell¹

¹ Pennsylvania State University

Most late second language (L2) learners, even those with high L2 proficiency, have a noticeable accent in their L2. How do listeners process the accented speech produced by L2 learners? Research has shown that nonnative-accented (or foreign-accented) speech can challenge language comprehension. In my talk, I will discuss recent behavioral and electrophysiological (EEG/ERP) evidence on how listeners process semantic and syntactic information in sentences spoken by nonnative-accented (or foreign-accented) speakers. I will present recent studies that examined how speaker identity and listener experience affect listeners' comprehension of nonnative-accented and native-accented sentences. More specifically, I will discuss studies that examined how nonnative-accented speech comprehension is affected by listeners' own language experience (e.g., listeners with little experience with nonnative-accented speech, listeners immersed in nonnative-accented speech, and bilingual (nonnative-accented) listeners). We also examined how faces cuing the speaker's ethnicity and how speech embedded in noise impact the neurocognitive mechanisms associated with the comprehension of nonnative- and native-accented sentences. I will discuss the importance of integrating the impact of socio-indexical cues and listener experience to advance theoretical models on how listeners process speech produced by late L2 learners.

Learning via processing: Structural priming across grammatical structures and languages in early L2 development

Holger Hopp¹, Sarah Schimke², David Öwerdieck¹, Freya Gastmann^{2,3}, & Greg Poarch³

¹ TU Braunschweig, ² LMU Munich, ³ University of Groningen

In this talk, we explore how sentence processing can support grammatical learning. Based on the findings from the first phase of the CoLeaP project (see talk in the morning), we employed cumulative structural priming to test whether targeted exposure to unambiguous form-meaning mappings leads to the learning of non-canonical word orders among 165 L1 German low-to-intermediate-level L2 learners of English. For (object) relative clauses, the study investigates the scope of structural priming by assessing if priming with L2 relative clauses, an earlier-acquired related L2 structure (questions) or L1 relative clauses promotes learning. Based on the assumption that relative clauses and questions are related at the level of sentence processing, we test if cumulative priming goes hand in hand with processing changes, as assessed in visual-world eye-tracking.

Results show that learning generalizes from questions to relative clauses via priming from a pretest to a posttest. Priming with L1 relative clauses also promotes learning of English non-canonical word order, though at lower magnitudes. Cumulative priming also implicates changes in initial sentence processing. The correspondences between processing and priming suggest that revisions of general processing strategies may drive grammatical learning via priming.

Across-Language Priming and the Translation Equivalent Boost in Comparison to Within-Language Priming Across Development

Alina Kholodova¹, Fenia Karkaletsou, & Shanley Allen

¹ University of Kaiserslautern-Landau

Abstract priming is the tendency to reproduce previously heard structures (Bock, 1986) and is enhanced when the verb is repeated across prime and target (i.e., *lexical boost*; Pickering & Branigan, 1998). Further, priming can lead to structural adaptation across time (i.e., *cumulative priming*; Jaeger & Snider). However, there is extremely little research on these core priming effects across development in bilingual children both within and across languages as well as conflicting research in monolingual children. Besides, we lack priming research in languages where the two structural alternatives behave differently in bias strength leading to prediction error for infrequent structures (Chang et al., 2000; 2006).

In the present study, we studied core priming effects across growing age (3-4, 5-6, 7-8 and adults) in German speakers (N=193), in early bilingual German L2 speakers with a different L1 (N=164) within German and, extended this study to prime English-German speaking bilinguals across the two languages. We have gathered data from English-German speaking adults (N=30) and are currently recruiting English-German speaking children in the same age ranges. The participants described video clips in turns with the experimenter with double object datives (*Dora sent Boots the rabbit – DO*) or prepositional object datives (*Dora sent the rabbit to Boots - PO*) either in German or from English to German. We manipulated verb condition by presenting primes and targets either in the same (SV) or different verb (DV) condition to test for the *lexical boost effect* (within language) and the *translation equivalent boost* (across-languages). Crucially, in contrast to English, German is a DO biased language in which children hardly ever produce POs.

Within German, we found abstract priming effects immediately and across time for the PO (but not for the DO) structure across all age groups in both monolingual and bilingual children with the highest effects in the youngest children due to more prediction error (in line with Chang., 2000; 2006). The *lexical boost effect* emerged across development (see Figure 1). Preliminary results for priming from English to German in adults show the opposite pattern: more adaptation for the DO structure immediately and across time which is the somewhat less preferred option in English. In line with cross-language priming research in adult bilinguals, we also found a *translation equivalent boost effect* (see Figure 2). We intend to discuss our results within the framework of current priming accounts and present more cross-language data in children at the conference.

Across-Language Priming and the Translation Equivalent Boost in Comparison to Within-Language Priming Across Development

Kholodova, Karkaletsou, & Allen

References

Bock, J. K. (1986). Syntactic persistence in language production. *Cognitive Psychology*, 18(3), 355–387.

Bock, K., & Griffin, Z. M. (2000). The persistence of structural priming: Transient activation or implicit learning? *Journal of Experimental Psychology: General*, 129(2), 177–192.

Chang, F., Dell, G. S., Bock, J. K., & Griffin, Z. M. (2000). Structural priming as implicit learning: A comparison of models of sentence production. *Journal of Psycholinguistic Research*, 29(2), 217–230.

Chang, F., Dell, G. S., & Bock, K. (2006). Becoming syntactic. *Psychological Review*, 113(2), 234–272.

Jaeger, T. F., & Snider, N. (2008). Implicit learning and syntactic persistence: Surprisal and Cumulativity. *Proceedings of the 30th Annual Meeting of the Cognitive Science Society (CogSci08)*, 1061–1066.

Pickering, M. J., & Branigan, H. P. (1998). The representation of verbs: Evidence from syntactic priming in language production. *Journal of Memory and Language*, 39(4), 633–651

Tables & Figures

Figure 1: *Lexical boost effect* (PO production after PO prime compared to DO prime in the same verb condition minus the different verb condition) within German across development in monolingual (German L1) and early bilingual (any L1 and German L1/L2) children and adults.

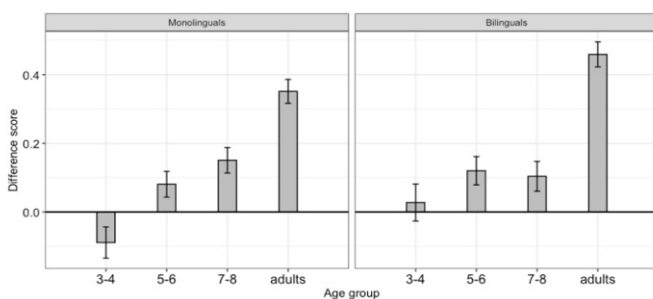
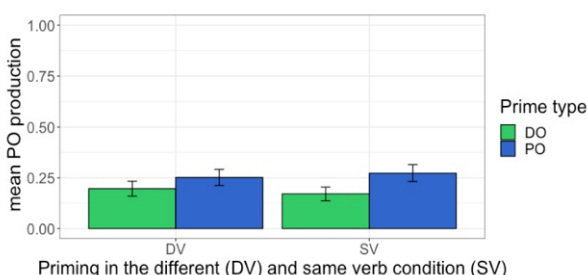


Figure 2: Priming effects (PO production after PO prime compared to DO prime) from English to German in bilingual adults (N=30).



Schema consistency effects on source memory during L2 word learning

Elena Markantonakis¹ & Kristin Lemhöfer¹

¹ Donders Center for Cognition

Previous research has shown that experiences that match a learner's prior knowledge (so-called "schemas") are not only better retained, but may even use a different memory route than those unconnected to prior knowledge. In particular, such 'schema-consistent' content might be learned with less involvement of episodic memory, and be instead encoded directly into semantic memory (Van Kesteren et al., 2013). In contrast, the resource-based account suggests that episodic memory is involved both when prior knowledge is and is not available (Bellana et al., 2021). To address these opposing views in the context of bilingual word acquisition, word learning in an L2 was investigated across three experiments where Dutch participants learned words in Mandarin (Exp. 1), Italian (Exp. 2) or Swedish (Exp. 3). The degree of prior knowledge relevant to the learning materials varied in all three experiments. In Exp. 1, the words' phonemes either also existed in L1 Dutch or not. In Exp. 2 and 3, words were either cognates (i.e. overlapping in form and meaning) with Dutch or not, with varying degrees of predictability of the cognate form given the Dutch word. For instance, the cognates in Exp. 3 were almost identical to the Dutch word, with the exception of an additional -a suffix. To investigate the specific involvement of episodic memory, source memory (i.e.: memory for contextual information) was measured. Specifically, we tested memory for the voice (male / female) by which a word had been spoken during learning (*source memory*). The results of the first two experiments showed, first, that schema-consistent items (cognates, or phonetically 'easy' words) were recalled better than inconsistent ones. Critically, source memory followed the same pattern, with higher memory for the voice in which schema-consistent items had been spoken during learning. Rather than supporting schema-based accounts, these findings are more in line with resource-based theory that stresses the importance of attentional resource availability at the time of encoding. The data for Exp. 3, in which the "schema" is implemented in its strongest form, is currently being collected and will be included in the presentation at the conference. With this latest schema manipulation, our aim was to subject findings of Exp. 1 and 2 to the most robust test possible, when the cognate word is almost entirely predictable based on the Dutch word.

Schema consistency effects on source memory during L2 word learning

Markantonakis & Lemhöfer

References

Bellana, B., Mansour, R., Ladyka-Wojcik, N., Grady, C. L., & Moscovitch, M. (2021).

The influence of prior knowledge on the formation of detailed and durable memories. *Journal of Memory and Language*, *121*, 104264.

Van Kesteren, M. T. R., Beul, S. F., Takashima, A., Henson, R. N., Ruitter, D. J., &

Fernández, G. (2013). Differential roles for medial prefrontal and medial temporal cortices in schema-dependent encoding: From congruent to incongruent.

Neuropsychologia, *51*(12), 2352–2359.

Sentence imitation and its relation to working memory and language skills in children with developmental language disorder

Klara Matiasovitsova¹ & Filip Smolík²

¹ Charles University, ² Czech Academy of Sciences

Sentence imitation (SI) is a sensitive marker of developmental language disorder (DLD; Frizelle & Fletcher, 2015). However, the contributions of language skills, short-term phonological memory and working memory to the performance are not completely understood. Studies have demonstrated relations between SI and language proficiency, short-term phonological memory (Conti-Ramsden et al., 2001; Riches, 2012) and working memory (especially central executive; Poll et al., 2013, Riches, 2012) in children with DLD. However, some studies did not find the effect of phonological memory (Archibald & Joanisse, 2009, Stokes et al., 2006), and other pointed out increasing demand on central executive functioning in morphosyntactically complex sentences (Delage & Frauenfelder, 2020). Our study examines the effects of language proficiency and memory variables on the imitation of sentences with different complexity in children with DLD and typically developing (TD) children.

Sixty-three Czech children with DLD (6;5-9;6) with receptive vocabulary below the 16th percentile were matched on gender and vocabulary with TD children (3;7-6;7). In addition to SI (containing relative clauses (RCs) and simple sentences) and receptive vocabulary, they completed tasks measuring their phonological memory (nonword repetition) and central executive (listening span).

The effects of sentence type, DLD status and vocabulary / memory measures on the number of errors in SI were examined using cumulative link mixed model. Significant interaction between the effects of vocabulary and group ($z = -2.00$, $p = .045$) and vocabulary and construction ($z = -1.97$, $p = .049$) suggested that the relations between scores in SI and vocabulary are stronger in TD children and RCs (see Figure). Models with nonword repetition / listening span as one of independent variables showed, that children with better nonword repetition and listening span made fewer errors in SI ($z = -2.23$, $p = .026$ and $z = -3.07$, $p = .002$, respectively), and revealed the significant effects of group ($z = -4.15$ and $z = -6.45$, respectively, both $p < .001$) and construction ($z = 3.80$ and $z = 3.83$, respectively, both $p < .001$).

The results indicate that sentence imitation is a good indicator of DLD, as TD children were better in sentence imitation, although they were vocabulary matched, and valid marker of language skills, as there was a relation between SI score and vocabulary as well as the sentence type. SI also reflects the functioning of memory.

Sentence imitation and its relation to working memory and language skills in children with developmental language disorder

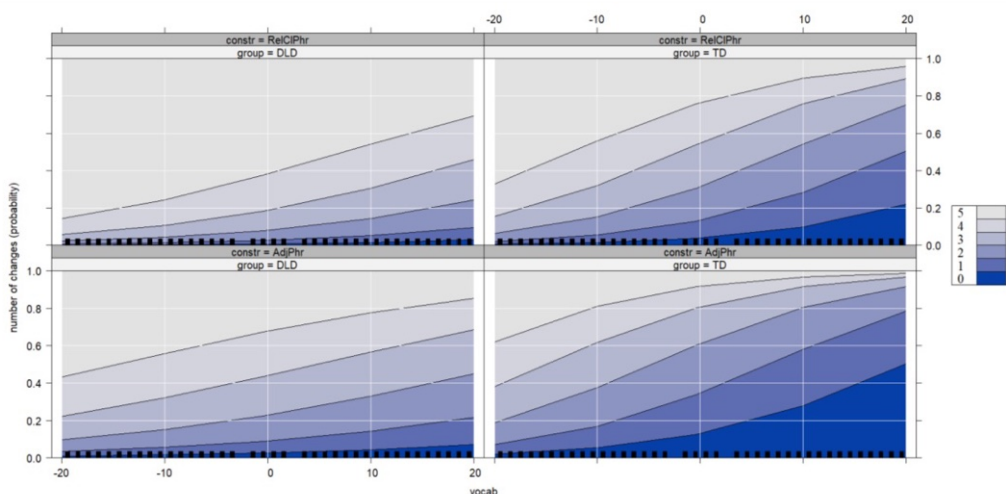
Matiasovitsova & Smolík

References

- Archibald, L. M. D., & Joanisse, M. F. (2009). On the sensitivity and specificity of nonword repetition and sentence recall to language and memory impairments in children. *Journal of Speech, Language, and Hearing Research*, 52(4), 899–914.
- Conti-Ramsden, G., Botting, N., & Faragher, B. (2001). Psycholinguistic markers for specific language impairment (SLI). *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 42(6), 741–748.
- Delage, H., & Frauenfelder, U. H. (2020). Relationship between working memory and complex syntax in children with Developmental Language Disorder. *Journal of Child Language*, 47(3), 600–632.
- Frizelle, P., & Fletcher, P. (2015). The Role of Memory in Processing Relative Clauses in Children With Specific Language Impairment. *American Journal of Speech-Language Pathology*, 24(1), 47–59.
- Poll, G. H., Miller, C. A., Mainela-Arnold, E., Adams, K. D., Misra, M., & Park, J. S. (2013). Effects of children’s working memory capacity and processing speed on their sentence imitation performance. *International Journal of Language and Communication Disorders*, 48(3), 329–342.
- Riches, N. G. (2012). Sentence repetition in children with specific language impairment: An investigation of underlying mechanisms. *International Journal of Language and Communication Disorders*, 47(5), 499–510.
- Stokes, S. F., Wong, A. M. Y., Fletcher, P., & Leonard, L. B. (2006). Nonword repetition and sentence repetition as clinical markers of specific language impairment: The case of cantonese. *Journal of Speech, Language, and Hearing Research*, 49(2), 219–236.

Tables & Figures

Figure. Relations between sentence imitation of relative clauses and simple sentences, vocabulary and group. The darkest and lightest band show the probability of zero-error or five-plus error responses, respectively. Increases in the dark blue bands show the increase of probability for imitations with lower number of errors.



Never too old to learn: a pilot study on later life language learning and a combined physical-cognitive intervention

Louisa Richter^{1,2}, Jascha Rüsseler¹, Greg Poarch², & Merel Keijzer²

¹ University of Bamberg, ² University of Groningen

Investigating ways of promoting healthy aging has never been more pressing than in our rapidly aging society. An emergent field is now dedicated to investigating the impact of later life language learning, due to the influence that life-long bilingualism has been shown to have on cognitive reserve (Stern, 2009); people who juggle multiple languages have been robustly found to delay the onset of dementia symptom manifestation by approximately 4 years (Bialystok et al., 2007). Furthermore, language learning has been proposed as a particularly effective later life training to enhance cognition, as the activated brain regions overlap with areas often affected by age-related cognitive decline (Antoniou et al. 2013; Antoniou, & Wright, 2017).

However, later life language learning and the cognitive effects to ensue from it has also produced mixed results, pointing to a need for replication to increase comparability across studies (for a review see Pot et al., 2019; van der Ploeg et al., 2020). Work to date reports, among other things, enhanced cognition (Meltzer et al., 2021; Pfenninger, & Polz, 2018; Bak et al., 2016), but these effects have not been robustly found (see Kliesch et al., 2021; Pfenninger, & Polz, 2018; Ramos et al., 2017; Ware et al., 2017; Berggren et al., 2018). Following mixed findings, Ware et al. (2017) and Valis et al. (2019) suggest that L2 learning could - in the absence of cognitive boosting effects - at least help maintain cognitive functions in seniors. Moreover, later life language learning appears to be a promising method for increasing overall well-being in elderly (Ware et al., 2017; Pfenninger, & Polz, 2018).

Though some studies have started comparing later life language learning to other interventions to enhance cognition, it remains unclear which type of intervention is most beneficial and feasible for elderly at different stages of cognitive decline.

In our pilot study, we investigated the effect of a language intervention (n=4; learning English in a non-anglophone environment), compared to a combined physical and cognitive training (n=4; playing cognitively demanding board games and movement) on cognition and well-being in elderly with varying degrees of cognitive decline. We report behavioral findings as well as data from a daily survey. Though this pilot study is based on a small sample size, the found tendencies outline a niche in need of further investigation.

Never too old to learn: a pilot study on later life language learning and a combined physical-cognitive intervention

Richter, Rüsseler, Poarch, & Keijzer

References

- Antoniou, M., & Wright, S. (2017). Uncovering the mechanisms responsible for why language learning may promote healthy cognitive aging. *Frontiers in Psychology, 8*, 2217-2217.
- Antoniou, M., Wong, P., & Gunasekera, G. (2013). Foreign language training as cognitive therapy for age-related cognitive decline: A hypothesis for future research. *Neuroscience and Biobehavioral Reviews, 37*(10), 2689-2698.
- Bak, T., Long, M., Vega-Mendoza, M., Sorace, A., & Allen, P. (2016). Novelty, challenge, and practice: The impact of intensive language learning on attentional functions. *Plos One, 11*(4), 0153485.
- Berggren, R., Nilsson, J., Brehmer, Y., Schmiedek, F., & Lövdén, M. (2018). No evidence that foreign language learning in old age improves cognitive function: A randomized controlled study.
- Bialystok, E., Craik, F. I., & Freedman, M. (2007). Bilingualism as a protection against the onset of symptoms of dementia. *Neuropsychologia, 45*(2), 459-464
- Kliesch, M., Giroud, N., & Meyer, M. (2021). EEG resting-state and event-related potentials as markers of learning success in older adults following second language training: A pilot study. *Brain Plasticity, 7*(2), 143-162.
- Meltzer, J. A., Kates Rose, M., Le, A. Y., Spencer, K. A., Goldstein, L., Gubanov, A., ... & Bialystok, E. (2021). Improvement in executive function for older adults through smartphone apps: A randomized clinical trial comparing language learning and brain training. *Aging, Neuropsychology, and Cognition, 30*(2), 150-171.
- Pfenninger, S., & Polz, S. (2018). Foreign language learning in the third age: A pilot feasibility study on cognitive, socio-affective and linguistic drivers and benefits in relation to previous bilingualism of the learner. *Journal of the European Second Language Association, 2*(1), 1-1.
- Pot, A., Porkert, J., & Keijzer, M. (2019). The bidirectional in bilingual: Cognitive, social and linguistic effects of and on third-age language learning. *Behavioral Sciences (basel, Switzerland), 9*(9).
- Ramos, S., Fernández García, Y., Antón, E., Casaponsa, A., & Duñabeitia, J. (2017). Does learning a language in the elderly enhance switching ability? *Journal of Neurolinguistics, 43*, 39-48.
- Stern, Y. (2009). Cognitive reserve. *Neuropsychologia, 47*(10), 2015-2028.
- Valis, M., Slaninova, G., Prazak, P., Poulova, P., Kacetl, J., & Klimova, B. (2019). Impact of learning a foreign language on the enhancement of cognitive functions among healthy older population. *Journal of Psycholinguistic Research, 48*(6), 1311-1318.
- van der Ploeg, M., Keijzer, M., & Lowie, W. (2020). Methodological concerns and their solutions in third-age language learning studies. *Dutch Journal of Applied Linguistics, 9*(1-2), 97-108.
- Ware, C., Damnee, S., Djabelkhir, L., Cristancho, V., Wu, Y., Benovici, J., . . . Rigaud, A. (2017). Maintaining cognitive functioning in healthy seniors with a technology-based foreign language program: A pilot feasibility study. *Frontiers in Aging Neuroscience, 9*, 42-42.

Prediction-error-based priming during L2 sentence comprehension

Duygu Şafak¹ & Holger Hopp¹

¹ TU Braunschweig

Using the English dative alternation, this study systematically investigates whether structural priming emerges via prediction-error-based learning during L2 sentence comprehension. Studies on priming in L1 comprehension have observed larger priming effects during comprehension of English dative sentences when ditransitive verbs with probabilistic biases to either double-object dative (DO; e.g., *pay*) or prepositional-object dative (PO; e.g., *send*) occur in the respective other structure [1-2]. Such surprisal effects of verb bias among child L1 learners and adult L1 speakers are in line with implicit learning models, claiming that prediction error is a key mechanism underlying structural priming [3].

Against this backdrop, we probe whether prediction error constitutes a mechanism of structural priming also in an L2. In two experiments combining priming and visual world eye-tracking, we first test whether prediction error, occasioned by verb bias, affects structural priming in L2 comprehension. Second, we examine whether structural priming occurs in the absence of prediction error.

In Experiment 1, adult L1-German-L2-English learners ($n=48$) first read prime sentences crossing Verb Bias (DO-bias/PO-bias) and Structure Type (DO/PO). Subsequently, they heard target sentences – with non-biased verbs – while viewing visual scenes with corresponding referents (Figure 1). Cluster-based permutation analyses revealed PO-priming, as evidenced by more looks to the theme than to the recipient during the post-verbal temporal region in target sentences following PO (vs. DO) prime sentences (Figure 2a). Such PO-priming was modulated by surprisal verb bias effects, as priming was larger when the prime structure mismatched the bias of prime verb, i.e., after PO primes with DO-bias verbs (Figure 2b). These effects show that L2 learners adapt to the structure of the recently processed prime sentence through learning from their prediction errors.

In Experiment 2 with a comparable group of German-English learners ($n=48$), we replaced the full noun-phrase themes and recipients in PO prime sentences with their pronominal counterparts (Figure 3). DO-bias prime verbs thus elicited no prediction error, given that PO is the only possible structure for any ditransitive verb with two pronominal complements. Unlike in Experiment 1, PO-priming did not reach significance in Experiment 2 (Figure 4). This suggests that, when there is no prediction error to learn from, structural priming may not be strong enough to affect L2 learners' processing of the target sentences.

These findings demonstrate that priming in L2 comprehension is driven by prediction error like in L1 comprehension, and further point to an error-based prediction mechanism underpinning L2 structural priming.

Prediction-error-based priming during L2 sentence comprehension
Şafak & Hopp

References

- [1] Chen, X., Wang, S., & Hartsuiker, R. J. (2022). Error-based structure prediction in language comprehension: Evidence from verb bias effects in a visual-world structural priming paradigm for Mandarin Chinese. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 48, 60–71.
- [2] Fine, A. B., & Jaeger, T. F. (2013). Evidence for implicit learning in syntactic comprehension. *Cognitive Science*, 37(3), 578–591.
- [3] Dell, G. S., & Chang, F. (2014). The P-chain: Relating sentence production and its disorders to comprehension and acquisition. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1634), 20120394.

Tables & Figures

Figure 1. An example of prime-target pairs from Experiment 1

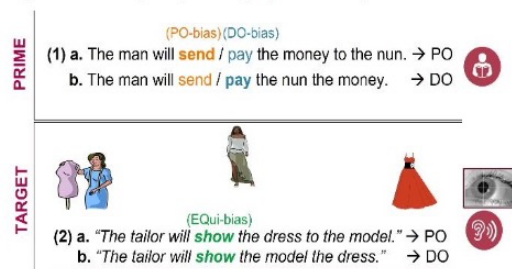


Figure 2a. Difference in gaze probability between recipient and theme in PO targets with equi-bias alternating verbs

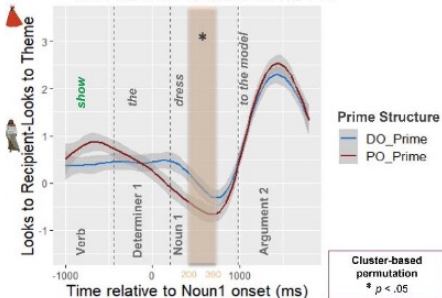


Figure 2b. Difference in gaze probability between recipient and theme in PO targets with equi-bias alternating verbs

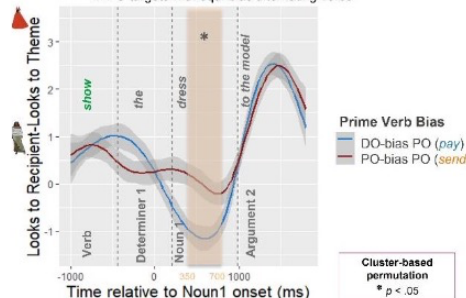


Figure 3. An example of prime-target pairs from Experiment 2

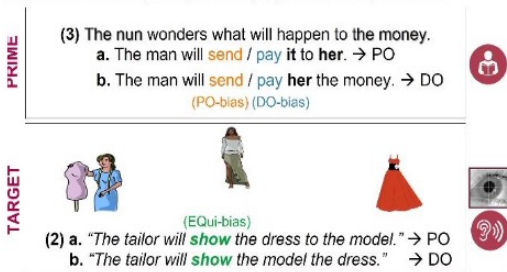
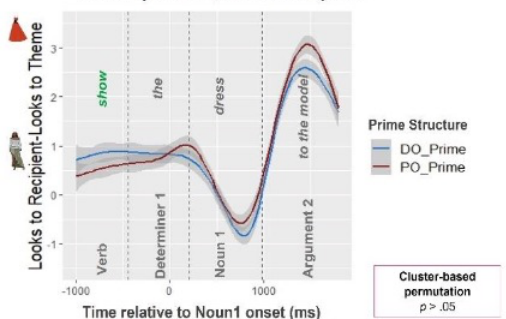


Figure 4. Difference in gaze probability between recipient and theme in PO targets with equi-bias alternating verbs



Verb bias effects in short-term and longer-term L1-to-L2 and L2-to-L1 cross-linguistic structural priming

Chantal van Dijk^{1,2} & Holger Hopp¹

¹ TU Braunschweig, ² University of Stuttgart

We investigate surprisal effects in cross-linguistic structural priming (i.e. less expected structures yielding larger priming according to error-based learning; e.g., Chang et al., 2006). Surprisal should hold for L1-to-L2 and L2-to-L1 priming, but evidence is circumstantial: either only L1-to-L2 priming showing longer-term priming consistent with error-based models (Hwang & Shin, 2019; also see Unsworth (2023)), or only bidirectional short-term priming within L2 speakers was studied (Kootstra & Doedens, 2016). We investigate surprisal in L1-to- L2 and L2-to-L1 priming with the same prime (German) and target language (English) in L1- German *and* in L1-English speakers, examining the following questions:

RQ1) Is there evidence of short-term and longer-term priming?

RQ2) Is there evidence of surprisal due to prime-verb bias?

RQ3) Does priming strength depend on priming direction?

Ninety-two L1-German-L2-English adults and 89 L1-English-L2-German adults participated. A baseline task measured production preferences for English and German ditransitive verbs (Double Object (DO) structures: “She showed the pirate the painting” and Prepositional Object (PO) structures: “She showed the painting to the pirate”) through picture descriptions. In a German-to-English priming task, a spoken DO or PO prime preceded each picture description. There were 4 English target verbs, 4 strongly-DO-biased and 4 weakly-DO-biased German prime verbs which were PO-biased in their English translation (Şafak, 2022). A post-test measured English DO/PO production afterwards. We predicted that if German prime-verb biases drive priming, surprisal and therefore PO is stronger than DO priming and L1-German participants are more sensitive to prime-verb biases, yielding stronger priming.

Generalized linear mixed effects models showed significant short-term and longer-term (i.e. baseline to post-test) priming (Figure 1). Prime-verb bias and priming direction significantly modulated priming. German prime-verb biases predicted short-term priming in L1-German participants, indicating that German prime-verb bias carries over in English. Instead, English prime-verb translation-equivalents’ biases predicted short-term priming in L1-English participants, indicating that in cross-linguistic priming L1 prime-verb bias carries over, regardless of prime and target language. Regarding longer-term priming, L1-German and L1- English participants showed longer-term PO and DO priming, respectively, again showing sensitivity to L1 properties, in line with surprisal: German PO primes yielded cumulative priming in L1-German participants instead of less surprising DOs; and English PO-biased prime-verb translation equivalents yielded cumulative DO priming in L1-English participants.

Summarizing, although participants received the same exposure, short-term and longer-term priming behaviour differed, indicating that participants’ L1 baseline preferences are crucial for priming outcomes, in line with surprisal in error-based learning (e.g., Chang et al., 2006).

Verb bias effects in short-term and longer-term L1-to-L2 and L2-to-L1 cross-linguistic structural priming

van Dijk & Hopp

References

Chang, F., Dell, G. S., & Bock, K. (2006). Becoming syntactic. *Psychological Review*, 113(2), 234–272.

Hwang, H. & Shin, J.-A. (2019). Cumulative effects of syntactic experience in a between- and a within-language context: Evidence for implicit learning. *Journal of Memory and Language*, 109, 104054.

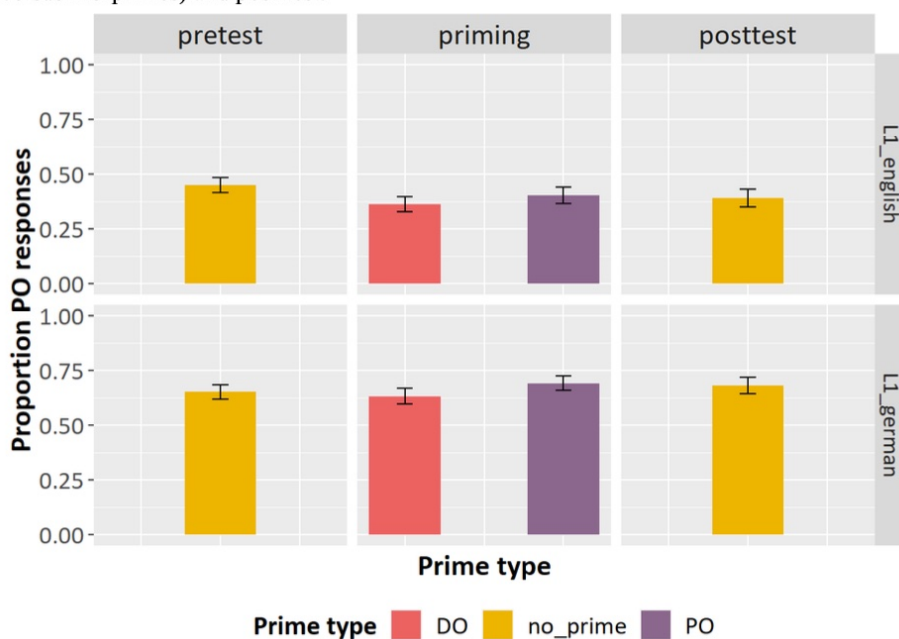
Kootstra, G.J., Doedens, W. (2016). How multiple sources of experience influence bilingual syntactic choice: Immediate and cumulative cross-language effects of structural priming, verb bias, and language dominance. *Bilingualism: Language and Cognition*, 19(4), 710-732.

Şafak, D. F. (2022). *How do L2 learners use verbs in sentence processing? Integration and prediction in L2 sentence comprehension.*

Unsworth, S. (2023). Shared syntax and cross-linguistic influence in bilingual children: Evidence from between- and within-language priming. *Linguistic Approaches to Bilingualism*.

Tables & Figures

Figure 1. Mean proportions and standard errors of L1-English (top panels) and L1-German (bottom panels) participants' PO productions in the baseline (pre-test), priming phase (after PC versus DO primes) and post-test.



Cognitive Predictors of L2 Sociolinguistic Development by Adult Migrants in Austria

Mason Wirtz¹

¹ University of Salzburg

Aims This article is the first to explore the association between (domain-general) cognitive capacity and individual outcomes in German as a second language (L2) learners' acquisition of sociolinguistic variation.

Data and analysis In a cross-sectional study conducted in Austria, data were collected from 40 adult migrants ($M_{\text{age}}=30y$, $SD=8y$) with intermediate to advanced L2 German proficiency (L1 English) and who had been living in Austria for 4 years on average ($SD=3y$). Speech data were collected via virtual reality (VR) discourse completion tasks (Wirtz, 2022): Participants were immersed sequentially in six audio-visual situations while being read detailed social-contextualizing information in English about the present situation, after which participants were prompted to perform a task in the virtual environment (e.g., ask for a ride home). Two situations simulated social distance/formality, two neutrality, and two social closeness/informality. The cognitive test battery included a number of computerized tasks measuring participants' (domain-general) cognitive resources, specifically *alertness*, *divided attention*, *inhibition*, *working memory*, and *L1 verbal fluency* (Kliesch & Pfenninger, 2021; Kliesch et al., 2022). We chose cognitive domains that have been shown/hypothesized to (a) manifest increased variability in adulthood and (b) be involved in the learning of an L2. To analyze the data, we computed Bayesian multinomial mixed-effects models (Gudmestad et al., 2013; Wirtz & Pfenninger, 2023): Our dependent variable was learners' use of sociolinguistic variation, operationalized as participants' differential use of standard German, Austro-Bavarian dialect, and mixture varieties in the six aforementioned VR contexts, and the five domain-general cognitive measures were included as predictor variables.

Findings We found a credible effect of alertness, i.e., learners' ability to react swiftly and appropriately to concrete requirements in their immediate surroundings, on participants' differential use of varieties. Specifically, as a function of higher alertness resources, participants used less dialect and mixture varieties in the *formal* situations, but not in the neutral and informal situations (see Figure 1), which reflects typical varietal behavior of L1 speakers in Austria. We take this as initial evidence that learners with higher alertness have a cognitive advantage concerning their ability to heed immediate contextual parameters and adapt their varietal behavior in function of these.

Originality This contribution takes variationist approaches to data elicitation in a new direction, using VR to facilitate between-participant experimental stability and mitigate confounders characteristic of live interview/elicitation settings (Peeters, 2019; Wirtz, 2022), while also paving new ground as to the role cognition plays in the sociolinguistic developmental process during adulthood.

Cognitive Predictors of L2 Sociolinguistic Development by Adult Migrants in Austria

Wirtz

References

Kliesch, M., & Pfenninger, S. E. (2021). Cognitive and Socioaffective Predictors of L2 Microdevelopment in Late Adulthood: A Longitudinal Intervention Study. *The Modern Language Journal*, 105(1), 237–266.

Kliesch, M., Pfenninger, S. E., Wieling, M., Stark, E., & Meyer, M. (2022). Cognitive Benefits of Learning Additional Languages in Old Adulthood? Insights from an Intensive Longitudinal Intervention Study. *Applied Linguistics, Advance articles*, 1–25.

Peeters, D. (2019). Virtual reality: A game-changing method for the language sciences. *Psychonomic Bulletin & Review*, 26(3), 894–900.

Wirtz, M. A. (2022). Discourse completion tasks meet virtual reality: A pilot study on virtual reality as an elicitation instrument. *Research Methods in Applied Linguistics*, 1(3), 1– 12.

Wirtz, M. A. (2023). *Inter- and Intra-Individual Variation in Adult L2 Sociolinguistic Repertoires. Dynamics of Linguistic, Socioaffective and Cognitive Factors* [Doctoral Dissertation]. University of Salzburg.

Wirtz, M. A., & Pfenninger, S. E. (2023). Capturing Thresholds and Continuities: Individual Differences as Predictors of L2 Sociolinguistic Repertoires in Adult Migrant Learners in Austria. *Applied Linguistics*, 1–23.

Tables & Figures

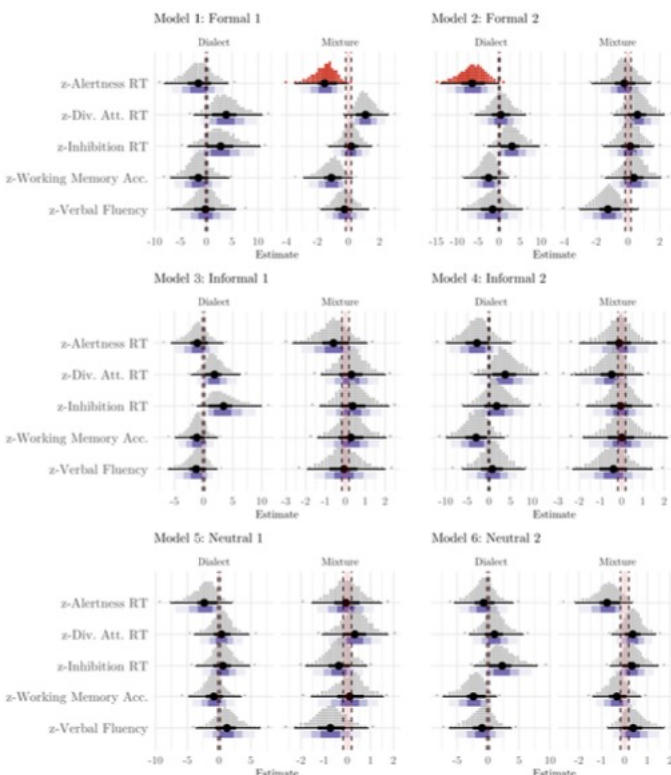


Figure 1.

Visual model summaries (log-odds scale) of learners' use of sociolinguistic variation across VR situations as a function of cognitive capacity. The Dialect and Mixture at the top of each plot indicate the log-odds ratio probability of producing the dialect or mixture variety as opposed to the standard German variety. Each dot represents a 1 per cent likelihood of a given value. The purple-colored bars indicate the 50 per cent, 80 per cent, and 95 per cent HDIs. The black point with bars displays the posterior mean (the point), the 98 per cent (thin bar) and 66 per cent (thicker bar) HDIs. The shaded red area around point null is the ROPE set at ± 0.18 . Effects that fall within the ROPE, indicating nonsufficient evidence for an effect, are shaded gray, positive effects green, and negative effects red.

L2 acquisition of French adjective position: transfer or overgeneralization?

Zhanglin Xie¹, Claire Saillard¹, Maria Copot², & Barbara Hemforth³

¹ Université Paris Cité, ² The Ohio State University, ³ Centre national de la recherche scientifique (CNRS)

Attributive adjectives in French can be placed before or after the noun according to complex modality (Abeillé & Godard, 1999; Alexiadou, 2001; Bouchard, 1998; Thuilier, 2012, 2014). However the grand majority of adjectives are placed after the noun. The acquisition of adjective placement in L2 French is a source of problems for every learner regardless of their L1 (Anderson, 2008; Bartning & Kirchmeyer, 2003; Granfeldt, 2004; Noordhuis, 2015). This study investigates the role of L1 transfer (Gass, 1988; Ionin & Montrul, 2010; Karim & Nassaji, 2013; Odlin, 1989), overgeneralization of target language rules (Al-Khresheh, 2016; Corder, 1981; Ellis & Ellis, 1994; Littlewood & William, 1984; Richards, 1974; Taylor, 1975), adjective frequency, and L2 proficiency in the acquisition of adjective ordering in L2 French. It is observed that frequent items are more resistant to overgeneralization errors than infrequent items (Ambridge, Kidd, Rowland, & Theakston, 2015). If L1 transfer predicts the adjective placement choice in L2 French by Chinese speakers, they will make errors especially for low frequency postnominal adjectives since adjectives are placed before the noun in Chinese. If overgeneralization of the more general postnominal position predicts L2 production, L1 Chinese speakers will produce errors in particular for infrequent prenominal adjectives. Here, we conducted a forced-choice experiment with two groups of learners of L2 French (beginner and intermediate levels) whose L1 is Mandarin Chinese. A group of speakers with French as their L1 was added as a control group. We looked at the L2 acquisition of adjective position depending on the type of adjective and the frequency of the adjective, which allows us in particular to test L2 overgeneralization hypothesis vs. L1 transfer hypothesis. We found that prenominal adjectives which are not explicitly found in textbooks (mostly low frequency adjectives *fichu*, *piètre*, *fiéffé* etc...) seem to be the most difficult adjective type to master for both groups of L2 learners. We suggest that this type of error is due to the overgeneralization of the default postnominal placement rule to those adjectives. Prenominal adjectives that are explicitly taught (typically high frequency adjectives) lead to better performance as well as postnominal adjectives that follow the default postnominal placement. Our findings suggest that influence of the L1 is not the major factor for explaining Second Language Acquisition of adjective placement in French, but that a general tendency for overgeneralization, proficiency in French, and lexical frequency play an important role.

L2 acquisition of French adjective position: transfer or overgeneralization? Xie, Saillard, Copot, & Hemforth

References

Abeillé, A., & Godard, D. (1999). La position de l'adjectif épithète en français: le poids des mots. *Recherches linguistiques de Vincennes*(28), 9–32.

Alexiadou, A. (2001). Adjective syntax and noun raising: Word order asymmetries in the dp as the result of adjective distribution. *Studia Linguistica*, 55(3), 217–248.

Al-Khresheh, M. H. (2016). A review study of error analysis theory. *International Journal of Humanities and Social Science Research*, 2, 49–59.

Ambridge, B., Kidd, E., Rowland, F., Caroline, & Theakston, A. L. (2015). The ubiquity of frequency effects in first language acquisition. *Journal of Child Language*(42), 239–273.

Anderson, B. (2008). Forms of evidence and grammatical development in the acquisition of adjective position in L2 french. *Studies in Second Language Acquisition*, 30(1), 1–29.

Bartning, J., & Kirchmeyer, N. (2003). Le développement de la compétence textuelle à travers les stades acquisitionnels en français L2. *Acquisition et interaction en langue étrangère*(19), 9–39.

Bouchard, D. (1998). The distribution and interpretation of adjectives in french: A consequence of bare phrase structure. *Journal of Child Language*, 25(2), 139–184. Retrieved from

Corder, S. P. (1981). *Error analysis and interlanguage*. Oxford University Press, USA.

Ellis, R., & Ellis, R. R. (1994). *The study of second language acquisition*. Oxford University.

Gass, S. M. (1988). Second language acquisition and linguistic theory: The role of language transfer. In *Linguistic theory in second language acquisition* (pp. 384–403). Springer.

Granfeldt, J. (2004). Domaines syntaxiques et acquisition du français langue étrangère. l'exemple du dp. *Acquisition et interaction en langue étrangère*(21), 47–84.

Ionin, T., & Montrul, S. (2010). The role of L1 transfer in the interpretation of articles with definite plurals in L2 english. *Language learning*, 60(4), 877–925.

Karim, K., & Nassaji, H. (2013). First language transfer in second language writing: An examination of current research. *Iranian Journal of Language Teaching Research*, 1(1), 117–134.

Littlewood, W., & William, L. (1984). *Foreign and second language learning: Language acquisition research and its implications for the classroom*. Cambridge University Press.

Noordhuis, F. (2015). *Un garçon magnifique ou un magnifique garçon? recherche sur l'acquisition de la position de l'adjectif en français par les apprenants néerlandais*. (Unpublished master's thesis).

Odlin, T. (1989). *Language transfer* (Vol. 27). Cambridge University Press Cambridge.

Richards, J. C. (1974). A non-contrastive approach to error analysis. *Error analysis: Perspectives on second language acquisition*, 172–188.

Taylor, B. P. (1975). The use of overgeneralization and transfer learning strategies by elementary and intermediate students of esl 1. *Language learning*, 25(1), 73–107.

Thuilier, J. (2012). *Contraintes préférentielles et ordre des mots en français* (Unpublished doctoral dissertation). Université Paris-Diderot-Paris VII.

Thuilier, J. (2014). *An experimental approach to french attributive adjective syntax*.

Tables & Figures

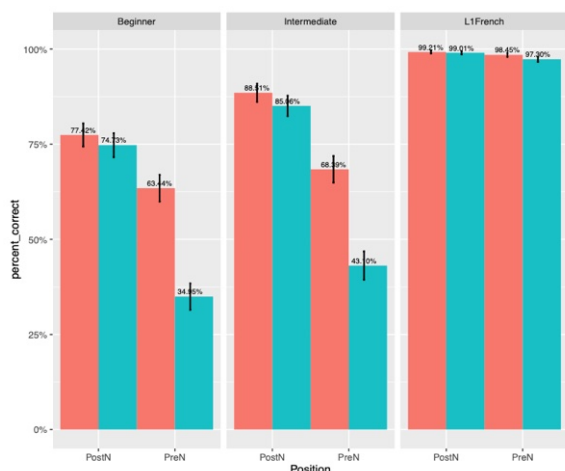


Figure 1: Correct choice rate of adjective placement for L2 beginner, L2 intermediate and L1 French groups

Fixed effects	Estimate	Std. Error	z-value	p-value
(Intercept)	3.728705	0.248342	15.014	< 2e-16***
Data\$Inter	-1.564270	0.148320	-10.547	< 2e-16***
Data\$Begin	-1.849071	0.148617	-12.442	< 2e-16***
Post	0.825656	0.249367	3.311	0.00093*
Known	0.478525	0.229485	2.085	0.03705*
Data\$Inter:Post	0.226146	0.149944	1.508	0.13150
Data\$Begin:Post	0.135131	0.150235	0.899	0.36841
Data\$Inter:Known	0.017773	0.118299	0.150	0.88058
Data\$Begin:Known	0.013815	0.119147	0.116	0.90769
Post:Known	-0.233340	0.228645	-1.021	0.30748
Data\$Inter:Post:Known	0.004376	0.116110	0.038	0.96993
Data\$Begin:Post:Known	-0.026205	0.116900	-0.224	0.82263

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 1: General statistical model results: main effects and different interactions

The process of acquiring word meanings: How making rapid interpretive commitments shapes word learning in children and adults

John Trueswell¹

¹ University of Pennsylvania

When it comes to interpreting speech, everyone seems to have a one-track mind. Listeners strive to pinpoint a single intended meaning of each utterance, even in the face of ambiguity. Upon encountering a word or phrase with multiple meanings, we only briefly entertain alternative interpretations before directing our minds toward a single, contextually appropriate understanding within milliseconds. The inclination towards early commitment does not appear to stem from an inability of our massively parallel brains to simultaneously consider a handful of choices. Instead, it seems probable that early commitment better serves the needs of communication to be rapid even with some sacrifice of accuracy. In this talk, I'll discuss the striking parallels between this single-minded aspect of language comprehension and properties of novice word learning. I'll review evidence from my group that despite facing massive referential and semantic indeterminacy, learners select and store a single contextually appropriate meaning for a novel word and it is this information that is retrieved and considered on the words next occurrence. I'll offer new evidence that bears on this issue. Findings will come with some surprises; statistical tracking of word forms plays a role in fast mapping and the learning of words cross-situationally; the act of reference itself constrains the meanings of novel words in the moment by winnowing massive semantic options into a manageable set that are appropriate for the linguistic encoding of word meaning.

Further information

Pre-workshop dinner – March 6, 2024 (19:00 PM)

The pre-workshop dinner will take place at

Ristorante “Bei Mario”
Adalbertstraße 15
80799 München

Workshop – March 7, 2024

The workshop will take place at the LMU’s main building at

Geschwister-Scholl-Platz 1
80593 München

The workshop opening, talks, and final discussion will be in room A 120. The poster sessions, coffee breaks, and goodbye drinks will be in the main building’s ‘Lichthof’.

Lunch – March 7, 2024 (12:30 – 14:00 PM)

The lunch on Thursday is self-paid. Suggestions for cafés and restaurants can be found below:

- **Café Zeitgeist** (Türkenstraße 74)
bowls, burger, breakfast
- **Deli Star** (Amalienstraße 40)
coffee, bagels
- **Dinatale** (Amalienstraße 71 & Veterinärstraße 4)
Italian coffee, cake, panini
- **LEVI** (Amalienstraße 53)
Asian Fusion Kitchen
- **Lezizel** (Schellingstraße 48)
Turkish manti
- **Man versus Machine** (Schellingstraße 18)
coffee, cake
- **Maex41** (Amalienstraße 55)
pizza, pasta
- **Rosso Pizza** (Amalienstraße 45)
pizza
- **Sesam öffne dich** (Amalienstraße 34)
falafel



Thank you.