

2018

Multidisciplinary Approaches to  
Child and Adult Language Acquisition

**Abstracts**

THE CENTER FOR LANGUAGE ACQUISITION

*AND*

THE CENTER FOR LANGUAGE SCIENCE

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**Multidisciplinary Approaches to Child and Adult Language Acquisition**

**The Center for Language Acquisition *and* the Center for Language Science**

The Pennsylvania State University

October 4-5<sup>th</sup>, 2018

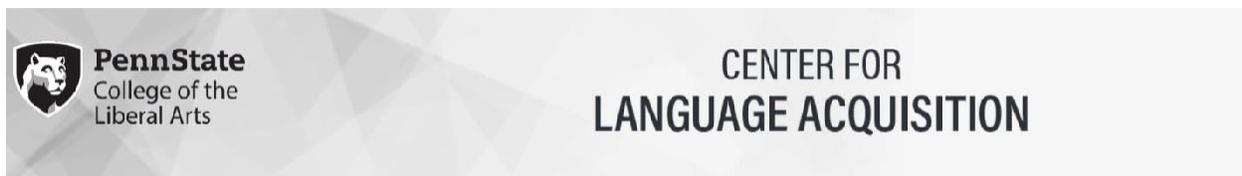
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## *Invited Speakers*

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### **Explain Me This:**

#### **Children Are both More Conservative and More Ready Generalizers for the Same Reasons**

Adele Goldberg

Princeton University, USA

This presentation will address an apparent paradox in the language learning literature. There is a lot of evidence that children are “conservative” in that they do not generalize the language they hear to the same extent as adults. And yet there’s also work that seems to imply that children generalize (“regularize”) even more than adults. The presentation will illustrate the wide range and oftentimes subtle *conditioning factors* that speakers must learn in order to use the constructions of their language in native-like ways. Children’s “construct-i-con” is more sparse than adults’: they have not witnessed as much language and they are less able to quickly organize what they have heard, when compared with adults. As it takes time for children to discern the relevant conditioning factors, they tend to be more conservative. What look like broad generalizations are actually oversimplifications before the relevant conditioning factors have been well-learned; there is evidence that children recognize that they are over-simplifying. The tendency for children to generalize more slowly than adults helps explain why child learners ultimately reach native levels of proficiency while adult second-language learners only rarely do.

## Exploring the Role of Visual Clues in Face-to-face L2 Interaction

Kim McDonough

Concordia University, Canada

During conversation, interlocutors use visual cues such as gesture and eye gaze to coordinate their attention with each other, which is referred to as *joint attention* (Bruner, 1995). Although joint attention is widely accepted as a crucial component of children's early language development, its role in adult L2 learning remains underexplored. L2 studies have shown that gestures may facilitate the learning of words (Gullberg, Roberts, & Dimroth, 2012; Kelly, McDevitt, & Esch, 2009; Macedonia & Knösche, 2011) and new sound contrasts (Hirata & Kelly, 2010; Kelly & Lee, 2012), but the potential role of eye gaze in face-to-face L2 interaction has received less attention. The findings of a series of laboratory-based studies carried out with adult English L2 speakers in Montreal are presented to address the question of whether visual cues can help shed light on key issues in interactive language use including interactional feedback, initial pattern detection, and non-understanding. Findings across these studies point to a potential role for visual cues, including mutual gaze, in interactive L2 use. Methodological issues for eye tracking research during face-to-face conversation are provided, and avenues for future research are highlighted.

## **Comparing On-line Sentence Processing Performance to Off-line (Metalinguistic)**

### **Responses: What Can They Tell Us about Grammatical Knowledge in the L2?**

Leah Roberts

University of York, UK

In the field of SLA, the use of on-line, reaction time measures taken during the reading of grammatical and ungrammatical sentences began as a supplement to traditional off-line judgments, in order to add validity to off-line measures of second language (L2) learners' underlying grammatical competence (see Juffs & Rodriguez, 2013 for an overview). The underlying assumption has been that off-line data can uncover what readers know is and is not possible in a given language (i.e., 'limits of grammaticality'), whereas the workings the parser (or sentence processor)—comprising a set of procedures for implementing that knowledge in real time— can be investigated using time-sensitive techniques. In other words, many SLA researchers engaging in psycholinguistic research assume that on- and off-line tasks tap into different types of knowledge, for instance implicit versus explicit/metalinguistic (or procedural versus declarative) knowledge respectively. Studies in which off-line/metalinguistic knowledge has shown to be native-like, but on-line parsing procedures or sensitivity to un/grammaticalities is different has been argued to support fundamental difference accounts of SLA (e.g., Shallow Structure Hypothesis, Clahsen & Felser, 2006), whereas where there has been a match between on- and off-line measures, particularly as a function of proficiency/exposure, learners are assumed to have access to native-like knowledge of the L2 (e.g., Hopp, 2010), aligning with the view that L1-L2 differences in ultimate attainment are quantitative rather than qualitative. A review of the L2 sentence processing literature shows that native-like performance is often revealed when learners need also to make meta-judgments during real-time comprehension but not when they are required to merely read for meaning (see, e.g., Havik, et al. 2008). Does this mean that L2 learners of sufficient proficiency 'shallow process' unless pushed to perform deep hierarchical processing by the task? In this talk I will discuss such findings in relation to 'types of knowledge' that researchers assume the different tasks are tapping into, and what this means for the development of grammatical knowledge in L2 acquisition.

# **The Cost of Translation Ambiguity for Second Language Processing**

Natasha Tokowicz

University of Pittsburgh, USA

Many words in a given language can be translated in more than one way into another language. This phenomenon, known as “translation ambiguity”, causes difficulty in second language processing. Such difficulty has been reported for learners at the beginning stages of acquisition (e.g., Degani et al., 2014) as well as speakers of intermediate proficiency (e.g., Eddington & Tokowicz, 2013), and even balanced bilinguals (e.g., Boada et al., 2013). Translation ambiguity has also been demonstrated in a variety of cross-language pairs (e.g., Prior et al., 2007). In this presentation, I will discuss differences in the types of translation ambiguity across languages, focusing especially on the difference between Mandarin Chinese, Dutch, German, and English, and will review the literature on translation ambiguity and its cost for second language processing.

**Production and Processing in Bilingual Children:  
Predicting the Extent of Cross-linguistic Influence**

Sharon Unsworth

Radboud University, Nijmegen, Netherlands

The general consensus in the bilingual first language acquisition literature is that there is separate development of the child's two languages. At the same time, however, there is clear evidence that under certain circumstances, one language may influence the other (Paradis & Genesee, 1996). This cross-linguistic influence (CLI) varies across linguistic domains, language combinations and children, and several language-level and individual-level factors have been invoked to explain this variation (see Serratrice, 2013 for review), including surface overlap and language dominance (e.g., Döpke, 1998; Hulk & Müller, 2000; Yip & Matthews, 2000). Which of these factors constitute necessary and/or sufficient conditions for CLI and the exact mechanisms by which CLI occurs remain unknown, however. In this talk, I will report on the first results from a 5-year project in which we try to arrive at a better understanding of CLI in bilingual language development by drawing on insights from the bilingual adult psycholinguistic literature (e.g., Hartsuiker et al., 2004). Our central hypothesis, following work by Serratrice (2014, 2015), is that CLI in bilingual children is driven by (structural) priming and reflects a certain level of cross-language sharing. Consequently, we predict that as a result of parallel co-activation of a child's two languages, the magnitude of CLI should be predicted by factors which have been shown to affect the magnitude of co-activation and priming, such as language exposure, use and proficiency (Bernolet et al., 2007; Kootstra et al., 2010; Poort et al, 2015; Van Hell & Tanner, 2012).

## Corpus-based Approaches to Instructed Second Language Acquisition

Nina Vyatkina

The University of Kansas, USA

In my talk I will focus on the interfaces between Data-Driven Learning (DDL) and Instructed Second Language Acquisition (ISLA). ISLA is a subdomain of SLA that investigates how the systematic manipulation of the mechanisms or conditions of learning enables or facilitates L2 development (Loewen, 2015). In turn, DDL appears to be largely a subdomain of ISLA based on its definition as research into the effectiveness of using the tools and techniques of corpus linguistics for second language learning and use (Boulton & Cobb, 2017). Although the two disciplines have been developing mostly tangentially since their emergence about thirty years ago, a number of recent DDL studies have been explicitly situated within specific theoretical and methodological frameworks of ISLA. In particular, DDL has been shown to be compatible with usage-based SLA theories, the noticing hypothesis, form-focused instruction, and inductive teaching methods. I will review this research and summarize what corpus-based methods and tools have been found effective for the acquisition of different linguistic targets (e.g., L2 vocabulary, grammar, and pragmatics) and aspects of L2 knowledge (depth and breadth, reception and production), as well as for the development of learner autonomy.

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## Poster Presentations

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### **Syntactic Processing of Child and Adult Classroom Second Language Learners: Underlying Neurocognitive Correlates**

Fatemeh Abdollahi & Janet G. van Hell

The Pennsylvania State University

Second languages (L2) are taught in classrooms worldwide, but we know relatively little about the neural correlates of syntactic processing in L2 classroom learners, and the extent to which individual variation in cognitive abilities and first language (L1) fluency impact L2 processing, particularly in children<sup>1,2</sup>. The Competition Model<sup>3</sup> emphasizes transfer of knowledge from the L1 to L2 where grammatical structures are similar between languages, and competition where grammatical structures are dissimilar. In this study, English adult (18+yr) and child (~10yr) intermediate learners of L2 Spanish read grammatical and ungrammatical sentences in the L1 and L2 that varied in degree of morphosyntactic similarity in L1 and L2<sup>4</sup>, while Event-Related Potentials (ERPs) were recorded. In the L1, adults, but not children, showed a robust P600 effect for all grammatical structures. For the L2, traditional group-based ERP analyses showed that adult L2 learners' sensitivity to syntactic violations in the L2 (i.e., P600 or N400 effects) was related to their grammatical similarity with L1 structures. However, behavioral performance (accuracy in grammaticality judgment) was at chance. Group-level ERP analyses showed that children were not significantly sensitive to L2 syntactic violations. To examine individual variation in language processing, Response Dominance Indices (RDI)<sup>5</sup> were calculated for adults, dividing learners into profiles of N400 or P600 dominance. Clear individual differences in RDI during L2 processing emerged.

Furthermore, greater variation was present in response magnitude in the L2 over L1, suggesting processing may change with experience. Correlations between RDI and individual difference measures of executive function and working memory revealed no clear patterns. These results show there is great variability in L2 learners, not captured in traditional group-based analyses. Finding distinctly different processing in child classroom L2 learners compared to their adult counterparts demonstrates a clear need for further investigation into both L1 and L2 processing of child learners.

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# **The Effectiveness of Mobile Assisted Language Learning (MALL) in Enhancing Writing**

## **Skills**

Halefom Asheborom Abrha

National Taiwan University of Science and Technology

Digital mobile technology devices such as iPads, smartphone, PDA, tablet pc are becoming popular devices in EFL classrooms. Vurdien (2017) study revealed that smartphone has multimodal functions and can be used to study language skills including speaking, listening, reading, writing and can promote cooperative learning. However, in this world of technology where students are known as digital natives, EFL teachers are using the traditional teaching methods rather than MALL and students mainly use smartphone for entertainment purposes. Therefore, this project was designed (a) to examine the effect of mobile technology use on enhancing essay writing ability; (b) to explore the students' perception of using smartphone for academic writing purposes; (c) to identify which feature of writing is improved as a result of mobile technology use. 60 freshmen medical science students were randomly assigned into three groups (20 students each). While the control group attended the traditional writing class, the first experimental group used desktop computers and the second experimental group used smartphones. The experiment lasted for ten weeks and pretest and post-test result were analyzed through ANOVA. Two experienced writing professionals rated the result using Grammarly software and IELTS evaluation criteria's. The result showed that, MALL class outperformed in their writing performance when compared with CALL and paper based writing classes in which  $p = 0.01$ ,  $p < 0.05$ . Furthermore, while the smartphone users improved the vocabulary, organization and content aspects, the CALL class gained better improvement in grammar and spelling writing features. The Post-survey questionnaire result demonstrated that the participants had positive attitude towards using smartphone for academic learning purposes and can provide access to authentic content. Therefore, it is recommended that, EFL teachers should shift from dominantly applying the paper based writing class to MALL class so that students can learn writing skills better anytime and anywhere using smartphone.

Key words: MALL, CALL, writing skills

## Grammatical Gender in L2 Acquisition: The Relation Between Knowledge and Processing

Irma Alarcon  
Wake Forest University

Research on L2 Spanish gender is proliferating, and has already provided general insights into how gender is acquired and processed (e.g., Bañón et al., 2014). Nonetheless, since there are few empirical studies comparing early and late bilinguals (e.g., Montrul et al., 2014), there is a genuine need for more processing-oriented research to explore similarities and differences between these groups of adult learners.

Using psycholinguistic methods to measure both accuracy and reaction times, this study investigates knowledge and processing of gender by assessing acceptability judgments of gender agreement based on noun gender, morphology, and agreement domain. The research questions were: (1) Are there differences in noun phrase (NP) gender agreement processing between early and late bilinguals and native speakers?; (2) If there are processing differences, are they manifested inversely for grammatical and ungrammatical NPs?; and (3) Are there processing differences that are affected by noun gender, morphology, or condition? Participants (n=53) were advanced proficiency-matched early and late bilinguals, with native Spanish speakers as a baseline.

The task consisted of a series of NPs displayed one at a time on a computer screen. All NPs included target nouns that were balanced in gender, noun-ending, agreement domain, and number of syllables per word/experimental item. Participants saw each noun in three experimental conditions: once in a matching condition and twice in a mismatching condition (once with the adjective and once with the determiner). Findings reveal both experimental groups possess knowledge of gender, but that, in real time comprehension, they use different systems to access, use, and store this knowledge. Late bilinguals do not process gender agreement in the NP as efficiently as early bilinguals and native speakers (Cf. Sagarra.) Results also suggest weaknesses in the use of grammatical gender cues in L2 online processing by the late bilinguals. (Cf. Hopp & Lemmerth, 2018.)

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## **A Corpus-Based Approach to the Acquisition of AP Position in French**

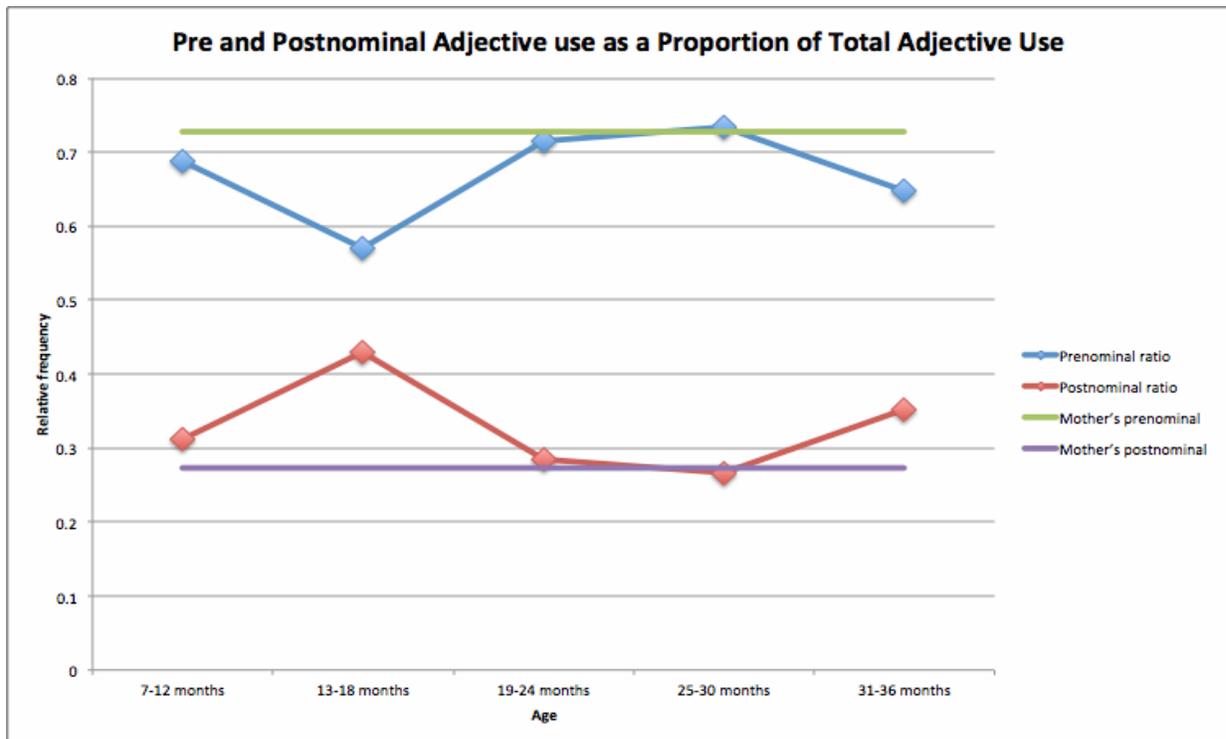
Avery Baggett

University of Kentucky

In this study, I present data collected from three French corpora examining the acquisition of adjective placement. In Romance languages, adjectives have two possible placements, either pre-nominal or post-nominal. The default position is post-nominal, but a semantically restricted, closed class of adjectives get raised above NP. I examine the cognitive underpinnings that semantic coupling or syntactic bootstrapping play in DP development over time.

While much has been written on the acquisition of noun-noun compounds in French, little work has focused on French adjective acquisition (Nicholadis, 2006). Here I synthesize work on English adjectives and French noun-noun compounds to trace the development of a child's DP when an AP can alternate positions. Specifically, I take pieces of Pinker's grammatically relevant subsystem hypothesis and Charles Yang's tolerance principle to assess the cognitive development of the emerging DP in French monolingual children.

I allowed for both positions to be present in single DP from both the child and the mother. I then tabulated the relative frequencies of both pre-nominal and post-nominal adjective use between child and mother groups. Despite claims that frequency effects dictate age of acquisition, preliminary data from one child shows equal usage of both post and prenominal adjectives early on, with prenominal adjective use only becoming more frequent after 12 months.



In later stages, I will compare overall frequencies from mother and child to more general adult speech looking at rates of pre and post adjective use from the French Treebank. My study should provide an example of the resolution of grammar competition. Moreover, this work is applicable to any language that allows optional word order for select phrase structures.

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## **The Role of L1-L2 Differences in Language Development during Group Work**

Kelly Bayas

The Pennsylvania State University

Negotiation for meaning has been argued to be an important element of learner interaction that can promote L2 development (Long 1991, 1996, 2018; Gass et al. 2005; Li 2017). Via interactional strategies including confirmation checks, clarification requests, and comprehension checks, negotiation for meaning has been found to occur when learners are engaged in collaborative tasks that demand their attention on form and meaning (Kowal and Swain 1994). Although previous research has examined the impact of learner interaction on the development of vocabulary, question formation, and phrasal verbs (Dobao 2014; Kim 2012; Nassaji and Tian 2010), very little research has examined its effectiveness for morphosyntactic learning. The current study contributes to this gap in previous research by examining whether collaborative work was more effective than individual work in improving learners' accuracy of derivational morphology, an area seldom investigated in interaction research.

Participants were fifteen college-level ESL students from an advanced academic writing course who were assigned to two groups, an experimental group (n=8) and a control group (n=7). All participants completed a treatment that consisted of four exercises: two cloze and two productions tasks. Participants in the experimental group completed the tests in pairs, while participants in the control group completed the tests individually. Development was evaluated using an identical Pretest and Posttest that were administered two weeks apart.

Even though learners from the control group outperformed those in the experimental group in the production tasks, learners in the experimental group correctly identified and labeled parts of speech and attached the appropriate derivational morphemes. The fact the experimental group performed better on the cloze tasks than the production task suggests a limitation of group work for developing proficiency in producing long texts with accurate derivational morphology. However, pair work may be a useful technique for teaching the rudimentary aspects of derivational morphology.

## Summary

This quasi-experimental study examined the relationship between group work and derivational morphology competence – the ability to use the appropriate suffixes for content words. Students were divided into a control and experimental group. Results from four treatments and a pre-and posttest suggest that group work may enhance derivational morphology competence.

# Learning to Hear Things That Aren't There:

## Perceptual Repair in L2 Spanish

Matthew Carlson

The Pennsylvania State University

Spanish words never begin with /s/-consonant sequences (#sC), and loanwords containing such clusters are invariably repaired by adding an initial /e/, e.g. English *snob* became Spanish *esnob*. This leads to a strong illusory vowel effect whereby Spanish speakers perceive [sC] as though it were [esC] (Cuetos, et al., 2011; Carlson, et al., 2016; Carlson, in press a; Hallé, et al., 2008), and when Spanish speakers learn a language like English, which freely permits #sC, they tend to pronounce and perceive words like *school* as [eskul] (e.g. Daland & Norrmann-Vigil, 2015; Freeman, et al., 2016). Interestingly, learning English also diminishes the illusory vowel effect that Spanish speakers experience, even when listening to Spanish (Carlson, et al., 2016; Carlson, in press a, b).

This is not entirely surprising: the right evidence can lead language users to relax a phonological prohibition. The present study explores the converse: Can English speakers come to treat #sC as if it were #esC when they learn Spanish? Upper-intermediate to advanced English L1 learners of Spanish, with and without immersion experience, completed a Spanish auditory lexical decision task where #VsC words such as *escuela* ‘school’ and *oscuridad* ‘darkness’ were presented intact, with the initial vowel removed, and with a different initial vowel spliced on. Learners with no immersion experience tended to accept words missing any initial vowel, but those with immersion accepted words missing their initial /e/, like Spanish monolinguals, but tended to reject those missing other initial vowels. However, whereas monolinguals rejected words with an incorrect initial vowel outright, the learners accepted them more often than not. This evidence suggests that more restrictive phonotactic patterns can be learned, contravening the subset principle, and that L2 learners can come to behave as though specific segments required by the L2 phonology are present even when they are not.

## Second Language Acquisition via Syntactic Priming:

### Effect of Nativeness, Attention and Motivation

Marion Coumel

University of Warwick

Recent psycholinguistic models identify syntactic priming as a possible mechanism underlying implicit acquisition of syntax in first and second (L2) language learners<sup>[1]</sup>. They predict that priming effects will be stronger in learners than in native speakers and will vary due to individual differences in learner's attention and motivation, factors that are particularly relevant to second language acquisition.

To test these two developmental predictions, we are (1) comparing English L2 French learners' and French native speakers' primed production of active/ passive<sup>[2]</sup> and fronted/non-fronted adverbial phrases alternations<sup>[3]</sup>; (2) examining the relationship between priming effects across time and learners' attention and motivation as assessed through questionnaires. Immediate priming effects are measured by the syntactic structure participants produce immediately after a prime during a priming phase. Long-term priming effects are measured by comparing the frequency of target structures used in pre-priming and post-priming tests of sentence production without primes.

Between groups, we expect L2 learners to evince stronger priming effects than native speakers. Within groups, participants' learning goals as well as the nature and the intensity of their motivation towards the task and towards the target language should affect which aspects of the priming task they pay attention to<sup>[4]</sup>. This should modulate: 1) the extent to which primes influence their production of structures in the priming phase; 2) the size of the potential increase in production of less frequent structural alternatives (i.e., passives, non-fronted structures) in the post-test relative to the pre-test. These studies are pedagogically-oriented since they examine language learning in implicit input conditions like the ones learners face in immersive teaching methods. Moreover, their results will be used to design in-class priming activities and to test how manipulating attention and motivation of French pupils learning English affects L2 acquisition via syntactic priming effects in a classroom context<sup>[5,6]</sup>.

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# Development of an Academic Vocabulary & Morphology Intervention to Enhance Literacy

## Outcomes for Adolescent Multilingual Learners

Amy Crosson<sup>1</sup>, Margaret McKeown<sup>2</sup>, Pui-Wa Lei<sup>1</sup>, Xinyue Li<sup>1</sup>, Hui Zhao<sup>1</sup>, Kelly Robbins<sup>3</sup>,  
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We report on a 16-week academic vocabulary intervention with multilingual adolescents from diverse language backgrounds in middle school ( $n = 69$  intervention and 70 comparison students). The intervention, *English Learners' Robust Academic Vocabulary Encounters*, emphasized morphological problem-solving of academic words through analysis of semantic information carried in Latin roots to promote vocabulary growth. For example, students were guided to use the meaning of the root, *min* (small), to infer information about the meanings of *diminish* and *minimal*. A battery of tasks was administered pre and post intervention to test the effects of the intervention on knowledge of academic word meanings; knowledge of morphemes (root meanings), and orthographic processing of morphologically complex words., morphological problem-solving were. A task of passage comprehension was administered post intervention. A series of multilevel models with students nested within classrooms, revealed effect sizes that ranged from small to large for learning word meanings (Hedge's  $g = 1.86$  and  $.36$  for definitional knowledge and contextualized word knowledge respectively); and moderate (Hedge's  $g = .79$ ) for orthographic processing. On a morphological problem-solving task that required transfer of root knowledge and morphological processing skill to infer the meanings of unfamiliar word, there was a small treatment effect (Hedge's  $g = .40$ ). However, the intervention showed virtually no effect on passage comprehension controlling for a district-administered reading comprehension performance on a standardized task in the fall ( $ES = -.06$ ). Findings suggest the potential for the EL RAVE intervention to promote academic word learning, though immediate impact on comprehension is not evident.

# **Cross-Language Interaction in Auditory and Visual Word Processing in Bilinguals: Electrophysiological and Behavioral Evidence**

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The Pennsylvania State University

Recently, we presented cognates and noncognates to proficient bilinguals in a behavioral auditory and visual lexical decision task, and we observed a cognate facilitation effect in visual but not in auditory lexical decision. This suggests that bilinguals can use language-specific auditory cues to direct processing towards one language only. In a series of four ERP experiments with child and adult beginning L2 learners, we examined the neural time course of cross-language activation during visual and auditory lexical processing, and the role of language-specific auditory cues. English beginning learners of Spanish read or listened to cognates and noncognates presented in English or Spanish while performing a go-no go task. In the visual word recognition task in L2 Spanish, adult L2 learners demonstrated an N400 effect for cognate status (increased negativity for noncognates relative to cognates with English), and a smaller, nonsignificant N400 effect for cognate status in the visual word recognition task in L1 English. In contrast, in the auditory task no significant cognate effects were observed, and this was found in both the L2 and L1 task. Performance of the child L2 learners patterned with that of the adults. Visual presentation of L2 Spanish cognates and noncognates showed a (delayed) N400 effect, and visual presentation of L1 English words showed a small and negligible N400 effect. In contrast, auditory presentation yielded basically overlapping waveforms for cognates and noncognates, both for Spanish and English words. These findings indicate that mode of presentation (visual or auditory) modulates the co-activation of languages, and that both child and adult L2 learners employ phonological cues to constrain access to one language. Furthermore, for visual word recognition in L2, parallel activation of the nontarget L1 is stronger than vice versa, which reflects the difference in L1 and L2 proficiency in L2 learners.

# Heritage and L2 Learners' Acquisition of Arabic Emphatics and Gutturals:

## An Ultrasound Study

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This articulatory study investigates the acquisition of Arabic emphatics and gutturals of 28 students enrolled in various levels of Arabic instruction at a university in the US. The participants consist of heritage and non-native Arabic speakers including students who have studied abroad. The motivation for this study stems from two key issues: the lack of literature discussing Arabic phonological acquisition among adult second language learners and the need for technical articulatory feedback to address students' pronunciation (Ryding 2013). A previous study (Eads, Khater, & Mielke 2018) found evidence that beginning Arabic L2 students cannot differentiate between their articulations of the Arabic emphatics and gutturals. The same study also found the majority of their third year post study abroad participants had not yet fully acquired all Arabic emphatic and guttural phones. This coincides with Odisho (2005)'s claim that Arabic emphatics and gutturals are most difficult for beginning English L1 students because these are unfamiliar sounds. There is debate concerning whether the Arabic emphatics /s d t ð/ secondary articulation involve the retraction of the tongue body versus tongue root (Ali and Daniloff 1972 ; Ghazeli 1977; Al-Solami 2017). Previous studies generally agree the secondary articulation is an effect of tongue backing. Al-Solami (2013) discusses three categories of Arabic guttural consonants glottals, pharyngeals, and uvulars as well as the debate concerning their articulation. His analysis coincides with Ghazeli's (1977) evidence of independent retraction of the tongue root in the lower pharynx during pharyngeal articulation. For uvular articulation, Al Solami supports Catford's (1977) finding that uvulars retract the tongue body but have more retracted tongue dorsum than emphatics. Therefore, this ultrasound study provides a detailed analysis concerning differences in Arabic emphatics and gutturals and explores how heritage and non-native Arabic students are producing these sounds at the various levels of Standard Arabic instruction.

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# **Second Language Learner's Negotiation of Meaning during Communicative Tasks: Does It Facilitate L2 Vocabulary Acquisition**

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Previous research has demonstrated that learner collaboration facilitates second language (L2) acquisition (Ellis et al., 1994; MacKenzi, 2015). Other research has focused on the number of encounters needed to acquire L2 vocabulary (Laufer & Rozovski-Roitblat, 2015; Rott, 1999). Thus far, no study has combined these two strands of research to investigate the number of encounters needed to acquire L2 vocabulary through communicative tasks in the classroom. The purpose of the current study was to investigate 1) how L2 learners negotiate meaning during two communicative tasks, and 2) if such negotiations of meaning facilitate L2 vocabulary learning.

Forty-six third semester German students engaged in one information gap and one opinion gap task. Participants were exposed to 21 nouns and 21 verbs/adjectives either two, six, or ten times across the two communicative tasks. The ten to fifteen-minute conversations from the communicative tasks were recorded, transcribed, and analyzed according to the negotiation processes that students engaged in (Long, 1996). Word learning gains were measured with a pre-, post-, and a four-week delayed post-test that included an L1-to-L2 translation task, an L2-to-L1 translation task, a multiple-choice task, and a sentence writing task.

Paralleling previous research, preliminary results show that participants learned words with the help of communicative activities and that participants were able to learn the target words after as little as two exposures. Additional analyses will compare word learning gains to the number and type of negotiations participants engaged in during the communicative tasks, to assess whether negotiation of meaning during such communicative tasks facilitates word-learning gains. These results underscore the importance of L2 word learning through communicative tasks, as such tasks emphasize interaction and productive use of new vocabulary, thereby assisting the development of learner's lexical knowledge.

## **Crosslinguistic Influence of Aspect in SLA**

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In this study, I investigate Arab learners of English at two levels of proficiency in their comprehension of the progressive aspect in present tense in their L2. English and Arabic differ from each other in the way they recognize tense and aspect and, according to previous research, this difference can result in some difficulty in the acquisition of tense or aspect by the L2 learners. This experiment contains two tasks; the first one is a SPR (self-paced reading) task to measure the learners' real-time processing of the task sentences and the second task is the offline GJT (grammaticality judgment test) to measure their explicit knowledge about aspect in present tense. The results for each task are compared between the two levels. Consistent with previous research, the results show that the learners' performance in the GJT which suggests their explicit knowledge is similar between both groups. However, the results of the online task are different between the groups suggesting different implicit knowledge between the groups. Supporting earlier research, the study finds that more advanced group show longer reaction times to the sentences with mismatch conditions. This longer reaction time for the more advanced group suggests more processing cost for that group in reading the sentences with mismatch conditions. The shorter reaction time for the less advanced group suggests that they are less sensitive to the mismatch conditions of the aspect in the task sentences and this can be because of their L1 transfer. In Arabic, progressive aspect is not grammaticalized in present tense; therefore, although the learners have the explicit knowledge about the appropriate use of progressive aspect, they might not necessarily have the implicit knowledge for that. However, this L1 influence becomes less and their sensitivity to the mismatches increases as they become more proficient in their L2.

## Investigating Early Second Language Word Learning Accuracy in a Large-Scale Dataset

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When learning a second language, why are some words harder to learn than others? Experimental studies have identified cognate status, concreteness, frequency and translation ambiguity as contributing factors<sup>1-3</sup>. However, in these small scale studies it is hard to study the effects of multiple factors at once, and to identify other word level factors that might affect word learning. Here, we use a large dataset of Spanish, Portuguese and Italian users learning English as a second language through the Duolingo mobile app to investigate this question, providing us with 1.86 million user-word datapoints<sup>4</sup>.

We used published corpora to derive measures of concreteness, frequency and other well studied phonological, lexical and morphological word level predictors<sup>5-9</sup>. We used Levenshtein edit distance between translation pairs as a continuous measure of cognate status. To capture semantic differences between L1 and L2 word meanings, we used two novel predictors derived from large scale distributional models of lexical semantics<sup>10</sup>: semantic alignment and semantic density. Semantic alignment measures how similarly a word is situated in the semantic representation of the two different languages. For example, a Spanish-English word-pair like ‘hermano-brother’ is more semantically aligned than the pair ‘boat-barco’. This novel predictor is conceptually related to translation ambiguity<sup>3</sup> but calculated in an automated way based on distributional models<sup>11</sup> rather than human similarity judgments. Semantic density simply measures how dense the region of semantic space around a word is.

We tested and confirmed the well-studied effect of cognate status on word learning accuracy. We found significant effects for our semantic predictors: cross-linguistic semantic alignment and English semantic density. We also provide data on several other psycholinguistically plausible word level predictors, which will be publicly available<sup>12</sup>. We will discuss the limits and potential future research benefits of using big data for investigating vocabulary learning in second languages.

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<sup>12</sup>osf.io/uwdcm (an OSF archive containing all data and analysis scripts for this project, which will be made publicly available by the end of July 2018).

## The Effect of Cognates on Real-time L2 Comprehension

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Previous research suggests that L1 and L2 speakers are subject to interference from conflicting linguistic cues (e.g., singular vs. plural number information on nouns and verbs) during comprehension (e.g., Patson & Husband, 2015), and that L2 populations are particularly susceptible to this interference (Cunnings, 2017). At the same time, L2 comprehension is facilitated by the presence of L1-L2 cognates, leading to more nativelike processing (e.g., Hopp, 2016). Using the visual world paradigm, the current study extends this research to investigate whether the presence of cognates can reduce interference during real-time sentence comprehension among L1 German-L2 English speakers.

Thirty-two L1 German-L2 English speakers listened to sentences such as 1-3 below. Sentences varied according to whether the local noun and the verb were singular or plural and whether the local noun was a cognate (*bed*) or a noncognate (*chair*). We tracked participants' attention to images of sentence referents (e.g., picture of pillow, pillows, bed, beds) during comprehension using visual world eye-tracking. This was paired with an offline interpretation measure where participants selected the image matching the sentence subject.

1. The pillow on the bed/chair really was old.
2. The pillow on the beds/chairs really was old.
3. The pillow on the beds/chairs really were old.

If participants show increased accuracy in offline interpretations by selecting the singular subject image (i.e., pillow) and/or fewer looks to the plural subject image (i.e., pillows) while listening to sentences with cognates, this would suggest that cognates decrease interference during L2 processing by facilitating lexical retrieval and lowering the overall processing load. The opposite pattern of results would suggest that cognates may increase interference through increased activation of L1 number features from the local noun. These findings have implications for L2 sentence processing models and will inform teachers regarding if/when to use cognates when teaching L2 grammar.

# **Abstract Word Training as a Means to Develop Productive Vocabulary Knowledge in an L2 German Classroom**

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Previous research has shown that vocabulary training focusing on abstract words can lead to improved production of both trained abstract words and non-trained concrete words within a given context-category among both persons with aphasia (Sandberg & Kiran, 2014) and L2 learners (Sandberg et al., in prep). These results support the Complexity Account of Treatment Efficacy (CATE) that training more complex items (the abstract words) facilitates generalization to less complex items (Thompson et al., 2003). The present study investigated the effectiveness of this training paradigm in an L2 classroom context among less-proficient L2 learners.

Intact third-semester German classes were divided into a treatment group ( $N=21$ ) and a control group ( $N=31$ ). Participants were tested on their productive and receptive knowledge of 15 abstract and 15 concrete words from the context-category *Haus* (“house”) via a word generation task and a word recognition task, using a pretest/posttest/delayed posttest design. During training, the treatment group completed several tasks based on semantic feature analysis (Sandberg & Kiran, 2014). The control group received no specialized instruction but were exposed to many target words via the textbook chapter and other classroom activities.

Paralleling previous findings, the treatment group showed improved production on trained abstract words and a small generalization effect to untrained concrete words. On the recognition task, participants showed increased receptive knowledge of abstract words but no generalization to concrete words. The treatment group significantly outperformed the control group on both measures. These results suggest that the CATE model can be extended to account for L2 word learning. Further analyses of the production of non-target words in the context-category “house” will provide a broader measure of the benefits of this training, while a comparison of chapter quiz scores between treatment and control groups will control for the impact of training on learning other chapter content.

## Investigating Constructions in the Introductions of Academic Papers: *The N of (NP)*

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Language learning is in essence a process of accumulating form-meaning mappings (constructions) from linguistic exemplars by essential human cognitive abilities. Due to the theoretical importance and applied implications related to constructions in language acquisition, systematic analysis of various types of constructions is needed. To date, academic attention has been paid more to verb-related constructions such as ditransitive constructions, causative constructions, conative constructions, and verb-argument constructions (Ellis, Römer, & O'Donnell, 2016; Goldberg, 1995, 2006) than to nominal constructions. Additionally, the genre effect on construction use, a potentially important area, has been overlooked in literature. Genre-specific analyses of constructions are warranted to understand language use for certain functions in certain genres. As Ellis, O'Donnell and Römer (2014) postulated, "if language is shaped by usage, so too is it shaped by usage conditions".

This study investigates *the N of (NP)* constructions in two subsets of the Corpus of Social Science Research Articles (COSSRA) and in the freely available written section of the Corpus of Contemporary American English (COCA). Nominal constructions with a pattern of "*the + noun + of*" followed by a noun phrase or pronoun are systematically explored: e.g. *the role of aptitude, the sensitivity of each method, the validity of the predictions, the use of a dictionary*, etc. COSSRA is a corpus constructed by our corpus group, comprised of introduction sections of 600 published academic articles in six social science disciplines in 2012-2016. The current study examines the target nominal construction in two disciplines in this corpus: applied linguistics and political science. The usages of *the N of (NP)* in the two disciplines as well as its usage in COCA will be compared, with the aim of revealing type-token frequency distribution of the target construction as well as the effects of genre on the nouns within it.

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## **Novel Word Learning and Consolidation:**

### **The Role of Prior Foreign Language Learning Experience**

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The Complementary Learning Systems Theory (Davis & Gaskell, 2009) states that newly learnt words are initially encoded in the hippocampal system. After a period of offline consolidation, novel words become integrated into the neocortical lexical network. Testing this account using ERPs, participants learned novel words with meanings on Day 1 and Day 2 (Bakker, Takashima, van Hell, Janzen, & McQueen, 2015). Immediately after word learning on Day 2, participants performed a semantic priming task, including words learned on Day 1 and Day 2. Indexed by N400 and LPC components, results indicated that word forms learned on Day 1 had been lexicalized after 24-hour consolidation, whereas the semantic integration process has started but was not completed.

Building on Bakker et al., we addressed two questions. Bakker et al. tested multilingual, experienced foreign language learners. Previous studies found that bilinguals outperform monolinguals in word learning (e.g., Kaushanskaya, 2012), so using Bakker et al.'s paradigm, we tested monolinguals to examine the generalizability of their findings. Second, in Bakker et al., semantic integration was incomplete after 24 hours, which raises the question whether a longer period of consolidation allows full semantic integration. Therefore, we examined novel word learning and consolidation in monolinguals tested one day and one week after initial learning. N400 responses to words learned on Day-1 and Day-2 were similar, indicating that words learned on Day-1 were not lexicalized and integrated into learners' lexical network after 24 hours. However, novel words learned on Day-1 revealed a stronger reanalysis effect (LPC), while novel words learned on Day-2 showed this effect only when preceded by strongly related primes; one week later words learned on both Day-1 and Day-2 showed this effect. These combined findings indicate that prior word learning experience affects novel word learning, and different encoding and consolidation strategies in monolingual and multilinguals.

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# **Individual Differences in Reading in Dyslexic Learners of English as a Foreign Language**

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Previous research suggests that the transfer of language skills might not be symmetrical across languages and across students struggling with dyslexia. The aim of the present study was to investigate reading comprehension, accuracy and rate of twelve year old Polish dyslexic (N=15) and non-dyslexic (N=15) EFL learners. Reading comprehension was assessed in relation to Polish L1 and EFL on the basis of gap completion tasks. Reading rate in both languages was calculated with the number of words read within one minute. To measure reading accuracy features of regularity and frequency were manipulated in reference to reading in English. The study revealed a preference of some dyslexic students for reading in English as they scored higher on reading in EFL than in Polish L1. Interestingly, individual dyslexic students outperformed their non-dyslexic peers on all or selected reading measures in EFL. These results may be due to the different orthographic depth of Polish and English and the influence that subtypes of dyslexia might have on a student's choice of reading strategies used for shallow and deep orthography. These findings are consistent with other evidence reporting on the preference of some dyslexic students for reading in a foreign language.

## **Cooperative Disagreement:**

### **Adult-Child Co-Construction of ‘But’-Clauses in Hebrew**

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Adult-child interaction in language development has been studied from several perspectives and in relation to various linguistic domains (Chouinard & Clark, 2003; Tomasello, 2003). In the domain of clause-combining, children’s earliest ‘but’-introduced clauses occur mainly in coconstruction where the adult provides the first clause and the child subsequently produces the ‘but’-clause (Adult: we’re going home, Child: but I wanna stay) (Bloom, 1991).

Based on similar findings from Hebrew (Lustigman & Berman, 2016), the present study investigates Hebrew-speaking adults’ use of ‘but’-clauses in conversations with children (ages 18-36 months). Analyses of three longitudinal corpora show that: (1) most adult ‘but’-clauses were co-constructed with a child production; (2) adults begin co-constructing ‘but’-clauses with children months before children start using ‘but’; (3) the earliest co-constructions include expansions of children’s productions followed by an addition of a ‘but’-clause (Child: cup, Adult: right, this is a cup, but you don’t like this juice), (4) when children begin producing clauses, adults co-construct their ‘but’-clauses with them directly (Child: this is a cup, Adult: but you don’t like this juice).

These data show that the main function of ‘but’-clauses in early interactive discourse is not to compose two contrasting propositions by a single speaker, but to co-construct ideas contributed by multiple interlocutors. Such co-constructions are initially scaffolded by adults who interpret children’s intentions and complete their clauses, until the children are able to contribute full propositions to the co-construction. These findings provide further evidence for the role of adult-child interaction in promoting language development, driven by mutual cooperation where adults are attuned to the children’s knowledge level. This cooperation advances children’s grammar by introducing and familiarizing them with linguistic structures that occur almost exclusively during exchanges of speech.

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# Tonal Word Recognition in Adult Advanced Second Language Learners of Mandarin Chinese

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For adult L2 learners from non-tonal L1s, learning Mandarin tones presents a persistent challenge. Learners must learn tone categories and also how to process them as lexical cues in real time. While the difficulty of this task has been documented, its causes remain unclear. We used a novel Picture-Phonology Matching task to test whether strongly predictive picture cues might aid advanced L2 learners in utilizing tone cues, and whether learners' explicit knowledge of tones impacts their performance.

Eighteen advanced L2 learners (native English speakers) and 24 native Mandarin speakers performed the Picture-Phonology Matching task while their EEG was recorded. Each of 96 critical trials presented an image (e.g., a bowl of noodles), followed by either a matching word (/mian4thiau2/ 'noodles'), or a nonword that mismatched the imageable word by a vowel (/mən4thiau2/) or a tone (/mian3thiau2/). Accuracy and neural responses were examined, and an offline test was administered to measure explicit knowledge of tones and meanings for critical stimuli.

Results revealed L2 participants (but not L1) were significantly less accurate rejecting tone mismatches (*mean* = 66%) compared to vowel mismatches (*mean* = 88%). A supplementary analysis examined only L2 trials where offline test results indicated learners had high confidence and correct knowledge of tones and meanings for critical imageable words. While accuracy improved slightly, the significant difference between tone and vowel conditions persisted.

Analysis of the amplitude of neural responses for correct trials in an early 200-400 ms window revealed a significant L1 Phonological Mismatch Negativity (PMN) for vowel mismatches, but not tones. There were no significant L2 PMNs, and no significant group-by-condition interactions.

Behavioral results indicate predictive picture cues did not alleviate L2 tone difficulties, and that these difficulties cannot be reduced to a simple lack of explicit tone knowledge. We will also discuss possible interpretations of ERP results.

## **Listening accuracy, self-reported proficiency, and classroom time for English-speaking learners of Arabic**

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Several Arabic sounds are challenging for non-native speakers to perceive and pronounce, but the details of non-native Arabic perception and pronunciation are poorly understood. Learner corpora for students of Arabic mostly consist of written production data (e.g., Alfaifi and Atwell, 2013; LaRocca and Chouairi, 2002). Datasets from perception studies are infrequently released for further analysis and often focus on just a few contrasts (Huthaily, 2008). One counterexample is the Arabic Corpus of Auditory Dictation Errors (ArCADE) (Rytting et al., 2014). A team of computational linguists, psycholinguists, phoneticians, and Arabic language specialists created ArCADE to assist researchers in investigating non-native spelling errors in Modern Standard Arabic. The data consist of 261 single-word items transcribed by 62 English-speaking participants with at least two semesters of classroom instruction in Arabic. However, only partial analyses of the data have been presented (Rytting, Silbert, Rodrigues, Novak, and Bills, 2013).

Using the ArCADE corpus, we will examine the correlations between students' sound perception accuracy (performance on the ArCADE transcription task) and these participants' self-ratings for listening comprehension and speaking proficiency. We will also explore the correlations between demonstrated transcription accuracy, self-rated proficiency in listening and speaking, and number of semesters studying Arabic. Our analysis will address whether transcription accuracy improves for all Arabic phonemes with increased time spent studying Arabic, or whether some Arabic phonemes (or phoneme pairs) remain difficult to distinguish even after extensive study of Arabic. We will examine the dataset from multiple perspectives, including computational and psycholinguistics, second language acquisition, and Arabic language pedagogy. Better understanding of which Arabic phonemic distinctions are challenging only for beginning learners and which ones are persistently difficult even for advanced learners will help teachers plan listening and pronunciation drills more effectively. This information may also assist developers of computer-assisted language learning design more effective systems.

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## L2 speakers are more accepting of unconventional language than native speakers

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Adult (L2) language learners only rarely reach the same levels of proficiency as native (L1) speakers even in contexts of immersion (Hartshorne et al. 2018). Here we focus on common L2 errors such as those in (1a-c) (Hubbard & Hix 1988):

1a. ?? “.. the Secretary is absolutely forced that he has to give the information =...”

b. ?? “Please explain me the meaning. ”

c. ?? “she considered to go back to her parents’ house”

Note that the interpretation of each sentence is clear and is fully acceptable with other verbs.

Nonetheless, native speakers strongly disprefer these unconventional examples in favor of more conventional COMPETING ALTERNATIVES (CAs): 1a: force NP VPto; 1b: explain NP PPto; 1c: consider VPing. In 5 preregistered studies with a total of 490 L1 and 490 L2 speakers from a variety of L1s, L2 speakers were significantly more tolerant of such unconventional sentences than L1 speakers were ( $\beta=14.04$ ,  $t=3.70$ ,  $p=0.0007$ ; Exp.1). One reason might be because L2 speakers are unaware of the more conventional CA for the verb; in fact, in a paraphrase task, L2 speakers were somewhat less likely than L1 speakers to provide CAs as paraphrases of the unconventional sentences ( $\beta=-0.18$ ,  $t=-2.73$   $p=0.009$ ; Exp.2), and in a separate 2-alternative-forced-choice task, L2 speakers were somewhat less likely than L1 speakers to prefer the CAs over the unconventional formulations ( $\beta=0.10$ ,  $t=3.27$   $p=0.002$ ; Exp. 3). However, even when L2 speakers did prefer the CAs in the 2AFC task, they were more generous with their ratings of the unconventional alternatives than L1 speakers were ( $\beta=15.25$ ,  $t=3.04$ ,  $p < 0.0001$ ; Exp. 3). We investigated whether inducing a greater awareness of relevant CAs would lead L2’s judgments on unconventional sentences to align more closely with native speakers’, but found no effect ( $\beta=3.80$ ,  $t=0.52$ ,  $p=0.602$ ; Exp. 4).

Finally a verbatim memory recognition test showed lower accuracy for L2 speakers (Exp. 5); more specifically, L2 and L1 speakers were equally accurate at recognizing old items (hits vs. misses), but were less accurate at recognizing new items as new (correct rejects vs. false alarms). Thus both recognition memory and judgments suggest that L2 speakers are less accurate (or less confident) about sentences that are plausible but unconventional. Indeed, verbatim memory performance correlated with the degree to which L2 judgments aligned with L1 judgments on the unconventional sentences: in a logistic regression,  $d'$  was a predictor of judgments ( $\beta=-7.94$ ,  $t=-2.57$ ,  $p=0.011$ ), while self-rated proficiency was not ( $\beta=-0.03$ ,  $t=-0.29$ ,  $p=0.770$ ). To summarize, L2 speakers have a well-known tendency to produce certain types of errors that are interpretable but unconventional. The current findings suggest that they are somewhat less aware of the conventional alternatives than L1 speakers are, but even when they show an awareness that the alternative is preferable, they persist in judging the unconventional sentences as more acceptable than L1 speakers do. Strong verbatim memory—particularly an ability to discriminate new sentences from familiar sentences—predicts more nativelike judgments.

Hartshorne, J. K., Tenenbaum, J. B., & Pinker, S. (2018). A critical period for second language acquisition: Evidence from 2/3 million English speakers. *Cognition*, 177, 263–277. Hubbard, P. L., & Hix, D. (1988). Where vocabulary meets grammar: Verb subcategorization errors in ESL writers. *CATESOL Journal*, 1, 89-100.

# When Harder Means Faster and Better: Desirable Difficulties in Learning of L1-L2

## Incongruent Collocations

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### Introduction:

Previous research has shown that L1-L2 incongruent collocations (Example 1) present challenges in L2 learning and processing. While some have argued that this is due to a lack of L1 facilitation [1], we suggest that difficulties are partly due to a cognitive cost, caused by the need to inhibit L1 interference. The present study tested the counter-intuitive prediction that learning will be improved when practice conditions induce L1-related interference.

(1) English	Spanish equivalent
<i>buy time</i>	<i>ganar tiempo</i> 'win time'

### Methodology:

L1-speakers of Spanish (N=40) who were intermediate L2-speakers of English participated in a learning study of verb-noun collocations. The materials consisted of a) 15 L1-L2 incongruent collocations (e.g. *buy time* = *ganar* ('win') *tiempo*); b) 15 congruent collocations containing verbs that were literal translations of the Spanish equivalents to (a), e.g. "win", as in *win the war* = *ganar la guerra*; c) 15 additional congruent collocations. In three sessions of practice retrieval, learners were presented with two verbs followed by a noun, and were required to respond orally by selecting the appropriate verb. Learners in the 'unrelated' condition saw unrelated verbs, e.g. buy – carry – time (correct response *buy*), while learners in the 'interference' condition had to correctly discard the L1-equivalent verb, e.g. buy – win – time (i.e., discard 'win' to choose 'buy'). Success in learning was assessed with immediate tests after the first and third (last) sessions, while retention was measured through delayed post-tests one week and one month after training.

### Results:

A Mixed-Effects Logistic Regression revealed significantly higher recall rates in the 'interference' group. A Growth Curve Analysis was performed on the RTs for verb selection, showing that learners in the 'interference' condition learned faster. This supports the hypothesis that language regulation is part of foreign language learning, and provides evidence that specific training aids development in this skill.

[1] Wolter, B., Gyllstad, H., (2011). Collocational links in the L2 mental lexicon and the influence of L1 intralexical knowledge. *Applied Linguistics*, 32(4), 430-449;

## Cumulative Structural Priming During Online Second Language Comprehension

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Recent experience with a given syntactic structure can facilitate subsequent processing of that structure, a phenomenon known as structural priming. Moreover, research has found that the priming effect may accrue from one trial to the next during first language comprehension (e.g., Fine & Jaeger, 2016), suggesting that structural priming at least partially reflects an implicit learning mechanism. It remains unknown, however, whether adult learners can benefit from similar experience when processing the second language. In the present study, we investigated whether repeated exposure to the English reduced relative clause structure (e.g., The experienced soldiers warned about the dangers conducted the midnight raid) could produce cumulative effects in Chinese-speaking learners of English. Eighty learners (age: Mean = 19, SD = 2; years of L2 study: Mean = 11, SD = 3) participated in two self-paced reading experiments. In Experiment 1, eight different verbs were repeated five times to create 40 critical items, among which half were temporarily ambiguous and half were unambiguous (e.g., by adding “who were” before “warned”). Experiment 2 used the same materials as Experiment 1, but without repetition of content words. Cumulative priming was measured by the change in the ambiguity effect, which is the difference in reading times on the disambiguating region of ambiguous sentences (e.g., conducted the midnight) versus that same region of unambiguous sentences, across the experiment. Using paired-samples t-tests, we found that the decrease of ambiguity effect from the first to the second half of the experiment was not statistically significant in either experiment, although Experiment 2 showed a tendency towards cumulativeness (Cohen's  $d = 0.29$ ). We suspect that the split-in-half analyses might not be sensitive enough to capture cumulative effects, and therefore are currently running linear mixed effects regression, with item order included as a continuous predictor. We expect to find more reliable results of cumulative priming, and will discuss the theoretical and pedagogical implications.

### References:

- Fine, A. B., & Jaeger, T. F. (2016). The role of verb repetition in cumulative structural priming in comprehension. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 42(9), 1362-1376.

## **L1 and L2 Phonetic Interaction in School-Aged L2 Learners**

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How does the L2 mental lexicon of L2 learners develop and interact with L1 lexical knowledge? This question is particularly relevant in child L2 learners who concurrently develop their L1 lexical knowledge, which may lead to unique patterns of interaction. This study focuses on patterns of interaction between L1 and L2 phonetic systems during speech production in child classroom L2 learners, and analyzes VOTs in cognates and noncognates. Parallel research testing adult bilinguals observed contrasting patterns. In line with the exemplar-based speech production model, Amengual (2012) found phonetic co-activation in cognate production resulting in an average of VOTs in L1 (Spanish) and L2 (English) in adult proficient Spanish-English bilinguals. In contrast, Jacobs, Fricke, and Kroll (2015) found that intermediate and high proficiency English-Spanish bilinguals produced Spanish cognates with longer (and more English-like) VOTs, and proposed that bilinguals are unable to inhibit the L1 during speech production.

To test patterns of interaction between L1 and L2 phonetic systems in child L2 learners, we used VOTs to examine the production of cognate and noncognate pictures and words in 41 Dutch child classroom learners of L2 English, all 6<sup>th</sup> graders who had received English language instruction since Kindergarten, for 2-3 hours per week. Critical points for VOT analysis are 1) words beginning with /b/ and /d/ as these are voiced plosives in Dutch and show pre-voicing, while in English they present with a short lag, and 2) words beginning with /p/ and /t/ as they are voiceless plosives in Dutch and present with a short lag, while these are comparatively aspirated in English and show a longer VOT. The data are currently being analyzed. In the discussion, the findings will be related to lexical development in child classroom L2 learners (cf. Brenders, Van Hell, & Dijkstra, 2011) and patterns of L1 and L2 phonetic interaction in L2 learners at different L2 proficiency levels.