UNIVERSIDAD NEBRIJA

UNIVERSIDAD COMPLUTENSE MADRID



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PROGRAMME

Tuesday June 22nd

09:30 – 10:00	Opening remarks (Keynote Room, Social Room 1, Social Room 2)
10:00 – 18:00	Oral presentations (session A; please check the Office numbers)
15:00 – 16:00	**Keynote Talk: Marc Pell** (Keynote Room) *Tracking the dynamic effects of prosody on speaker meaning*

Wednesday June 23rd

10:00 – 18:00	Oral presentations (session B; please check the Office numbers)
11:00 – 12:00	**Keynote Talk: Ludovica Serratrice** (Keynote Room) *The role of semantics and discourse in children's sentence comprehension*
15:00 – 16:00	**Keynote Talk: Mariano Sigman** (Keynote Room) *The power of words*

Thursday June 24th

10:00 – 18:00	Oral presentations (session C; please check the Office numbers)
15:00 – 16:00	**Keynote Talk: Jason Rothman** (Keynote Room) *The «L» is for linguistics in psycho-/neuro-linguistics: A linguist's questions on constructs and methods in bilingualism*

Friday June 25th

10:00 – 11:00	Poster presentations (session D; please check the Office numbers)
12:00 – 13:00	Poster presentations (session E; please check the Office numbers)
13:00 – 13:30	Closing remarks (Keynote Room, Social Room 1, Social Room 2)

KEYNOTES

KEYNOTE 1 **Tuesday 22, 15:00-16:00 CEST**



Prof. Marc Pell (McGill University, Canada)

Marc Pell's research investigates how adults communicate their emotions, attitudes, and other social intentions while speaking, to better understand the social-pragmatic context of spoken language. Much of his work focuses on the effects of the human voice during pragmatic language processing and in social cognition. Members of his lab are exploring the neurocognitive basis of vocal communication, how this system is influenced by socio-cultural factors, and how vocal communication is influenced by acquired disease of the brain (e.g., Parkinson's disease, repetitive head injury).

Tracking the dynamic effects of prosody on speaker meaning

In this talk, I will discuss how socio-pragmatic meanings are conveyed through a speaker's tone of voice, how they dynamically interact with the linguistic message during on-line speech comprehension, and how the neurocognitive system structures this information as listeners build a representation of what is being communicated. Focusing on recent behavioural and neurophysiological evidence, I will give examples of how prosody incrementally shapes meaning when: listeners must infer whether speakers are reliable/trustworthy in relation to what is being said; and listeners must understand the interpersonal stance of the speaker to infer the social implications of a request or the intended meaning of an ironic comment.



Prof. Ludovica Serratrice (University of Reading, UK)

Her journey in the field of bilingualism and language development starts in 1990 with a diploma in conference interpreting at the SSIT (Milan), followed by a degree in English and French languages and literatures from the IULM (Milan), an MA in language acquisition from the University of Essex, and a PhD in linguistics from the University of Edinburgh in 2000.
She joined the University of Manchester in 1999 where she originally came for a two-year post-doctoral position. Since then she has worked on language development in both monolingual and bilingual children and more recently on bilingual adults. She has a specific interest in linguistic phenomena that cut across language structure and language use.
Her recent and current research projects include a focus on analogical reasoning in syntactic choice; the relationship between language experience, executive function skills and referential choice; and the bilingual co-activation of morpho-syntactic structures during online sentence comprehension.
In 2016, she joined the University of Reading as Professor of Bi-Multilingualism.

The role of semantics and discourse in children's sentence comprehension

A key issue in the study of the development of sentence comprehension concerns the linguistic factors that contribute to children's interpretation of syntactic constructions, whether young learners pay attention to the same cues as adults, and whether the temporal resolution of their parsing preferences is similar to that of mature speakers.

In this talk I present the findings of two sets of studies with monolingual English-speaking children and adults on the interpretation of relative clauses and on their choices of relative clause attachment. The first set of experiments (Study 1) focuses on the role of lexical and perceptual animacy in subject and object relative clauses comprehension. The second set of two experiments (Study 2) addresses the role of prior discourse in the choice of relative clause attachment to a preceding NP or VP.

The relative contribution of semantic, discourse, and syntactic cues during sentence comprehension will be addressed from a developmental perspective. Using eye-tracking during a sentence-picture matching task in the two studies allowed for the triangulation of online and offline data giving an insight not just into the outcome of sentence comprehension, but into its process.

KEYNOTE 3 **Wednesday 23, 15:00-16:00 CEST**



Mariano Sigman

Mariano Sigman is one of the most outstanding neuroscientists in the world, with over 150 publications in the most prestigious scientific journals. He is also passionate about experimentation and has worked with magicians, chess masters, musicians, athletes and visual artists to bring his knowledge of neuroscience to different aspects of human culture and apply it in different contexts. He has participated twice (2016 and 2017) in the TED global events in Vancouver, the second with Dan Ariely. In his conferences, he teaches how the mind works and what lessons we can learn about decision making, leadership, team management, personal development or creative skills, his presentations always with a high level of participation from the audience through experiments and games.

He obtained his degree in Physics from the University of Buenos Aires, PhD in Neuroscience (PhD) in New York and did a post-Doctorate in Cognitive Sciences at the College de France (Paris). In 2016, he was awarded the Pio XI Medal, from the Pontifical Academy of Science, one of the most outstanding prizes of science (shared among others with Stephen Hawking, and several Nobel prize winners).

Beyond academy, Mariano Sigman's research has had practical implications in Medicine (for example in the diagnosis of vegetative or autistic patients), in Education (with effective interventions to improve decision-making and learning in schools throughout Latin America) and in Art (in a project "The morphology of the look" that has been exhibited in New York, Austria, Moscow, Mexico, Japan... and was presented in 2017 at the Venice Biennale). He has also developed an extensive career in the proliferation of science that includes TV programmes and hundreds of articles published in different editorial media. He is also the author of the bestseller "The Secret Life of the Mind".

The power of words

Language is a privileged window into the mind in its proposed double role of mediator and shaper of thoughts. In this talk I will explore the second relation: how language shapes our decisions, memories, thoughts and feelings. I will provide examples from these different dimensions of cognition to reflect that there is a common emerging principle on how narratives relate unconscious and conscious thought. Through this I will argue that linguistic education can provide vast changes on our mental experience and, in turn, how we communicate and relate to others.



Prof. Jason Rothman (The Arctic University of Norway)

Jason Rothman is Professor of Linguistics at UiT and Adjunct Professor at Nebrija University (Spain). Prof. Rothman primarily works on language acquisition and processing across the life span, especially in various types of bilingualism and multilingualism. He actively researches the mutually beneficial, bi-directional relationship between formal linguistic theory and experimental methods / evidence from psycho- and neurolinguistics. His work also investigates language induced / associated links to neurocognition in children and adults, especially in various bilingual / multilingual populations.

He is director of the Psycholinguistics of Language Representation (PoLaR) lab at UiT: https://site.uit.no/polar/
Professor of Linguistics
https://blog.linguistlist.org/fund-drive/featured-linguist-jason-rothman/?utm_source=dlvr.it&utm_medium=facebook
Member of LAVA research group http://site.uit.no/lava/
Member of AcqVA research group http://site.uit.no/acqva/
Book Series Editor, Studies in Bilingualism (John Benjamins) https://benjamins.com/catalog/sibil
https://en.uit.no/ansatte/person?p_document_id=392090

The «L» is for linguistics in psycho-/neuro-linguistics: A linguist's questions on constructs and methods in bilingualism

From linguistics, anthropology, and psychology to cognitive neuroscience, the study of language acquisition, processing and their potential consequences for neuroplasticity in bilingualism has traditionally been shared across fields. The sum total of this research clearly indicates that language representation and its processing, especially in bilingualism, are malleable to internal and external variables. Moreover, while the underlying mechanisms and the precise contexts of bilingualism that give rise to adaptations in the mind/brain remain unclear, research over the past few decades has convincingly shown that juggling more than one language can have serious knock-on effects to cognition and brain structure and function. In this talk, we will address the above observations, inclusive of discussions/debates (even controversies therein), from a linguist's vantage point. Pondering and problematizing some crucial constructs inherent to studying language in the mind no matter what the point of departure is, this talk embarks on a journey related to important considerations for better understanding the object of our shared study and, thus, an improved common ground across language science researchers. Some of the topics to be discussed from a linguistic perspective include: What is language itself? What is the scale of -lingualism (the notion of degree)? Is there such a thing as monolingualism? What are the relevant differences between so-called monolingualism, bilingualism and multilingualism (the big leaps and the Richter Scale effect)? What constitutes a proper empirical control in light of answers to these questions? What are and how does one measure proficiency and typological distance? What role can we reasonably expect them to play in bilingualism?

ORAL PRESENTATIONS

SESSION A

TALK1 (Office 01) **Tuesday 22, 10:00-18:00 CEST**

A pragmatic study of emoji

Alejandro Rojo Gualix (1,2) Irene Moreno Alcázar (2)

1) Complutense University of Madrid

Over the past few years, there has been an exponential rise in the use of pictographs in text-based communication, commonly known as emojis. In the current work, we define pragmatic and non-pragmatic functions of emojis within the framework of previous taxonomies (e.g., F. Yus, 2014; Li Li and Yue Yang, 2018). Additionally, we consider the role of sign properties like iconicity, polysemy and cultural and gender use restrictions. To this aim a total of 152 samples were selected from different platforms in private chats (Whatsapp, Telegram and Instagram). Moreover, we included in our analyses the most commonly used emojis by 60 participants who also answered a survey about attitudes such as emoji use, discourse interpretation, change in meaning and polysemy. Our results suggest that the majority of emojis do carry pragmatic meaning which is relevant to communication, although they do not perfectly mirror facial expressions in face-to-face communication. Based on the analyses on our corpora and the participants' answers to the questionnaires, we developed an emoji's category of politeness strategies regarding mitigation of face-threatening acts (following the Theory of Politeness by Brown and Levinson). Additionally, we propose a new emoji function that was termed 'creating a pleasant communication environment'. Overall, our data indicate the need of conducting additional research to characterize the pragmatic use of emojis.

TALK2 (Office 02) **Tuesday 22, 10:00-18:00 CEST**

The role of early parent-infant interactions in promoting infants' lexical growth during the COVID-19 pandemic

Marina Kalashnikova (1,2)

1) Basque Center on Cognition, Brain and Language

2) Ikerbasque, Basque Foundation for Science

"Early lexical development is characterised by vast individual differences. Environmental factors that impact lexical growth include the quantity and quality of children's language exposure, and opportunity to partake in a variety of rich communicative contexts. In 2020, the daily routines in households worldwide were significantly affected by the lockdown measures imposed to combat the COVID-19 pandemic. These measures reduced young children's social and communicative environment to activities carried out with their closest family members within the confinement of their home. This experience placed a significant weight on the amount of language exposure and the type and richness of communicative interactions in which children could engage at home as critical factors for supporting their language development during this period.

This study assessed lexical growth in infants acquiring Spanish and Basque in the Basque Country during the lockdown period from March to July 2020, as part of an international investigation of vocabulary development during the COVID-19 pandemic. Parental reports of infants' productive vocabulary size and activities carried out in the home during the lockdown period were collected for 100 infants between 8 and 30 months. Hierarchical regression analyses controlling for parental education, infants' age, and sex identified two significant predictors of infants' vocabulary growth: overall amount of language exposure and time that parents spent reading storybooks to their infant. These results support the essential role that language exposure plays in early language development and highlight the effectiveness of shared reading for creating a varied and linguistically rich environment for every child.

TALK3 (Office 03) **Tuesday 22, 10:00-18:00 CEST**

The acquisition of subject position in L2 Spanish and L2 Greek

Panagiota Margaza (1) Anna Gavarró (1)

1) Universitat Autònoma de Barcelona

This study examines subject distribution with unergative/unaccusative verbs at the syntax-semantics and syntax-pragmatics interfaces. Our aim is to test the Interface Hypothesis (IH), claiming that structures that involve the syntax-semantics interface are easier to acquire than structures that involve the syntax-pragmatics interface (Tsimpli & Sorace 2006; Sorace & Serratrice 2009). We examine the language combination Spanish/Greek, in which both languages allow similar SV/VS alternations in syntactic-semantic contexts, while Spanish requires VS in discursive contexts, against SV in Greek. Competence level is taken into consideration to test if processing inefficiencies are overcome at high levels of proficiency (Rothman 2009; White 2011), against Sorace (2011). Two word-order selection tasks were designed, one in L2 Spanish and one in L2 Greek. Each task was run with 30 intermediate and 30 advanced learners, as well as 30 native speakers. The conditions examined were SV/VS with unergatives/unaccusatives in neutral and informational contexts. Results indicated that the intermediate group of L2 Spanish diverged from native-like performance with unergatives in neutral contexts, while the advanced groups performed at ceiling with unaccusatives in both L2s. In informational contexts, both L2 groups of Spanish diverged from target performance with unergatives/unaccusatives, while both L2 groups of Greek followed native-like patterns with unergatives. These results are not consistent with the IH, as competence level, L2, verb-class and context affected performance at the syntax-semantics and syntax-pragmatics interfaces.

Reading fluency in Spanish patients with Parkinson's disease: a reading prosody examination

María del Carmen Pérez-Sánchez (1) María González-Nosti (1) Marta Álvarez-Canizo (2)

1) University of Oviedo

2) University of Valladolid

Background. The correct expressiveness during reading, or prosody, is essential to read fluently. Prosodic patterns may vary, not being the same at the beginning of the reading learning process as in adulthood. They may also be altered in disorders such as dyslexia, but little is known about the prosodic characteristics and reading fluency of people with neurodegenerative diseases that cause language impairment, such as Parkinson's disease (PD). Objective. The aim of this work was to study reading fluency in PD considering the characteristics of its reading prosody. Method. The participants were 31 adults with PD and 31 healthy controls, aged 59-88 years. Two experimental texts were designed, that included declarative, interrogative and exclamatory sentences and experimental verbs and nouns. The manipulability level of the nouns and the motor content of the verbs were considered. The reading of the participants was recorded and analyzed with the Praat software. Results. A longer reading duration and a greater number of pauses, especially in verbs, were also found. The PD group showed less pitch variation than the control group in the experimental sentences. The control group showed a big initial rise in declarative and interrogative sentences, as well as a stronger final declination in declarative and exclamatory sentences when compared to the PD group. Conclusions. Scarce pitch variability, together with the great number of pauses and the longer reading duration, leads to a poorly expressive reading, which compromises fluency in PD.

On the nature of the syllable structure effect in visual word recognition: behavioural evidence from masked priming and event-related potential paradigms

Ana Duarte Campos (1) Helena Mendes Oliveira (1) Eduardo López-Caneda (2) Francisco Javier Gutiérrez-Domínguez (1) Ana Paula Soares (1)

1) Research Group in Psycholinguistics, Research Center in Psychology (CIPsi), University of Minho

2) Psychological Neuroscience Laboratory (PNL), University of Minho

The syllable structure effect (i.e., the advantage of CV over CVC first-syllables at early stages of visual word recognition) has been systematically observed in masked priming lexical decision studies conducted in several languages, yet largely unexplained. Although the frequency with which CV syllables occurs in a given language have been put forward as a possible explanation in languages such as Spanish and French, in European Portuguese (EP) this is less straightforward since the difference between the number of CV and CVC words is much less pronounced. Over a series of behavioural and event-related potential (ERP) experiments using either the lexical decision masked priming paradigm manipulating syllable congruency between primes and targets (i.e., syllable congruent – e.g., ju.ral-JU.ROS[interests] - syllable incongruent – e.g., jur.ga-JU.ROS - and unrelated conditions -e.g., pocar-JU.ROS), or the colour-congruency lexical decision task (e.g., syllable congruent – e.g., juros – and syllable incongruent – e.g., juros) examining the role that syllable complexity, syllable phonologic/orthographic structure and syllable neighbourhood density played on the syllable structure effect, we showed evidence of an early syllable activation for CV (e.g., ju.ros) and CVC words with a match (e.g., verbo[verb]) and a mismatch (e.g., can.tor[singer]) between their orthographic and phonologic forms. The P200 component indexed the activation of CV and CVC syllables alike. Nonetheless, both syllable complexity and syllable neighbourhood seem to influence syllable activation, with modulations in the N100 and in the N400 components appearing only for CV words, which may explain the syllable structure effect in masked priming.

Handling two writing systems in the bilingual brain: ERP investigation

Beatriz Bermúdez-Margaretto (1) Gregory Kopytin (1) Andriy Myachykov (1,2) Yury Shtyrov (1,3)

1) National Research University Higher School of Economics

2) Northumbria University

3) Aarhus University

Phonological inconsistencies across the native (L1) and second (L2) alphabets have been shown to interfere with visual word recognition. Particularly, L2 words are named slower if they contain graphemes, which are shared with L1 but decoded phonologically differently (e.g., “P” decoded as /p/ in English vs. /r/ in Russian). The present ERP study aimed to scrutinise the neurophysiological mechanisms underlying bi-alphabetic reading. EEG data were collected in 24 Russian-English biliterates during a reading-aloud task. Familiar and novel words were presented in (1) L1 Cyrillic, (2) L2 Roman, and (3) an ambiguous script conditions. Linear mixed-effects modelling revealed a different pattern of early (~200ms) and late (~400ms) brain responses to familiar and novel words depending on the script. Specifically, familiar words in L2 and ambiguous scripts elicited a similar P200 amplitude increase when compared to those presented in L1. In contrast, the processing of novel words was influenced by the script only at later stages, with higher N400 amplitudes for those presented in ambiguous than in unambiguous L1 or L2 alphabets. No N400 differences were found, however, for ambiguous and L1 words, with more positive-going N400 amplitudes for L2 words. Overall, our results indicate the activation of a whole-word reading strategy for familiar words in ambiguous script, likely led by well-stablished lexical representations. The absence of a similar mechanism during the reading of novel ambiguous-script words results in an increased processing effort. The implications of inconsistencies across L1-L2 for the acquisition of L2 novel vocabulary are discussed.

TALK7 (Office 07) **Tuesday 22, 10:00-18:00 CEST**

Basque and Spanish speakers think differently about causality. Evidence from non-verbal and verbal tasks.

Andrea Ariño-Bizarro (1) María Louro-Mendiguren (1) Iraide Ibarretxe-Antuñano (1)

1) *University of Zaragoza*

Previous studies on Basque and Spanish have shown that both languages offer similar linguistic strategies to encode caused-motion events on the basis of intentionality, i.e., the degree of participation of the agent (Ibarretxe-Antuñano 2012; Ibarretxe-Antuñano et al. 2016). However, little has been said about the possible correlation between these linguistic resources and the way these speakers categorise causality. This paper investigates this relation between the way speakers talk about causality and the way they think about it (Tierry 2016; Yoshinari et al. 2010).

Data were collected using the Causality Across Languages Clips, a set of 58 videos of causal interactions (CAL;NSF BCS-1535846 & BCS-1644657). Thirty-two native Spanish speakers (Aragón) and twenty-two native Basque speakers (Ondarroa) participated in two tasks: a non-verbal categorisation task where participants have to attribute responsibility to the actors of the clips, and a verbal description task, where participants responded to the question “what happened?”.

Results show that Basque and Spanish speakers categorise causal events differently despite sharing similar linguistic resources. When assigning responsibility, Spanish speakers arranged causal events on the basis of the agent’s intentionality and Basque speakers, on the agent’s involvement. These categorisation differences correlate with their verbal encoding. Both languages partly coincide in the linguistic resources to explicitly distinguish accidentality and intentionality. However, they differ in ergative vs. nominative subject case assignment marking. Following studies on the processing of noun morphology in Basque and Spanish (Zawiszewski & Laka 2020; Zawiszewski et al. 2011), this difference might be one possible explanation for these results.

TALK8 (Office 08) **Tuesday 22, 10:00-18:00 CEST**

Effects of masked prime duration in an online lexical decision task

Bernhard Angele (1,2) Ana Baciero (2,3) Pablo Gómez (3,4) Manuel Perea (2,3)

1) Bournemouth University

2) Universitat de València

3) Nebrija University

4) California State University San Bernardino

Masked priming is one of the most important paradigms in the study of visual word recognition, but it is usually thought to require a laboratory setup with a known monitor and keyboard. To investigate if this technique can be used in an online setting, we conducted two online masked priming lexical decision task experiments using PsychoPy/PsychoJS (Peirce et al., 2019).

In particular, we wanted to compare our online results to the data collected by Gomez, Perea, and Ratcliff (2013), who compared masked and unmasked priming. Furthermore, we also tested the role of prime exposure duration effectively in an online experiment (33 vs. 50 ms in Experiment 1 and 16 vs. 33 ms in Experiment 2).

We found that our online data are indeed very similar to the masked priming data reported by Gomez, Perea, and Ratcliff (2013). Additionally, we found a clear effect of prime duration, with the priming effect (measured in terms of response time and accuracy) being stronger at 50 ms than 33 ms and no priming effect at 16 ms prime duration.

From these results, we can conclude that modern online browser-based experimental psychophysics packages (e.g., Psychopy) can present stimuli and collect responses on standard consumer devices with enough precision. In sum, these findings provide us with confidence that masked priming can be used online, thus allowing us to reach populations that are hard to test in a laboratory.

Structural validity of an instrument for the evaluation of Irlen syndrome

Marcelo Bernal Arellano (1) Paul Arias Medina (1) David Tacuri Reino (1)

1) University of Cuenca

Visual Perception Distortions and Physical Discomfort, Irlen Syndrome (IS) signs and symptoms hinder the reading process. One of the principal forms of IS screening and the most commonly used in investigations worldwide has been the Irlen Perceptual Reading Scale (IRPS) 1988 and the Ecuadorian version scale. However, the results obtained when applying these scales usually present limitations in the diagnosis. This study aimed to update the IRPS validity through confirmatory factor analysis in its Ecuadorian version (Vilchez, Bernal 2018). Participants were 252 fourth and fifth-graders from 14 schools in Cuenca, Ecuador. The authors assessed a factor model using a DWLS estimator with a polychoric correlations matrix. The five correlated first-order factors presented adequate fit goodness. Irlen Screeners can use the new validated IRPS version as a screening instrument for Irlen diagnosis.

Language processing in early adult bilinguals vs. L2 learners: evidence from a visual-world study

George Pontikas (1) Ian Cunnings (1) Theodoros Marinis (1,2)

1) University of Reading

2) University of Konstanz

Research in bilingual sentence processing has focused on the similarities and differences between native and non-native, late sequential bilinguals (L2 learners)1,2. However, differences between early bilinguals in adulthood to both adult L2 learners and monolinguals remain largely unexplored. Accounts emphasising age of acquisition as the differentiating factor predict similarities between early bilinguals and monolinguals. However, this issue hasn't been systematically explored in sentence processing.

This study addresses this gap by investigating processing of which-questions using the visual world paradigm4. 107 adult participants (43 monolinguals, 35 early bilinguals, 29 L2 learners) heard which-questions whilst looking at two pictures depicting the different interpretations of the action conducted by the agents and themes, answering the question by selecting a picture. We manipulated question type (subject vs object which-question) and whether the two NPs matched or mismatched in number.

Example sentences:

Subject (number match/mismatch): Which donkey is carrying the zebra/zebras?

Object (number match/mismatch): Which donkey is the zebra/are the zebras carrying?

For comprehension accuracy, the early bilinguals and monolinguals were equally more accurate than the L2 learners. In the gaze data, the early bilinguals patterned with the L2 learners; both groups reoriented their gaze towards the correct image in the display slower than the monolinguals. This reflects slower processing which is not predicted under accounts postulating age of acquisition as the differentiating factor. All groups showed similar processing patterns as they had greater difficulty with object questions and benefitted from a mismatch in number between the two NPS in the object condition.

Predictive Use of Gender-Marked Articles in Spanish-English Bilinguals and Spanish-Speaking Monolinguals

Alisa Baron (1)

1) The University of Rhode Island

In order to better understand if adults take advantage of informative grammatical gender marking on articles, a visual world paradigm was used to examine gendered articles. There were three types of trials: informative (different-gender grammatical trials), uninformative (same-gender grammatical trials), or incorrect (ungrammatical trials) articles. Monolingual/Spanish-dominant adults from central Mexico and bilingual Spanish-English adults from central Texas participated in the study. Participants named common nouns and completed an eye-tracking task, a grammaticality judgment task, and a standardized vocabulary test in both English and Spanish. Monolingual and bilingual adults showed sensitivity to gender and were significantly faster on informative trials relative to uninformative trials, which in turn were significantly faster than ungrammatical trials regardless of participants' profile of current Spanish language input. Monolingual and bilingual adults are able to quickly and accurately process the incoming gendered information, and are therefore able to demonstrate gender sensitivity.

Orthographic consistency effects in speech perception: Does covert production play a role?

Alexia Antzaka (1) Clara Martin (1,2)

1) Basque Center on Cognition, Brain and Language

2) Ikerbasque - Basque Foundation for Science

Orthographic consistency effects (OCEs) refer to the slower processing of inconsistent items (which have more than one possible spelling: e.g., <dough>, <dow>, <doe>) as compared to consistent items (one possible spelling: e.g., <bat>) in the auditory modality. Notably, OCEs emerge in a variety of auditory tasks despite the absence of orthographic information (e.g., auditory rhyme judgment-ARJ: Seidenberg & Tanenhaus, 1979; auditory lexical decision-ALD: Ziegler & Ferrand, 1998). In ARJ, performance relies not only on speech perception but also on covert production (Perrone-Bertolotti et al., 2014), while there is no evidence thus far for the involvement of covert production in ALD. We are studying whether OCEs partly arise in auditory tasks due to the interplay between speech perception and covert production. To this end, we test whether the magnitude of OCEs in two tasks potentially engaging covert production to different degrees (ARJ and ALD) is modulated by blocking covert production. We have just completed testing of sixty participants on ARJ and ALD tasks while simultaneously performing a linguistic task blocking covert production (syllable repetition) or a non-linguistic task of similar motor requirements (tongue tapping). Our hypothesis is that if covert production influences the emergence of OCEs those effects should be reduced during syllable repetition as compared to tongue tapping, and that this reduction should be magnified in the ARJ task (in which covert production is more strongly involved). Preliminary results suggest OCEs are indeed modulated by covert production blocking, though patterns differ depending on task and lexicality of the stimuli.

Bilingual first language acquisition of English and Spanish dative alternation constructions: developmental differences or adult input conditions?

Silvia Sánchez Calderón (1) Raquel Fernández Fuertes (2)

1) National University of Distance Education

2) University of Valladolid

English (1) and Spanish (2) prepositional structures that alternate as double object constructions (DOCs) have been accounted for in different ways. In English, the debate focuses on whether to/for-datives (1a) are the source structure of DOCs (1b) (Larson 1988), or whether DOCs are the original structure (Haspelmath 2006). Snyder and Stromswold's (1997) proposal establishes a common underlying configuration.

(1) a. John sends a letter to Mary

b. John sends Mary a letter

In Spanish, a/para-datives (2a) are analyzed as stemming from the Dative-Clitic-Doubled structures (DCLDs) (2b) (Demonte 1995).

(2) a. Entregué las llaves al conserje

b. Le entregué las llaves al conserje

We analyze English-Spanish bilinguals' data to shed light on (i) how syntax is shaped for these constructions; and (ii) the possible syntactic relation the two pairs have as seen in acquisition. Data come from CHILDES (MacWhinney 2000) and both the input and the spontaneous production of 9 English-Spanish bilingual children (ages: 1;01-6;11) are analyzed. Results show that double object and prepositional constructions emerge at a similar age (p=.160 in English; p=.135 in Spanish), as per Snyder's proposal that the two structures are underived, and this is possibly so for the two languages. Developmentally, double objects show a higher use than prepositional constructions (p=.002 in English; p=.004 in Spanish) as could be explained by adult input effects.

Lexis during the pandemy: lexical availability and association in students from the University of Salamanca

Alicia Delgado Olmos (1) María Hoyos Cardeñoso (1) Clara Téllez Pérez (1) Marluis Ugueto Colina (1)

1) Universidad de Salamanca

The concept 'available lexis' refers to words stored inside speakers' minds and which are available to be used whenever the circumstances may require it. According to Paredes (2012), the results obtained through associative tasks show psycholinguistic processes and thus, these data can provide us with information regarding the structure and organization of the mental lexicon. The available lexis for each center of interest contains associative sets (Hernández, 2005) which are composed of elements arranged in semantic networks (Cañizal Arévalo, 1991; Echeverría, 1993; Gómez Molina et al., 2004). On the other hand, COVID-19 has changed the way in which speakers interact with each other and with their environment (which is likely to influence the field of lexis too, given that it is a field specially prone to changes). The goal of this study is to determine how and how much the pandemy might have influenced lexical retrieval linked to everyday centers of interest. In order to achieve this, 7 centers of interest have been selected from PPHLD. Additionally, 'pandemia' and 'coronavirus' have been added. The data obtained from the associative surveys developed will be processed and analyzed following the guidelines set by PPHLD and Bartol (2004) through the softwares Dispolex (Universidad de Salamanca, 2004) and DispoGrafo (Echeverría et al. 2008). It is anticipated that, as a result, lexis linked to medical spheres (i. e. 'enfermera', that is, 'nurse') will climb to top positions in the lists of their center of interest. Those lexical items are also likely to function as internal organization markers.

Role of concreteness and lexical class in the lexical-semantic processing of antonyms

Dora Uštulica (1)

1) University of Zagreb

This paper analyzes the role of concreteness as a psycholinguistic parameter and the role of lexical class (nouns, verbs, and adjectives are tested) in the lexical-semantic processing of antonyms. The survey on the concreteness of the lexemes as measured by Likert scale, as well as the subsequent experiment measuring participants' reaction times were both created in PsyToolkit. The results were then statistically analyzed. The aim of the study was to investigate which lexical classes are considered to be more concrete by native speakers of Croatian in this case, and to confirm the hypothesis that nouns are considered to be the most concrete lexical class in this group and adjectives the least concrete, as well as to confirm the hypothesis that that specific criterion then influences lexical-semantic processing of antonyms. The first hypothesis was confirmed. However, the second hypothesis was only partially confirmed. Noun pairs were processed the fastest, but verb pairs, and not adjective pairs, were processed the slowest. That poses further questions on the role of concreteness as connected to the lexical class, and in relation to the time needed to process different lexical classes, which is left as an open question for further research.

Exploring grammatical gender acquisition by children with Developmental Language Disorder: a crosslinguistic study in Spanish and Russian

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This paper reports on the results of an experimental study addressing the acquisition of grammatical gender in Spanish and in Russian by children diagnosed with Developmental Language Disorder (DLD). Grammatical gender is reported to be acquired approximately at the age of three by children with typical language development (Gvozdev, 1961; Karmiloff-Smith, 1979; Pérez-Pereira, 1991). However, DLD children have limitations in the use of morphology in their native language. Previous experimental studies with Spanish-speaking DLD children provided inconsistent results. Specifically, some studies suggest DLD children are accurate with gender agreement (Bosch & Serra, 1997; Anderson & Souto, 2005), whereas others claim deficit in gender use (Restrepo & Gutiérrez-Clellen, 2001; Bedore & Leonard, 2001; Jackson-Maldonado & Maldonado, 2017). Research with Russian DLD children also revealed difficulties using gendered adjectives (Tribushinina et al., 2012, 2018).

We tested a total number of 27 (n=12 in Spanish group, n=15 in Russian group) children aged 4-8 diagnosed with DLD via a production task adapted from Pérez-Pereira (1991). Children were elicited a noun phrase (NP) containing a nonce-word and an adjective.

In line with previous research, our results revealed that children from language groups use masculine gender better than feminine (Karmiloff-Smith, 1979; Pérez-Pereira, 1991). Generally, DLD children benefit from the number of gender cues embedded in a NP. That is, when they were provided with a determiner and a noun's ending of the same gender, they showed higher accuracy rates.

Analysis of a training in translation-related reading strategies and its relationship with text understanding

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1) Universitat Rovira i Virgili

When learning a second language one of the most important skills that language students must master is reading comprehension. During the reading process, we use a series of actions, behaviours, steps, or techniques to improve our learning. In other words, we use reading strategies to improve our understanding of the text. The investigation of translation-related reading strategies is of great interest in language teaching since the student's need to translate (consciously or unconsciously) is rarely considered.

This study seeks to discover if students have better reading comprehension when they use translation as a reading strategy.

The participants were divided into two groups and their level of reading comprehension, their use of reading comprehension strategies and, specifically, the use of translation-related strategies were measured. Initial data was collected through a reading comprehension test, a strategy-use test and a survey of linguistic experience. Then, students in the experimental group participated in three training sessions on translation-related reading strategies. Follow-up data was collected with a reading comprehension test and a strategy use test (right after the training) and a post-test (done a month after the training).

After the translation-related strategy training, the students in the experimental group showed an improvement in their reading comprehension if compared to the control group, although their use of strategies does not increase significantly. Further research will look into the students use and beliefs of strategies and possible uses of this knowledge in the ESL classroom.

Is this an original? Misspelled brands, real counterfeits

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1) Nebrija University

2) Universitat de València

3) The Arctic University of Norway

Brand names represent unique assets for a company. They are typically presented with a distinctive graphical composition: logos. Logos represent the combination of a specific letter font and graphic elements. Recent studies have shown that the uniqueness of this configuration makes brand names vulnerable to counterfeiting via misspelling by transposition. Using a counterfeit detection task (is the brand name spelled correctly?), Perea et al. (2021) found that the transposed-letter confusability effect for misspelled brand names (e.g., amzaon) was more robust when they kept their typography and graphical design. The present experiments aimed to examine this confusability effect in a more naturalistic environment. Participants were set in a highly immersive virtual reality (VR) task and were incidentally exposed to correctly spelled and misspelled brand logos. Afterwards, they were asked to indicate whether the a given item appeared during the VR immersive task in a recognition task. Participants were much more accurate when recognizing brand names that had been presented correctly spelled in the VR setting than those that had been presented misspelled. Misspelled logos were recalled as if they would have been correctly spelled, showing a false memory effect. Taken together, the present VR experiment provides clear evidence on the vulnerability of popular logos to counterfeiting via the brand names' misspelling.

Comparing structural priming in production and comprehension

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1) University of Antwerp

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Introduction: Structural priming (encountering a structure facilitates re-processing of that structure) is a well-established method to investigate syntactic processing in production. Priming effects in comprehension are not always found. It is unclear how priming in comprehension relates to priming in production. Following Raissi, Hedayat & Kazemirad (2020), we made a direct comparison between priming in production and comprehension.

Method: Participants heard 32 prime sentences with a direct object “he gave the pirate the jar” or a prepositional object “the jar to the pirate”. 92 participants then described a picture with a DO or a PO. 92 participants listened to another ditransitive sentence while reaction times were measured. 192 participants received a mixture of production and comprehension items.

Results: Production-only-experiment: We found significant DO-priming ($p<.01$) and significant PO-priming ($p<.05$).

Comprehension-only-experiment: No significant priming effects were found. DO-items that primed stronger in production, also showed stronger priming in comprehension ($p<.05$).

Mixed-modalities-experiment: In production, we found a trend towards DO-priming ($p<.1$) and no PO-priming. In comprehension, there were no priming effects. The results did not differ significantly from the single-modality-experiments. Stronger primed PO-items in production tended to be primed stronger in comprehension too ($p<.1$).

Joint analyses confirm the results of the separate analyses, except that we do not find any correlations between production and comprehension.

Discussion/Conclusion: Although we did not find priming in comprehension, the (unstable) correlations suggest similarities between priming in production and comprehension. A deeper understanding of priming in comprehension is essential, e.g., to compare production and comprehension in language learning.

Phonological forms are retrieved in overlap with listening to the incoming turn

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1) Humboldt University Berlin

"Interlocutors start planning their utterances already in overlap with the current turn (Barthel et al., 2016, Bögels et al, 2015). Three experiments tested whether only conceptual planning happens in overlap (to keep processing load low (Barthel & Sauppe, 2019)), or whether word forms are also already activated (to shorten response latencies (Levinson & Torreira, 2015)).

E1 pre-tested the experimental materials in a switch-task requiring participants to name an object (base task, 75%) or to switch to lexical decision mid-trial (critical task, 25%; 3 SOAs: 70/120/200 ms before the word replaced the object). Associative relatedness of the object and the lexical decision word lead to facilitation, whereas phonological relatedness lead to inhibition. Adding to-be-ignored background speech, E2 replicated the phonological interference effect. E3 turned the background speech into task-relevant questions that participants answered by naming one of four objects (target) (base task, 75%). The answer/target could either be known mid-question (early) or only at question-end (late). In critical trials (25%), a word for lexical decision replaced the objects 300 ms after the participant gazed towards the target to retrieve its name (display change dependent on timing of response planning). The effects of phonological relatedness of the target and the lexical decision word was equally strong in early and late questions, showing that participants retrieved the phonological form of their responses already in overlap with the incoming question. In conclusion, speech planning mechanisms are set to prioritize fast turn-taking over low cognitive load.

Early biliteracy , syntactic complexity and thought organization in the written production of 11-year-old bilingual children.

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This paper presents the results of a study that aimed to compare the levels of syntactic complexity and thought organization in written production in Portuguese and in English. We predicted that both variables would correlate in the two languages, showing no negative effects of early biliteracy on development. Fifty children (M = 10.7) enrolled in 5th and 6th grades in a bilingual curriculum school in Rio Grande do Sul, Brazil, screened for proficiency, constituted the cohort of the study. Participants were asked to create a narrative based on a sequence of five images (Cambridge Assessment, 2018) one in English (their L2) and one in Portuguese (their L1), in a counterbalanced order. Thought organization was measured through the analysis of graph trajectories performed with the computational tool Speech Graphs (Mota et al., 2016, 2019), whereas the analysis of syntactic complexity involved the assessment of T-Units (Hunt, 1965). Results indicate a moderate positive correlation in the levels of syntactic complexity and thought connectivity in both languages, demonstrating that, as children advance in the development of more complex and connected discourse in Portuguese, they progress in English to the same extent. Also, a significant positive correlation between connectivity measures (LSC) and syntactic complexity (T-units) in L1 and L2 productions indicates that graph analysis serves as a good predictor of children's syntactic complexity levels in L1 and L2.

Tracking phraseological complexity. Integrating eye tracking and learner corpus methods to develop second language pedagogical resources.

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An increasing amount of evidence, deriving from both corpus-based and psycholinguistic studies, indicates the centrality of the phraseological dimension in the processing and production of both native and non-native language.

The last few years have seen a steady rise in the analysis of phraseology in learner language. However, the operationalization and measurement of phraseological complexity still needs attention, in order to go beyond the simple measures of diversity and sophistication.

This study (based on an Italian PRIN Project named PHRAME 20178XXKFY and funded by MUR) aims to analyse phraseological complexity by following a mixed-methods approach based on integrating both corpus-based and psycholinguistic data and applying the findings to pedagogical settings.

Starting from f a new learner corpus, we will be based on eye tracker data in order to provide measures of the gaze related to the different levels of phraseological complexity identified: fixation duration, saccade size and number of regressions. The eye tracker is e able to tap into real-time comprehension processes during the processing of the input; thus, the data may be compared to the data derived by the computational analysis to offer a broader picture of phraseological complexity processing. The study aims to the application of the results in the areas of teaching and assessment/testing. The different levels of phraseological complexity, identified through the learner and the eye tracking data, will inform the development of a phraseologically oriented language learning syllabus.

The production and comprehension of grammatical gender in Welsh-English bilinguals

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1) Swansea University

Grammatical gender in Welsh is seen as a persistent area of difficulty in child bilingual acquisition as it is only encoded on adjectives and mutations, not determiners, but is well-established in adult control data from North Wales (Binks & Thomas, 2019; Gathercole et al., 2001; Gathercole & Thomas, 2005; Sharp, 2012). This study extends these findings to include speakers from other parts of Wales to establish whether grammatical gender is as robust in speakers who are typically exposed to less incidental Welsh and to consider the effect of various individual differences. Our research questions are:

1.Do Welsh speaking adults have productive and receptive command of Welsh grammatical gender?

2.Do dominance, proficiency and cognitive control affect the productive and receptive command of grammatical gender in Welsh speakers?

40 Welsh/English participants (19 females; age: 19-64), took the BLP (Gertken et al., 2014), elicited imitation task (Deygers, 2020), comprehension task (Binks & Thomas, 2019), production task (Sharp, 2012), vocabulary task, Flanker task (Eriksen & Eriksen, 1974) and cloze tests (Welsh and English).

Overall group results show good productive (M=74%, SD=15.6) and receptive (M=77%, SD=18) command of Welsh gender, suggesting a well-established gender system (Binks & Thomas, 2019; Sharp, 2012). Using linear regression analyses, English and Welsh proficiency scores accounted for 15% each of the variance in the production task, whereas dominance accounted for 16.5% of the variance in the comprehension task, suggesting a complex relationship between these factors. Further analysis and discussion of the implications for Welsh will be presented.

Negative polarity item illusions reflect scalar inferences, not mis-retrieval

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2) Basque Center on Cognition, Brain and Language

3) University of Maryland, College Park

Negative Polarity Item (NPI) illusions occur when ungrammatical sentences like (1) are disproportionately likely to be perceived as correct due to the presence of a preceding but structurally inaccessible negation in the relative clause. Several psycholinguistic hypotheses have been proposed to account for this effect, whose behavior provides interesting insights for our understanding of real-time semantic interpretation (Vasishth et al. 2008, Xiang et al. 2009, Parker & Phillips 2016). Yet, most of the existing investigations have studied a single intrusive licensor: the negative quantifier ""no"".

(1) *The bills [that no senators voted for] have ever become law.

It has been tempting to treat NPI illusions on a par with phenomena like agreement attraction, which are understood to reflect mis-retrieval of licensing features. Such an account would predict NPI illusions to generalize to contexts containing different negative intrusive licensors. Here we present the results from three experiments (an offline judgement and two speeded acceptability tasks) which investigate the illusory potential of verbal negation in an attempt to narrow down the landscape of hypotheses on NPI illusions. The observed lack of illusion effects for sentences like (2) poses problems for the existing accounts and will lead us to propose an alternative explanation that takes as main ingredients a) the linguistic approaches that emphasize the importance of scalar inferences for NPI licensing (Chierchia 2006) and b) current processing accounts on the interpretation of negated statements (Xiang et al. 2020).

(2) *The bills [that the senators haven't voted for] have ever become law.

SESSION B

TALK25 (Office 01) **Wednesday 23, 10:00-18:00 CEST**

The relative balance between languages predicts the magnitude of whole-language inhibition

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After naming pictures in their second language (L2), bilinguals experience difficulty in naming pictures in their native language (L1). The "L2 after-effect" is a lingering consequence of inhibition applied to L1 to facilitate L2 production. We proposed that the amount of L1 inhibition depends on the relative balance between current activation of L1 and L2. In two experiments, bilinguals performed a blocked picture-naming task which provided a measure of the relative balance between the two languages and indexed whole-language inhibition via the magnitude of the L2 after-effect. The higher the activation level of L1 and the lower the activation level of L2, the bigger the L2 after-effect. The results also reveal an enduring down-regulation of L1 activation level in more language-balanced speakers. The outcomes support the main tenets of the inhibitory account of bilingual language production and indicate a high level of dynamics in the language system.

The Impact of Lexical Co-activation through Cognates on L2 Rule Learning

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1) University of the Basque Country

Topic and objective. According to Hopp's (2014) Lexical Bottleneck Hypothesis, difficulties in second language (L2) lexical processing lead to non-target syntactic computations. Cognates are processed faster than non-cognates (cognate facilitation effect) and, hence, ease L2 syntactic processing (Miller, 2014; Hopp, 2017). This study investigated whether cognates additionally facilitate L2 syntax learning. Our hypothesis claimed that they do.

Methodology. Forty Spanish natives with no knowledge of Basque learnt an artificial language drawing on that language. Learners were split into two groups. Each group explicitly learnt 30 Spanish-Basque cognates or non-cognates and a case-marking rule yielding SOV and OSV sentences. A sentence-picture matching task tested their rule learning (accuracy and reaction times). A post-test tested whether non-cognate learners' rule learning improved when the vocabulary became cognate with their native language.

Results. The findings corroborated the hypothesis. Cognate learners significantly outperformed non-cognate learners in the test and the post-test. Non-cognate learners' performance significantly improved in the post-test.

Conclusions. This study sheds light on the relationship between lexical co-activation and syntax learning. The finding that cognates facilitate L2 rule learning aligns with the Lexical Bottleneck Hypothesis and extends its postulates from L2 grammar processing to L2 grammar learning.

Hopp, H. (2014). Working memory effects on the L2 processing of ambiguous relative clauses. Language Acquisition, 21, 250–278.

Hopp, H. (2017). Cross-linguistic lexical and syntactic co-activation in L2 sentence processing. Linguistic Approaches to Bilingualism, 7(1), 96-130.

Miller, K. (2014). Accessing and maintaining referents in L2 processing of wh-dependencies. Linguistic Approaches to Bilingualism, 4(2), 167–191.

Comparing Different Types of Implicitness: Do People Rate Presuppositions as 'More Present' than Implicatures?

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1) Roma Tre University

Lombardi Vallauri (2016) proposed that linguistic 'implicitating' strategies can be divided into two macro-categories: content implicitating strategies and responsibility implicitating strategies. On the one hand, content implicitating strategies are prototypically represented by conversational implicatures and vague expressions. Such strategies conceal notions, making the addressee reconstruct the part of the message that is not given. On the other hand, responsibility implicitating strategies are prototypically represented by presuppositions and topics. Such strategies do not conceal notions, but the speaker's responsibility in presenting some notions. Giunta (accepted) aimed at assessing whether behavioural data supports the idea that presuppositions and conversational implicatures belong to these two different macro-categories. A group of students (n= 103) was asked to read a short text containing presuppositions and conversational implicatures and to answer a questionnaire. Specifically, the questionnaire asked people to rate the presence of 20 sentences in the text they read using a graduated scale. Ten sentences expressed notions which were presupposed or implicated in the text and 10 sentences served as controls. The leading hypothesis is that, given that presuppositions, as opposed to implicatures, do not conceal information, presupposed notions should be rated as 'more present' than implicated ones. Results support this hypothesis, showing that the students' presence ratings for sentences that expressed presupposed notions are, on average, higher than those of sentences that expressed implicated notions and are significantly different from them.

Effects of immediate versus delayed production on word learning

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3) Ikerbasque

Previous work shows that producing a new word can have both facilitatory and inhibitory effects on word learning (Leach & Samuel, 2007; Zamuner et al., 2016). A recent study by Kapnoula and Samuel (under review) aimed to reconcile these seemingly contradictory results. The results indicated an early facilitatory effect of production that switched to a detrimental effect after additional training. This pattern suggests that production ultimately hinders lexical integration. Following up on this work, here we examine whether production is detrimental because it coincides with the perceptual processing of the word-form, thus disrupting its integration. Participants learned 12 new words (e.g., ranpofita) by hearing each one 22 times. Then, lexical integration was assessed as the ability of new words to drive perceptual recalibration of ambiguous f/s speech sounds (Kraljic & Samuel, 2005, 2006, 2011; Norris, McQueen, & Cutler, 2003; Samuel & Kraljic, 2009). Crucially, each participant was assigned to one of four training conditions: Perception-Only, Immediate-Production, Short-Delay(2secs)-Production, and Long-Delay(4secs)-Production. Preliminary results indicate that the Immediate-Production condition led to the lowest degree of lexical integration. This pattern would be in line with the hypothesis that producing a new word immediately after hearing it disrupts its integration into the mental lexicon.

Morphological simplification in Inuktitut child-directed speech

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1) University of Kaiserslautern

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When addressing young children, caregivers typically use a simplified mode of the language – 'child-directed speech' (CDS). The most studied domains of CDS are lexicon, phonetics, and prosody (Snow, 1995). When it comes to the morphological properties of CDS, polysynthetic languages constitute a great source for investigation. In this study, we ask how caregivers morphologically simplify their CDS in Inuktitut – a language which polysynthetic agglutinative structure allows expressing the meaning of an entire sentence in one word (1), and whether such simplification is finetuned, i.e., whether CDS is adjusted in accordance with the children's stage of linguistic development.

(1) Illujaraalummuulaursimannginamalittauq.

illu-juaq-aluk-mut-uq-lauq-sima-nngit-gama-li-ttauq

house-big-EMPH-ALL.SG-go-PAST-PERF-NEG-CSV.1sS-but-also

"But also, because I never went to the really big house." (Dorais, 2011)

We hypothesize that the morphological complexity (e.g., number of morphemes per word; use of polysynthetic structures; complexity of noun incorporation) and lexical diversity of CDS progress as the children advance through the stages of linguistic development. Data from caregivers of 8 typically developing monolingual Inuit-speaking children aged 0;11-2;10 (at onset) were collected during daily home activities every month across a nine-month period, transcribed and translated by native speakers, and divided into six stages according to the children's mean length of utterance in morphemes (MLUm). The results from the preliminary descriptive intergroup analysis demonstrate that morphological complexity of CDS mirrors children's language ability as indexed by MLUm. Investigating the patterns of increase in complexity through the stages of linguistic development would provide an important insight to the nature of the morphological aspect of CDS (work in progress).

Is there a Foreign Accent effect on moral judgement?

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1) Nebrija University

2) Radboud University

People make more utilitarian decisions when dealing with a moral dilemma in a foreign language than in their native language. Emotion and cognitive load have been put forward as explanations for this so-called Foreign Language effect. The question that arises is whether a similar effect would be observed when processing a dilemma in one's native language but spoken by a foreign-accented speaker. Indeed, foreign-accented speech has been shown to modulate emotion processing and to disrupt processing fluency. We tested this hypothesis by presenting participants with two moral dilemmas, the Trolley and the Footbridge dilemmas online, either in a native accent (NA) or a foreign accent (FA). In Experiment 1, 254 native listeners of Spanish (N=122) and Dutch (N=133) listened to the dilemmas in their respective native language recorded either by a native speaker of this language or by an English native speaker. The moral judgement responses showed an effect of dilemma type irrespective of accent, but no significant differences across accent conditions. In Experiment 2 (in progress), the dilemmas were recorded by a Moroccan and a Turkish native speaker to examine the impact a stereotype conveyed by an accent has on moral judgement. We expect to observe a significantly higher percentage of utilitarian decisions in the FA condition than in the NA condition. Such results would suggest that a foreign accent affects moral judgement, especially when it conveys a negative stereotype. The individual results of each language group will also indicate whether the effect generalizes across different language pairs.

FN400 and LPC's Sensitivity to Phonological Processes: An ERP Study

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In the literature, there are few studies addressing phonological processing within the context of vowel harmony (Aaltonen et al., 2008; Scharinger et al., 2011; Ylinen et al., 2016). These studies adhere to the oddball paradigm (e.g., 85% harmonic, 15% disharmonic items) and report MMN differences between harmonic and disharmonic conditions. In this study, we examined phonological processing through Turkish backness harmony using N400 paradigm (50% harmonic, 50% disharmonic items). The first experiment included harmonic (e.g., aca, ehe) and disharmonic (e.g., ace, eha) V(owel)-C(onsonant)-V(owel)pseudowords. The second experiment involved the same pseudowords inflected with harmonic (e.g., acalar, afeler) and disharmonic (e.g., acaler, afelar) forms of the Turkish plural suffix "-lAr" to yield harmonic and disharmonic stems.

We implemented cluster-based permutation tests via the FieldTrip Toolbox. We observed FN400 in the first experiment, but there was no significant cluster between the harmonic and disharmonic conditions. In the second experiment, we observed FN400 and LPC components and there were two significant negative clusters ($p<.05$) and one positive cluster ($p<.05$). The disharmonic condition showed greater amplitude than the harmonic condition in the negative (FN400) and positive (LPC) clusters. Although FN400 has been linked with semantic processing and familiarity-based memory, our study involved phonological processes and no recognition task (e.g. studied/test phases) was present. Therefore, our findings indicate that i) FN400 and LPC are sensitive to phonological processes and ii) phonological rules can trigger familiarity-based memory.

Analyzing linguistic features of learner texts from the perspective of fluency in L2 writing

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1) University of Louvain

This study addresses the question whether there is a relationship between indicators of fluency in L2 writing and the syntax-discourse make-up of learner compositions. More concretely, our aim is to establish whether learners' ability to use a wide range of syntactic structures for enhancing textual coherence translates into a more fluent orchestration of the writing process.

In order to gain insight into learners' cognitive performance while writing, process data were obtained using the keystroke-logging software Inputlog. Data were collected from an experiment among 30 intermediate-to-advanced L2 learners of German who wrote an expository text. Texts were segmented into clauses, which served as reference units for coding a measure of textual coherence and an index of syntactic diversity. Textual coherence was calculated based on two subsets of cohesive devices: anaphoric reference and discourse connectors. Regarding syntactic diversity, an overall score was derived from six sublevels: clause type, sub-clause type, finiteness, voice, verb valency and constituent order. Writing fluency was operationalized in terms of pausing behavior and measured based on length and location of pauses.

Pearson's correlations revealed a significant negative relationship between textual coherence and syntactic diversity on the one hand and mean length of pause at lower linguistic levels (within word and between words) on the other hand. These findings are in line with previous studies demonstrating that less experienced L2 writers tend to allocate more processing resources to lower-level issues (spelling, lexical retrieval) at the cost of more complex processes (clause/sentence structure, discourse organization).

The role of quotes in the processing of English pure quotation

Marcel Schlechtweg (1) Nanna Fuhrhop (1)

1) Carl von Ossietzky Universität Oldenburg

Quotes, or quotation marks, are a common tool in language and are used for different purposes, see (1).

(1) a. Pure quotation: “July” has two syllables.

b. Name-informing quotation: These little apes, called “lemures”, predominantly live in Madagascar.

c. Direct quotation: “I see,” Tom said.

d. Mixed quotation: The minister emphasized the possible consequences of this “dramatic situation.

c. Scare quotation: The “villa” was in reality a small bungalow without any window.

While the semantic and pragmatic aspects of quotes and quotation are by now well understood, psycholinguistic studies on the role quotes play in language processing are still rare and have focused on name-informing and scare quotation. In the current paper, we expand this line of research and present the results of a reading time experiment conducted with native speakers of English and Eprime 3, investigating whether and how quotes facilitate / inhibit the processing of pure quotation in English, using the four conditions given in (2).

(2) a. / b. Pure quotation with / without quotes

We know that gold / “gold” is a concrete noun.

c. / d. Default denotation with / without quotes

We know that gold / “gold” is a strong metal.

The reading time is measured at different positions within the sentence and we particularly concentrate on the comparison of the reading time directly at the critical portion, i.e., when the word gold / “gold” is shown, and after the entire sentence has been read to examine the extent of immediate and delayed effects.

What determines the similarity of braille letters?

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Letters are the essential components of words. In alphabetic writing systems, letter identification is generally understood as a hierarchical process: from the detection of letter features to the activation of the letter's abstract representation. Recent research has shown that this process is modulated by visual-letter similarity. To operationalize how visual similarity affects the interplay between printed input and abstract representations, researchers have created similarity matrices for letters in various alphabets. However, no parallel studies have explored the similarity among letters in braille, a writing system that, on the grounds of its tactile nature, offers the opportunity to distinguish between modality-general and modality-specific aspects of reading. Here we conducted a same-different judgement task with pairs of letters with blind individuals who were braille readers from childhood. We created similarity matrices for accuracy and response times, and further analyzed the data via hierarchical clustering and linear mixed-effects models. To examine literacy-related effects, we also compared the results obtained from braille readers to data obtained from non-readers. We found evidence of the specific features, both perceptual and knowledge-based, that affect braille letter perception. These findings are important to design future studies on braille reading as well as to develop novel strategies for teaching the braille alphabet to both children and adults.

How emotional content affects the grammatical brain

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2) Nebrija University

3) Universidad Complutense de Madrid

The interplay between syntax and emotion has recently become an area of interest in affective neurolinguistics. In this work, we present three ERP studies in Spanish in which participants were asked to perform a grammaticality judgment task. They were presented noun phrases (Determinant + noun + adjective) with or without gender agreement violations between the noun and the adjective (e.g., el camarero alto/alta). The emotionality of the adjectives was manipulated across studies, so that they were neutral, neutral and pleasant, and neutral and unpleasant in Exp. 1, 2, and 3, respectively. Individual ERP responses were analysed with the aim of determining if different neural patterns emerged in the presence of emotional words and gender agreement errors.

Besides a general early facilitation effect for unpleasant words compared with pleasant ones, individual differences in morphosyntactic processing were found across experiments in that participants displayed a continuum between a negativity (more LAN effects) and a positivity (more P600 effects) dominance pattern. Critically, an interaction between grammar and emotion was only found in the LAN time window in the positivity dominance group, in the form of a reduced LAN for agreement violations in unpleasant words. Taken together, our results confirm the existence of individual differences in the way the brain handles linguistic units with emotional content.

¿Y tú, qué sabes? Theory of mind in a foreign language.

Andrea González García (1) Alice Foucart (1)

1) Nebrija University

Does using a native language (NL) or a foreign language (FL) affect our social behaviour? It has been shown, for instance, that the perception of emotions is often reduced in a FL compared with a NL, which can affect the decisions we make, how we process our own values, and we perceive ourselves. Based on previous literature, we hypothesized that using a FL may also modulate the perception of others' mental states, known as theory of mind (ToM). The prediction was two-fold; either one is more rational when using a FL, paying more attention to others, or, due to emotional distance in a FL, ToM may be reduced. We conducted an online false-belief task in which 159 participants were presented with two versions of a scenario, either in their NL (Spanish) or FL (English). In this scenario, Anna puts an object (her violin) in a (blue) box and leaves the room. While she is away, Sara enters the room. In the 'Shared Knowledge' condition, Sara reorganizes the boxes in the room without moving the object. In the 'Private Knowledge' condition, Sara moves the object from the blue box to another (red) box. The percentage of chances Anna would look for her violin in the red box in the Private Knowledge condition was higher in the FL than in the NL condition, suggesting that participants answered considering their own private knowledge more often when using a FL than their FL. These results indicate that ToM is reduced in a FL context.

Investigating the effect of a non-standard foreign script on emotional word processing

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Creating a parallel between foreign accented speech in spoken word recognition and the use of different scripts in visual word recognition, this study investigated whether access to emotion-related representations is independent of or interacts with the orthographic characteristics of words. Sixty Greek native speakers participated in a lexical decision task in which script (Greek vs. Greeklish [Greek written in the Latin alphabet]) and valence (positive vs. negative vs. neutral) were manipulated. The results showed faster reaction times for words written in Greek (e.g., μύκητας 'fungus') than for their counterparts in Greeklish (e.g., mykitas; see Dimitropoulou, Duñabeitia, & Carreiras, 2011). Also, positive words were recognised faster than neutral and negative words (680 vs. 724 vs. 755 ms), and neutral words were recognized faster than negative words (all ps < .05; Estes & Adelman, 2008; Estes & Verges, 2008), but the interaction between script and valence was not significant. Error analysis yielded more errors for negative and neutral words than for positive words (both ps < .05). Our results show that (i) positive emotional content accelerates lexical access, whereas negative emotional content slows it down and (ii) differential orthographic representations impact emotional content activation in the same way. Thus, a non-standard foreign script does not have the same effect on the processing of affective connotations as foreign accent has (Hatzidaki, Baus, & Costa, 2015), despite the fact that both demonstrate larger costs than a standard script or a standard accent during the mapping of orthographic form onto phonological information and vice versa.

Prepositions interact with structural priming of ditransitives

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1) University of Antwerp

2) Ghent University

Structural priming (processing a structure facilitates re-using that particular structure) is a method to investigate syntactic processing. Bock (1989) showed that priming of the dative alternation (direct object: give the man the book [DO] – prepositional object: give the book to the man [PO]) occurs independently of the preposition used (to or for). This has led to experimental designs testing dative priming without controlling for the verb preposition.

We tested 92 native speakers of English in an online dative production experiment, which was designed as a control experiment for testing structural priming in comprehension. Since preposition effects were not investigated in comprehension priming before, we controlled the verb preposition. Participants listened to 32 prime sentences and were then asked to describe a ditransitive picture. We coded their written responses as DO or PO.

We found that dative verbs associated with to have a DO-bias (56.2% DO responses) and dative verbs associated with for have a PO-bias (70% PO responses). We observed both DO-priming (6.9 %p, $p<.01$ and PO-priming (4.1 %p, $p<.05$) as compared to a baseline condition. In pairwise comparisons, we only found reliable DO-priming if the preposition associated with the verb was for both for the prime sentence and for the target sentence ($p<.01$). PO priming was not statistically significant in any of the pairwise comparisons and was especially small if the target preposition was to.

These unexpected results suggest that prepositions do interact with structural priming and that their effect on structural priming effects should be re-examined more thoroughly.

Individual differences in lexical access predict semantic priming sensitivity: Evidence from naturalistic reading and primed lexical decision

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1) University of Mannheim

Semantic priming refers to the facilitated access to words (targets) after they have been preceded by words (primes) related in meaning (Meyer & Schvaneveldt, 1971). Despite the pervasiveness of the paradigm in psycholinguistic research, extant research has mostly focused on data averaged across participants and, thereby, neglected individual differences implicitly assuming that the lexical-semantic processing system is the same across participants (Yap et al., 2017). At word level, highly accessible primes in combination with difficult to process targets yield the largest priming effects (Hutchison et al., 2008). This generates ambivalent predictions about how individual differences in lexical access may contribute to differences in semantic priming sensitivity. Rogers and Friedman (2008) provided initial evidence that groups of dementia patients with better lexical access also show larger priming effects, but – to our knowledge – the continuous relationship between accessibility and semantic priming has not been investigated. Therefore, we replicated the primed lexical decision task by Rogers and Friedman (2008) in combination with an eye-tracked naturalistic reading task with 48 young adults. Early reading measures (first fixation duration and first pass reading times) provided an independent measure of lexical access. Linear mixed-effects regression modelling revealed that readers with higher lexical access were more sensitive to semantic priming, yet not necessarily faster in the lexical decision task. For individual variation in semantic priming, prime accessibility seems thus more decisive than the effort invested in processing targets. We discuss methodological and theoretical implications.

Internet based language production research with overt articulation - proof of concept and recommendations

Anne Vogt (1,2) Roger Hauber (1) Anna K. Kuhlen (1) Rasha Abdel Rahman (1,2)

1) Humboldt-Universität zu Berlin

2) Berlin School of Mind and Brain

So far, language production experiments with voice onset latencies as dependent variable have not been conducted online due to technical difficulties. Especially the poor audiovisual synchrony in web experiments (Bridges et al., 2020) is a challenge to time-locking stimuli and participants' spoken responses. We tested the viability of conducting language production experiments with overt articulation in online settings using the picture-word interference paradigm – a classic language production paradigm. In three experiments (N=48 each), participants named an object picture while ignoring a visually superimposed distractor word. To this end, we implemented a custom voice recording option in two different web experiment builders and recorded naming responses in audio files. After the experiment, we extracted voice onset latencies from these stimulus-locked audio files. In a control task, participants classified the last letter of an object picture's name as a vowel or consonant via button-press (see Abdel Rahman & Aristei, 2010). We expected slower responses when picture and distractor word were semantically related compared to unrelated, independently of task. This semantic interference effect which is robust but small (18-24ms according to a meta-study by Bürki et al. 2020) and therefore crucially depends on precise timing, was successfully replicated in this online setting, both for button-press and overt naming responses. This provides a proof of concept that naming latency - a key dependent variable in language production research - can be reliably measured in online experiments. We will discuss the challenges for online language production research and give suggestions how to overcome them.

The effect of perceived orientation of rotated stimuli on the processing of motion words

María Fernández-López (1) Eva Gutiérrez-Sigut (2) Marta Vergara-Martínez (1)

1) Universitat de València

2) University of Essex

In the field of embodied cognition, a large number of experiments demonstrate a link between action and language. Embodied cognition claims that in the processing of word meaning, the same sensorimotor brain areas are recruited as those interacting in the action the words refer to. While many studies focus on action perception of real movement, the evidence is less clear for visual static perception. Hence, we investigate if meaning access is permeable to perceptual-arbitrary cues (orientation). We used action Spanish verbs (infinitive form) that referred to upward/downward motion

or had an upward/downward connotation (to increase, to build…; to land, to reduce) and presented them in a congruent or incongruent form (rotated 450 upward: /; or 450 downward: \) in a lexical decision task. If the visual display of the word automatically evokes its orientation interpretation (rotated 450 upward meaning "upward"; rotated 450 downward meaning "downward"), this might influence the access of word meanings. Based on previous evidence (Meteyard et al, 2007; 2008) we expected to observe facilitatory effects when orientation and word meaning overlap. Response latencies showed an effect of both the word type and congruence. Faster response times were obtained for the upward compared to downward words (larger frequency of use). More importantly, congruent stimuli elicited faster responses than incongruent stimuli. This means that, not only is low level perceptual information rapidly interpreted according to arbitrary frameworks (orientation), but also that this information is engaged in the semantic processing of words, in line with current theories of embodied cognition.

TALK43 (Office 18) **Wednesday 23, 10:00-18:00 CEST**

The actres was on the balcony, after all: eye-tracking locality and PR-availability effects in Spanish

Miriam Aguilar (1) Jose M. Gavilán (2) Pilar Ferré (2) Jose A. Hinojosa (3,4) Josep Demestre (2)

1) Universidade Nova de Lisboa

2) Universitat Rovira i Virgili

3) Universidad Complutense de Madrid

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We challenge the old classification of high versus low attachment languages in object-modifying Relative Clauses preceded by two potential hosts (DP1 of DP2 RC) and show that Spanish, a key language in this literature since the seminal work of Cuetos and Mitchell (1984) can display a low attachment preference when specific factors are controlled. Among these factors, a central one is the alternative parsing of Pseudo-Relative Small Clauses, a neglected structure in the psycholinguistics literature perhaps explained by its superficial resemblance to Relative Clauses. In spite of being string identical, these two structures hold different structural, semantic and prosodic properties. In this study we test the offline and online effects of the availability of Pseudo-Relatives on the parsing of Relative Clauses.

It has been claimed that Pseudo-Relatives are preferred to Relative Clauses because of their simplicity at the structural, interpretive and pragmatic levels, and act as a confound in the attachment literature (Grillo, 2012; Grillo & Costa, 2014).

The results of an offline questionnaire and an eye-tracking while reading experiment show that attachment preferences are modulated by the selective availability of Pseudo-Relatives. When this factor is controlled, parsing of Relative Clauses in Spanish is initially ruled by principles of locality as shown by first fixation and gaze duration reading times, which can eventually be overridden by other factors such as length. Our results suggest that previous literature might have been confounded by the availability of Pseudo-Relatives and highlight the importance of controlling this factor in future research.

The effect of language switching on syntactic processing

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2) University of Zurich (UZH)

Most experimental research on language switching has focused on switch costs and the factors modulating them. In contrast, the interplay between switch effects and each level of language processing has not been studied in depth yet. Hut and Leminem (2017) showed that language switching does not interfere with semantic processing. In two self-paced reading experiments, we investigate whether language switching affects syntactic processing, and particularly, agreement encoding.

In Experiment 1 (in-lab), 24 L1Spanish-L2English bilinguals read sentences followed by an acceptability question. Four types of sentences were presented combining switch (Only English vs. L2English-to-L1Spanish codeswitch) and grammaticality (correct vs. incorrect): The report on the shelf ...is/*are about public health vs. ...es/*son sobre salud pública. Experiment 2 (online; N=51) additionally included a codeswitch-directionality variable (L2English-to-L1Spanish vs. L1Spanish-to-L2English), and a comprehension rather than acceptability question.

LME analyses showed main switch and grammaticality effects across experiments (slower reading times in switch and ungrammatical conditions). In Experiment 1, the switch by grammaticality interaction appeared at the verb region, with grammatical violations only affecting non-codeswitched sentences (but affecting both non-codeswitched and codeswitched sentences at verb+1 region). In Experiment 2, the interaction appeared at verb+1 region, with grammaticality effects only in sentences with L2English-to-L1Spanish codeswitching (assessed by 3-way interaction). Thus, despite the different interaction patterns found across experiments, possibly due to different task demands, switching costs showed to affect agreement encoding.

We conclude that codeswitching affects syntactic processing (e.g., delays violation detection), contributing to a deeper understanding of how bilingual language control affects processing across different levels.

On the origin of cumulative semantic interference in picture naming: Evidence from behavioural data and ERPs

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1) Humboldt-Universität zu Berlin

2) Westfälische Wilhelms-Universität Münster

When naming a sequence of pictures of the same semantic category (e.g., furniture), latencies increase with each additional category member. While this cumulative interference effect is said to emerge at the lexical level of language production (e.g., Belke, 2013; Howard et al., 2006; Oppenheim et al., 2010), its origin is still a matter of debate. Some assume that it originates between the conceptual and lexical level (e.g., Howard et al., 2006; Oppenheim et al., 2010). Belke (2013), however, demonstrated that cumulative effects are also observed in a purely semantic classification task. In this case, facilitation is observed instead of interference, suggesting a common conceptual-semantic origin of both effects.

In two EEG-experiments, we investigated the neuro-cognitive signatures of cumulative semantic interference and cumulative semantic facilitation in the same group of participants (N=36), to better understand the underlying source of the two effects. As expected, within a given semantic category, speakers' response latencies systematically increased in the continuous picture naming task and decreased in the semantic classification task. These behavioural effects were mirrored by preliminary analyses of the speakers' ERPs, showing an increased posterior positivity in both tasks, in similar time windows. Furthermore, the behavioural data showed that cumulative interference in picture naming can be predicted by the individuals' effect sizes of cumulative facilitation, suggesting a strong connection between the two effects. Our results, thus, point to a conceptual-semantic origin of cumulative semantic interference in picture naming (Belke, 2013; see also Abdel Rahman & Melinger, 2019).

L1 semantic extensions in Spanish-French late bilinguals: psycholinguistic factors

Lyanne Ahumada Ebratt (1) Barbara Köpke (2)

1) University of Toulouse

2) Octogone-Lordat

Semantic extensions (SE) are misleading meaning associations that arise from transfer between two languages, e.g, the meaning of 'entendre' (to listen) in French may produce a semantic transfer in Spanish extending the sense of 'entender' (to understand) in 'no entiendo el ruido del tren' ('I don't understand the noise of the train') (Grosjean & Py, 1991). We have investigated SE due to the influence of L2 on the L1 of immersed late Spanish-French bilinguals comparing a group of late bilinguals in immersion in France (average length of immersion = 4.6 years) with a group of Colombian monolinguals (naïve in L2 French) using a lexical decision task. In order to better understand whether SE arise at the lemma or the lexemic level (Jarvis, 2009), we controlled two factors in the word-pairs presented: neighborhood density (Müller et al., 2010) and morphological family size (Mulder et al., 2014) of the words in both L1 and L2 in different experimental conditions. Neighborhood density is supposed to reflect links at the lexemic level (formal links between word forms) and morphological family size at the lemma level (semantic links between words) during CLI. The results were analyzed with a LMEM model in R and revealed a facilitating effect of L2 dominant neighborhood density stimuli in the bilingual group, revealing transfer from L2 to L1 at the lexemic level. This finding shows that the word form level is involved in SE.

TALK47 (Office 22) **Wednesday 23, 10:00-18:00**

(Non)accented vowels and vowel reduction in Catalan

María Fernández-López (1) Ana Marcet (1) Ana Baciero (1,2,3) Albert Sesé (4) Manuel Perea (1,2)

1) Universitat de València

2) Nebrija University

3) DePaul University

4) Universitat de les Illes Balears

Although the Latin-based orthographies of most Western languages employ vowels with accent marks (e.g., é vs. e), models of letter and word recognition are agnostic as to whether these accented letters and their non-accented counterparts are represented by common or separate abstract units. Recent research in French with a masked priming alphabetic decision task was interpreted as favoring the idea that accented and non-accented vowels are represented by separate abstract orthographic units (orthographic account: é↛e and e↛é; Chetail & Boursain, 2019). However, an alternative explanation is that salient (accented) vowels are less perceptually similar to non-salient (non-accented) vowels than vice versa (perceptual account: e→é, but é↛e; Tversky, 1977). To adjudicate between the two accounts, we conducted a masked priming alphabetic decision experiment in Catalan, a language with a complex orthography-to-phonology mapping for non-accented vowels (e.g., e→/e/, /ə/, /ɛ/). Results showed faster responses in the identity than in the visually similar condition for accented targets (é-É < e-É), but not for non-accented targets (e-E = é-E). Neither of the above accounts can fully capture this pattern. We propose an explanation based on the rapid activation of both orthographic and phonological codes for é-É, but not for e-É (i.e., e and É do not share neither the phonological or orthographic codes).

Two languages – single parser: Russian-English code-switching

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The study investigates how a bilingual mind operates two languages to process ambiguous relative clauses (RC) code-switched between Russian and English. The subjects are advanced L2 speakers of English, whose L1 is Russian. For RC resolution, Russian is a high attachment (HA) language, English is a low attachment (LA) one.

The novel methodology checks whether 1) non-balanced bilinguals stick to RC resolution typical for a given language (code-switching at a|| or b|| keeps the longer part of the sentence in one language, which dictates RC attachment preferences); or 2) they rely on universal prosodic prompts (code-switching at 1|| and 2|| forces the implicit prosodic breaks, as a result, 1|| favors LA, 2|| HA).

Bill saw a|| the mother of the woman that was talking about cosmetics in the yard.

Bill saw the mother of the woman that was talking about cosmetics b|| in the yard.

Bill saw the mother 1|| of the woman that was talking about cosmetics in the yard.

Bill saw the mother of the woman 2|| that was talking about cosmetics in the yard.

A self-paced reading experiment demonstrates similar processing costs in Russian → English vs. English → Russian code-switching. For RC resolution, code-switching at 2|| results in HA, at 1|| in LA. Meanwhile, LA is preferred in conditions a|| and b||.

To process sentences with code-switching, the human parser appeals to the universal constraints. It sacrifices the parsing preferences established for individual languages and integrates them into a bigger system which governs human language processing.

Domain-specific control mechanisms dampen prepotent semantic information during visual word recognition

Simone Sulpizio (1) Remo Job (2) Paolo Leoni (2) Michele Scaltritti (2)

1) University of Milano-Bicocca

2) University of Trento

Executive attention plays a relevant role in visual word recognition, e.g. by controlling the involvement of lexical vs sublexical processing or by regulating the information flow through different representational stages. However, the role of cognitive control on semantic processing is largely unknown. The aim of the present work is to start addressing this issue by investigating whether semantic interference that occurs during visual word recognition is resolved using domain-general control mechanisms or using more specific mechanisms related to semantic processing. Our participants performed three tasks: a lexical decision task with taboo stimuli, which induce semantic interference, a semantic Stroop task, intended as an index of linguistic-semantic interference, and the Simon task, intended as an index of non-linguistic interference. We used a correlational approach to investigate potential similarities between effects produced in the three tasks, both at the level of overall means and as a function of response speed (delta-plot analysis). Correlations selectively emerged between the lexical decision and the semantic Stroop task. Our results suggest that, during visual word recognition, semantic interference is controlled by semantic-specific mechanisms: These mechanisms intervene to face prepotent but task-irrelevant semantic information that interferes with the accomplishment of the task's goal.

Effects of variability in adult second language learning

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1) Universitat Pompeu Fabra

2) Universitat de Barcelona

The present study explored how variability in the input signal (i.e., number of instructors) influences second language learning and how this process is modulated by the similarity of the language to be learned with the first language of the learner. To prove this, three experiments were conducted were participants learned: English words, pseudowords, and Catalan Sign Language, LSC. 54 native speakers of Spanish and Catalan participated in each experiment. Variability in the number of instructors was compared in three conditions: no variability— six repetitions of each word in the voice of one speaker—, moderate variability— two repetitions of each word in the voice of three different speakers—, high variability— one repetition of each word in the voice of six different speakers—. Learning accuracy was measured in two tasks: picture-to-L2 and L2-to-L1. The results in the three experiments revealed a different influence of variability depending on the task. These results show that variability enhances second language learning in different modalities regardless of the similarity of the language to be learned with the first language of the learner.

Spanish grammatical gender through the eyes of the L1 Spanish-L2 English bilingual child

Tamara Gómez Carrero(1) Raquel Fernández Fuertes (1)

1) University of Valladolid

Codeswitching has been used as a tool to investigate how the properties of two language systems interact in the bilingual mind. As previous work has mostly focused on adult data, we target a group of L1 Spanish-L2 English bilingual children in Spain. We investigate how the mental representation of the formal features in DP switches is responsible for the sensitivity to grammatical gender by exploring the directionality of the switch (1) and the type of gender agreement mechanisms in Spanish determiner switches (2-3).

(1) a. El señor está arreglando LA WINDOW with a hammer (Spanish determiner-English noun)

b. The man is fixing THE VENTANA con un martillo (English determiner– Spanish noun)

(2) lafeminine windowfeminine / elmasculine bookmasculine (gender congruent)

(3) elmasculine windowfeminine / lafeminine bookmasculine (gender non-congruent)

Reading eye-movement data were collected with an EyeLink Portable Duo. Participants read 156 sentences (48 experimental items, 54 fillers and 54 distractors) and answered to comprehension questions which followed only fillers and distractors. Two late eye-tracking measures were extracted (regression path duration and total fixation duration) and calculated for two target regions: the determiner plus 4 previous characters preceding it and the noun.

Regarding directionality, processing costs are higher in the case of Spanish determiner switches. As for gender agreement, gender non-congruent switches result in longer processing times. We explained these results in terms of language dominance: the strength of Spanish as L1 guides gender agreement operations. Our results are in line with previous works on adult eye-tracking data.

Modulation of brain activity during word reading in low- and high-skilled readers: a tDCS study in Spanish

Nicolás Gutiérrez-Palma (1) Carlos Javier Gómez-Ariza (1) Cristina Lendínez (1) Susana Plaza-Navas (1)

1) University of Jaén

The technique of transcranial direct current stimulation (tDCS) has been successfully used to modulate word reading. However, research has been mainly conducted in English, an "opaque" language without clear grapheme-phoneme correspondence. In this work, we used the tDCS technique in Spanish, a "transparent" language. We studied its effectiveness in a single session and with a sample of university students of high and low reading ability (n= 12 and 13). Participants had to read aloud words and pseudowords while they received stimulation over CP5 (left hemisphere). Results showed facilitation in word reading, not in pseudoword reading, and only for good readers. This facilitation effect might be obtained through the visual route of word reading due to the activation of the lexical representations. In the low-ability group, their lexical representations' quality would be worse, and thus they would need more stimulation sessions. These results are preliminary, but they suggest that the tDCS technique might be used to facilitate word recognition and word naming through the visual pathway.

Electrophysiological correlates of outline word-shape processing in deaf readers

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2) University College London

3) Universitat de València

4) Nebrija University

Skilled hearing readers can quickly access the abstract representations of the letters within a word regardless of peripheral visual features such as the word's outline-shape (Lavidor, 2011; Perea & Panadero, 2013). Deaf readers can also quickly process orthographic representations during word recognition (Gutiérrez-Sigut, Vergara-Martínez, & Perea, 2019). However, previous research suggests that deaf readers rely more on visual information than their hearing counterparts. Interestingly, Padden (1993) found a high rate of confusions among letters with ascenders (t, d, b) or descenders (p, q, g) in deaf people's spelling patterns, which could reflect attempts to reproduce the outline shape of words.

Here, we investigated the electrophysiological correlates of word outline-shape processing during visual word recognition in a group of 23 deaf readers and matched hearing readers. Participants made lexical decisions to words (e.g., violin) and pseudowords with an outline shape that was consistent (e.g., viotin) or inconsistent (e.g., viocin) with their base word.

We found no differences between both types of pseudowords for hearing readers at any time-window of the ERP data. However, for deaf readers, inconsistent-shape pseudowords (viocin) elicited larger amplitude ERPs than consistent-shape pseudowords (viotin). The differences started as early as 150 ms and lasted until 550 ms after stimulus onset. This finding suggests that the overlap in perceptual-visual features between words and pseudowords (outline-shape) overcomes lexical status for deaf but not hearing readers. Thus, the present ERP findings strongly suggest that deaf readers rely to a greater degree on visual characteristics during word recognition than their hearing counterparts.

SESSION C

TALK54 (Office 01) **Thursday 24, 10:00-18:00 CEST**

Gender stereotyped written statements influence ERP responses to subsequent male and female faces

Pablo Rodríguez-Gómez (1,2) Verónica Romero Ferreiro (1,3,4) Miguel A. Pozo (1) José Antonio Hinojosa (1,4) Eva M. Moreno (1,3,4)

1) Universidad Complutense de Madrid

2) CES Cardenal Cisneros

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4) Nebrija University

Event-Related Potentials to images are known to be influenced by prior verbal context. We created contexts in which an action, a preference, or a situation was either gender unbiased or typical of men or women. Forty participants (20 women) read those sentences while brainwaves were recorded to the subsequent processing of a male or a female face. Linear mixed-effects models were conducted to account for possible random effects from both the participants´ sex and the strength of the gender bias. Our results revealed that, regardless of the gender of the face, the amplitude of the N170 was larger following stereotyped relative to gender unbiased statements in both male and female participants, although the effect was larger for males. In later time-windows, all participants elicited larger LPP responses to the violation of male stereotypes (i.e. masculine statements followed by female faces), indexing a post-perceptual reevaluation of a salient or conflicting event. In addition, female participants showed the largest LPP amplitude to the compliance of feminine gender stereotypes (i.e. feminine statements followed by female faces), indexing women´s salience/conflict with them. Thus, reading gender stereotyped statements induces both early and late ERP effects to faces. The early impact is to any face after any stererotyped statement (particularly for men) and the late impact is specific to violations of male stereotypes (for both men and women) and to the compliance of female stereotypes, only for women. Thus, face processing depends on verbal context in a highly specific and differential manner for men and women.

Speech perception in video hosting services: effects of COVID 19

Maria Pilgun (1)

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Coronavirus-19 pandemic are forcing a realignment of how we perceive and assess our perception, how we understand and respond to our environment, and how we engage with one another. So, one of the consequences of the pandemic was the total spread of online communications, which have become the main means of communication. Video hosting services show particular activity, which previously rapidly expanded their positions in the media landscape, and during the pandemic became the leading channel of digital communication.

The user-generated content that video hosting users upload and view is a valuable material for analyzing speech perception.

The aim of the study was to identify the specifics of the perception of the Covid 19 pandemic by Russian-speaking social media actors.

To analyze the content, a multimodal approach using neural network technologies, text analysis, content analysis, sentiment analysis, and analysis of word associations was used.

The empirical basis of the study was Russian-language videos dedicated to Covida 19. The collection date is from 1.03.2020 to 01.02.2021 (51,457,946 tokens).

The results of summarization and the study of the textual data structure showed that the following topics were most actively discussed: the effectiveness of the actions of the authorities, government agencies during a pandemic, medical aspects, quarantine measures, and economic problems.

Sentiment analysis, analysis of aggression and word associations, carried out based on the results of associative search and construction of an associative network, made it possible to identify implicatures, subtext information characterizing the attitude of actors to the selected thematic blocks.

Analysis of the data showed that the perception of Moscow actors and users from other regions is very different. Quarantine measures were perceived by the actors mainly as a necessary necessary measure introduced by the state to combat the spread of coronavirus infection. The core of the semantic and associative network is made up of neutral and positive nominations, there is no negative connotation. The actions of the authorities also received a neutral and positive assessment. Medical topics are perceived differently at different times of the pandemic. The greatest concern for users is the economic impact of the pandemic.

PHOR-in-One: a cross-linguistic lexical database with PHonological and ORthographic similarity wstimates for words in four languages

Ana Santos Costa (1) Montserrat Comesaña (1) Ana Paula Soares (1)

1) University of Minho

A vast amount of research has shown that, for monolinguals and bilinguals alike, the speed and accuracy with which words are recognized, named and categorized is influenced by a number of variables. One such variable is the extent to which the orthographies of two translation equivalents (e.g., paper-papel, in English and Spanish), overlap, and is typically assessed using the normalized Levenshtein Distance (NLD), a metric that computes the number of insertions, deletions or substitutions required to transform one string into another, considering the length of the two strings. Despite the relevance of the NLD in estimating the degree of orthographic overlap across languages, the difficulty in implementing a similar metric for phonology has largely discouraged the conduction of studies investigating the impact of phonological similarity in second-language acquisition and processing. To address this concern, we developed PHOR-in-One, a cross-linguistic lexical database that offers a set of orthographic and phonological similarity estimates for over 6,100 translation equivalents with varying degrees of formal overlap in British and American English, European Portuguese, German and Spanish, as well as an array of language-specific data such as word frequency, Part-of-Speech and number of letters and phonemes. PHOR-in-One also provides a new metric of phonographic similarity based on an estimate of the degree of orthographic and phonological overlap combined, which is particularly suited for research aimed to control/manipulate the two indices of similarity across languages. For the innovation it brings, PHOR-in-One is an invaluable tool to support current research with bilingual and multilingual populations.

The L2 development of syntactic structures: a longitudinal structural priming study

Rianne van Lieburg (1) Edwige Sijyenyiyo (1) Robert Hartsuiker (2) Sarah Bernolet (1)

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Introduction. Sentence production in language learners can be investigated using structural priming (processing a structure facilitates re-using that structure). Priming effects are stronger for more proficient learners than for less proficient learners. The developmental model of Hartsuiker & Bernolet (2017) outlines five possible stages through which language learners go during the acquisition of syntactic structures. In a longitudinal study, we test the predictions of this model in beginning learners of Dutch with transitives. We hypothesize that priming effects are initially only found for the more frequent active structure and only later for the less frequent passive. We expect that priming effects increase over time.

Method. 17 students in a Dutch course participate 5 times in a priming experiment. Participants listen to 24 prime sentences with an active “de bakker roept de dokter” [the baker calls the doctor] or a passive “de dokter wordt geroepen door de bakker” [the doctor is called by the baker]. They then describe a picture with a transitive. We code their responses as Active or Passive.

Results. The preliminary results of the first two sessions show a trend towards active priming ($p<.1$, a priming effect of 5.3 %p) and no passive priming (the opposite of what is usually found in native speakers). Participants produce significantly more passives in the second session (26.2%) than in the first session (16.3%, $p<.01$).

Discussion/Conclusion. The preliminary results confirm the hypotheses for the earlier stages of language learning. The other three sessions will take place between 1 March and 13 June.

Do pictures help to learn Chinese words?

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Studies showed pictures facilitate written word learning in alphabetic languages, but pictures may also distort the monitoring process in metamemory, undermining learning outcomes. Past research revealed that phonological encoding automatically precedes semantic access, suggesting that it may be easier to learn phonologically accessible words than inaccessible ones. However, there is no research on how pictures affect word learning in non-alphabetical languages, usually phonologically obscure for alphabet users. Will pictures help to learn Chinese words? Will pictures distort monitoring in learning Chinese words? One hundred thirteen Russian and Colombian participants studied 40 word-aid pairs in four conditions: Hanzi (Chinese in Chinese characters) & picture; Pinyin (Chinese in Latin alphabet) & picture; Hanzi & translation; Pinyin & translation. Participants first evaluated the future recallability of the words and their meanings on a confidence scale (0% to 100%); then they completed a distractor task, and finally a recognition test for the pairs, in which participants also indicated the confidence that the answer selected was correct. Words written in Pinyin and words paired with a translation were judged to be easier to remember than Hanzi and when paired with a picture. Also, participants remembered the meaning of Hanzi more accurately than Pinyin, and words paired with translations more accurately than pictures, but they were more confident about words paired with pictures. Overall, these results suggest that pictures boost confidence in learning Chinese, but not efficacy. Our study is significant as it provides future research directions on vocabulary learning in other non-alphabetical writing systems.

LextPT: A reliable and efficient vocabulary size test for L2 Portuguese proficiency

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Vocabulary size has been shown to be a reliable L2 proficiency predictor (Meara 1996; Bonk 2000; Zavera et al. 2005). Among the existing tests, LexTALE (Lexical Test for Advanced Learners of English, Lemhöfer and Broersma, 2012) is considered a valid instrument for assessing L2 English proficiency. equivalents of LexTALE were developed for French (Barysbaert 2013), Spanish (Izura et al 2014), Chinese (Chan and Chang, 2018), and Italian (Amenta et al. 2020). The present study introduces the Portuguese version, LextPT.

The construction of LextPT comprises a pilot and a validation study. In the pilot phase, we tested 90 words from two subtitle-based lexical corpora (Soares et al. 2015; Tang 2012) and 90 nonwords. 130 L1 and 120 L2 speakers were asked to indicate which words they believed to be real Portuguese words. Based on the point-biserial analysis and the IRT analysis on participants' responses, the most suitable 90 items (60 words, 30 nonwords) across various difficulty levels and with the strongest discrimination power were included in the final version of LextPT.

The quality of these 90 items was further assessed in a validation study where the responses of 749 new informants, 297 L1 (134 EP, 163 BP) and 452 L2 speakers (270 EP, 182 BP), were analysed. The reliability tests showed that LextPT is valid not only for learners of both varieties (EP: α=0.93; BP: α=0.94), but also for learners with different L1 backgrounds (Chinese: α = .87; Germanic: α = .93; Romance: α = .95; Slavic: α = .91).

Expecting an antecedent does not entail predictive structure building: Evidence from Dutch cataphora (self-paced reading)

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1) NTNU Trondheim

2) University of Toronto

Background: During incremental processing, the parser cannot fully interpret cataphors like he in (1) until their antecedent is encountered. Based on Gender/Number-Mismatch Effects (GMME/NMMEs), previous research argues that the parser expects the antecedent in the next syntactic position (Van Gompel&Liversedge, 2003). Readers slow down at a mismatching compared to a matching subject NP.

(1) When he/she had sown the field, the boy….

(2) Dutch word order: When he/she the field had.SG sown, [had.SG the boy/had.PL the boys]…

We tested whether the parser commits to a subject antecedent before encountering the subject position in Dutch, a V2 language with subject-verb number agreement. If the parser predictively commits to a subject antecedent, this should trigger a prediction of a number-matching main verb. In Dutch, the finite verb precedes the main subject in sentences like (2). We looked for NMMEs between a cataphor and the main verb as evidence of early subject prediction.

2 self-paced reading experiments: (n=80; n=160) We manipulated number-match between the main subject and a cataphor (example 2). In 10 separate items, we manipulated the gender of the main subject, to replicate the classic GMME.

The representation of conceptual aspect in Dutch: a syntactic priming study

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This study investigates whether progressive aspect can be primed between sentences with different constituent structures in Dutch. Gerwien and Flecken (2015) showed that progressive aspect can be primed in Dutch between transitive sentences. This effect could be purely syntactic in nature, resulting from residual activation in the syntactic template that is linked to progressive aspect in Dutch. Alternatively, the effect is caused by activation on the syntactic and the conceptual level: when a progressive prime sentence is comprehended, activation from the syntactic template spreads to the conceptual level activating the corresponding temporal perspective on an event. In the latter case, it should be possible to prime progressive aspect between sentences with different constituent structures.

We conducted an online syntactic priming experiment in which participants provided written descriptions for pictures of intransitive events (e.g. a man cheering). The pictures were preceded by prime sentences with progressive verb forms, verb forms in the simple present tense or baseline primes (predicative sentences). Except for the baseline condition, prime and target sentences used verbs with the same (prime and target sentence intransitive), or a different valency (prime transitive, target intransitive). The results (N=100) showed main effects of aspect ($p<.001$) and valency ($p<.001$), but also an interaction between both factors ($p<.05$). Progressive priming was stronger between intransitive sentences, but progressive transitives caused a small increase in the proportion of progressive verb forms (2.5% vs baseline, $p=.052$), suggesting that the priming effects are partly conceptual.

Speech-based assessment and diagnosis of Alzheimer's disease

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1) University of Salamanca

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Alzheimer's disease (AD) is the most common neurodegenerative disease. Pathophysiological processes underlying AD may start as much as 20 years prior to the appearance of the first clinical symptoms (mainly, episodic memory impairment and anomia), rendering it particularly difficult to slow down cognitive impairment progression when speakers are diagnosed with clinical dementia. It is, thus, crucial to develop new experimental methods and techniques that would allow for preclinical and presymptomatic detection of AD, specifically in elderly with amnesic Mild Cognitive Impairment (MCI).

In this work we present the results from our experimental studies with speakers with AD, MCI and non-pathological senescence (NPS), which allowed us to detect changes in speech production that can predict MCI progression to AD. Our results proceed from 182 older speakers (NPS = 102; aMCI = 38; AD = 42), who were recorded with Apogee MIC Digital when reading a standardized well-known text (for excluding extensive memory involvement). Data were analyzed in Praat and suggest that people progressing to AD: (a.) show increased percentage of deaf segments and pauses; (b.) increased proportion and number of pauses in speech; (c.) increased number of voice breaks; (d.) reduced sound pitch; (e.) reduced syllable structure and elocution pace; and (f.) reduced phonation time. We discuss these results for their reliability and sensitivity for early discrimination of aMCI due to AD.

Meanings across tasks: behavioural and neurophysiological evidence on the processing of ambiguous words

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1) Universidad de Zaragoza

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Ambiguous words can have related or unrelated meanings. Rodd et al. (2002) found that words with multiple related meanings (polysemes, e.g. newspaper) were recognised faster in lexical decision tasks (LDT) than words with multiple unrelated meanings (homonyms, e.g. bat). However, some studies have reported no differences between polysemes and homonyms in LDT (Haro et al. 2017; Hino et al. 2010). One possible explanation for these conflicting results is that LDT does not have the level of semantic engagement needed for a participant to activate all possible meanings (and thus, be aware of their degree of relatedness).

The present study compares homonyms and polysemes (as well as unambiguous words) in tasks of increasing level of semantic engagement to check whether the differences between polysemes and homonyms appear depending on the type of task. Four tasks were conducted in which the degree of semantic engagement was manipulated: participants had to answer whether the stimulus was a word (Experiments 1 and 2), was a member of a given semantic category (Experiment 3) and had one or more than one meaning (Experiment 4). Reaction times and pupillary response were recorded. As far as we know, pupillary response had never been used before to study ambiguous words.

Results show an effect of ambiguity in tasks with a high degree of semantic engagement. However, differences between polysemes and homonyms are not found. These results seem incompatible with theoretical accounts that suggest that the representation of ambiguous words varies depending on the relatedness between their meanings.

Case marking influences the apprehension of briefly exposed events

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1) University of Zurich

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When preparing to describe an event picture, speakers can apprehend the who-does-what-to-whom rapidly, in merely 100–300 ms (Dobel et al., 2007). Event apprehension has been argued to be a prelinguistic process (Griffin & Bock, 2000), operating before grammatical and linguistic encoding. We present two brief exposure experiments (cf. Hafri et al., 2003) that test whether case-marking differences in Basque and Spanish can impact event role apprehension. In Basque, agentive subjects are marked by ergative, whereas in Spanish all subjects carry the unmarked nominative case. This may require Basque speakers to commit to a subject case marker early during sentence planning (cf. Sauppe et al., 2021). We hypothesized that such an early commitment to case marking in Basque affords heightened attention to agents already during event apprehension, as compared to Spanish.

In Experiment 1, native speakers of Basque (N=90) and Spanish (N=88) participated online and saw photographs of events (e.g., a man watering a plant) for 300 ms, followed by a description or recognition task. Experiment 2 (N=32 each) was the in-lab version and additionally measured gaze allocations to pictures. Accuracy and fixations were analyzed with Bayesian regression models. Basque speakers named and recognized agents more accurately and fixated more often on agents than Spanish speakers (fixations: $P(\beta Lang > 0) = 0.93$). By contrast, Spanish speakers fixated more on patients and actions ($P(\beta Lang < 0) = 0.97$) and recognized them more accurately than Basque speakers.

Our results suggest that a language's grammatical features modulate not only structural and linguistic encoding but can also affect early processes, such as event apprehension.

The role of explicit memory in early L2 syntactic development: A structural priming study

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The developmental theory of shared syntactic representations (Hartsuiker & Bernolet, 2017) states that in the earliest phases of second language (L2) acquisition, item-specific priming within the L2 (i.e., with lexical overlap between prime and target sentences) results from explicit memory strategies, whereas in later phases it also reflects the formation of item-specific syntactic representations within the L2. Hence, if learners cannot use explicit memory strategies to formulate sentences, those in later phases of L2 acquisition should be more likely to exhibit structural priming with lexical overlap. We compared within-L2 structural priming in 200 low and highly proficient L2 speakers of French under low vs. high working memory (WM) load conditions (within-subjects) in a web-based experiment. We induced the WM load with a dual task design, where the L2 learners recalled letter series presented between primes and target sentences. We predicted that, while both groups would show more priming in the low vs. the high WM load condition (because priming is influenced by explicit memory in both groups), the difference between conditions would be larger in the low proficiency group.

The preliminary results support these predictions. The low proficient group (N=48) showed more priming in the low (37%) than in the high WM load condition (28%), whereas the highly proficient group (N=78) showed a smaller difference across conditions (29% and 26% respectively). This suggests that low proficient L2 speakers' priming indeed relies more on explicit memory strategies than that of highly proficient ones. Data collection will be completed by April 2021.

Bilingual lexical priming is influenced by L2 use, prime frequency and semantic overlap

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1) University of Reading

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Asymmetries in bilingual visual word recognition (larger L1-L2 than L2-L1 priming) can be explained through less fluent lexical-conceptual mappings in the L2 (Kroll et al., 2010), or by overall slower L2 word processing (Dijkstra et al., 2019).

The present study explores the roles of L2 use, word frequency, and semantic overlap in bilingual lexical priming. We tested 200 (immersed and non-immersed) Spanish-English bilinguals in an overt priming lexical decision task. L2 proficiency was constant across participants. L2 exposure/use was measured through the LSBQ (Anderson et al., 2018). 300 non-cognate concrete (highest semantic overlap) and abstract (intermediate overlap) translation equivalents, and 110 cross-language semantic associative pairs (lowest overlap), from a range of frequencies, were used in an effort to achieve robust results backed by large statistical power (Brysbaert, 2020). We employed mixed-effects models with a conservative model selection method to minimise Type-I error (e.g., significance at .01) (Scandola & Tidoni, 2020).

We expected larger priming with increased L2 use, prime frequency, and semantic overlap. Results show (1) priming in all conditions, larger for concrete words. (2) Slower RTs with more L2 use, suggesting increased cross-language competition. (3) Larger priming with more frequent primes, especially with less L2 use and concrete words. These results highlight the crucial role of L2 exposure/use and word frequency in bilingual lexical priming, and warrant further exploration of conceptual overlap between cross-language related words, improving our understanding of lexico-semantic effects in bilingual word recognition.

Cross-modal phonological priming at early stages of language learning

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Electrophysiological signatures of cross-linguistic interactions between Catalan Sign Language (LSC) and Catalan were explored during LSC training. In three experimental sessions, separated between 24-48 hours, participants learned a set of signs. In each session, before the learning task, hearing non-signers performed a monolingual semantic decision task with written words in Catalan (professor-alumne, teacher-student). Of interest, half of the semantically unrelated Catalan pairs had phonologically related sign translations in LSC. ERP modulations within the N400 time-window were analysed as an index of implicit phonological priming. At the N400 time-window, targets in semantically unrelated Catalan pairs with phonologically related LSC translations elicited smaller negativities compared to targets with phonologically unrelated LSC translations, only in the third session of training. These results replicate previous studies showing implicit phonological priming from sign languages in oral language contexts. In addition, the present research suggests that this effects occur from the early stages of language learning processes.

Comprehension of relative clauses with psychological verbs in Spanish: predictability and intervention effects

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There is ample evidence that subject relatives (SR) are easier to comprehend than object relatives (OR). However, this asymmetry has not been studied outside of sentences with activity verbs (ACT). According to the featural Relativized Minimality framework (fRM, since Friedmann et al. 2009), the difficulty in the comprehension of ORCs is the result of the syntactic intervention of the subject NP in the movement of the object NP to the left periphery of the sentence. If, as it has been argued for Spanish, the object of psychological verbs such as gustar is generated in a higher syntactic position than the subject, the intervention effects should occur in the opposite condition and ORs should be easier than SRs. In this work we present the results of an auditory comprehension task with SRs and ORs with psychological (PSI) and activity verbs (ACT). While the results obtained fully corroborate the predictions of fRM for ACT, they only partially do so for PSI: ORs showed an advantage in accuracy, but both types of relatives showed the same latencies. We discuss these results taking into consideration new data obtained in a second experiment. We ran an online cloze task and a dissociation between the probability of appearance of a PSI or ACT verb in both types of relative was found. The differences found in the first experiment between both types of verbs will be discussed in light of these findings and we aim to explain how predictability modulates intervention effects in sentence comprehension.

The role of sound patterns on early word learning in typical and atypical infants. An eye-tracking study

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Word learning requires mapping sound sequences to a referent. Early word learning is shaped by the native phonotactic frequency patterns—high frequency sequences being learned earlier (Gonzalez-Gomez, et al., 2013). Interestingly, word learning is possible if sequences include non-native phonemes (May & Werker, 2014), but not if native sound sequences break a phonotactic rule (MacKenzie et al., 2012). The present study examines both phonotactic frequency (high/low probability pseudowords-HP/LP) and phonological grammar (illegal sound sequences-IS) to assess their impact on early word learning in typically-developing (TD) and at-risk (AR) toddlers.

Thirty-one TD (mean age 20.4 months) and 29 AR (mean age 20.7 months) European Portuguese-learning toddlers' eye gaze was assessed in a word learning task (similar to Gonzalez-Gomez, et al., 2013). The AR included premature toddlers (<37 weeks) or with risk for autism or language disorder. The task included a training phase (an object is labeled 6 times, and another object is presented, but unlabeled) and a test phase (both objects presented, while listening to familiar or unfamiliar label). Labels were C1VC2V disyllabic sequences. HP included high frequency C1 and C2, LP included low frequency C1 and C2, whereas IS had an illegal prosodic word onset.

The linear mixed-model analysis revealed that the only difference between labeled and unlabeled objects was in the TD toddlers ($t=3.43$, $p<.01$) in the HP condition. No other effects were observed. The study suggests that high frequency patterns guide TD toddlers' early word learning, and AR toddlers show either phonological delay or a different developmental path.

Noun modification at a crossroads

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This study focuses on the interaction between length of exposure and instruction in L1 Spanish school children learning English; more specifically, on noun modification and the relative order of constituents within determiner phrases. In this context, while the order between the modifier adjective (A) and the noun (N) head (e.g., brown dog) is traditionally taught in the English as a second language subject, this is not so when the N head is modified by another N (e.g., police dog). This instruction difference could be attributed to the frequency of A-N combinations in Spanish but not of NNs, in spite of sharing the same directionality (i.e., modifier+head).

We have tested 95 participants classified in four groups according to age and specific N-N instruction received in a three-year longitudinal study.

Results from the last two years show that, when instruction and length of exposure interact, the former has a greater influence since a better attainment appears. The judgment data analyses show that performance improves with the cooperation between length of exposure to English and the influence of the N-N instruction. It is this last factor that actually plays a more salient role in that the N-N instruction program directly impacts not only on N-N compounds but also on A-N strings, which points to a similar underlying scheme for both structures. This indicates that instruction is determinant in the L2 learning process.

This study contributes to shed light on the factors involved in instructed L2 acquisition in a Spanish school context.

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Do pseudorelatives explain attachment variability? Testing the pseudorelative-first hypothesis

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The cross-linguistic variability in relative clause (RC) attachment is a widely studied topic [1][2][3]. Many hypotheses have been proposed in the last decades, yet none explains high attachment preferences [4].

Here we aim at testing the Pseudorelative (PR)-First Hypothesis [4], which claims that whenever PRs are available, they are preferred over RCs, attaching high. We designed a self-paced reading experiment in Spanish (preregistered at https://osf.io/4gyt7/) manipulating two variables: the matrix verb (perceptual vs. non-perceptual, conditions 1 vs. 2) and type of attachment (low vs. high, conditions a vs. b):

(1a) Marta vio al hijo de los panaderos(i) que corrían(i) en el parque.

(1b) Marta vio a los hijos(i) del panadero que corrían(i) en el parque.

(2a) Marta regañó al hijo de los panaderos(i) que corrían(i) en el parque.

(2b) Marta regañó a los hijos(i) del panadero que corrían(i) en el parque.

80 native speakers read 40 experimental sentences and 120 fillers in a pseudo-randomised latin square design, and answered a comprehension question after each item. PR-First predicts faster reading times and higher accuracy for (1b) (where PR is available) and slower reading times and lower accuracy for high-attaching RCs like (2b). Results will be discussed after concluding ongoing data analysis.

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The role of code-switching experience in bilingual executive functioning

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The debate of the 'bilingual advantage' still saturates the field of psycholinguistics, with numerous studies indicating that bilingual individuals may or may not experience improved abilities in conflict monitoring, inhibition, task switching, and/or overall cognitive flexibility. Given the presence of mixed results, researchers have begun to stray away from the monolithic representation of bilingualism, investigating instead what types of linguistic experiences result in benefits. The current study examines the role of code-switching (CS) experience in bilingual executive functioning.

We are currently testing simultaneous and early French-English bilinguals from Ontario, Canada, in a study administered entirely online (expected n=100). The participants' CS habits are assessed before they are invited to complete two language-specific tasks (bilingual Stroop; bilingual Lexical decision) and two domain-general tasks (Flanker; Colour-Shape Shifting). Stroop and Flanker examine conflict monitoring/inhibition (i.e. congruent vs. incongruent trials). Lexical decision and Shifting examine task switching (i.e. repetition vs. switch trials).

Preliminary regression analyses conducted on the first twenty-one participants (M age= 29.4, 18-50 years) yield a compelling first view of the results. For the Flanker task, participant's who reported most frequent CS possessed smaller conflict effects (rs=.41, ps=.06). This same effect was found for English trials in the Stroop task (r=.39, p=.08). For the Lexical decision task (but not the Switching task), smaller switching costs were observed for individuals who reported habitual CS (r=.34, p=.12), particularly for switch trials from English into French (r=.46, p=.04). Altogether, these preliminary results suggest that CS experience may indeed contribute to language-specific and domain-general cognitive advantages.

Linguistic and perceptual differences in the blue region in French and Italian: a preliminary cross-linguistic study with bilinguals

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Studies on the relationship between language and cognition in bilinguals have often showed that there is a positive effect of bilingualism on different more general cognitive functions which makes bilinguals more efficient than monolinguals. This effect is mostly link to the inhibition control that bilinguals have to face constantly in their everyday life, caused by a persistent language conflict. A domain for investigating cross-linguistic effects and influences is colour naming and categorisation. In this preliminary study, we analyse the French and Italian blue colour spectrum and its semantics, in monolinguals and bilinguals. Since French and Italian are two languages typologically similar but with a different number of BCTs and different chromatic boundaries within the blue region, we compare monolingual speakers and French-Italian late advanced bilinguals in a Stroop test to analyse the impact of variations in semantics on a perceptual task at different proficiency stages. Italian has two separate basic colour terms for the blue area: one categorizes the “light blue” (azzurro) and one the “dark blue” (blu); French lacks this distinction. We hypothesize that Italian monolinguals are more accurate and more rapid when the word BLU is written in dark blue than when it is written in light blue, since it represents an incongruent stimulus; this category effect doesn’t exist for French monolinguals. For bilinguals, we expect that they unconsciously adopt the Italian categorisation even for French perceptual tasks, allowing the L2 impacts their native language, since they have two different categorical and linguistic systems constantly active and in communication.

The influence of overt spoken and written production on novel word learning

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2) Basque foundation for science

Producing a word requires assembling motor programs specific to the modality the word is going to be produced in, i.e., moving articulators for speaking and hand/fingers for writing or typing. Then, practicing overt production during word learning should facilitate later execution of modality-specific motor programs. In this experiment, we evaluated the influence of overtly producing a word during training on the ability to learn and produce new words. Moreover, we aimed to test whether training in one modality (e.g., speaking) facilitates production in another modality (e.g., typing).

We ran a novel word learning task with 48 participants that learned over two sessions 60 bisyllabic novel words associated to pictures of novel objects. Each participant learned words in either one of two training conditions that required overt production (speaking or typing) or not (passive). At the end of training, learning was assessed through a spoken and a typed picture naming task. Preliminary results from 15 participants are presented here.

Overall accuracy was similar in both testing modalities (63±16%). Training with overt production facilitated novel word learning relative to passive training on both accuracy and reaction times. Typing training in particular led to fewer errors and shorter reaction times during testing in both modalities. Our results point to a positive impact of overt production during training. Moreover they suggest a possible transfer from typing to speaking skills, but not the other way around.

Assessing individual neurocognitive differences in native language morphosyntactic processing

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Emerging event-related potential (ERP) evidence shows individual differences in native speaker's brain responses elicited during processing of grammatical violations, often revealing N400 or P600 response dominance profiles, and therefore, the engagement of different underlying processes. Using the Response Dominance Index (RDI) to quantify individual variation, Tanner (2019) found RDI correlations across two realizations of subject-verb agreement violations, concluding that response dominance is a stable trait. In this study, we aim to conceptually replicate Tanner (2019) and examine consistency of ERP dominance across different morphosyntactic and syntactic structures. EEG was recorded while 50 English native speakers judged the grammaticality of 244 sentences that contained different morphosyntactic (subject-verb (SV) and determiner-noun (NP) agreement) and syntactic (phrase structure (PS)) violations. Following Tanner (2019), individuals' N400 and P600 effect magnitudes were calculated in a central-parietal region-of-interest (C4, Cz, C3, P4, Pz, P3) in 300-500ms and 600-900ms time windows, respectively. Our results replicate variability along the N400-P600 continuum with significant negative correlations between N400/P600 magnitudes across individuals. Next, RDIs were computed by fitting each participants' least square distance from equal N400/P600 magnitudes. A significant association was found between RDIs in the SV and NP agreement conditions, but not with the PS condition. We conclude that, while response dominance may reflect a stable trait in how morphosyntactic violations are processed, this finding may not generalize to syntactic processing. The study advances the field's efforts to characterize neurocognitive individual differences of language processing by illustrating how these might depend on the nature of the linguistic form.

How could psycholinguistic research on L2 processing enhance L2 instruction?

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1) Al Yamamah University

2) Carthage University

The prominent aim of SLA research is to understand the variation in language attainment in order to produce more proficient L2 learners. This line of research could benefit of experimental psycholinguistic research on L2 language processing. In this presentation, it will be argued that the importance of the application psycholinguistic research on L2 processing lies in the insights it can provide into L2 instruction. The main experiments, reported on this presentation, were originally reported on Mekni Toujani (2015) (Experiment 1) and Mekni Toujani (2020) unpublished PhD thesis (Experiments 2 and 3). These experiments showed that L2 proficiency could be modulated by the structural system of L1 and the degree of automatisation of lower-level processes. Experiment 1 revealed that relative clauses, whether they are subject or object relative clauses, reduce lexical-semantic processing because relative clauses is not a dominant feature of the participants' L1 (i.e., Tunisian Arabic). Experiments 2 and 3 revealed that L2 readers do not integrate discourse information (spatial and character-attribute information) into their unfolding representation during reading even when they were presented with more engaging instructions, yet they were able to do so in their L1 (Mekni Toujani, 2017; Mekni Toujani, 2020). It was argued that cognitive processes are shared between lower-level processes and higher-level processes in L2, which renders global coherence processes hard to occur online. Thus, this set of results could lead to a revisited framework where L1 structure, automatisation of lower-level processes and individual differences should be taken into consideration in order to enhance L2 instruction.

Key-words: L2 processing, L2 instruction, automatic processes, language variation, lower-level vs. higher-level processes.

The role of linguistic speaker identity on language credibility: Evidence from a written modality paradigm

Anna Lorenzoni (1) Elena Greatti (1) Eduardo Navarrete (1)

1) Università degli Studi di Padova

General knowledge (audio presented) statements that are unknown ("Ants don't sleep") are often judged as less credible when produced by foreign speakers compared to native speakers. In addition, (written presented) under-informative statements ("Some dogs are mammals") that can give rise to a scalar implicature are more acceptable when associated to a foreign-accent than to a native speaker. According to one interpretation, different expectations about the speech of foreign speakers would determine these effects (non-native speech is associated with more grammatical and semantic errors). A second interpretation argues that the intelligibility of native and foreign accent speech involves different processing loads in the listeners, influencing the judgment of the statement.

Here we test the role of expectations about foreign-accented statements when the accent itself of the speakers cannot be perceived because the modality of presentation is written. In 2 experiments, 200 Italian native participants read a bio description of two persons (an Italian and a foreign-accent speaker). Four types of statements were presented: Unknown true statements; Under-informative statements; and two filler conditions, true and false statements. Half of the statements were associated to each speaker. Participants rated how much each statement makes sense on a five-point scale. Results showed more acceptable judgments in Unknow and Under-informative statements when associated to the foreign speaker. These results were replicated in two new experiments combining speaker's face pictures to the bio description. In line with the account of expectations, our results suggest that the speaker's linguistic identity modulates the listeners judgments of the statements.

Orthography facilitates semantic and phonological L2 learning among third and fifth graders: evidence of an early advantage independent of growing reading automatization?

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2) University of Strasburg

The orthographic facilitation effect on vocabulary learning has been documented among monolingual adults and children. Indeed, learning a novel form with its spelling contributes to an enhanced semantic (meaning) and phonological learning. Most studies used a paired associate learning paradigm allowing to contrast two learning methods, simultaneous presentation of both spoken and written forms (SWW) vs spoken forms only (SWO).

This learning advantage has mostly been reported for L1, and whether this facilitative contribution of orthography might be extended to L2 vocabulary learning is unclear, given that grapheme-to-phoneme correspondences differ in L1 and in L2. Furthermore, we also investigated whether this potential learning advantage could be retrieved at different stages of reading expertise.

To this end, we contrasted SWW and SWO learning methods using a paired associate learning paradigm to teach two groups of third (G3; N=72) and of fifth graders (G5; N=71) 16 German words. Immediate and one-week delayed testing allowed us to estimate the contribution of orthography on word recognition through a forced-choice picture recognition task as well as the precision of stored spoken representation through a go/no-go spoken recognition task, for which participants had to discriminate between learned German words and close phonological distractive pseudowords.

Orthographic facilitation, i.e., larger accurate recognition performance for SWW compared to SWO, was evidenced in L2 vocabulary for both tasks among G3. Grade 5 children, who outperformed the G3 on both tasks, exhibited an orthographic advantage for the forced-choice picture recognition task only. So in all, the orthographic advantage on L2 vocabulary learning was not dependent on children's growing reading expertise.

Where is the boost in the sandwich priming technique?

María Fernández-López (1) Manuel Perea (1,2) Colin Davis (3) Ana Marcet (1) Pablo Gómez (4)

1) Universitat de València

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Lupker and Davis' (2009) sandwich technique has become an important tool to magnify the priming effects obtained with the original masked priming technique (Forster & Davis, 1984). Both techniques allow researchers to manipulate the relationship between a heavily masked and briefly presented lowercase prime (around 30-50 ms) and an uppercase target item (house-HOUSE). In the sandwich technique, the prime is preceded by an initial masked prime (around 30 ms) identical to target (HOUSE-house-HOUSE). Importantly, the nature of the differences between the priming effects in the sandwich and standard techniques remains uncertain. It is still not clear whether these methods detect different signals (qualitative differences) or whether they magnify the same signal to different levels (quantitative differences). To shed light on this issue, we designed a lexical decision experiment that directly examined the locus of the differences between identity vs. unrelated primes in the standard and sandwich techniques. Results showed that the boost of priming effects the sandwich technique were not only due to faster responses in the identity condition, but also to slower responses in the unrelated condition. Fits on the diffusion model (Ratcliff et al., 2004) showed qualitative differences between the two procedures: the sandwich technique affects not only an encoding stage (as the standard masked priming technique), but also the decision process.

Stress-induced instructions alter segmentation performance of written words in children

Klára Maděrová (1) Ophélie Lucas (1) Norbert Maïonchi-Pino (1)

1) Clermont Auvergne University

The present study proposes to examine the contribution of phonological syllable frequency, reading level and instructions on syllable-based segmentation strategies in French typically developing children. To do so, we tested 100 French third graders who were distributed into two skill-reading levels (poor vs. good). Both groups were exposed to a visual syllable detection task with either norm-in-use instructions, or reduced-stress instructions. Children were asked to decide whether a high- or low-frequency CV/CVC syllable occurred at the beginning of a real French word. Syllable and word could match (e.g., 'PA' with 'parade') or mismatch ('PA' with 'partir') with the syllable boundary. Our results revealed that children were affected by the instructions: with reduced-stress instructions, poor and even more good readers were faster and more accurate to detect the syllable when syllable and word matched than when they did not (i.e., syllable compatibility effect) with both low-frequency and even more high-frequency syllables. With norm-in-use instructions, the syllable compatibility effects persisted but weakened in good readers and vanished in poor readers to switch to a syllable length effect (CV syllables were detected faster than CVC ones whatever CV or CVC words). Third graders were able to use syllable-sized units to segment words and were sensitive to the initial syllable frequency. However, our results pointed out that syllable-based segmentation is not as automatic as it seems since stress-induced instructions disrupted an apparent robust use of phonological frequency-based syllables to segment words. Thus, learning to read and reading difficulties could ensue from a non-negligible sensitivity to stress pressure.

Cross-linguistic invariants and the semantics of spatial demonstratives in Spanish

Emanuela Todisco (1) Roberta Rocca (2, 3) Mikkel Wallentin (2, 4)

1) Universitat de les Illes Balears

2) University of Texas at Austin

3) Aarhus University

4) Aarhus University Hospital

Demonstratives (this/that in English) are pivotal in communication, though underspecified with respect to their referent. In this study, we show that semantic features of the referent systematically influence speakers' choices of specific demonstrative forms. To this end, we applied the Demonstrative Choice Task (DCT) paradigm, whose novelty consists in eliciting the choice of a demonstrative form by matching it with a noun, without providing any additional contextual information. This paradigm, previously used on languages with two-term demonstrative systems (Danish, English and Italian), is here applied to Spanish, a three-term demonstrative system (este/ese/aquel).

1639 native Spanish speakers were presented with 480 nouns rated along 76 semantic features and were asked to match each noun with a demonstrative. We replicated the finding that the choice of demonstrative forms is influenced by invariant cross-linguistic semantic features such as manipulability, valence and self, previously observed to influence demonstrative choice in two-term languages. In Spanish, these features account for speakers' choice of este against the medial and distal forms ese and aquel. Additional semantic features explain the distinction between ese and aquel (e.g., visuality and time).

Our findings speak in favour of the existence of cross-linguistic semantic invariants, whose role is independent of the number of terms in the demonstrative system. From a methodological standpoint, they provide additional evidence of the potential of the DCT as a window onto core semantic processes subserving linguistic reference.

POSTER PRESENTATIONS

SESSION D

POSTER1 (Office 01) **Friday 25, 10:00-11:00 CEST**

Monolinguals and bilinguals prospective memory during text comprehension

López-Rojas (1) Marful (1) Pérez (1) Bajo (1)

1) University of Granada

Prospective memory (PM) refers to our capacity to remember intentions in the future. In a typical PM task, participants are instructed to perform a prospective intention when a cue is encountered (PM cue) while performing an ongoing task (ON). Context monitoring and task switching are critical processes during PM. Interestingly, these processes are also central for bilinguals during language selection. In this study, we aimed to explore whether bilingual and monolingual participants differ in their prospective processing strategies in a text comprehension task that included PM cues of different levels of difficulty (focal/lower vs non-focal/higher). Results indicated that bilinguals were more accurate in both ON and PM tasks in the focal condition. In addition, during the more difficult non-focal condition, bilinguals were still more accurate than monolinguals in both tasks. More interesting, bilinguals showed no differences between the ON and PM task, whereas monolinguals' accuracy was higher in the ON relative to the PM task. The pattern of results in the non-focal task suggests that bilinguals engaged in efficient monitoring strategies during ON-performance that allowed them to maintain high levels of accuracy during the ON task while successfully detecting the PM cue. In sum, our results indicate that bilinguals can adapt their strategies to the demands of the task and engage in prospective processing strategies, enabling them to successfully perform the PM task even in the more challenging non-focal conditions.

EFL teachers' experiences with neurodiverse students and their self efficacay for inclusive practice

Jennifer Yphantides (1)

1) Soka University

This presentation is a report of a narrative research study that investigated English foreign language (EFL) teachers' experiences with neurodiverse students (those with dyslexia, ADHD, and autism) at the tertiary level in Japan and their qualitatively-reported levels of self-efficacy for inclusive practice. Bandura's (1977) theory of self-efficacy, which examines teachers' mastery of experience, vicarious experience, social persuasion, and emotional states, was used as a framework for interpreting teachers' interview data. Findings indicate that EFL teachers at the tertiary level in Japan lack training for working with neurodiverse students, their self-efficacy for creating inclusive classrooms is relatively low, and they lack communication with other institutionally-based professionals who could support them. The practical implications of this study are that EFL teachers in the Japanese context should be afforded additional training, they require the establishment of direct communication with counselling/special needs offices on campus, and issues related to the stigma of neurological differences need to be addressed in order to facilitate discussions between teachers and students about curricular accommodations or modifications.This narrative research study explores English foreign language (EFL) teachers' experiences with neurodiverse students (those with dyslexia, ADHD, and autism) at the tertiary level in Japan and their qualitatively-reported levels of self-efficacy for inclusive practice. Bandura's (1977) theory of self-efficacy, which examines teachers' mastery of experience, vicarious experience, social persuasion, and emotional states, was used as a framework for interpreting teachers' interview data. Findings indicate that EFL teachers at the tertiary level in Japan lack training for working with neurodiverse students, their self-efficacy for creating inclusive classrooms is relatively low, and they lack communication with other institutionally-based professionals who could support them. The practical implications of this study are that EFL teachers in the Japanese context should be afforded additional training, they require the establishment of direct communication with counselling/special needs offices on campus, and issues related to the stigma of neurological differences need to be addressed in order to facilitate discussions between teachers and students about curricular accommodations or modifications.

Complex phonological tasks discriminate dyslexic and typically developing primary schoolchildren

Svetlana V. Dorofeeva (1) Ekaterina Iskra (1,2) Daria Goranskaya (1) Andrey Zyrianov (1) Elizaveta Gordeeva (1) Tatiana V. Akhutina (3) Margarita Serebryakova (2) Olga Dragoy (1,4)

1) HSE University

2) Center for Speech Pathology and Neurorehabilitation

3) Lomonosov Moscow State University

4) Federal Center for Brain and Neurotechnology

Deficits in phonological processing (PP) are amongst the most widely acknowledged cognitive impairments in developmental dyslexia (Ramus et al. 2003). One of the key questions regarding different PP tasks is whether they can be used interchangeably as a measure of PP (Kilpatrick, 2012). The objective of this study was to investigate PP abilities in dyslexic and typically developing (TD) Russian schoolchildren using phonological tasks varying in linguistic complexity.

We assessed PP with seven phonological tasks of Russian Test of Phonological Processing (RuToPP, Dorofeeva et al., 2020) in 55 dyslexic and 45 TD Russian-speaking children 7 to 11 years of age. All participated children had normal vision, hearing and non-verbal intelligence.

Our analysis showed that two groups of children did not differ significantly in terms of grade and non-verbal intelligence scores, and also in two simplest phonological tests of the RuToPP: Phoneme discrimination ($t=1.14$, p-value=0.26) and Lexical decision ($t=-1.40$, p-value=0.17). They significantly differed in reading fluency (but this result is trivial) and in all more complex phonological tests: Pseudowords Repetition ($t=3.99$, p-value<0.01), Phoneme Isolation ($t=5.2$, p-value<0.01), Phoneme Detection ($t=3.7$, p-value<0.01), Number of Sounds ($t=3.55$, p-value<0.01), Changing Sound in Pseudoword ($t=3.66$, p-value<0.01).

Our findings highlight that phonological tests with different levels of complexity cannot be used interchangeably, and it is important to report the cognitive requirements of PP tests used for future studies.

Processing structural and non-structural information in L2 resolution of reflexives

Münir Özturhan (1) Nazik Dinçtopal Deniz (2)

1) University of Kansas

2) Boğaziçi University

This study examined the role of syntactic constraints, discourse prominence, and antecedent proximity in how Turkish learners of English process English reflexives. Two eye-tracking experiments (Experiments 1&2) and one pen-and-paper antecedent identification task were conducted. In Experiment 1, the binding-accessible antecedent was linearly closer to the reflexive and both antecedents (accessible&inaccessible) c-commanded it. In Experiment 2, the binding-inaccessible antecedent was linearly closer to the reflexive, but it did not c- command it. In both experiments, the inaccessible antecedent received discourse focus. Gender congruence was manipulated to create a match/mismatch between the reflexive and the (in)accessible antecedents. In the antecedent identification task, the sentences were presented either with or without discourse context. Data were collected from 95 advanced Turkish learners of English. The results showed that structural constraints affected the antecedent retrieval behavior of Turkish learners of English, but the integration of this information was observed in later measures (e.g., regression path duration) compared to the early measures (e.g., first fixation duration) reported for native speakers in Sturt (2003). There was no evidence for initial or later sensitivity to discourse prominence/linear proximity of antecedents in L2 learners' online processing, but discourse-related information was used in their final interpretations. Results suggest that L2 learners, specifically Turkish learners of English, can be native-like in their antecedent retrieval behavior for reflexives although their integration of linguistic information (both structural and non-structural) in this process could be delayed, due to their slower processing speed.

Predictability in the healthy aging brain: an eye tracking study of sentence comprehension in older adult Spanish speakers

Victoria Cano (1), Itziar Laka (1) Mikel Santesteban (1)

1) University of the Basque Country

Prediction is a fundamental part of efficient language comprehension (Kuperberg & Jaeger, 2016), but we know little about how it evolves throughout the lifespan. Predictability is influenced by two competing forces: crystalized abilities, that is, language experience, and fluid abilities, such as working memory capacity (WMC) and processing speed (Cheimariou, 2016). In healthy aging, older adults benefit of increased language exposure whilst are faced with the decline of their fluid abilities. How does age modulate predictability? Does predictability affect agreement violation detection? The eye-movement reading patterns of 27 young (mean age=22.7) and 28 senior (mean age = 60.5) native Spanish speakers were recorded to investigate the interaction between language experience and cognitive decline in prediction processes during sentence comprehension. Sentences included semantic predictability (high-cloze vs. low-cloze verbs) and syntactic violations (grammatical vs. ungrammatical object-clitic gender agreement). If prediction is mostly influenced by language experience (Hypothesis 1, H1), older adults should make more accurate predictions than younger adults. By contrast, if predictability is mainly constrained by cognitive factors (H2), older adults should generate weaker predictions than youngers. Additionally, we explore whether (and how) aging modulates agreement processing. Preliminary results reveal predictability and grammaticality effects for both groups at the Verb+Clitic critical region, with larger Total Fixations and more regressions for low-cloze than high-cloze verbs and ungrammatical than grammatical sentences. For regressions, marginal interactions with group reveal a tendency for larger predictability (p=.065) and grammaticality (p=.053) for older adults. These results suggest that language experience (H1) modulates semantic prediction and agreement processing.

Polarity subjunctives in Spanish: A self-paced reading study

Josep Demestre (1)

1) Universitat Rovira i Virgili

The study of the influence of mood information on sentence processing has received little attention in the psycholinguistic literature. The aim of the present study is to contribute to the literature by examining the online processing of polarity subjunctives in Spanish. Two types of subjunctive have been described: Intentional subjunctive, triggered by verb-specific information, and Polarity subjunctive, licensed by a matrix negation or a question operator. The present study reports a self-paced reading study in Spanish that manipulated the polarity of the main clause (affirmative/negative) and the modality of the subordinate verb (indicative/subjunctive).

All the verbs we used select an indicative complement when the main clause does not contain a negation. However, when the negation is introduced in the main clause, this operator licenses the subjunctive in the embedded clause.

1. a. Juan cree que ganaremos (INDICATIVE)/* ganemos (SUBJUNCTIVE) la carrera. (translation: John believes we will win the race)

b. Juan no cree que ganemos (SUBJUNCTIVE)/* ganaremos (INDICATIVE) la carrera.

The results clearly show that participants were sensitive to the interaction between polarity and modality information. When the matrix clause was affected by the presence of a licensing operator (the negation “no”), reading times were shorter when the subordinate verb was in subjunctive as compared as to when it was in indicative. When the main clause was in affirmative form, the opposite pattern was observed. The findings thus show that Spanish speakers are rapidly sensitive to the mood manipulation in interaction with the polarity of the matrix clause.

Does the omission of diacritics disrupt the access to lexical-semantic information? Evidence from Spanish and German

Melanie Labusch (1) Manuel Perea (1,2) Ana Marcet (1)

1) Universitat de València

2) Nebrija University

Recent research with masked priming lexical decision experiments has shown that the omission of diacritics in a word does not seem to affect the very early moments of word processing. For instance, the target word FÁCIL is processed equally fast when preceded by the prime fácil or the prime facil (Perea, Fernández-López, & Marcet, 2020). Importantly, this pattern does not only occur in a language where the diacritics reflect lexical stress (i.e., Spanish), but also occurs in masked priming in a language in which the diacritics reflect vowel quality, but not lexical stress (i.e., Finnish; pöytä-PÖYTÄ vs. poytä-PÖYTÄ; Perea, Hyönä, & Marcet, 2020). However, the above experiments do not speak as to whether diacritics play a role during the access to lexical-semantic information. In the present study, we directly examined whether the omission of diacritics slow down the access of lexical-semantic information using a semantic categorization task ("is the word an animal name?"). We did so in a language in which diacritics reflect lexical stress but not vowel quality (Spanish; e.g., ratón vs. raton) and in a language in which diacritics reflect vowel quality but not lexical stress (German; e.g., Kröte vs. Krote). In Spanish, we found similar response times to accented and omitted conditions. In contrast, German words were responded slower when the diacritics were omitted than when the diacritics were present. Thus, the functional role of diacritics in a language determines their role during lexical-semantic access.

Extracting 'words' from the speech: Effects of predictability and explicit knowledge on statistical learning

Francisco-Javier Gutiérrez-Domínguez (1) Alexandrina Lages (1) Helena M. Oliveira (1) Ana Paula Soares (1)

1) University of Minho

Extracting the statistical regularities is a core skill for processing a spoken language, although nor all syllables of the speech have the same frequency neither all syllables are good predictors of the next syllable. Statistical Learning (SL) tasks have shown a reliable research paradigm on the extraction of those regularities, by creating artificial language systems that mimic the exposure to a natural language. SL paradigms have traditionally included triplets with the same transitional probabilities, which, in turn, were composed of syllables with the same frequency in the sequence. In our experiment, 28 young adults performed a SL task that included two different triplets depending on its predictability (high and low transitional probabilities of 1.0 vs .50, respectively). Furthermore, although the SL on the relationships between syllables is carried out implicitly, in some cases learning is supported by explicit instructions, as occurs, for example, in the acquisition of a second language. In the present study, we included a second task similar to the first in which participants were explicitly instructed about triplets and the structure of the stream. Moreover, in addition to the usual offline measure of SL (2-AFC task), we also collected electrophysiological recordings during the exposition phase to have an online measure of the learning processing (time-amplitude and frequency EEG analyses). Behavioral and EEG learning measures will be discussed.

Iconicity ratings for 10,995 Spanish words

Juan Haro (1) Pilar Ferré (1) José Antonio Hinojosa (2,3) Jon Andoni Duñabeitia (3,4)

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The iconicity of a word is defined as the relationship between its form (orthographic or phonological) and its meaning. For example, the word click is highly iconic, since its sound closely resembles the sound a computer mouse makes when pressed. The study of iconicity has grown in recent years, which is reflected in the increasing number of behavioural and neuroimaging studies that have recently examined this variable. However, few databases of iconicity ratings exist, and those available include a limited set of words. Hence, the aim of the present study was to collect iconicity ratings of 10,995 Spanish words. These words were presented visually to 1,350 participants, which rated their iconicity using a scale ranging from 1 (not iconic at all) to 7 (highly iconic). We also assessed the relationship between iconicity and other psycholinguistic variables. The results showed that sensory experience was the best predictor of iconicity ratings, and more abstract and earlier-acquired words received higher iconicity ratings. Regarding grammatical category, onomatopoeias and interjections were the most iconic, followed by adjectives. On the other hand, it should be noted that the data collected showed a high reliability and consistency. We believe that this database can be of great help for researchers interested in the study of iconicity, especially for those interested in the relationship between form and meaning in word acquisition.

Sensitivity to individual grammars in sentence processing by Armenian-Russian-English trilinguals

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1) University of Illinois at Chicago

2) Universitat Oberta de Catalunya

This experiment investigates whether the syntactic parser is sensitive structural variation in individual grammars; and whether it considers non-syntactic information to interpret ambiguous relative clauses (RCs) like 'Bill saw the son of the woman that was talking about cosmetics' in Armenian, Russian and English.

The participants are native speakers of Armenian, sequential learners of Russian and English. Their L2-Russian is a HA language, L3-English is a LA one, RC resolution in L1 Armenian is established in the study. In Armenian, the ambiguous RC is head final and the head noun phrase is structurally different from Russian and English. The study used a self-paced reading method.

The results show that the multilingual parser is sensitive to structural differences in ambiguous RCs in Armenian, Russian and English. L2-Russian demonstrates HA, L3-English - LA. In Armenian, the RC is attached to the phrasal head 'the son of the woman', like in Russian. However, it is the lower noun in the structure of Armenian noun phrase. A perception verb 'saw' favours HA in all three languages. However, it speeds-up processing in Armenian, hinders it in English and has no effect in Russian. The effect of non-syntactic information, i.e. a social convention to assign the 'talking about cosmetics' to 'the woman', not to 'her son', never overrides the syntactic parsing preferences in RC resolution in a given language.

Therefore, the multilingual parser is governed by individual grammars and is sensitive to structural prompts is sentence parsing. The non-structural information never overrides the structural prompts.

Effects of letter case on searching toponyms in traffic signs

Pilar Tejero (1) Laura Royo (1) Javier Roca (1)

1) University of Valencia

The letter case configuration of a word is a critical factor modulating word processing. Words are read faster when printed in their typical case configuration than in a different one. This effect may have some consequences in applied settings. For example, along a route, a driver can encounter traffic signs with words in uppercase (MADRID) or mixed case (Madrid), and the reading of signs in one of these configurations might be take longer, which can eventually affect the time taken to make safe decisions. This issue must be studied in tasks pertinent to the use of traffic signs by drivers, such as word search tasks, e.g., to find the targeted destination among an array of alternative place names. Thus, the present work examined the effects of letter case on the search for toponyms in traffic signs. Participants were presented with images of traffic signs designed according to Spanish official regulations, with words in upper or mixed case. Since the words were larger in upper than in mixed case, we also included an enlarged mixed case condition. The results indicated that the search was performed in a serial manner in all conditions. In most word locations, toponyms were read faster in mixed case than in uppercase, even when the mixed case word had a visual angle smaller than the upper-case word. Therefore, these results suggest that the mixed case should be preferred in toponyms in traffic sign design.

Within-and-between language priming of transitives in late Dutch-Spanish bilinguals

Edwige Sijyeniyo (1) Rianne van Lieburg (1) Robert J. Hartsuiker (2) Sarah Bernolet (1)

1) University of Antwerp

2) Ghent University

Hartsuiker & Bernolet (2017) suggest that abstract syntactic representations will emerge earlier for more frequent structures than for less frequent structures, first within languages and then across languages. However, if the more frequent structure in the L2 is not similar to its equivalent in the L1,we might see a different pattern.

Twenty-one Dutch-Spanish bilinguals performed a within-between language priming experiment. They listened to 144 prime sentences with either an active or a passive sentence and then described target pictures in Spanish. Active sentences in Spanish differ from Dutch actives when the subject and direct object concern animate objects (AA items) (El obrero ayuda a la médica – De bouwvakker helpt de dokter [The construction worker helps the doctor]) but are similar when the subject and direct object concern inanimate objects (II items) (El camion persigue el coche – De vrachtwagen volgt de auto [The truck chases the car]). The passive structure is very similar in both languages. It might take a while for late learners of Spanish to produce the active structure (the AA items) correctly. Therefore, priming of passives might occur earlier than priming of active sentences.

We found significant priming ($p < .05$) for passives within the L2. We did not find priming of actives (AA items) within Spanish. We did not find any priming between Dutch and Spanish.

Our preliminary results suggest that the representations for Spanish transitives are not yet shared between languages, possibly because one of the alternants is not equivalent to its L1 alternative.

A novel system to investigate braille reading using passive-haptic perception

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5) California State University, San Bernardino

The study of reading through the sense of touch, via the braille writing system, is underrepresented in psycholinguistic research in comparison to visual reading. Nonetheless, research on braille reading is important not only to improve our understanding of the cognitive processes behind reading in general, but also to understand the difficulties that surround the learning of braille. One of the reasons for the disparity in research between visual and tactile modalities is that controlling the timing of stimulus presentation (i.e., a hallmark of reading research) is considerably more difficult for tactile than for visual stimuli. To contribute to the development of braille reading research, we present a system to display tactile stimuli and collect response time with the capability of controlling the timing of the stimulus presentation in both static and dynamic (passive haptic) modes. While the system requires some construction, it can be put together with commercially available materials. We will describe the hardware and software implementation of the device, as well as some examples of experiments illustrating its usefulness for research.

Representational differences between Chinese emotion and emotion-laden words: A word association study

Zheng Ruiyao(1) Marc Guasch(1) Taomei Guo(2) Pilar Ferre (1)

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2) Beijing Normal University

Many studies on the relationship between language and emotion have examined the processing of affectively valenced words. Only a few studies, however, have distinguished emotion words (henceforth, EM words) from emotion-laden words (henceforth, EL words). The former denote an affective state (e.g., happy), whereas the latter do not denote an affective state, but can provoke it (e.g., wedding). In this study, we aimed to explore the representational differences between EM and EL words by examining their associative structure. To that end, we selected a set of 240 Chinese words, including 120 affectively valenced words (30 EM positive words, 30 EM negative words, 30 EL positive words and 30 EL negative words) and 120 neutral words. These words were used as cues in a free association task. Two hundred and seventy native speakers of Chinese performed the task, in which they were asked to produce the first word that came to their mind in response to the cue words.The type of responses provided were analyzed. The results revealed that EM cue words produced more EM words as associates than both EL cue words and neutral words. Furthermore, EL cue words also produced more EM words as associates than neutral words. Finally, there was a significant correlation between the cue words and the first associate word in both valence and arousal. These results indicate that affective content is a relevant organizing principle of the lexicon.

Effects of transitivity on novel verb learning

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Research on new-word learning by adults, which has mainly focused on nouns, shows that learning success is affected by lexical-semantic dimensions such as imageability. With regard to verbs, it remains unknown whether learning is also affected by verb-specific lexical-semantic dimensions, such as transitivity (i.e., whether or not the verb requires a complement). Indeed, since transitivity affects the speed of verb recognition in lexical decision tasks (LDT) we predicted that it might affect verb learning as well. We tested this prediction with a paired-associate verb learning task that also allowed replication of the imageability effect. We used a Latin square design in which transitivity (transitive verbs vs. intransitive verbs) and imageability (low imaginable verbs vs. high imaginable verbs) were orthogonally manipulated, with 16 verbs in each cell. Thirty-two Spanish participants learned pseudo-verbs through association with real L1 verbs and completed both immediate and 1-week delayed oral recall tests. Previously, they had completed a LDT with the same stimuli used for learning. The results showed the expected advantage for high imaginable verbs in both tasks, which demonstrated the reliability of the procedure. Transitivity affected performance in each task in different ways: transitive verbs were easier to process in the LDT (replicating some previous results), but harder to learn if combined with low imageability. The extent to which different tasks allow the formation of mental images of actions involving various syntactic arguments might explain the differential effect of transitivity across experimental paradigms. This tentative argument could reconcile opposite effects reported in literature.

Non-natives' pragmatic interpretation of disfluencies and speaker identity

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Disfluencies have been shown to impact the pragmatic interpretation of utterances: native speakers were more likely to interpret a disfluent utterance as deceitful, and these effects emerged early in the comprehension process (Loy et al., 2017). However, Bosker et al. (2014) showed that the effects of disfluency on lexical prediction were attenuated if produced by a non-native speaker. In this study, we investigated whether non-native listeners exhibit the same deceit-bias triggered by disfluencies. Furthermore, we also investigated whether a similar attenuation can be found when the disfluency is produced by a non-native speaker.

38 English non-native speakers participated in an eye-tracking study set up to investigate the effects of speaker nativeness on paralinguistic cues of deception. Participants listened to a potentially deceitful speaker upon whose instructions they had to guess the location of a treasure on the screen. Half of the participants heard a non-native speaker of English, and half heard a native speaker. Half of the instructions were delivered disfluently: ""The treasure is behind the/thee um apple"".

Disfluent utterances were more likely to be interpreted as deceiving with no distinction by speaker nativeness. The deceit-bias emerged in eye-movements as early as 400 ms post-target onset for the native speaker, and 240 ms post-target onset for the non-native speaker. This suggests that non-native listeners integrate paralinguistic cues early in the comprehension process. Unlike previous studies, participants did not appear to attribute non-native disfluencies to other processes (e.g. lexical retrieval difficulties associated with L2 production).

The contribution of approach and withdrawal systems to the processing of fear and anger words

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Prior reports suggest that emotion effects in visual word processing cannot be fully explained by a dimensional approach to emotion based on valence and arousal. In the current study we focused on the approach and withdrawal systems associated with goal-related emotions, which are related to different action components. To this aim, we compared the brain oscillations elicited by anger words associated with approach (fight) motivational tendencies and fear words that may trigger either withdrawal (escape) or approach (fight) action tendencies. The participants' task was to make decisions about approaching or distancing. Behaviourally, a marginally significant effect indicated slower 'distancing' responses to fear words relative to anger words. Also, the results from cluster-based and beamforming analyses on brain oscillations revealed increased gamma power band synchronization for fear words in temporal lobe regions between 725 and 750 ms. These results were interpreted to reflect a conflict between approach and withdrawal motivational tendencies associated with fear words when trying to achieve task requirements. Additionally, current data suggest that there are affective features that influence word processing other than valence and arousal dimensions.

Bilingual word recognition in challenging visual contexts: Language co-activation persists but cognate facilitation effect does not

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In bilingual word recognition, the cognate facilitation effect shows that cognates (words sharing form and meaning across languages) are more rapidly and accurately recognized than non-cognates (words only sharing meaning). This effect has been extensively observed in bilingual word recognition studies and taken as evidence for language co-activation. The aim of the present study was to determine whether challenging visual contexts during word recognition would modulate the cognate facilitation effect due to an influence on language co-activation. In two experiments, we tested Spanish-English (L1-L2) bilinguals in an L2 lexical decision task. Experiment 1 examined the effect of a visual noise context. Whereas the classic cognate facilitation effect was found in the clear context, it was significantly reduced by noise. Experiment 2 investigated whether the reduction of the cognate facilitation effect observed in Experiment 1 was either due to reduced language co-activation, or to increased lexical competition from the non-target language for cognate words. To address this question, we manipulated the number of orthographic neighbours of the translation equivalents in the non-target language (L1). Moreover, a different visual difficulty manipulation (hard-to-read font) was examined. The results showed again that the challenging visual context reduced cognate facilitation, consistent with Experiment 1. In contrast, it did not modulate the L1 neighbourhood effect. Taken together, the findings show that language co-activation persists in challenging visual contexts, but that the increased cross-linguistic lexical competition from the non-target language reduces the cognate facilitation effect.

Morphological awareness isn't more developed in bilingual than in monolingual children attending primary school but contribute more on vocabulary development in bilingual children

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Purpose: Bilingual children usually show a slight delay in vocabulary as compared to monolingual children. Since morphological awareness is related to vocabulary, bilingual children may present also a slight delay in morphological awareness. Nevertheless, because morphological awareness can be seen as relying also on computational principles, and because bilingual children may have better perspective on the formal properties of languages, we expected morphological awareness to greater contribute to vocabulary in bilinguals as compared to monolinguals.

Method: 95 children participated in the study : 51 bilinguals (L1 mixed) and 44 monolinguals, matched on age, grade (3-5), school and non-verbal abilities. Phonological, lexical and morphological skills were assessed in reception and production modalities.

Results: Results evidenced that bilingual children had lower scores than monolingual children mainly in the productive tests. Interestingly, both groups reached a similar level in receptive vocabulary, and two of the three morphological tests. Further, regression analyses clearly indicate that morphological awareness has a stronger contribution to vocabulary scores in bilingual children as compared to monolingual children.

Such a pattern suggests that weak vocabulary only slightly limits the development of morphological awareness in bilingual children and, conversely, morphological awareness can even contribute strongly to vocabulary acquisition.

The performance of Nenets-Russian bilingual children on comprehension and production tasks across language levels

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Introduction: the present study aims to address language development trajectories and their bilingualism-induced changes in Nenets-Russian bilinguals. We recruited tundra Nenets children who follow their parent's nomadic lifestyle and speak predominantly Nenets in their families but attend schools with instruction in Russian.

Method: 16 Nenets-Russian bilinguals (Mean age 6.6, SD 0.6) participated in the study. A control group were 11 Russian-speaking monolinguals (Mean age 6.8, SD 0.6) living in Yamalo-Nenets region, Russia. We used the Russian Child Language Assessment Battery that is a standardized assessment tool for Russian language development. The present study reports tasks assessing phonological, lexical and syntactic aspects of language processing in both comprehension and production domain.

Results: On the lexical level, accuracy in the bilingual group was significantly lower than in monolingual controls ($p<0.05$). However, on the phonological and syntactic levels no significant between-group differences were found. Error analysis in word production tasks revealed that semantic errors were prevalent in both groups (70-100% of all errors), whereas bilinguals also made morphological, phonological errors and used code switching.

Discussion: A lower performance in the lexical tasks in the bilingual group can be interpreted as a typical cross-language lexical interaction (Grosjean, 2014, p. 156). In turn, a quite similar performance in phonological and syntax tasks in both groups was rather unexpected. We suggest this might be due to the similarity of Russian and Nenets phonology, and due to the specificity of the syntax tasks that did not include tense and aspect acquisition.

EmoPro – emotional prototypicality for 1,286 Spanish words: relationships with affective and psycholinguistic variables

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We present EmoPro, a normative study of the emotion lexicon of the Spanish language. We provide emotional prototypicality ratings for 1,286 emotion words (i.e., those that refer to human emotions such as “fear” or “happy”), belonging to different grammatical categories. This is the largest data set for this variable so far. Each word was rated by at least 20 participants, and adequate reliability and validity rates for prototypicality scores were found. We also provide new affective (valence, arousal, emotionality, happiness, sadness, fear, disgust, and anger) and psycholinguistic (Age-of-Acquisition, frequency and concreteness) ratings for those words without prior data in the extant literature, and analyse which of the given variables contribute the most to prototypicality. A factor analysis on the affective and psycholinguistic variables has shown that prototypicality loads in a factor associated to the emotional salience of words. Furthermore, a regression analysis reveals a significant role of both dimensional and discrete-emotion related variables, as well as a modest effect of Age of Acquisition and frequency on the prediction of prototypicality. Cross-linguistic comparisons show that the pattern obtained here is similar to that observed in other languages. EmoPro norms will be highly valuable for researchers in the field, providing them with a tool to select the most representative emotion words in Spanish for their experimental (e.g., for a comparison with emotion-laden words, such as “murder” or “party”) or applied studies (e.g., to examine the acquisition of emotion words/concepts in children).

Endorsement of unwarranted beliefs is associated with liberal response criterion in a false memory task

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The term “unwarranted beliefs” denotes beliefs held in absence of compelling evidence to support them, such as those referring to the paranormal, superstition or pseudoscience. Enhanced spreading of semantic activation and overconfidence in responses have been proposed as possible cognitive mediators of the presence of unwarranted beliefs. Our participants completed a false memory task. First, they were visually presented with lists of words semantically related to an unpresented critical word. Later, they decided whether different presented, critical and unrelated words had appeared in the previous phase, and they indicated how confident they were in their responses. The participants also completed superstitious and pseudoscientific belief questionnaires. False memory rates for unrelated words, but not for critical words, positively correlated with scores in the unwarranted belief questionnaires. Signal detection theory analyses indicated that participants more prone to endorse superstitious and pseudoscientific beliefs presented more liberal response criteria. Confidence in the responses was not correlated to scores in the questionnaires. Our data do not support accounts linking unwarranted beliefs with variability in semantic memory processing or confidence in memory-related responses. Alternatively, we provide evidence suggesting that divergences in the endorsement of unwarranted beliefs is generally associated with variability in response criteria.

Shared cognitive processes of language and numerical cognition: The tale of two routes

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The aim of the present study was to evaluate the common cognitive processes of language and numerical cognition. To this end, 28 participants completed five language tasks (three reading-aloud tasks, lexical decision task, and sentence completion task) and two arithmetic tasks (solving simple and larger additions). Tasks in both domains tapped into two shared processes: memory retrieval (related to the lexical route in reading and to simple additions in arithmetic) and the use of nonretrieval procedures (related to the sublexical route in reading and with larger additions in arithmetic). We predicted that the individual differences related to the retrieval and nonretrieval processes in reading would predict the individual differences related to the retrieval and nonretrieval processes in arithmetic, respectively. We ran multiple linear regression and logistic regression models to test these predictions. On one hand, the results confirmed that the individual differences in the use of nonretrieval processes during reading predicted the use of nonretrieval processes in arithmetic. On the other hand, we did not confirm that the use of retrieval processes during reading predicted the use of retrieval processes in arithmetic, although the use of lexical relative to the sublexical route did predict the use of retrieval relative to the nonretrieval strategies in arithmetic when these strategies were self-reported. These finding shed light on the common processes underlying language processing and numerical cognition and show how both domains relate to each other in previously unexplored way.

Does reasoning in a foreign language reduce pseudo-scientific beliefs and receptivity to pseudo-profound bullshit?

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Bilinguals reason in different ways in their foreign language (FL) and in their native language (NL). For instance, using a FL leads to a utilitarian choice compared to a native language (NL) when facing the hypothetical dilemma of deciding whether to push one man off a bridge to stop a train and save five men. This foreign-language effect (FLe) may reflect that reasoning is deliberative in a FL but intuitive in a NL. If this is correct, a FL may reduce endorsement of epistemically unwarranted beliefs like those related to pseudoscience (PSB: e.g., "hypnosis can uncover hidden childhood traumas") or receptivity to pseudo-profound bullshit (PPB; statements made with buzzwords that seem to convey profound meaning: e.g., "wholeness quiets infinite phenomena"). We address this question in an ongoing study by administering PSB and PPB questionnaires to 100 Spanish participants with an intermediate-advanced level of English. Half of the participants will complete the questionnaires in Spanish (NL condition) and the other half in English (FL condition). The online experimental protocol includes the footbridge dilemma to replicate the most classical FLe finding, in order to add reliability to the procedure. It also includes tasks to rule out confounding effects related to general intelligence (RAVEN matrices), baseline reasoning style (intuitive vs. deliberative; Cognitive Reflection Test), and linguistic profile. The results should reveal whether the FLe extends to endorsement of unwarranted beliefs and receptivity to pseudo-profound bullshit, and may help to address the worrying rise of denial movements such as the anti-vaccine movement.

The relationship between iconicity and affective ratings in Spanish words

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Iconicity can be defined as a relationship or resemblance between the form of a word and its meaning (e.g., boom). Recently, the results of several studies have shown that some psycholinguistic variables (e.g., sensory experience and age of acquisition) interact with iconicity. Of note, there are also data indicating that certain phoneme configurations are associated with the emotional content of the words, which point to a role of emotion on iconicity (e.g., short vowels sound on average more negative than long vowels). However, the interplay between the affective and the iconic features of words remains unexplored. In this work, we examined the association between iconicity and the affective dimensions of valence and arousal in 1,108 Spanish words using hierarchical multiple regression analyses. The results showed that valence was a significant predictor of iconicity ratings, after controlling for the influence of several lexico-semantic variables. In particular, we observed that negative words were associated with higher scores in iconicity. Thus, the current data suggest a closer relationship of similarity between form and meaning in those words signalling information of high relevance for individuals' survival than in words not signalling such information.

SpaVerb – A Mega-Study of Naming Times for 4,565 Spanish Verbs: Effects of Psycholinguistic and Motor Content Variables

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We present here a mega-study of word naming in Spanish, with response times (RT) for 4,565 verbs. Several studies have been carried out in various languages to explore the role of the main psycholinguistic variables in word naming, mainly in nouns. However, processing of verbs has not been explored in the same extend in spite that differences in reading processing of nouns and verbs have been found. We obtained the RT in a reading-aloud task, where each word was responded at least by 20 healthy adult participants. We also examined several research questions on the role of word length, neighborhood, frequency, AoA, and the novel variable 'motor content' in verb naming. Linear mixed-effects model analyses indicated that RT increase with augmenting word length and with decreasing neighborhood size; that AoA flips the sign of a weak but significant effect of motor content, with a positive slope of motor content at low AoA scores, and a negative slope at high AoA scores; and an interaction between word frequency and AoA, where the AoA effect for low-frequency verbs gradually diminishes as frequency increases. The results are discussed in relation to existing evidence and in the context of the prominent word reading models.

The role of cognateness in nonnative spoken word recognition

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Recognising non-native words is difficult, but some words are easier than others. Cognates are words from two different languages that share meaning and overlapping form. There is evidence that bilinguals recognise, produce and translate cognates faster than non-cognates. There are many dimensions across which form-similarity can be measured, and it remains unclear what plays a prominent role in the cognate facilitation effect. We evaluated several different dimensions that make up phonological similarity by studying their impact on non-native word recognition. We asked Spanish and English native speakers to listen to non-native words in Catalan or Spanish, and to type their best-guess translation in their native language. Critically, the participants were unfamiliar with the test language, which ruled out the availability of previous knowledge and left phonological similarity as the most accessible cue for translation. We first evaluated the extent to which phonological similarity as quantified using the widely used Levenshtein distance could predict translation success. We then analysed how translation success could be predicted by more fine-grained dimensions, namely the amount of vowel and consonant overlap and overlap at onset, while adjusting for the target word's phonological neighbours. Overall accuracy was low: Spanish and English participants guessed 46% and 20% of the words, respectively. Vowel and consonant overlap were the most important predictors of correct translations (with a small effect size) while shared onset played a lesser role. Different dimensions of phonological similarity contribute to the cues used by participants when associating unfamiliar L2 words to their L1.

The use of intonational information in language discrimination: Infant and adult data

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Language discrimination based on prosodic cues has been studied extensively with infants and adults. This ability emerges early on in infancy. Neonates can discriminate languages belonging to different rhythmic classes. By 4 months of age, they can perform finer distinctions between languages or dialects that are rhythmically similar. Adults' ability to discriminate between rhythmically similar languages has been studied with different types of degraded stimuli to pinpoint the cues used to succeed in such a task. We tested 4-month-old infants and adults on their abilities to discriminate Western Catalan from Spanish; both are Romance and syllable-timed languages and differ mainly in terms of intonational patterns. We conducted two experiments with 4-month-old infants growing up in Spanish monolingual environments, using natural and low-pass filtered speech. Data of an online experiment testing adults' ability to discriminate the two languages when low-pass filtered is close to completion. Adult participants were either native speakers of Spanish and/or Catalan or native speakers of other languages. Results showed that infants discriminated between the two languages when the sentences were natural and a trend of discrimination when low-pass filtered. Preliminary results from the adult experiment show that only native speakers are able to discriminate above chance level.

Reading unspaced Arabic texts: An eye-tracking study

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Studies have shown that the presence of interword spaces can facilitate word recognition and reading, whereas removing interword spaces exerts an inhibitory effect (Rayner, Fischer, & Pollatsek, 1998; Sheridan, Rayner, & Reingold, 2013). This paper investigated how this 'spacing effect' manifested in Arabic reading. Arabic writing system is characterized by its (i) right-to-left directionality, (ii) abjad (i.e. consonant) writing, (iii) ligation system with position-dependent allographs, and (iv) interword spaces. By using eye tracking, we investigated the effect of varying interword spacing (i.e. single-spacing (baseline), double-spacing, and hair-spacing) and target word frequency (i.e. high vs. low) on sentence reading. Our results showed that while target word frequency had a main effect on reading which concurred with previous studies (e.g. Rayner & Raney 1996), removing interword spaces (i.e. hair-spacing) did not inhibit reading at the word and sentence level. On the other hand, widening interword spaces (i.e. double-spacing) facilitated reading at the global level. There was no interaction effect between interword spacing and target word frequency, indicating that the spacing effect (if any) merely facilitated visual-spatial instead of word processing. We proposed that the oft-reported inhibitory effect of interword space elimination could be compensated by the Arabic typography, in particular its ligation system. Since Arabic ligatures are position-informative, readers can make use of parafoveal processing of these ligatures to visualize word boundaries, which obviates the function of interword spaces as a visual cue for word demarcation (cf. Paterson, Almabruk, McGowan, et al. 2015).

Annotated corpus of progressive language impairment in healthy aging and dementia

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In this work we present the results of our work on protocol design of annotated corpus of progressive language impairment from heatlhy aging to dementia, with focus on Mild Cognitive Impairment as intermediate stage between both conditions. Language impairment has been systematically described for phonetic and lexical-semantic competences in speakers with non-pathological senescence (NPS), Mild Cognitive Impairment (MCI) and Alzheimer's disease (AD). However, current research is not consistent about changes or involution of morphological, syntactic and pragmatic domains as associated to pathological aging. One of the main constraints for studying how language levels impair with healthy and pathological aging is the disparity between experimental stimuli in psycholinguist research. In this work we propose a corpus-based approach to studying language involution in aging, by describing the protocol for selection of verbal stimuli, their annotation and tagging in a semi-open electronic corpus with (a.) neurocognitive profiling and (b.) sociodemographic profiling of speakers with different cognitive states (NPS, MCI and AD), and (c.) verbal source typology of texts produced by them when fulfilling different types of task (recall, repetition, reading and free production). The aim of this work, which is proposed as a poster presentation, is to highlight methodological constraints and benefits of corpus-based research on language involution in pathological aging.

The effect of emotional prosody on content learning in Swedish elementary school children

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Previous research indicates that emotion words are processed differently from neutral words, and this emotionality effect has shown to enhance comprehension as well as learning in certain conditions (e.g., Megalakaki et al., 2019; Tyng et al., 2017). We explored whether these emotion effects also apply to emotional prosody (emotion conveyed through tone of voice in spoken language), in a school setting. We asked 77 children in elementary and lower middle school (mean age = 8.84 years, SD = .67) and 96 children in upper middle and lower junior high school (mean age = 12.2 years, SD = .80) to listen to audio recordings describing various items and places (e.g., a traditional Northern Swedish mitten, an old Viking castle etc.). The descriptions were read either with a positive or neutral prosody, and participants were asked five questions about each text. Preliminary analyses for the younger children show no significant difference in accuracy (number of correct answers) between the positive and neutral descriptions ($p > .05$). However, the older children were significantly more accurate in the positive than the neutral condition, $t(95) = 2.2$, $p = .021$, $d = 0.24$. These results will be discussed in relation to the development of prosody (including the so-called semantic bias in younger children). The results indicate that there may be an effect of prosody in learning, particularly for older children, and may be useful in educational settings, not least in further research on Information and Communication Technology (e.g., text-to-speech tools for children with special needs).

Network analysis of syntactic development of three longitudinal corpora (19-48 months of age)

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We show refined analysis of data from the language source using a combination of linguistic, morpho-syntatic analysis and network science.

Complexity patterns of word combination emerge from a sample of spontaneous speech. and take the form of a complex network made of words/morphemes (its nodes) and syntactic links (its edges), so that we can extract formal, objective indicators that speak about the cohesion of the speaker's linguistic system: which are the most connected words (hubs), which kind of links are crucial for the structure of her linguistic capacity.

Three complete longitudinal corpora of three children acquiring Catalan as first language (from CHILDES) have been completely analyzed by hand. Each corpus includes 14 files, from encompassing from 19 to 49 months of age. All utterances produced by the child were analyzed with the Netlang software, specifically created for network analysis of syntactic corpora. We analyzed and labelled not only syntactic interactions (subject, object, etc.), but also lexical categories (noun, verb, etc.) following the Dependency Grammar (Hudson, 1990). Analyses covering one year of children's life have shown that children, regardless the language they acquire, follow the very same developmental stages (Corominas-Murtra, et al. 2009). These three stages can be represented by a type of network: first a tree-like network, then a scale-free network and finally a small-world network.

We have been able to replicate these results, and for the first time, including three complete corpora of children speaking the same language.

Psycholinguistic effects in the lexical decision task as we get old: change or maintenance?

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Current psycholinguistic knowledge derives mainly from studies carried out with young and middle-aged adults. Despite the advances in the field of the aging lexicon, much less is known about language processing in old adults, a fact that may have contributed to some age-related folk/popular misconceptions (e.g., a hypothetical global cognitive decline, which would predict detrimental changes in language as a whole). Within this context, the main aim of the present research was to determine the psycholinguistic effects that remain constant on aging and those that change, on the basis of performance in a lexical decision task (LDT).

We conducted a virtual cross-sectional experiment comparing young and old adults in a LDT with 1152 words. Our results contradicted that folk/popular misconception: apart from an age-related slowdown, the effects of 8 out of the 9 psycholinguistic properties examined did not significantly differ between groups. Consequently, the present research suggests that the normative pattern of aging effects for language is maintenance (and not change), at least in terms of visual word recognition processes in the LDT. This study has practical implications, because it provides relevant information that may help researchers and clinicals to distinguish between normal and pathological aging.

The role of freestanding vs. bound morphemes in the gender congruency effect

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The way gender processing is represented and accessed in the cognitive system is a highly controversial issue. Some researchers argue that gender processing occurs for every noun and that the mechanisms for selection operating on morphemes are competitive-based (Sá-Leite et al., 2019), whereas others hold that gender features are automatically selected during lexical access without competing processes intervening (Schiller & Costa, 2006). To test the predictions of these two accounts, we examined the gender congruency effect (GCE: shorter reaction times when target and distractor nouns have the same gender value than when it differs) using freestanding (i.e., morphemes that can stand alone as a word) vs. bound morphemes (i.e., inflections) in a picture word interference paradigm (PWIP; i.e., "name the object as quickly as possible, regardless of the distractor word"). Following the Schiller and Costa's account, the GCE would be restricted to freestanding morphemes because only freestanding determiner forms (and not bound morphemes) would compete for selection at a morpho-phonological level. On the other hand, the Sá-Leite et al. account proposes that the GCE would be observed regardless of whether the morphemes are freestanding or bound. A group of native speakers of Portuguese completed a PWIP experiment including freestanding morphemes and bound morphemes. Frequency of freestanding and bound morphemes was also manipulated to disentangle these effects from that of morpheme type. Results are discussed in the light of the two accounts above mentioned.

The influence of implicit causality and subjecthood in coreference preferences: a comparative study of English and Spanish

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Implicit causality (IC) and subjecthood can influence coreference (Contemori & Dussias, 2019; Bott & Solstad, 2014). While IC semantically directs the speakers' attention to either the NP1 or the NP2 of an active sentence, subjecthood gives advantage to the NP1. Considering this, it is not clear to what extent the two cues determine coreference when they compete. To investigate this, 47 English and 30 Spanish speakers completed a sentence continuation task. We distinguished IC bias and subjecthood using unambiguous active (e.g., Thomas bored Stephanie because…) and passive sentences (e.g., Stephanie was bored by Thomas because...), since the latter reverses the mapping between subjecthood and semantic roles. In English disambiguation was given by gender, while in Spanish we used number. We predicted that if subjecthood affects coreference we would see more IC congruent continuations when the causer is realized as the subject rather than as a non-subject. Generally, participants completed the sentences with pronouns (Spanish 96.1%, English 95.8%) and retrieved the IC biased argument. Interestingly, in sentences with NP2 verbs (but not NP1 verbs) we found significantly more IC congruent continuations when the causer was realized as the non-subject in actives than as the subject in passives (English: $p < 0.001$; Spanish: $p = 0.031$), which goes against our prediction. We hypothesized that our results might relate to information structure changes: we found more IC congruent continuations when the cause was a part of the focus of the first sentence, and foci can often become the topic of the next clause (Goldberg, 2006).

Influence of intrinsic word properties in word association

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Given the impact of lexical properties such as valence, arousal and concreteness in language processing, recent computational methods have been designed to extrapolate these values from different sources, such as word co-occurrence or word association corpora. These methods have been proven to be particularly successful approaches to extract lexical features from word association data. Consequently, valence, arousal and concreteness seem to be indeed represented in word association to certain extent. In this study, we hypothesized that these properties would in fact be critical mediating factors for word co-occurrence. We demonstrated that this is the case by showing a significant positive relationship between the values of a given word on each of the dimensions and the corresponding values of each of their associates in different databases from various languages. Furthermore, we also demonstrated that cue words and their associates can be effectively grouped and categorized according to valence and concreteness, to a great extent, and to arousal, to a lower extent. Hence, in this study we showed that across different languages, word association is mediated and can be predicted by concreteness and valence.

SESSION E

POSTER38 (Office 01) **Friday 25, 12:00-13:00 CEST**

Monitoring the source of false information in native and foreign language

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Previous studies showed that bilingual memory for an event can differ depending on the language in which information was encoded and retrieved. Endorsement of false information is linked to source monitoring processes that rely heavily on inhibitory control. Comparative research on bilinguals and monolinguals suggests that thinking in foreign language leads to activation of more analytical reasoning and enhanced inhibitory control. Thus, it could be proposed that bilinguals might be better at rejecting misleading information when it is presented in their second language.

To explore this possibility, we conducted a misinformation experiment combined with source monitoring task. 56 Russian-English bilinguals watched a no-sound video clip depicting a car robbery. Then, participants read a set of narratives in Russian and English retelling the information of the video, each containing some false information. Finally, participants completed a true/false recognition task and source monitoring test (English narrative, Russian narrative, None).

While misinformation effect was present, we did not confirm a higher endorsement of false information in their native language. At the same time, analysis of the source monitoring task showed that when participants misattributed the sources of false information (English or Russian narrative), they favored the Russian source over the None source.

Our results offer novel insights into bilingual memory processing. Endorsement of false information was not affected by the language of presentation. However, the results of the source monitoring suggest that processing information in the second language could be more demanding, which leads to some memory errors, but not other.

Interactions of the L1 and L2 in a language attrition context: A visual world eye-tracking study

Concepción Soto

1) University of Essex

Despite the considerable amount of literature on bilingual development, little is known about how languages interact during online lexical processing (Berends, Brouwer, & Sprenger, 2015). Existing research recognises that crosslinguistic interaction affects not only the bilingual's L2, but also the L1's, altering the underpinning processing mechanisms at all linguistic levels and all stages of development (Kroll & Bialystok, 2013). However, further research is needed to understand how lexical access occurs in bilinguals' native language and L2s, and to what extent the two languages interact during this process.

Language attrition research can provide us with as much information about the structure of a linguistic system as the ones that rule its attainment (Schmid & Kopke, 2017). Thus, bilingual research investigating attriter linguistic systems might reveal processes otherwise not taken into account in the bilingual development spectrum.

This project aims to shed light on bilingual lexical processing at the word level by comparing the selective attention mechanisms that take place when Spanish-English bilinguals-late attriters (n=59), Spanish monolinguals (n=48) and English monolinguals (n=40) process competing L1 and L2 lexical items. We investigate this question via a Visual-World eye-tracking experiment with manipulation of onset/rhyme overlap. Additionally, a battery of tests will examine how the subjects' performance varies depending on several external factors.

Preliminary results seem to suggest that the Spanish-English bilinguals under investigation presented similar attention mechanisms to the ones obtained from the English monolinguals rather than to the Spanish monolinguals when perceiving words in their L1. It is expected that the findings will contribute to a better understanding of bilingual lexical processing in the language attrition context.

Priming effect in second language learners as a function of associative strength

Mar Suárez (1) Maria Soledad Beato (1)

1) University of Salamanca

The current investigation examined associative priming in second language learners as a function of associative strength. Undergraduate students whose first language (L1) is Spanish and that have learned English as a second language (L2) participated in a lexical decision task. In this task, prime-target associative strength (i.e., strong, weak, and non-associated pairs) and language (i.e., L1 and L2) were manipulated. In particular, participants were presented with 160 prime-target pairs (80 word-word pairs and 80 word-nonword pairs) in L1 or in L2 (language as a between-subject factor). Regarding the 80 word-word pairs, participants responded to 20 targets preceded by a strong associate (e.g., smoke-FIRE), 20 by a weak associate (e.g., river-BOAT), and 40 by a non-associated word (e.g., duck-CLOTHES), based on free association norms of both languages. Results showed that mean reaction times and percentage of errors were greater when participants responded to L2 targets than to L1 targets. That is, L1 words were recognized more quickly and accurately than L2 words. Furthermore, with respect to associative strength, as expected, priming effects in L1 were obtained in both the strong and weak associative strength pairs. However, priming effect in L2 was only significant for the strong associative strength pairs. Overall, these data suggest that spreading activation not only occurred in a first language but also in a second language, even in L2 learners, but, in the latter case, only when there was a strong association between concepts. These results will be discussed in terms of the revised hierarchical model.

Negation in a repetition task: a study in aphasia

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4) Brock University

Impaired language can include difficulty with negation in people with aphasia (PWA). This difficulty has been reported for speakers of different languages (Fyndanis et al., 2006; Rispens et al., 2001) but the scope of the problem is not well-understood.

The aim of study is to examine performance of PWA in producing and comprehending words and sentences with negation expressions. We seek to draw upon cross-linguistic variations (in Arabic, English, Hebrew and Spanish) in the use of negation. As a first step, we report data of a repetition task in Spanish and English.

Participants: 4 PWA participated: 2 Spanish speakers (S), 2 English speakers (E).

Materials: The repetition task included sentences in 5 conditions:

- SVO/ present continuous (The father was / not drinking coffee).
- SVO/ present simple (The father drinks / does not drink coffee).
- Negative concord (The father is not eating anything).
- Predicate (The shoe was / not red).
- SV (The father is / not dancing).

Performance of the participants was not uniform across the five conditions. Two participants (S1 and E1) showed difficulty with negation. When focusing on errors, we found that both participants exhibited omission and addition of negation expressions, but E1 also showed word order errors and omissions of the auxiliary verb (does not). The selective difficulty observed across conditions and languages appears to be affected by characteristics of the language structure. Our ongoing data collection from additional participants, languages, and tasks will help understand the interaction among semantic and grammatical aspects of negation cross-linguistically.

Does omitting the accent mark in a word slows down sentence reading?

Ana Marcet (1) Manuel Perea (1,2)

1) Universitat de València

2) Nebrija University

Lexical stress of multisyllabic words is consistent in some languages (e.g., Finnish: initial syllable; Polish: penultimate syllable; French: final syllable). However, in languages like Spanish or English, the position of lexical stress is variable. To help pronounce correctly words in Spanish, scholars have designed (and modified) a series of rules using accent marks (e.g., "Fué a Sión sin guión y rió" was the correct orthography before 1999). However, do accent marks actually help reading in Spanish? Recent visual-word recognition experiments using lexical decision have failed to show faster responding to cárcel vs. carcel (Schwartz, 2015) or fácil-FÁCIL vs. facil-FÁCIL in masked priming (Perea, Fernández-López, & Marcet, 2020). To examine this issue in a paradigm with greater ecological validity, we tested whether omitting the accent mark in a word had a deleterious effect in sentence reading experiment. We created 120 sentences in which we included a target word that normatively required an accent mark. The target word was presented with its accent mark (e.g., fácil) or not (facil)—all other words in the sentence were presented with their accent marks (if required). Results showed a similar first-pass duration on the target word for fácil-type and facil-type words. In addition, there were more regressions towards facil-type words, thus resulting in shorter total reading times for fácil-type words. These results suggest that, although they do not affect the initial contact with the lexical entries, omitting an accent mark may hinder the integration of the word with its context.

Morphological awareness in late L2 learners: proficiency matters while the L1 does not

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1) Université de Lille

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To what extent late L2 learners process morphological information remains unclear. We argue that the methodologies used are not the best to draw firm conclusions on derivational morphology in L2. As such, our study focused on morphological awareness, a conscious mechanism that may precede the acquisition of morphological decomposition. We investigated how morphological awareness progresses with L2 proficiency. We also considered the impact of morphological overlap between L1 and L2, based on the L1 transfer hypothesis. We hypothesized that shared suffixes between two languages would be easier to acquire than suffixes specific to the L2.

Ninety-two (n=92) French-English speakers were assessed using three morphological awareness tasks, which correspond to three stages identified by Tyler & Nagy (1989): lexical-semantic knowledge, syntactic knowledge, and distributional knowledge. Each task contained 80 derived words: 40 were composed of a Shared suffix (e.g., –ment exists in both French and English) and 40 of an Unshared suffix (e.g., –ship does not exist in French). L2 proficiency was evaluated with the LexTale (Lemhöfer & Broersma, 2012) and a translation task. Participants' use of English as L2 was also assessed through a questionnaire.

Data were analyzed using linear mixed-effects models, which confirmed the influence of proficiency at every stage of morphological awareness. However, our second hypothesis was not confirmed as no particular advantage was found for suffixes shared between French and English.

Our findings are discussed in line with the current theories regarding morphological processing in L2.

Visual and Oral Comprehension difficulties in Irlen syndrome

René David Tacuri-Reino (1,2) M. Rosa Elosúa (2)

1) University of Cuenca

2) National University of Distance Education

Irlen's syndrome (IS) is characterized by visual perceptual distortions that cause difficulties in reading, although empirical data in people with this syndrome are scarce. The purpose of this study was to examine visual and oral reading skills in 110 students with (experimental group, EG) and without IS (control group, CG) from 3rd and 4th year Primary school (55 participants in EG, M= 8.60 years old, SD= .63 and 55 in CG, M= 8.62 years old, SD= .56). Four tests were administered: three tests for visual reading comprehension, and one test of oral reading comprehension from PROLEC-R. The hypothesis predicted significant differences in reading comprehension ability (visual modality) between both groups, with the expected performance being lower in the experimental group (IS) compared to the control group in the three measures used. However, given that we have not found any previous studies on Irlen syndrome and the use of oral comprehension measures, it is not clear whether oral comprehension ability would also be significantly lower in students with IS, compared to the control group. Results showed significant differences in the three visual reading comprehension tests, but there were no significant differences in oral reading comprehension test. Implications for learning and reading consolidation in educational setting are discussed.

Top-down phonological information modulates early visual-orthographic processing: Electrophysiological evidence

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1) Universidade do Algarve

2) Universidade de Lisboa

For a skilled reader it takes only approximately ¼ second to identify a word. This remarkable speed depends on a specialized system for letters over symbol strings in the left ventral occipitotemporal cortex and is signaled by the N1 electrophysiological component. While the bottom-up selectivity of N1 to visual-orthographic properties is well-established, it is still under debate if the N1 response is open to top-down influences from language. This study thus aimed to explore whether online processing at the phoneme level an feed back to the visual system during early stages of letter processing. For this, we asked 42 typical adult readers to perform an one-back task (visual immediate repetition detection), in which we orthogonally manipulated the stimulus lexical status (words vs. pseudowords) and the spelling-to-sound consistency at the sublexical level ((pseudo) words that can only be sounded out in one way vs. contain ambiguous grapheme-to-phoneme mapping). Results showed a predominant left-lateralized N1 for all letter strings, as signature of fast, automatic orthographic processes in expert-like readers. In addition, we found amplitude modulations in the visual N1 ERP for different levels of spelling-to-sound consistency, as inconsistent stimuli (vs. consistent) yielded smaller N1 over posterior sites. Especially for words, this effect of consistency was stronger in the dominant language hemisphere. Our results seem compatible with an interactive account in which higher-level top-down (phonological) and visual bottom-up orthographic nformation interacts in an automatic fashion for visual word recognition.

Tracking comprehension. The cloze test to investigate language comprehension in non-native speakers of Italian and English: a research conducted with Eye-Tracker

Maria Roccaforte (1)

1) University of Rome

Eye-tracking is a technique that allows to record and analyze, qualitatively and quantitatively, eye movements while reading a text. In the field of psycholinguistics, research using this tool, has mostly focused on the psycho-motor aspect of text exploration, without recognizing or describing linguistically the proposed stimuli, and especially without trying to create a link between the input presented and the understanding of the message.

This research aims to investigate eye movements in the act of solving comprehension tasks of the cloze type: utterances or passages to which parts of text have been omitted.

The research will involve a group of participants with different levels of knowledge of Italian and English.

The data obtained will be statistically analyzed on the basis of three variables: the linguistic labeling of the eliminated parts of the text, the correctness in solving the cloze and the linguistic competence of the learner. These results will allow us to identify reading patterns in cases where participants correctly solve the cloze, fail to solve it, or fill in the cloze with an incorrect word. These results will be useful in understanding which language structures should be considered more complex for learners and in creating cloze tests that are more consistent with the target language level. The results will also be relevant, from an epistemological point of view, to verify a postulate adopted by the scientific community but never really verified, namely the relationship between fixation length and comprehension.

Pronoun Resolution in Reported Speech Clauses in Spanish Child Language Acquisition

David Navarro Ciurana (1)

1) Universitat de València

The correct attribution of the pronouns' reference within quotation plays an important role in the acquisition and understanding of direct/indirect speech. In this study, we analyzed whether children acquiring Spanish are able to identify the reference of pronouns. An audiovisual stimulus was created consisting of a narrative of two animated characters, Mario and Elsa, who were finding objects along a path. A narrator quoted the words of the characters, who attributed the objects to themselves (""De repente, se encontraron con una guitarra, y Juan dijo: '¡Tú tienes una guitarra como esa!""), alternating direct and indirect speech and the first and second/third person clauses.

Seventy-three children aged four, six and eight years, and fifteen adults which constituted the control group, were selected for this study. The results showed that the understanding and correct attribution of first-person pronouns, both in direct and indirect speech, is relatively high in 4;0 children (80% accuracy) and improves gradually with increasing age. However, we found a more significant difference between 4 and 6 years in second-person pronouns in direct speech (38% accuracy at 4;0 and 76% accuracy at 6;0) and in third-person pronouns in indirect speech (29% accuracy at 4;0 and 88% accuracy at 6;0). Our hypothesis to explain these results involves the development of the complexity of syntactic constructions in psychological verbs and the development of executive functions. Finally, these results are compared crosslinguistically to the ones obtained by Köder and Maier (2016) for Dutch in a similar and previous version of this experiment.

The influence of the COVID-19 pandemic on the emotional evaluation of words

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The COVID-19 pandemic has provoked a radical change in the world, altering our routines, our conversations, the specific contexts in which we hear or use certain words, and potentially, the representation of a series of lexical items that are directly related to the disease and its consequences. Here we investigated whether the effects of the pandemic have changed the representation of the affective features of recurrent COVID-19-related words. To this aim, we collected new ratings of valence (from unpleasant to pleasant) and arousal (from calm to activated) dimensions for a COVID-19-related and unrelated set of words. Subsequently, we compared these scores with those from databases that reported ratings for the same pool of words before the pandemic. Our results showed significant changes for COVID-19-related words, which suggest that the pandemic context modified their affective representation. These findings support the flexibility of emotional representations and the malleability and dynamicity of the lexicon as a function of contextual factors.

Orthographic learning in Chinese-English readers: the role of L2 proficiency for L1-L2 grain size accommodation

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1) Universidad de La Laguna

2) Russian National Research University - Higher School of Economics.

3) Dalian University of Technology

Logographic languages (e.g., Chinese), apply larger grain sizes during reading than alphabetical languages (e.g., English), which are based on decoding of sublexical units. The grain size accommodation hypothesis refers to the hybrid grain size triggered jointly by L1 (first language) and L2 (second language) orthographies when reading L2 scripts. This study addresses whether proficiency modulates the pattern of grain size accommodation and contributes to decoding efficiency and orthographic learning. A group of 44 Chinese-English bilinguals, divided in high (HPG) and low (LPG) English proficiency, were presented with a reading aloud task, in which a set of 24 pseudo-words and 48 English words (24 high-frequent and 24 low-frequent), half short (4-letter) and half long (7-letter), were repeatedly exposed across 10 blocks. Mixed-effect models computed on reading latencies revealed differences on the reduction of length and lexicality effects across training blocks depending on proficiency. The HPG showed a higher reduction of the length effect along repetitions than the LPG, indicating faster transition from small-grain to large-grain reading processing. Nonetheless, differences between short and long pseudo-words, as well as between these and familiar words, were not found completely eliminated in any group, although were more reduced in the HPG. Post-training outcomes further confirmed efficient decoding facilitates L2 orthographic learning. Altogether, our results show that the patten of grain size accommodation is modulated by linguistic proficiency, which, in turn, affects decoding efficiency and orthographic learning.

The interplay of orthographic and phonological similarity during bilingual writing production

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1) University of Granada

2) University of Florida

This study investigated the role of orthographic (OS) and phonological (PS) similarity in language co-activation during written production. Highly proficient English-Spanish bilinguals carried out a dictation-to-writing task in either L1 or L2. The first-key presses and the rest of the word writing were considered as indices of lexical and sublexical processing. For each language block, the OS and PS similarity of the presented words were orthogonally manipulated: O+P+ (hospital-HOSPITAL), O+P- (horrible-HORRIBLE), O-P+ (panic-PÁNICO), O-P- (oxygen-OXÍGENO). Overall, the results showed that for the first key latency, faster latencies were observed for P+ in comparison with P- cognates word, both in L1 and L2, with a stronger effect in L2; in the first key accuracy a similar pattern was observed. Differently, writing latencies for the rest of the word showed no significant effects, but an interaction of Language, OS and PS was observed in accuracy. Thus, in L1 the higher accuracy for P+ in comparison with P- was significant in O- cognate words; while in L2 the same effect was significant in O+ words. The results evidenced non-selective coactivation of the bilinguals' two languages during word writing, and suggest that the lexical measure seems to be more sensitive to the PS similarity and sublexical measure to both OS and PS similarities in a dictation-to-writing task.

Second language grammar learning: The role of individual differences in explicit learning

Marta Rivera (1) Daniela Paolieri (1) Ana Pérez (1) Teresa Bajo (1)

1) University of Granada

Learning a new language is an important goal that some people finds difficult to achieve. Differences in executive functioning (EF) have been proposed as a possible source of variability in language learning. The aim of our study was to find evidence for this relationship, as well as to explore if distinct language strategies might be differentially effective for people varying in EFs. Specifically, we examined the influence of individual differences in EFs in intentional or incidental language learning. Seventy-eight monolingual-speakers of Spanish learnt the dative alternation rule in English by reading grammatically correct sentences and answering comprehension questions. Participants were divided in two groups differing on whether they were told about the rule (intentional) or not (incidental). After learning, participants performed a Grammatical Judgment Test (GJT): They judged if studied, new-grammatical and new-ungrammatical sentences were correct, immediately, 24-hours and 1-week after training. Additionally, they performed the AX-CPT and Global-Local tasks to capture individual differences in EFs. Discrimination scores (d') in the GJT were calculated between studied and new-ungrammatical sentences (recognition d') and between new-grammatical and new-ungrammatical sentences (generalization d'). A Linear Mixed-Effect model analysis indicated that participants in the intentional context showed higher generalization scores than participants in the incidental context. Importantly, AX-CPT performance significantly predicted the recognition d' score and Global-to-Local interference significantly predicted the generalization d' score but only in the intentional condition. Hence, EF modulated learning success when intentionally learning L2 grammatical rules, but this effect was mitigated in implicit learning contexts.

Beyond the Foreign Language Effect: Utilitarian responses to moral dilemmas in children with Autism Spectrum Condition

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1) Universitat de València

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3) Instituto de Investigación Sanitaria LaFe

Responses to moral dilemmas can be affected by numerous factors. For instance, thinking in a foreign language leads to more utilitarian decisions in moral dilemmas, especially in personal dilemmas (Costa et al., 2014). Similarly, in personal moral dilemmas, adults with Autism Spectrum Condition (ASC) show a more utilitarian pattern of moral decisions than normotypical adults (Gleichgerrcht et al., 2012). To shed more light on the roots of the latter effect, we focused on children and adolescents with ASC. Specifically, we examined the development of utilitarian vs. deontological judgements in the impersonal switch dilemma and the personal footbridge moral dilemma. A group of typically developing (TD) individuals matched in age was selected as control. Results showed that the probability of a utilitarian response decreased with age and, more importantly, this decrease was much less steep for individuals with ASC—this was particularly clear in the personal dilemma. We also found that while individuals with ASC considered their response more appropriate, they also felt less calm about their decisions. These findings offer some insights on Smith's (2009) empathy imbalance hypothesis of autism.

The role of emotionality on online idiom processing

Juan Haro (1) José Manuel Gavilán (1) Pilar Ferré (1)

1) Universitat Rovira i Virgili

Idioms (e.g. kick the bucket) are part of a broad spectrum of multi-word expressions (MWEs) whose representation is stored in semantic memory. Although there is a growing interest in idioms from different disciplines, there is still a lack of knowledge about how idioms are processed and represented in the mental lexicon. One of the aspects not yet explored is the role of emotionality. In the present study, we examined the effect of emotional valence and emotional arousal during online idiom processing. A total of 121 participants performed an idiom comprehension task in which they were presented with 500 idioms. The effect of valence and arousal on reading times was analysed, controlling for the effect of other variables relevant to idiom processing (e.g., familiarity and decomposability). The results showed a facilitatory effect of valence, i.e., positively valenced idioms showed faster reading times than negatively valenced idioms. No effect of arousal was observed. This effect of valence is similar to that observed in isolated word processing using lexical decision tasks. This would suggest that, during online processing, the emotional content of an idiom plays a similar role to the emotional content of a word. The evidence obtained in this study is discussed in relation to idiom processing models.

Is HOUR easier to recognize than HAIR for a French speaker who learned English at school?

Lecerf Marie-Ange (1) Commissaire Eva (1) Demont Elisabeth (1) Casalis Severine (2)

1) Universite de Strasbourg

2) Universite de Lille

In learning a second language (L2) in a school setting, an L2-learner is faced with particular challenges. Specifically at school, L2-learners are exposed to the written form of L2 words. Therefore, they are exposed to new graphemes such as the 'ow' which is frequent in English but not in French. It has been shown that the presence of language-specific bigrams, referred to as orthographic markers, can facilitate language and lexical decisions in high-proficiency bilinguals (Casaponsa et al., 2014; Commissaire et al., 2019; Duñabeitia et al., 2020; van Kesteren et al., 2012). However, these cross-language differences could lead inversely to a cost in L2-learner word recognition due to weaker marked grapheme representations. We investigated this issue by using a lexical decision task and a naming task, which allowed us to investigate access to both orthographic and phonological representations. We used items containing either an L2-orthographic marked bigram (ex: ow) or only L1 and L2 shared bigrams (ex: ou). The participants of this study are 30 French native adults. Proficiency in English was tested with the Lextale test, and participants could be split into two groups: Lower-proficiency and Higher-proficiency bilinguals. In the lexical decision task, only lower-proficiency participants exhibited an inhibitory effect of markedness. However, in the naming task, the inhibitory effect of markedness did not depend on proficiency. Although the markedness affected production similarly for both lower and higher proficiency participants it seems that it impeded visual recognition particularly in lower-proficiency bilinguals.

Online processing of subject and object relative clauses: evidence from heritage Greek

Kalliopi Katsika (1) Maria Lialiou (2) Shanley Allen (1)

1) Technische Universität Kaiserslautern

2) Potsdam Universität

The present study examines the online processing of subject and object relative clauses (RCs) in monolingually raised and bilingual Greek/German children and adults with Greek as heritage language. Although in recent years there is an increased interest in heritage speakers' online parsing, studies on morphosyntactic processing are up to date quite limited (e.g. Keating et al., 2016; Gračanin-Yuksek et al., 2020). The investigation of heritage speakers' morphosyntactic parsing can shed light on the question of whether or not heritage speakers employ the same parsing strategies as monolingually raised speakers, or employ L2 learners' processing strategies such as shallow processing (Felser & Roberts,2007; Marinis et al., 2005).

We conducted a self-paced listening task in Greek in which we manipulated the type of relative clause (subject vs. object), and the RC internal word order (canonical vs. scrambled). The relative clauses were introduced with the complementizer pu ('that'). We have up to now recorded online listening times and grammaticality judgments from 40 11- to 13-year-old children (22 monolinguals, 18 heritage), and 107 adults (100 monolinguals, 7 heritage (data collection in process)).

Results showed that subject RCs were processed faster than object RCs in monolingual adults, no difference in RC type in monolingual children, and faster times for object RCs in heritage children and adults. The significant object RC effect in both groups of heritage speakers stems from heritage adult and children's processing nominative preverbal NPs faster than accusative ones, a pattern that contrasts with monolingually raised speakers, and indicates crosslinguistic transfer from German.

Testing the "bilingual advantage hypothesis" against non-typically developing individuals with genetic disorders

Estela Garcia-Alcaraz (1,2,3) Juana M. Liceras (2,3)

1) Universitat de les Illes Balears

2) University of Ottawa

3) Nebrija University

The effects of bilingualism on the executive control abilities of typically developing (TD) individuals have been widely studied (Valian 2015). However, how bilingualism may shape the cognitive abilities of non-TD individuals is an understudied field of research. This paper aims to put the controversial Bilingual Advantage Hypothesis to the test studying the interference suppression abilities of the Prader-Willi Syndrome (PWS) population. To do so, eight Spanish monolingual speakers (M = 22.80 years old, SD = 11.58, age range 9;4-47;0) and seven Spanish-Catalan bilinguals (M = 18.04 years old, SD = 8.95, age range 10;5-33;10) with PWS and comparable IQ and receptive vocabulary abilities, were administered the Flanker and the Stroop tasks programmed in E-prime. Both accuracy and RT data were collected and analyzed separately for both tasks. For both groups accuracy was at ceiling (> 90%) and all RT data points were submitted to a linear mixed-effects model analysis with Group and Experimental Condition (Neutral, Congruent and Incongruent), as well as their interaction, as fixed effects, and with Participant and Item as random effects. Descriptive RT data for both tasks showed quicker RT for bilingual speakers. However, inferential statistics showed a similar interference effect (higher RT for incongruent than neutral trials) for both groups. More data is needed to obtain a clearer picture of how bilingualism may affect the cognitive abilities of these individuals but our results suggest a similar behaviour to that of the young TD population, where a bilingual advantage has proven to be hard to detect.

The use of grammatical gender as an anticipatory cue in French

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1) University of Ottawa

Grammatical gender is often referred to as one of the most difficult grammatical categories to master, therefore, making it an ideal tool to investigate how grammatical concepts are processed. To this end, several studies have focused on anticipatory processing of grammatical gender cues in native speakers (e.g., Dussias et al., 2013; Beatty-Martínez, et al., 2020). Commonly, it is found that native speakers are able to use grammatical gender to facilitate processing of upcoming nouns (Lew-Williams & Fernald, 2010). However, previous studies typically focus on languages consisting of transparent gender systems (e.g., Spanish), collapse their findings across genders, as opposed to disentangling them.

We are currently testing native French speakers from Ontario and Québec, Canada via an online study. At the time of testing participants reside in the Ottawa-Gatineau region, a largely bilingual community. Participants complete a lexical decision task using a masked priming paradigm in order to examine how a gender marked determiner (i.e., la) facilitates access to its corresponding noun (i.e., *maison*).

Preliminary results for the first twelve participants (M age=19.7, 17-25 years), show that gender available gender cues on the determiner do not result in quicker response times, for either the feminine or masculine conditions ($p>.05$). The presence of this null result is supported by Bayesian coefficients (BFinclu=0.28). These findings are potentially reflective of the type of language environment speakers currently reside in. Due to the bilingual environment, speakers may be more flexible with their use of gender cues. However, additional data may provide further insight.

Semantic and lexical training to learn foreign-language words in adulthood

Ana Belén García-Gámez (1,2) Pedro Macizo (3,4)

1) University of Algarve

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3) University of Granada

4) Mind, Brain and Behavior Research Center

In two separated experiments, we evaluated the effects of two learning methods when adult individuals acquired vocabulary in second language (L2). The semantic training consisted of the presentation of L2 words accompanied by pictures denoting their meanings while in the lexical training, first language (L1) and L2 words were presented together as learning material. After training, participants decided if L1-L2 words were correct translations. In incorrect trials, where the L2 word was not the L1 translation, interference was found when L1 and L2 words were semantically related only in participants included in the semantic learning method but not in those that had learned words with a lexical method (Experiment 1). However, when the words in L1 and L2 were not translation equivalent but had a lexical relationship, both groups of participants showed a facilitation effect (Experiment 2). These data suggest that semantic learning methods favors the establishment of connections between L2 words and concepts (a kind of processing typical in fluent bilinguals). Additionally, this reinforcement is not detrimental to the correct use of lexical connections between L1 and L2 words.

Grounding novel words into emotion: differential recall and retention of words with acquired positive and negative valence

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1) National Research University Higher School of Economics

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Learning novel words is crucial for effective communication in both auditory and visual processing domains. Existing behavioral and neuroimaging research addressed the surface-level mechanisms of novel word representation at the orthographic or phonological levels. However, little is known about the formation of new word-forms and the corresponding modality-specific concepts attributed via perceptual, motor or emotional systems. In the current study, 17 participants were exposed to 10 repetitions of 16 novel visual-word forms in association with linguistic (spoken word-form) and emotional sounds (positive, negative and neutral valence). We also obtained recall performance (immediate and on the next day) and subjective valence ratings for words and sounds. Preliminary results show different training effects across testing days. Specifically, immediate recall performance was better for words trained in association with negative than with neutral sounds, whereas delayed recall was better for the words associated with positive-valence sounds than to the spoken word-forms. Linear regression analysis revealed a similar pattern with valence as a reliable predictor of delayed but not immediate recall performance: the more positive valence, the better recall. Moreover, significant correlations between valence ratings and word-forms indicated transfer of emotional connotations from auditory to linguistic stimuli. Together, these findings indicate faster encoding of novel negative emotional words and better memory retention for novel words with positive connotations.

Individual differences in speech perception: Sources and consequences for second language learning

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1) Basque Center on Cognition, Brain and Language

2) Stony Brook University

3) Ikerbasque

Previous work has found robust individual differences in how listeners categorize speech sounds, with some listeners showing significantly higher sensitivity to within-category phonemic differences than others (Kapnoula et al., 2017; Kong & Edwards, 2016). Individual differences in phoneme categorization appear to have an early perceptual locus (Kapnoula, 2016; Kapnoula & McMurray, under review), suggesting that some listeners are more strongly affected by their phonological prototypes (Samuel, 1982), leading to stronger warping of their perceptual space (Kuhl, 1991). However, it is unclear what drives these individual differences and how they may affect listeners' ability to learn a new language. Here we examined the potential role of long-term exposure to different phonologies in shaping the way listeners categorize speech sounds and, in turn, affecting their flexibility in acquiring a novel phonology. Following Kapnoula et al. (2017), we used a visual analogue scaling (VAS) task to evaluate speech perception gradiency in 134 Spanish-Basque bilinguals with different amounts of exposure to English. Additional measures included categorization consistency (2AFC), working memory (Corsi), hearing acuity, and English proficiency. The pattern of correlations among these measures offers valuable insights into the sources of individual differences in speech perception and their consequences for second language learning.

On the representational nature of grammatical gender in early and late bilinguals: A test for the Gender Acquisition and Processing (GAP) hypothesis

Ana Rita Sá-Leite (1) Cristina Flores (2) Carina Eira (2) Juan Haro (3) Montserrat Comesaña (2)

1) University of Santiago de Compostela

2) University of Minho

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Grammatical gender retrieval during language production in second languages (L2s) has been examined in late bilingual populations through naming and translation tasks. A gender congruency effect (i.e., faster responses for gender-congruent translation pairs) is consistently obtained independently from the language family and the presence of an agreement context. This has had a great impact on the literature regarding grammatical gender processing in native speakers of Germanic languages, since conversely to native speakers of Romance languages, gender retrieval has been shown to be dependent on agreement. The reason behind the effects obtained with late learners of Germanic languages producing bare nouns (BNs) remains unknown. A recent approach, the Gender Acquisition and Processing (GAP) hypothesis, argues that, when L2s are learnt in a classroom setting, an emphasis is placed on single vocabulary items for which explicit explanations and classifications of gender are made. This minimizes the effect of other syntactic elements for gender assignment, and associations develop between BNs and gender values, which allow gender effects to emerge with BNs. If this is so, effects of congruency in bilinguals who acquired German through naturalistic exposure should not be observed when producing BNs in this language, unless there are effects of cross-language transfer regardless of age of onset of bilingual language acquisition. Examining this issue was the aim of the present BN translation study with 48 early/simultaneous Portuguese-German bilinguals and 24 Portuguese late learners of German, who performed the task in both languages. Results are discussed in the light of the GAP hypothesis.

On the interactive nature of the language system: How the experimental variables work alongside to raise semantic over phonological errors in conduction aphasia

Ismael Gutiérrez-Cordero (1) Javier García-Orza (1)

1) University of Malaga

The phenomenon Stimulus Type Effect on Phonological and Semantic errors (STEPS), by which individuals with aphasia produce more phonological errors (e.g., tale → lale) with words and more semantic errors with numbers (e.g., thirteen → fifty), cannot be properly explained following classical models of language processing, since the former may result from a peripherical impairment and the latter from a damage to the conceptual/semantic system. The aim of this work is to offer an alternative account to the Building Blocks hypothesis (BBh; used currently to explain STEPS) based on interactive models of language production, wherein the different levels of the language system interact with each other. From an interactionist perspective, semantic errors in numbers are to be expected since they are high-frequency stimuli presented in semantically homogeneous contexts and with an increased memory load (presented in strings). We compared the performance of two female patients with conduction aphasia (one of repetition and the other of reproduction) in production tasks (naming, reading and repetition) with high-frequency and low-frequency color sequences, and multidigit numbers. The results showed that both high-frequency colors and numbers were produced predominantly with semantic errors, whereas phonological errors arose in low-frequency colors. These findings reject the BBh and claims that STEPS is an experimental artifact induced by the manipulation of lexical frequency, semantic context, and memory load during word production. Thus, this study plays a key role in the current discussion of language production models and the understanding of processes underlying the nature of speech errors in aphasia.

Are you more or less likely to respect a norm if it sounds foreign? Foreign accent bias and social-moral norms

Luca Bazzi Otero (1) Margarita Planelles Almeida (1) Alice Foucart (1)

1) Nebrija University

Does foreign-accented speech bias the behavior of native speakers? We investigated whether the accent, i.e., foreign accent (FA) vs. native accent (NA), in which a social-moral norm is presented affects native speakers decision to respect the norm (Experiments 1 and 2) and the judgement for not respecting it (Experiment2). In Experiment 1, participants listened to recent social measures adapted from the measures imposed by the Spanish Government to fight the Covid-19 pandemic (e.g., To avoid the spread of the Covid-19 virus, you should not hug your friends), uttered in either of the two accent conditions (FA vs. NA). Participants indicated 1) how efficient they believed the measure was, and 2) how likely they were to respect it. Results showed a non-significant difference across accent conditions. In Experiment 2 (data collection in progress), we test whether an accent affects the perception of socio-moral norms that have been learned from childhood and, therefore, have an intrinsic cultural and linguistic link. Participants listen to norms and moral situations in a FA or NA and are asked to 1) indicate how likely they are to respect the norm, and 2) to evaluate the moral wrongness of disrespecting a norm (e. g. consensual incest). Results will help us shed light on the impact of foreign-accented speech on native speakers' behavior and the perception of foreigners, which is crucial for social interaction in our multilingual society.

Different patterns of association between syntactic categories in cocaine-exposed children. A network-based approach

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1) Laboratori d'Investigació en Complexitat i de Lingüística ExperimentaL

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During pregnancy, cocaine-exposed children usually develop an atypical language profile Malakoff et al. (1999). This condition has been linked to mild cognitive deficits in childhood (Lambert & Bauer, 2012). It has been reported behavioural inhibitory problems, as well as slight impairments in sustained-attention and information processing (Akerman, et al. 2010; Lester & Lagasse, 2010). Recent work combining Network Science and linguistics could show that some aspects of the speaker's linguistic capability remain blind to the naked eye (Beckage, et al. 2011; Barceló-Coblijn, et al. 2012; Barceló-Coblijn et al. 2019). However, time seems to be an important factor since transcriptions are usually 30-45 minutes long. In clinical linguistics, it is difficult to make the participant speak for so long.

We analyzed corpora of seventy-four 23 to 26-month-old young children (46 drug-exposed and 28 their non-exposed counterparts), collected and published by Malakoff et al. (1999). Transcriptions were analyzed with Netlang, a program for the syntactic analysis for posterior network studies (Barceló-Coblijn et al. 2017). Data from the syntactic analyses were plotted by a network program, Cytoscape, in order to study the pattern of linguistic complexity of the networks. Additionaly, data from our analysis have been reanalyzed with JASP software (https://jasp-stats.org), useful for the analysis of the relations between behavioral variables. Statistical indicators were compared between both groups of speakers displaying robust differences between groups.

The role of proficiency and target structure in L2 learners' grammatical sensitivity: Evidence from eye-tracking

Münir Özturhan (1) Ayşen Tuzcu (2) Şebnem Yalçın (3)

1) University of Kansas

2) Michigan State University

3) Boğaziçi University

Previous research using grammaticality judgment tests (GJT) has not explored the difficulty of the target grammatical structures as a variable in eye-tracking research. Hence, we investigated how Turkish learners of English would process the (un)grammaticality of sentences with two target structures (i.e., more/less difficult) using the eye-tracking methodology. We collected the data from 58 adult L2 learners (29 advanced/29 intermediate) and manipulated task stimulus (grammatical vs. ungrammatical) and target structure (passive voice and past progressive tense) to test L2 learners' sensitivity towards GJT items. Passive voice and past progressive tense were chosen because these two structures differ in input frequency, phonological saliency and structure formation (Shiu, Yalçın & Spada, 2018). We also explored the role of proficiency in detecting (un)grammaticality of two different target structures in GJTs. The experimental items consisted of 30 grammatical and 30 ungrammatical sentences that had equal numbers of passive voice and past progressive tense items. The results showed that both groups were faster in processing the grammatical sentences with the past progressive structure whereas the sentences with the passive voice were processed faster when these sentences were ungrammatical. In addition, participants with intermediate proficiency showed slower processing than participants with advanced proficiency in all sentences. The findings seem to indicate that proficiency is a converging factor for processing patterns of two proficiency groups but it seems to cause a processing lag for the intermediate group for both structures.

Emotional Saliency: Characterization of the associative structure of Spanish affective words

Ángel A. Betancourt (1) Marc Guasch (1) Pilar Ferré (1)

1) Universitat Rovira i Virgili

The ability to express emotions with words is a consistent feature of language, and the organization of words in our minds might be affected by this characteristic. The emotional content of words may affect how they are organized in our memory and their degree of activation in our minds. Based on free association norms of Spanish words, this study aimed to examine the representation of affective words in our memory and their associative structure. We analyzed the associates produced by 420 affective cue words and 420 neutral cue words. Among the cue affective words, we differentiated between words that make a direct reference to a specific emotion (emotion-label words, EM) and those that do not make a direct reference to emotion but that can provoke it (emotion-laden words, EL). Furthermore, there were positive and negative EM and EL cue words, considering their value in valence. Following the same procedure, we classified the words produced as associates according to their affective properties and compared the differences in their associative strength and semantic richness to characterize the associative structure of affective words. We observed that EM cue words produced more associates classified as EM than the EL and neutral cue words. Similarly, EL cue words produced more EL associates compared to EM and neutral cue words. Our results suggest that the associative structure of words is sensitive to their affective content. Hence, it is an important variable when considering the organization of words in our memory.

Bilingual Performance on Linguistic Prediction

Suhad Bishara (1) Hamutal Kreiner (2)

1) Tel-Aviv University

2) Ruppin Academic Center

During sentence processing, bilingual comprehends, like monolinguals, form expectations regarding the upcoming words. Previous studies suggest that bilinguals experience difficulties in the processes required for such prediction – context analysis and lexical retrieval. The current study used a gating paradigm to test the prediction performance of bilinguals on high- and low predictability sentences. Importantly, we examined to what extent prediction is affected by the contribution of short-term cross-language processes associated with language shift, and long-term language experience associated with language proficiency and use. Arabic-Hebrew bilinguals (n=63) and Native Hebrew speakers (n=32) heard sentences in Hebrew and produced the last word that was missing, then they watched an Arabic speaking movie, followed by another set of prediction sentences in Hebrew. Results show significant effects of predictability and language experience and no effect of Language shift. A significant predictability and experience interaction revealed no differences between Native Hebrew speakers and Arabic-Hebrew speakers with high Hebrew proficiency in both high and low predictability sentences. However, the Arabic-Hebrew speakers with low Hebrew proficiency performed significantly worse than the native-Hebrew speakers and Arabic-Hebrew speakers with high Hebrew proficiency. The findings will be discussed in view of different theoretical accounts of lexical access in bilingual speakers.

POSTER68 (Office 31) **Friday 25, 12:00-13:00 CEST**

Can ERPs differentiate statistical learning in language impaired and language non-impaired children?

Ana Paula Soares (1) Francisco-Gutierrez (1) Alexandrina Lages (1) David Tomé (2,3) Helena Oliveira (1) Luis Jiménez (4)

1) University of Minho

2) Polytechnic Institute of Porto

3) Brain Research Institute (BRI)

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A key question in psycholinguistic research today is whether the language difficulties observed in children with Language Development Disorder (LDD) are due to difficulties in the extraction of the regularities embedded in the input speech, and that are particularly important in the acquisition of rule-governed aspects of language across phonology, morphology and syntax, and the extent to which explicit learning mechanisms can be used to compensate these deficits. Here we examine the electrophysiological correlates of statistical learning (SL) in an auditory SL task performed by 5-6 years-old children with LDD and chronological-age typical language development (TLD) controls with typical language development (TLD) to determine if language impairments are related to differences in the mechanisms recruited to extract word-like units from the continuous auditory stream both under implicit and explicit conditions and for triplets presenting different levels of predictability (low vs. high). Results showed modulations in the N100 and N400-like ERP components in both groups, though a detailed analysis of the data suggest that children with LDD and their TDL peers showed a different pattern of neural responses.

Discourse in aphasia: Sentence Complexity across elicitation methods

Xabi Ansorena (1) Manuel Carreiras (1) Simona Mancini (1)

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Different elicitation methods are available to assess discourse production in persons with aphasia (PWA), such as storytelling, single-picture description, sequential-picture description or procedural speech (Bryant et al., 2016, Clin. Linguist. Phonetics).

Previous studies (Stark, B. C., 2019, AJSLP) showed that storytelling favors the production of verbs, usually taken as a proxy for syntactic complexity. Yet, it is unclear whether a similar pattern arises when syntactic production involves the distinction between different clause types, namely only main and/or main+subordinate clauses.

We investigated PWA's and neurotypical individuals' syntactic productivity across these methods, to establish (i) which tasks discriminate between controls and PWA in terms of their syntactic productivity, and (ii) which tasks favor syntactic production in PWA's discourse. We focused on Syntactic Complexity Ratio (SCR), the number of sentences with a main+subordinate clause/ sentences with a main clause.

The discourse samples were obtained from 117 monolingual English-speaking PWA and 117 age, education and gender-matched control participants available in Aphasia Bank (MacWhinney et al., 2011, Aphasiology).

A series of repeated-measures ANCOVAs were performed with group and elicitation method as predictors and demographic factors as covariates. Results show that the two groups differ in the SCR: neurotypical participants produce a syntactically more complex speech than PWA in storytelling, sequential- and single-picture description tasks. Within their group, PWA show the highest SCR in single picture description. We discuss these results in terms of the different cognitive demands that these tasks pose in the two groups of speakers.

Bilingualism as a Life Experience Induces Dynamic Changes in Resting State EEG Oscillations

Sergio Miguel Pereira Soares (1) MakiKubota (2) Eleonora Rossi (3) Jason Rothman (2,4)

1) University of Konstanz

2) UiT - The Arctic University of Norway

3) University of Florida

4) Nebrija University

Bilingualism, at least under specific conditions, can result in a more fine-tuned executive control system and in structural and functional brain adaptations. Resting state EEG (rs-EEG) activity (frequency power) is related to various cognitive functions and can estimate neurological connectivity (mean coherence) between brain regions. As such, it is emerging as a complementary neuroimaging methodological option to investigate the effects of languages in the brain. Herein, we use rs-EEG to understand how bilingualism may reshape the mind/brain in a diverse pool of bilinguals.

Five minutes task free EEG data from 103 participants were recorded. All participants completed the Language and Social Background Questionnaire (LSBQ), which quantifies language exposure and crucially the division of usage in diverse variety of activities and settings in the participants' two languages over the lifespan. We hypothesized to find positive correlations between the degree of active bilingualism and frequency bands (especially alpha and beta power), particularly reflected in posterior brain regions. Furthermore, we expected to observe levels of mean coherence to vary by amount of bilingual language experience.

In terms of power frequency, there was a main effect of Age of L2/2L1 onset on high beta and gamma powers (i.e., earlier acquisition resulted in greater beta and gamma frequencies). Higher exposure/usage scores from the LSBQ of the non-societal language at home modulated coherence effects (functional brain connectivity) in theta, alpha and gamma frequencies. Results are in line with claims that bilingualism effects are not monolithic, but are rather modulated by degree of engagement with experiential factors.

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Comprehension reading skills -I think I get it! About contextual diversity in incidental word learning

Jose Luis Tapia (1) Eva Rosa (2) Rafael Salom (3) Francisco Rocabado (1) Manuel Perea (2)

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Recent studies have demonstrated the facilitating effect of contextual diversity (number of different contexts in which a word appears) when incidentally learning new words in both laboratory and ecological settings. The present study's objective was to examine the nature of this effect in young readers (12-14 years old) and explore whether these benefits are modulated by the individuals' reading comprehension score.

The contextual diversity variable was experimentally manipulated so that two learning conditions were compared: high contextual diversity (the target words were presented in three semantically different types of texts: math, sciences, and language) versus low contextual diversity (the new words were presented in three semantically similar texts). During the learning phase, which lasted three days, students had to read the texts comprehensively. Words were meant to be learned incidentally. A learning evaluation was carried out on the fourth day through a memory task and two orthographic and semantic integration tasks. An evaluation of the students' reading comprehension skills level was also carried out through a standardized reading test (PROLEC-SE, Ramos & Cuetos, 1999) to correlate it with the contextual diversity experiment's effects.

The results showed that children learned better the words that appeared in the semantically different texts than those that appeared in the semantically similar texts. Further, we found better incidental word learning for better comprehenders in the multiple-choice task. These results suggest that all readers, even those with poor comprehension skills, can benefit from contextual diversity to learn new words, making it a very effective teaching tool.

On the (null) effects of second language processing on self-bias and altruistic/empathic behaviors

Carlos Romero-Rivas (1) Sara Rodríguez-Cuadrado (1)

1) Autonomous University of Madrid

Recent evidence has suggested that functioning in a foreign (vs. the native) language reduces self-bias effects in the self-paradigm (Ivaz et al., 2016, 2019). Interestingly, a clear, coherent and stable self-concept, together with an adequate self/other distinction, are fundamental for the emergence of altruistic and empathic behaviors (Krol & Bartz, 2021). In this study, we explored whether responses to tasks measuring self-bias, and altruistic (i.e., the dictator game and altruistic/egoistic dilemmas) and empathic behaviors, were modulated depending on whether participants processed the information in their native or foreign language. 147 students (139 female; M age = 18.99) participated in this study in exchange for course credits. Participants were randomly allocated to the native or foreign language group and had to complete the self-paradigm and dictator game tasks, and respond to the altruistic/egoistic dilemmas and to a state empathy questionnaire. Proficiency was measured in the L2 group. Results showed no effect of language (native vs. foreign) for any of the tasks. Furthermore, self-bias was not a reliable predictor of altruistic behavior, regardless of language. However, cognitive empathy was a good predictor of altruistic behavior in the dictator game, but only for the foreign language group. Together, the results of this study suggest that the foreign language effect may have certain limitations: whilst it seems reliable that processing moral dilemmas in a foreign language can change the decisions we make, these effects do not seem to carry over to altruistic and empathic behavior.

(Language) learning as a tool to promote healthy aging: resting-state EEG and learning interventions in seniors

Louisa Richter (1,2) Saskia Nijmeijer (2) Marie-José van Tol (2) Merel Keijzer (2)

1) Otto-Friedrich-Universität Bamberg

2) University of Groningen

Investigating ways to promote healthy aging has never been more pressing than in our rapidly aging society. Language learning has been proposed as a particularly effective training, as the activated brain regions overlap with areas often affected by age-related cognitive decline (Antoniou et al. 2013; Antoniou, & Wright, 2017). Although mixed behavioural results have been obtained so far concerning benefits of third-age language courses (Bak et al., 2016; Ramos et al., 2017; Ware et al., 2017), research suggests that language training can enhance cognitive functioning (Klimova, 2018) as well as increase executive function, communicative skills and well-being (Pfenninger, & Polz, 2018).

In this presentation, we discuss the method and results of two studies concerning the influence of interventions on neuroplasticity in elderly. Here, we tap into (1) the cognitive effects of different interventions (language, music and art workshops), (2) predictability of language learning outcomes on the basis of neuroplasticity at baseline (see Prat et al., 2016) and (3) differences in neural responses in relation to language courses of varying length and intensity. Both studies use resting-state EEG as a measurement of neuroplasticity. Though resting-state EEG has been shown to be susceptible to training-related changes (Styliadis et al., 2015; Rossi et al., in prep.), such (language-induced) changes have yet to be investigated in seniors.

This work with great societal relevance suggests that language learning, independent of length and intensity, induces a cognitive maintenance effect in seniors, and that language learning outcomes in seniors can be predicted based on resting-state EEG.

LIST OF ATTENDANTS

NAME	LAST NAME(S)
Miriam	Aguilar
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Revekka-Christina	Anagnostopoulou
Filip	Andras
Bernhard	Angele
Xabi	Ansorena
Alexia	Antzaka
Susana	Araújo
Andrea	Ariño-Bizarro
Ana	Baciero de Lama
Esperanza	Badaya
Lluís	Barceló-Coblijn
Alisa	Baron
Mathias	Barthel
Luca	Bazzi
Beatriz	Bermúdez Margaretto
Marcelo	Bernal Arellano
Sarah	Bernolet
Ángel Armando	Betancourt Díaz
Matthieu	Bignon
Suhad	Bishara
Fatima	Boush
Barbara	Braida
Francisco	Buades-Sitjar
Rocío	Calvillo Torres
Pablo	Campo
Ana Duarte	Campos
Victoria	Cano-Sánchez
Manuel	Carreiras
Alba	Casado
Séverine	Casalis
Marie-France	Champoux-Larsson
Adel	Chaouch-Orozco
Montserrat	Comesaña Vila
Ana	Costa
Marion	Coumel
Dalia	Cristerna Román

Mauricio	Da Silva Silveira
Iria	de Dios Flores
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Anna	Lorenzoni
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José	Muñíz
Marisol	Murujosa
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Eugenia	Navarra Barindelli
David	Navarro Ciurana
Anastasiia	Ogneva
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Miquel	Roig Sastre
Verónica	Romero
Carlos	Romero Rivas
Jason	Rothman
Ana Rita	Sá-Leite
Florian	Salomé
Romina Alejandra	San Miguel Abella
Noèlia	Sanahuja Cobacho
Maria Elina	Sanchez

Silvia	Sánchez Calderón
Rebeca	Sánchez López
Mikel	Santesteban Insausti
Marcel	Schlechtweg
Pereira Soares	Sergio Miguel
Ludovica	Serratrice
Cátia	Severino
Mariano	Sigman
Edwige	Sijyeniyo
Serene	Siow
Ana Paula	Soares
Marina	Sokolova
Antonella	Sorace
Concepción	Soto
Mar	Suárez Ortega
Simone	Sulpizio
Yasmine	Tachakourt
Rene David	Tacuri Reino
Jose Luis	Tapia Iglesias
Yasin	Taşdemir
Pilar	Tejero Gimeno
Clara	Téllez Pérez
Emanuela	Todisco
Marluis	Ugueto Colina
Dora	Uštulica
Rianne	van Lieburg
Marta	Vergara Martínez
Lucía	Vieitez Portas
Anne	Vogt
Jennifer	Yphantides
Konstantina	Zacharaki
Nina	Zdorova
Ruiyao	Zheng