XVI INTERNATIONAL SYMPOSIUM OF PSYCHOLINGUISTICS

VITORIA-GASTEIZ

MAY 31st - JUNE 2nd, 2023

- BOOK OF ABSTRACTS -

GOGO ELEBIDUNA
THE BILINGUAL MIND
LA MENTE BILINGÜE

Organizing Committee Chair

Kepa Erdozia Uriarte

Mikel Santesteban Insausti

Yolanda Acedo

Organizing Committee

The Bilingual Mind Research Group, University of the Basque Country (UPV/EHU)

- Kepa Erdozia Uriarte
- Mikel Santesteban Insausti
- Itziar Laka
- Adam Zawiszewski
- Yolanda Acedo
- Miren Arantzeta
- Irene de la Cruz Pavía
- Itziar San Martín
- Noélia Sanahuja
- Victoria Cano-Sánchez
- Marta de Pedis
- Patricia Fuente
- Beatriz Gómez-Vidal
- Marta Sánchez-López

The Bilingual Mind Research Group

Gogo Elebiduna/La Mente Bilingüe

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GOGO ELEBIDUNA
THE BILINGUAL MIND
LA MENTE BILINGÜE

The Bilingual Mind Research Group, based in Vitoria-Gasteiz, investigates how humans acquire, represent and organize language in their brain. In order to investigate the universal characteristics of language representation and processing, we make use of behavioral techniques (Reaction Times), electrophysiological measurements (ERPs) and eye-movement recordings. Our three main lines of research are:

1. **Language learning and processing**. We study the mechanisms of control and change of languages, the learning processes of lexicon and syntax, the effects of cross-linguistic influence, and the impact of grammatical structure on linguistic processing. One of the main goals of our research team is to investigate these matters with a special focus on bilingualism, given the linguistic reality of our speech community. We pay special attention to the Basque language, as well as to the different ages of acquisition and degrees of linguistic competence of bi/multilingual Basque/Spanish/English/French speaker populations.
2. **Linguistic processing in aging**. A growing body of work shows that our linguistic abilities do not remain stable throughout adulthood. And yet, the study of language processing to date has focused mainly on young adult populations. In order to fully understand how humans process language, we examine younger and older adults in parallel, using the same techniques for linguistic research. Given that a decline of certain linguistic abilities can be an early indicator of various neurodegenerative disorders, our research allows us to tease apart normal from pathological decline, as well as to determine if, how and when bilingualism may offer a cognitive protection against said decline.
3. **Linguistic variation**. Basque is typologically different from its better known, extensively studied Indo-European neighbors. For this reason, another main objective in our research group is to describe and analyze Basque in its synchronic dimension, focusing on its contemporary dialectal variations.

Scientific Committee

University of the Basque Country (UPV/EHU)[1]
National and Kapodistrian University of Athens (NKUA)[2]
University of Padua (UNIPD)[3]
University of Barcelona (UB)[4]
Open University of Catalonia (UOP)[5]
Universidad Nebrija[6]
Basque Center on Cognition, Brain and Language (BCBL)[7]
Ikerbasque[8]
University of Udine (UNIUD)[9]
Catalan Institution for Research and Advanced Studies (ICREA)[10]
Pompeu Fabra University (UPF)[11]

- Kepa Erdozia Uriarte[1]
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- Cristina Baus[4]
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- Jon Andoni Duñabeitia[6]
- Jorge González Alonso[6]
- Nicola Molinaro[1,7,8]
- Paolo Lorusso[9]
- Juan Manuel Toro[10,11]
- Joana Acha[1]
- Alice Foucart[6]

PROGRAMME

Tuesday, May 30th 2023

Time	Desription
12:00	**Pre-Conference Science Divulgation Talk (in Spanish)** **Ponente:** Esti Blanco-Elorrieta (Harvard University / New York University) **Título:** De ondas de sonido a significado: como entiende nuestro cerebro los idiomas? **Resumen:** Cuando hablamos creamos ondas de sonido que nuestro cerebro decodifica para entender que los sonidos /p/ /e/ /r/ /r/ /o/ se refirieren a un animal mamifero. Cómo se desarrolla este proceso? Y qué ocurre cuando alguien es bilingüe? En esta charla responderé a estas preguntas y explicaré como procesan los humanos el lenguaje. **Lugar:** Salón de Actos del Centro de Investigación Micaela Portilla
18:00	On site registration and material delivery (Faculty of Arts, Aula Magna)
19:00	Informal gathering

Wednesday, May31st 2023

8:30 Registration and material delivery

8:50 Welcoming

9:00-10:20 **Talk session 1**

9:00 - Talk 1.1

Cross-writing system variations influence the course of orthographic acquisition: An eye-tracking study on bilinguals with different L1 background

- **Yang Fu** (Instituto Universitario de Neurociencias (IUNE))
- Beatriz Bermúdez-Margaretto (University of Salamanca)
- Damian Enrique Jan Cordón (Instituto Universitario de Neurociencias (IUNE))
- Alberto Domínguez (Instituto Universitario de Neurociencias (IUNE))

9:20 - Talk 1.2

Exploring the automaticity of reading processes: Task demands modulation of behavioral and electrophysiological responses

- **Ana Belén García-Gámez** (University of Granada, CIMCYC)
- João Correia (University of Algarve, CINTESIS)
- Pedro Macizo (University of Granada, CIMCYC)
- Alexandra Reis (University of Algarve, CINTESIS)
- Luís Miguel Faísca (University of Algarve, CINTESIS)

9:40 - Talk 1.3

The role of L2 proficiency and proactive control in new grammar learning

- **Marta Rivera** (University of Granada (UGR))
- Daniela Paolieri (University of Granada (UGR))
- Judith F. Kroll (University of California)
- Teresa Bajo (University of Granada (UGR))

10:00 - Talk 1.4

The reproducibility of infant fNIRS studies: a meta-analytic approach

- **Jessica Gemignani** (University of Padova)
- Irene de la Cruz-Pavía (University of the Basque Country (UPV/EHU))
- Anna Martinez (University of Padova)
- Caroline Nallet (University of Padova)
- Alessia Pasquini; Gaia Lucarini; Francesca Cavicchiolo;
- Judit Gervain (University of Padova)

10:20	Coffee-break 1
10:40	Poster session 1
11:40-13:00	**Talk session 2**

11:40 - Talk 2.1
The role of individual differences in emotional word processing: insights from a Spanish lexical decision mega-study

- **Juan Haro** (Universitat Rovira i Virgili (URV))
- José Antonio Hinojosa (Universidad Complutense de Madrid (UCM))
- Pilar Ferré (Universitat Rovira i Virgili (URV))

12:00 - Talk 2.2
Fixation Related Potentials in visual search for words

- **Barber, H. A.** (Universidad de La Laguna)
- Dampuré J. (Université catholique de l'Ouest)

12:20 - Talk 2.3
Cognateness, frequency, and vocabulary size: an interactive account of bilingual lexical acquisition

- **Gonzalo Garcia-Castro** (Universitat Pompeu Fabra (UPF))
- Daniela S. Avila-Varela (Universitat Pompeu Fabra (UPF))
- Ignacio Castillejo (Universidad Autónoma de Madrid (UAM))
- Núria Sebastian-Galles (Universitat Pompeu Fabra (UPF))

12:40 - Talk 2.4
Interactivity of newly acquired emotional words in the mental lexicon

- **Beatriz Bermúdez-Margaretto** (University of Salamanca)
- Sara Montes (University of Salamanca)
- David Beltrán (UNED)

13:00	Lunch time 1
15:00	Plenary speaker 1 **BALTHASAR BICKEL** (Universität Zurich) *The Agent Preference in Comprehension and Production*
16:00-17:20	**Talk Session 3**

16:00 - Talk 3.1
Non-linguistic sensitivity to context mediates predictability effects in sentence reading: An eye-movement study

- **Spyridoula Cheimariou** (University of Alabama)

16:20 - Talk 3.2
An ERP study on the processing of gender features in Italian toddlers

- **Giulia Mornati** (BCBL. Basque Center on Cognition)
- Perrine Brusini (University of Liverpool)
- Laura Cordolcini (Scientific Institute, IRCCS)
- Maria Teresa (Guasti University of Milano)
- Chiara Cantiani (Scientific Institute, IRCCS)

16:40 - Talk 3.3
Different metaphorical construals of time affect valence estimations of temporal events

- **Javier Valenzuela** (University of Murcia)
- Maria del Rosario Illan Castillo (University of Murcia)

17:00 - Talk 3.4
Does linguistic identity influence social attention? It depends on the perceived 'status' of the language

- **Anna Lorenzoni** (University of Padova)
- Giulia Calignano (University of Padova)
- Mario Dalmaso (University of Padova)
- Eduardo Navarrete (University of Padova)

17:20 Coffee-break 2

17:40-18:20 **Talk Session 4**

17:40 - Talk 4.1
Exploring the nature of the gender-congruency effect

- **Alba Casado** (University of Granada)
- Ana R. Sa-Leite (University of Santiago de Compostela)
- Vania de la Garza (Universität Erlangen-Nürnberg, Germany)
- Francesca Pesciarelli (University of Modena and Reggio Emilia, Italy)
- Daniela Paolieri (University of Granada)

18:00 - Talk 4.2
Second language acquisition of telicity in L2 English by Slovak and Spanish speakers

- ***Zuzana Nadova*** *(University of the Basque Country UPV/EHU)*
- *María del Pilar García Mayo (University of the Basque Country UPV/EHU)*

18:20 - Talk 4.3
Electrophysiological insights on aspectual coercion

- **Stefano Rastelli** (University of Pavia)
- Giada Antonicelli (BCBL. Basque Center on Cognition)

18:40 End of Day 1

19:15 *Tour City Center*

Thursday, June 1st 2023

Time	Description
9:00-10:00	**Talk Session 5** **9:00 - Talk 5.1** *The role of Differential Object Marking, thematic roles and language dominance in the anticipation of direct objects in Spanish and Catalan* • **Rut Benito** (Universitat Pompeu Fabra (UPF)) • Aurora Bel (Universitat Pompeu Fabra (UPF)) **9:20 - Talk 5.2** *Speech traits can discriminate healthy aging, MCI and AD when assessed through the reading task with semantic load* **(CANCELLED TALK)** • Olga Ivanova (University of Salamanca (USAL)) • Juan José García Meilán (University of Salamanca (USAL)) • Francisco Martínez-Sánchez (University of Murcia (UM)) • Israel Martínez-Nicolás (University of Salamanca (USAL)) • Thide E. Llorente, Nuria Carcavilla González (University of Salamanca (USAL)) **9:40 - Talk 5.3** *COVID-19 related effects on early language development* • **Sónia Frota** (University of Lisbon) • Jovana Pejovic (University of Lisbon) • Cátia Severino (University of Lisbon) • Marina Vigário (University of Lisbon)
10:00	Plenary speaker 2 "Conferencia SEPEX" (SEPEX CONFERENCE). **MARCO CALABRIA** (Universitat Oberta de Catalunya) *At a loss for words*
11:00	Coffee break 2
11:20	Poster Session 2
12:20-13:20	**Talk Session 6**

Time	Description
	12:20 - Talk 6.1 *The shared origins of associative and taxonomic priming effects in infants* • **Olivera Savic** (BCBL) • Layla Unger (The Ohio State University, Columbus, USA) • Hyungwook Yim (University, Seoul, Korea) • Simon Dennis (The University of Melbourne, Australia) • Vladimir Sloutsky (The Ohio State University, Columbus, USA) **12:40 - Talk 6.2** *The development of conversational turn-prediction abilities in bilingual toddlers* • **Marina Kalashnikova** (Basque Center on Cognition) **13:00 - Talk 6.3** *Learning repetition-based regularities in speech: a NIRS study with 7-month-old infants* • **Gaia Lucarini** (University of Padua) • Alessia Pasquini (University of Padua) • Judit Gervain (University of Padua; CNRS & Université Paris Cité)
13:20	Lunch time 2
15:00	Plenary Speaker 3 **JUDIT GERVAIN** (Universitá degli Studi di Padova) *Neural mechanisms of early speech perception and language acquisition*
16:00	Poster Session 3
17:00	**Talk Session 7**
17:00-18:40	**17:00 - Talk 7.1** *Speech analysis to detect mild cognitive impairment and dementia* (CANCELLED TALK) • **Israel Martínez-Nicolás** (University of Salamanca) • Olga Ivanova (University of Salamanca) • Francisco Martínez-Sánchez (University of Murcia) • Juan José García Meilán (University of Salamanca) **17:20 - Talk 7.2** *12-month-olds' understanding of negation* • **Ágnes Melinda Kovács** (Central European University)

Time	Description
	• Rachel Dudley (Central European University) • Ernő Téglás (Central European University) **17:40 - Talk 7.3** *Are babies' cries already language?* • **Caroline Nallet** (University of Padova) • Gaia Lucarini (University of Padova) • Irene de la Cruz-Pavía (University of the Basque Country (UPV/EHU)) • Judit Gervain (University of Padova, Italy; Padova Neuroscience Center, University of Padova, CNRS & Université Paris Cité) **18:00 - Talk 7.4** *Categorical Speech Perception in Chinese Children with Autism Spectrum Disorder* • **Fengrui Li** (Nankai University) • Jidong Chen (California State University, Fresno) • Wenli Liu (Nankai University) • Chongying Wang (Nankai University) **18:20 - Talk 7.5** *Does non-native directed speech support non-native listeners' cortical tracking?* • **Giorgio Piazza** (BCBL), University of the Basque Country (UPV/EHU)) • Giovanni Di Liberto (Trinity College Dublin (TDC)) • Marina Kalashnikova (Basque Center on Cognition, (BCBL) • Jose Perez-Navarro (Basque Center on Cognition, (BCBL) • Clara D. Martin (Basque Center on Cognition, (BCBL)
18:40	End of Day 2
20:30	*Social dinner (El Portalón)*

Friday, June 2nd 2023

Time	Description
9:00-10:20	**Talk Session 8** **9:00 - Talk 8.1** *What the microstructural properties of the Frontal Aslant of unimodal and bimodal bilinguals tell about language control* • **Francesca Peressotti** (University of Padua) • Cinzia Quartarone (University of Padua) • Eduardo Navarrete (University of Padua) • Sanja Budisavljević (University of St Andrews, UK) • Simone Gastaldon (University of Padua) **9:20 - Talk 8.2** *Uncovering the Role of Foreign Language on Acquiescence* • **Zhimin Hu** (University of Padua) • Caterina Suitner (University of Padua) • Eduardo Navarrete (University of Padua) **9:40 - Talk 8.3** *On the origin of bilingualism effects on cognition: social, cognitive or mixed? A systematic review* • **Camilla Masullo** (Universitat Rovira i Virgili) • Vittoria Dentella (Universitat Rovira i Virgili) • Evelina Leivada (Universitat Autònoma de Barcelona) **10:00 - Talk 8.4** *Undoing gender in a gender-marking language: Gender-inclusive forms in plural role nouns in German* • **Álvaro Cortés Rodríguez** (University of Tübingen / University of Kassel) • Larissa Specht (Independent researcher)
10:20	Plenary speaker 4 **ESTI BLANCO-ELORRIETA** (Harvard University / New York University) *How does the bilingual mind process language?*

Time	Description
11:20	Coffee break 3
11:40	Poster session 4
12:40-14:00	**Talk Session 9**

12:40 - Talk 9.1
Processing of synonyms and homographs in bilingual and monolingual speakers

- **Clara Martin** (BCBL)
- Romain Pastureau (BCBL; UPV/EHU)
- Emilia Kerr (Aix-Marseille University)
- Angela de Bruin (University of York)

13:00 - Talk 9.2
Orthographic effects in L1 speech production

- **Diana Solchaga** (University of the Basque Country & BCBL)
- Antje Stoehr (Basque Center on Cognition, BCBL)
- Clara D. Martin (Basque Center on Cognition, BCBL)

13:20 - Talk 9.3
Exposure length to an artificial language significantly impacts adult mono- and bilinguals' segmentation strategies

- **Patricia Fuente García** (University of the Basque Country (UPV/EHU)
- Rocio Urquijo Fuertes (University of the Basque Country (UPV/EHU)
- Judit Gervain (Università degli Studi di Padova; INCC, CNRS and Université de Paris)
- Irene de la Cruz-Pavía (University of the Basque Country (UPV/EHU)

13:40 - Talk 9.4

Using Pupillometry to Examine Costs of Speaker-Switching Within and Across Accents

- **Drew McLaughlin** (Basque Center on Cognition, BCBL)
- Jackson Colvett (Washington University in St. Louis)
- Julie Bugg (Washington University in St. Louis)
- Kristin Van Engen (Washington University in St. Louis)

14:00	Closing ceremony

POSTER SESSION 1 Wednesday, May 31, 10:40 – 11:40

P1-01 **Eye-tracking the Experiencer Thematic Role**

Sánchez-López, M., Santesteban, M., & Laka, I.

P1-02 **An apple called Paula: The influence of grammatical gender on the perceived "biological" sex of objects**

Martetschläger, J. Moser-Schwaiger, E., Hellerich, C. E., Hunger, T. & Roehm, D.

P1-03 **The verbal fluency task in patients with post COVID-19 syndrome**

González-Nosti, M., Fernández Manzano, L. & Herrera Gómez, H.

P1-04 **Processing of copular sentences in Spanish: Effects of coercion on adjectival predicates and subject nouns in a locative context**

López Cortés, N., Igoa, J.M., Horno Chéliz, M., Moreno, J.D., Álvarez García, E., & de Miguel, E.

P1-05 **Adult's appreciation of speaker vocal affect with explicit and implicit emotions in real time through eye-tracking technique, a pilot study**

Verdaguer-Ribas, O., Aguilera, M., Ahufinger, N., Mayo, C., Guerra, E., Andreu, Ll., & Sanz-Torrent, M.

P1-06 **Assessing the role of consecutive verbs in the missing VP illusion with Spanish subject-verb inversion**

Pañeda C. & Lago, S.

P1-07 **The pseudoscience behind affective word processing: How your beliefs may change the effects of words' emotional content**

Huete-Pérez, D. & Ferré, P.

P1-08 **ENGRI CROWD: An investigation into the affective and lexico-semantic content of English loanwords and their Croatian equivalents**

Ćoso, B., Bogunović, I., Guasch, M., Pavlinušić Vilus, E., Ferré, P.& Hinojosa, J.A.

P1-09 **Working memory and morphosyntactic comprehension and production in bilingual individuals with aphasia**

Dvorina1, N., Bihovsky, A., Ben-Shachar, M. & Meir, N.

P1-10 **Brain regions in handwriting words: word frequency and consistency in an fMRI study**

Álvarez, C.J., Avilés, A. & Afonso, O.

POSTER SESSION 1 Wednesday, May 31, 10:40 – 11:40

P1-11 **Visual boundaries in sign motion: processing with and without lip reading cues**

Roehm, D., Krebs, J. & Malaia, E.

P1-12 **Using Random Forest models to predict auditory and visual integration for speech perception in two noise conditions**

Gibson, M., González, M., Schlechtweg, M. & Johnson, C.

P1-13 **Automaticity in the left-right space-time conceptual metaphor** Sanjuan, E., Beracci, A., Dapica, P., Solana, P., Ouellet, M. & Santiago, J.

P1-14 **Bridging the gap between 2D and 3D in single word recognition**

Muntini, L., Jubran, O., Rocabado, F., Lachmann, T. & Duñabeitia, J.A.

P1-15 **Switching languages, same truth**

Navarrete, E., Santesteban, M. & Hatzidaki, A.

P1-16 **Parental code-switching modulates visual preference for native-language speakers in 4-month-old bilinguals**

Marcet, L., Birulés, J., Bosch, L. & Pons, F.

P1-17 **The distinctive role of color during the processing of logos: ERP evidence**

Vergara-Martínez, M., Fernandez Lopez, M., Rocabado, F., Marcet, A. & Perea, M.

P1-18 **On the gender agreement of Spanish epicene nouns: when grammar and conceptualization compete**

Borneo, M.T.

P1-19 **Language diversity and bilingualism in aphasia research**

Egia, M. & Munarriz-Ibarrola, A.

P1-20 **Processing verbal periphrases in Spanish: Native and non-native perspectives**

Füreder, B.

P1-21 **Can accent trump the other-race effect?**

Lorenzoni, A., Navarrete, E. & Baus, C.

P1-22 **Maternal mood and early language development in infants from birth to six months**

Reimann, M., Preiß, J., Florea, C., Reisenberger, E., Angerer, M., Schabus, M., & Dietmar, R.

P1-23 **Spanish vowel perception in noise: A comparison of children with cochlear implants and children with typical hearing**

Schlechtweg, M., Gibson, M., Ayala, J., Wang, X. & Xu, L.

P1-24 **Qué nos cuenta sobre el ergativo euskaldunen kode-alternantziak? New evidence from case-marking in Spanish-Basque code-switching**

Uriarte, E. & Munarriz-Ibarrola, A.

POSTER SESSION 2 Thursday, June 1, 11:20 – 12:20

P2-01 **Is syntactic simplification in Alzheimer's disease driven by lexical-semantic impairment?**

Ivanova, O., García Piñuela, E. & García Meilán, J.J.

P2-02 **Network models predict distinct semantic and phonological activation in spoken word recognition**

Weiss, D., Brown, K. & Magnuson, J.S.

P2-03 **Eye tracking agreement processing and attraction effects in the aging brain: A subject-verb agreement comprehension study in Spanish**

Cano Sánchez, V., Laka, I., Lago, S., Reifegerste, J. & Santesteban, M.

P2-04 **Trigramstein: a pseudo-word generation algorithm based on trigram frequencies**

Marín, J., González-Nosti, M., San Miguel-Abella, R., Herrera, E., Vasylets, O. & Pérez-Sánchez, M.A.

P2-05 **Are we better thinkers in our native language? The foreign-language effect in deductive reasoning**

Villanueva, I. & Orenes, I.

P2-06 **Learning L2-specific categories: The effects of skewed input, explicit rules and working memory**

Pulido, M.F.

P2-07 **A longitudinal study of verb argument realization in child Mandarin Chinese**

Chen, J. & Yang, Y.

P2-08 **Does task difficulty increase semantic feedback? A study on the effects of valence during lexical recognition of emotion-label and emotion-laden words**

Betancourt, A.A., Guasch, M., Haro, J., Price, H. & Ferré, P.

P2-09 **Hebbian-learning based predictions during audio-visual processing account for the McGurk effect**

Flores-Coronado, M.A., Ciria, A. & Lara, B.

P2-10 **Can social interaction give rise to the perception and production of a new phonemic contrast? A behavioral and EEG study in a French regional variety**

Bellegarda, M., Boddaert, G., Dufour, S., Knutsen, D. & Brunellière, A.

POSTER SESSION 2 Thursday, June 1, 11:20 – 12:20

P2-11 **A self-paced reading study on the processing of the disjoint reference effect**

Demestre, J.

P2-12 **Adult's emotional comprehension of mixed emotions in real time through eye-tracking technique, a pilot study**

Mayo, C., Ahufinger, N., Aguilera, M., Verdaguer-Ribas, O., Guerra, E., Sanz-Torrent, M. & Andreu, Ll.

P2-13 **Experiencers in the visual world paradigm: How attention reveals thematic role processing**

Gómez-Vidal, B.

P2-14 **Rhythmic discrimination of languages in hearing-impaired infants**

Gervain, J., Nallet, C., Lucarini, G., Brotto, D., Martini, A. & Trevisi, P.

P2-15 **Exploring the differences in processing between Chinese emotion and emotion-laden words: A cross-task comparison study**

Zheng, R., Zhang, M., Guasch, M. & Ferré, P.

P2-16 **Word frequency cues to word order: A cross-linguistic study in Italian and Turkish adults**

Aydın, Z. & Gervain, J.

P2-17 **'Beyond the literal meaning'. Processing implied emotion in second language discourse**

González-García Aldariz, A., Moreno, E.M. & Foucart, A.

P2-18 **Family Attitudes Towards Multilingualism in Bilingual Education Programs and Their Relationship with Academic Performance**

González Alonso, J. & Duñabeitia, J.A.

P2-19 **Producing words in speaking and typing: what does it change?**

Pinet, S., Paz-Alonso, P.M. & Martin, C.

P2-20 **Are parent reports reliable predictors of language skills in typical and atypical development?**

Ramos-Cabo, S.

P2-21 **Examining the links between L1 phoneme categorization and non-native phonetic learning**

Kapnoula, E.C. & Samuel, A.G.

POSTER SESSION 2 Thursday, June 1, 11:20 – 12:20

P2-22 **Time conceptualization in English and Spanish: time as length vs time as quantity. A corpus and multimodal analysis**

Alcaraz Carrion, D. & Valenzuela, J.

P2-23 **A self-paced reading study on the processing of sequence-of-tense restrictions under intensional subjunctives**

Price, H. & Demestre, J.

P2-24 **Is there base-rate-neglect in linguistic learning?**

Pertsova, K., Moreton, E., Prickett, B. & Fennell, J.

POSTER SESSION 3 Thursday, June 1, 16:00 – 17:00

P3-01 **Emotional Prosody and Accent Processing: A Bilingual Perspective**
Akkaya, A. & Tuninetti, A.

P3-02 **Processing of Which-questions in Romanian-speaking Children: Evidence from VW-Eye-tracking**
Bentea, A. & Marinis, T.

P3-03 **Is L2 orthographic processing of complex words affected by L1 orthographic depth?**
Serrau, V., Gunnarsson-Largy, C. & Largy, P.

P3-04 **On the processes underlying negation-induced forgetting: interference or inhibition?**
Beltrán, D. & Martín, S.

P3-05 **Disentangling factors behind appositive attachment preferences**
Aguilar, M., Demestre, J., Ferré, P. & Hinojosa, J.A.

P3-06 **The B-Minds Project: Effects of Early Exposure to a Second Language in a Nursery Environment**
Soares, A.P., Guerra, N., Mendes Oliveira, H. & Rodrigues Pereira, D.

P3-07 **The acquisition of Hungarian recursive structures**
Langó-Tóth, A.

P3-08 **Non-c-commanding QPs Can Interfere With Antecedent Retrieval in Spanish**
Jorquera Jiménez de Aberásturi, A., Kush, D. & González Alonso, J.

P3-09 **Crosslinguistic variability in non-fluent aphasia: the case of French and German**
Mottin, M.

P3-10 **The development of Italian vocabulary, morphology and syntax: an observational study**
Colavolpe, B., Lara, B., Gaia, L. & Gervain, J.

P3-11 **Characterizing language production across modalities**
Gimeno-Martinez, M. & Baus, C.

P3-12 **The selective access in bilinguals' phonemic representation: Pinpointing to the brain regions involved in phonetic processing in two language contexts**
García-Sierra, A. & Ramírez-Esparza, N.

POSTER SESSION 3 Thursday, June 1, 16:00 – 17:00

P3-13 **Language influences how Spanish speakers from different cultural backgrounds think, talk, and gesture about causality**

Ariño-Bizarro, A. & Ibarretxe-Antuñano, I.

P3-14 **Testing the syntax-semantics mapping for locative case markers via reversible relations**

Dudley, R., Melinda Kovács, A. & Téglás, E.

P3-15 **Reduced emotional sensitivity in the second language during language production: Electrophysiological evidence**

Jończyk, R., Naranowicz, M., Bel-Bahar, T., Korpal, P. & Jankowiak, K.

P3-16 **Fostering metalinguistic awareness and EFL grammar acquisition in L1 Spanish young learners by means of explicit metalinguistic explanations: An exploratory study**

Delgado-Garza, P.

P3-17 **The role of language in Social Cognition and Emotional Competence in 4- to 12-year-old children with Autism Spectrum Disorder, Developmental Language Disorder and Social Communication Disorder compared to Typical Development: a systematic review**

Grau Husarikova, E. & Sanz-Torrent, M.

P3-18 **To spell or not to spell? Explicit versus implicit creation of spelling expectations during spoken word learning**

Jevtović, M, Kapnoula, E. & Martin, C

P3-19 **The facilitative role of cognates and cross-linguistic syntactic similarity in initial L2 syntax learning**

Sanahuja, N., de Diego-Balaguer, R. & Erdocia, K.

P3-20 **The labeling effect in autistic children**

Parrillas Manchón, S., Vicente Benito, A., Castroviejo Miró, E., Rodríguez Armendáriz, E. & Hernández-Conde, J.V.

P3-21 **Idiomaticity, automaticity and control in cross-linguistic, figurative reformulation: the effect of L2 AoA**

Togato, G., Macizo, P. & Bajo, T.

POSTER SESSION 3 Thursday, June 1, 16:00 – 17:00

P3-22 **The discrimination of Basque sibilants in bilingual children: New evidence from eye-tracking**

Larraza, S., Munarriz-Ibarrola, A. & Monahan, P.

P3-23 **Same But Different: Parsing Mechanisms in Trilingual Processing**

Sokolova, M.

P3-24 **A test to classify the different types of anomia according to lexical access sub-processes**

Rodríguez-Gascón, S., Marrero-Aguiar, V., Horno-Chéliz, M.C.

P3-25 **Processing of the Sonority Hierarchy in a nonhuman species (Rattus norvegicus)**

Santolin, C., Crespo-Bojorque, P., Sebastian-Galles, N. & Toro, J.M.

POSTER SESSION 4 — Friday, June 2, 11:40 – 12:40

P4-01 **Anticipating location in Spanish copular sentences: Evidence from bilingual speakers**

Bel, A., Benito, R., de Rocafiguera, N., Marín, R. & Perpiñán, S.

P4-02 **When unpleasantness meets feminines: a behavioral study on gender agreement and emotionality**

Vieitez, L., Padrón, I., Acuña-Fariña, C. & Fraga, I.

P4-03 **Examining the Impact of COVID-19 pandemic context on Phonological Awareness among Preschool Children**

Filipe, M.G. & Frota, S.

P4-04 **Empirical evidence for realist irony**

García-Lorenzo, Y., Clin, E. & Kissine, M.

P4-05 **The impact of extralinguistic factors on the lexical crosslinguistic influence in L3 Spanish by Tagalog-English bilinguals**

Vargas, J.C. & García Mayo, M.P.

P4-06 **Phonetic detail in trilinguals' speech production in online testing and testing with facemasks**

Stoehr, A., Souganidis, C., Thomas, T., Jacobsen, J. & Martin, C.D.

P4-07 **Developing language-specific stress discrimination: An ERP study with European Portuguese-learning infants**

Lu, S., Severino, C., Vigário, M. & Frota, S.

P4-08 **The Role of Cognitive and Social Factors in Processing Non-Binary Spanish Pronouns**

Roman Irizarry, A., Kroll, J.F. & Torres, J.

P4-09 **Complicated families: morphological relationships associated with bound roots**

Carlson, M.T. & Crosson, A.C.

P4-10 **Dynamic interactional contexts within the same person: How heritage bilinguals recruit cognitive resources to speak each language**

Hernandez Santacruz, J.

P4-11 **Context modulates word prediction strategies in ambiguous idioms**

Vergara-Martínez, M. & Civera Barrachina, T.

POSTER SESSION 4 — Friday, June 2, 11:40 – 12:40

P4-12 **Negation induces forgetting even after controlling for associative interference**
Martín, S. & Beltrán, D.

P4-13 **On the interaction between the verb mood and the scope ambiguity: a corpus-based investigation on the Spanish no-porque sentences**
Koizumi, Y.

P4-14 **Three, two, one: Language switching and language similarity effects in trilinguals**
Santos Costa, A., Comesaña, M. & Soares, A.P.

P4-15 **Cross-modal distribution of semantic subcomponents: speech and gesture analysis of European Spanish oral descriptions**
Peiró-Márquez, L. & Ibarretxe-Antuñano, I.

P4-16 **Listening Effort Contributes to Cortical Tracking of Speech in Adverse Listening Conditions**
Ershaid, H., Lizarazu, M., McLaughlin, D., Cooke, M., Simantiraki, O., Koutsogiannaki, M. & Lallier, M.

P4-17 **Brand Names at Risk: Examining the Vulnerability of Popular Logos to Counterfeiting**
Rocabado, F. & Duñabeitia, J.A.

P4-18 **The impact of eye tracking sampling rate on lexical and oculomotor effects**
Angele, B. & Duñabeitia, J.A.

P4-19 **Phenomena of interdependence of language and music rhythm in the choruses of Italian opera**
Turconi, M.

P4-20 **Oral comprehension of grammatical structures among children with hearing loss**
Marrodan, E. & Bosch, L.

P4-21 **Online processing and offline ratings of English articles by Korean learners of L2 English and L3 Spanish**
Park, M. & García Mayo, M.P.

KEYNOTE SPEAKERS

Balthasar Bickel

University of Zurich

Balthasar Bickel is Professor of General Linguistics in the Department of Comparative Language Science at the University of Zurich and Director of Switzerland's National Research Center on Evolving Language. He uses experimental and data-science methods across languages and species to uncover the cultural and biological forces that determine how languages evolve, how they are processed, and how they are acquired.

Balthasar Bickel got his graduate training in the Cognitive Anthropology group at the Max Planck Institute for Psycholinguistics in Nijmegen and received his PhD in 1997 from the University of Zurich. After postdocs in Mainz and Berkeley and an assistant professorship in Zurich, he became a professor of linguistic typology at the University of Leipzig in 2002, and then moved to Zurich in 2011.

The Agent Preference in Comprehension and Production

Sentence comprehension is guided by a prior expectation that role-ambiguous noun phrases default to an agent interpretation. This preference is remarkably resilient against structural differences across languages (such as ergative case or word order), and it is needed to predict neurophysiological signals above and beyond word-by-word surprisal. The preference is likely to be rooted in primate event cognition, as revealed by decision behavior in great apes. While it is sometimes argued that the agent preference is also relevant for production, there is growing evidence that casts doubt on this. Sentence planning is primarily guided by the constraints imposed by conversational behavior.

Marco Calabria

Universitat Oberta de Catalunya

I got my degree in Psychology in 2002 at the University of Padua (Italy). In 2003, I joined the Cognitive Neuroscience Laboratory in Brescia (Italy) where I have been working as a clinical neuropsychologist and, at the same time, collaborating on projects that investigated language deficits in patients with Frontotemporal dementia and the use of brain stimulation as a rehabilitation tool for patients with neurodegenerative diseases.
From 2006 to 2009, I did my PhD in Psychobiology at the University of Padua (Italy) focussing on the neurophysiological components of semantic and episodic memory in elderly.
In 2009, I joined the Speech Production and Bilingualism (SPB) at the Center for Brain and Cognition (Pompeu Fabra University). From 2009 on my research interests are focused on the study of word production, non-linguistic control processes in brain-damaged (post-stroke and neurodegenerative diseases) individuals with a special emphasis on bilingual speakers, and on bilingualism as a contributor to cognitive reserve in dementia. In 2010 I was awarded the 'Juan de la Cierva' post-doctoral fellowship and in 2014 the 'Ramón y Cajal' fellowship from the Spanish Government. Since December 2019, I am an Associate Professor of the Master in Neuropsychology at the Faculty of Health Sciences of the Universitat Oberta de Catalunya and member of Cognitive NeuroLab.

At a loss for words

Research on speech production in healthy individuals has proposed detailed models that dissect lexical retrieval into separate cognitive and neurobiological components. However, neurological data suggests that lexical retrieval deficits are a common feature of language disorders, regardless of the underlying brain lesion. To reconcile the discrepancy between these two views, it is necessary to assume that speech production follows both modularity (the exclusive association of a brain area with a single mechanism) and granularity (the association of a brain area with more than one mechanism). In this talk, I will discuss how a combination of these two principles can explain lexical retrieval deficits, depending on the underlying brain pathology and the type of both linguistic and control processes involved in the task.

Judit Gervain

Universitá degli Studi di Padova

Judit Gervain is a Full Professor at the Department of Developmental and Social Psychology of the University of Padua, Italy as well as a Senior Research Scientist at the CNRS, Paris, France. She is trained as a theoretical linguist, obtained a PhD in 2002 in Cognitive Neuroscience under the mentorship of Jacques Mehler from SISSA, Trieste, Italy. She then worked as a post doctoral researcher at the University of British Columbia, Vancouver, Canada. In 2009, she took up a research position at the CNRS, in Paris, France, from which she moved to the University of Padua in 2020. Her research focuses early speech perception and language acquisition in typically developing monolingual, bilingual infants as well as in infants with hearing impairment.

She uses behavioral and brain imaging techniques to explore the perceptual and language as well as their neural correlates. Her work has been published in leading journals, such as Science Advances, Nature Communications, PNAS and Current Biology. She is an associate editor at Developmental Science, Cognition and Neurophotonics. Her work is currently funded by an ERC Consolidator Grant.

Neural mechanisms of early speech perception and language acquisition

Hearing is operational from 24-28 weeks of gestation. Infants thus first encounter language already in the womb. This talk will present a series of brain imaging experiments (NIRS and EEG) providing evidence that early experience with speech, including speech heard in the womb, already shapes young infants' speech processing abilities and their neural correlates. The talk will also discuss how this may lay the foundations for subsequent language acquisition, i.e. learning not only about the sound patterns of the native language(s), but also about its grammar and lexicon.

Esti Blanco-Elorrieta

Harvard University/New York University

Esti Blanco-Elorrieta is an Assistant Professor of Psychology at New York University. In their research, Dr. Blanco-Elorrieta combines insights from monolingual and multilingual individuals, who process language through speech or sign, to inform an inclusive and comprehensive neurobiology of language. The goal is to identify the core components and principles under which the language system operates by identifying the processes that remain constant in the face of what could seem like very different linguistic experiences. Dr. Blanco-Elorrieta's research combines data from neuroimaging, computational and behavioral methods and takes the most naturalistic approach possible to inform theories that can not only account for laboratory based experiments but rather capture the multifaceted and socially influenced experience of what it means to communicate in the real world.

Dr. Blanco-Elorrieta obtained their PhD from New York University, where they worked at the Neuroscience of Language lab under Liina Pylkkänen's supervision, and completed their post-doctoral training at Harvard University with Alfonso Caramazza. In 2019, Dr. Blanco-Elorrieta was recognized as a Forbes 30 under 30 scientist.

How does the bilingual mind process language?

More than half of the world’s population is bilingual, yet the neural architecture allowing these individuals to successfully communicate in two languages and switch back and forth between them is far from understood. In this talk, I will present a series of studies that systematically target fundamental questions about bilingual language use across a range of conversational contexts, both in production and comprehension. The results unveil novel patterns of language control associated with naturalistic language use, which contrast with previous results from artificial settings. Following these findings, I propose a new framework of bilingual language organization that extends beyond the lexical level to other levels of representation (i.e., semantics, morphology, syntax and phonology). The proposed architecture assumes a common selection principle at each linguistic level to account for attested features of bilingual and monolingual speech in, but crucially also out, of experimental settings.

Oral presentations

Cross-writing system variations influence the course of orthographic acquisition: An eye-tracking study on bilinguals with different L1 background

Yang Fu[1], Beatriz Bermúdez-Margaretto[2], Damian Enrique Jan Cordón[1], Alberto Domínguez[1]
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Cross-writing system variations (L1-L2 orthographic distance) have been found to influence the processing and learning of novel L2 words[1, 2]. However, the temporal course and specific processes constrained by such influence remain unclear. The present eye-tracking study addresses this question by comparing the process of novel word acquisition in L2 (English) in two different groups of bilinguals (Chinese and Spanish). Participants' eye movements were monitored during a reading task in which novel words were embedded in stories and repeated (five exposures) in different sentences. Learning outcomes were examined online (first fixation duration, fixation durations, and total durations on novel words) and offline (immediately and on the next day), through recall with semantic cue, word recognition, lexical decision and semantic prompting tasks. Group differences emerged from the fourth exposure onwards, with a greater reduction of first fixation duration exhibited by Spanish than Chinese bilinguals. Subsequent tasks revealed no difference between groups on the first but on the second day, with Spanish bilinguals showing better consolidation of words than Chinese bilinguals, reflected in higher accuracy and shorter response latencies in these tasks. Interestingly, both groups performed similarly in the semantic prompting task on both days. The present results extend previous findings showing the influence of L1 orthographic background on L2 word learning processes. Particularly, the exposure-by-exposure in-depth analysis of eye movements indicates that cross-writing system variations occur over the extraction of orthographic rather than semantic features, thus hindering the formation, consolidation and access of orthographic representations in those bilinguals with distant L1-L2.

Exploring the automaticity of reading processes: Task demands moclulation of behavioral and electrophysiological responses

Ana Belén García-Gámez[1, 2], João Correia[3, 4], Pablo Macizo[1, 2], Alexandra Reis [3,4], Luís Miguel Faísca[3, 4]

[1]University of Granada (UGR); [2]Mind, Brain and Behavior Research Centre (CIMCYC); [3]University of Algarve (UAIg); [4]Center for Health Technology and Services Research (CINTESIS)

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Previous studies seem to indicate an automatic processing fired when expert readers are confronted with written material. The N170 component has been identified as a brain wave reflecting early print-tuning processes. It is known that in alphabetic scripts, the N170 component presents a left lateralized distribution in the visual word-form area located in the occipito-temporal cortex. In the present study, we explored the degree to which reading processes are automatic. To this end, three non-linguistic tasks with increasing attentional demands were implemented in a within participants' design including a fast presentation paradigm. In this way, participants were required to identify
a) color changes in the linguistic strings, b) color changes in a fixation point, and c) conjoined color and form changes in a fixation point. Behavioral results revealed that detection rates were higher when attention was directly deployed on the linguistic material while the worst performance was associated with the conjoint task. Therefore, behavioral results supported the increase in cognitive demands across tasks. The N170 component revealed reading related responses when participants identified color changes in the own strings but this modulation disappeared when the attentional demands increased in the task. It can be concluded that the reading processes are not as automatic as previously assumed, and direct attention to the material is necessary to observed the print tunning N170 modulations associated with the processing of written material.

The role of L2 proficiency and proactive control in new grammar learning

Marta Rivera Zurita[1], Daniela Paolieri [1], Judith F. Kroll [2], Teresa Bajo [1]
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Bilingualism and previous linguistic experience seem to be advantageous when trying to learn a new language, however evidence of this benefit on new grammar learning is scarce. In this study, we aimed to assess the role of second language (L2) proficiency and cognitive control in an explicit learning context. Thus, 81 Spanish – English bilinguals, varying in proficiency, learned Japañol (Japanese-syntaxis, Spanish-lexicon) in context with metalinguistic information about the rules was provided and where examples sentences varying in complexity were presented. Differences in L2-English proficiency were measured with the MELICET and differences in proactive control were assessed with the AX-CPT task. Participants learned the rule during five sessions. Immediately and two-weeks after (delayed) the last session, participants performed a Grammatical Judgment Task where they answered if the sentences were grammatically correct in Japañol. Overall, participants had better performance when answering to simple than to complex sentences and in the immediate than the delayed test. Results showed that L2 proficiency significantly modulated performance in both the immediate and delayed tests. Participants with low L2-proficiency had better performance when answering to simple than complex sentences. Additionally, in the immediate test, when answering to complex sentences, higher L2-proficiency was positively associated to the performance. Finally, proactive control was found as a significant modulator in the immediate but not in the delayed test with more proactivity associated with the performance improvement. These results suggest that L2-proficiency and cognitive control, and not just previous experience, are key factors in successful grammar learning under explicit learning conditions.

The reproducibility of infant fNIRS studies: a meta-analytic approach

Jessica Gemignani[1*], Irene de la Cruz-Pavía,[2,3], Anna Martinez[1], Caroline Nallet[1], Alessia Pasquini[1], Gaia Lucarini[1], Francesca Cavicchiolo1, Judit Gervain[1,4]

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Introduction: As the volume of fNIRS research has grown, especially in developmental cognitive neuroscience, so has the concern for the reproducibility of findings. Meta-analytic approaches are a powerful tool to assess the robustness of empirical findings but have been little applied to fNIRS data. Here we describe a meta-analysis of fNIRS studies on repetition-based rule learning in infants (de la Cruz-Pavía & Gervain, 2021).

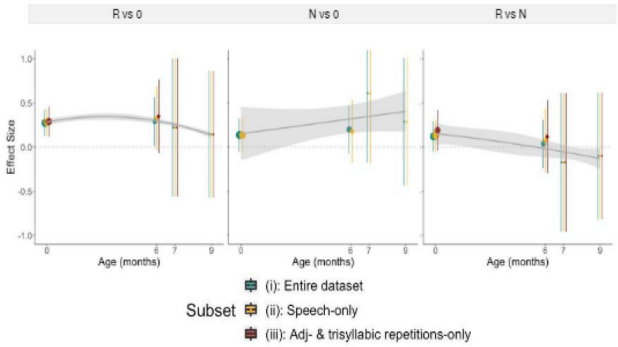
Methods: We aggregated 19 fNIRS studies testing brain responses to repetition- (e.g. ABB: "mubaba", ABA, AAB) and diversity-based (e.g. ABC: "mubage") linguistic rules. The sample included 355 newborns, 104 6-month-olds, 13 7-month-olds and 15 9-month-olds. We computed individual as well as meta-analytic effect sizes for brain responses in the left temporal lobe to repetition-based rules vs. baseline (R vs 0), diversity-based rules vs. baseline (N vs 0) and repetition- vs. diversity-based rules (R vs N), and explored how effects are moderated by Laboratory, Age and RuleType.

Results: The magnitude of the effect was 0.27 (95% CI= [0.144, 0.398], $p<0.001$) for the R vs 0 comparison, 0.18 (95% CI= [0.03, 0.33], $p<0.05$) for N vs 0 and 0.08 (95% CI= [-0.06, 0.22], ns)
for R vs N. No analysis revealed an effect of Lab. Age was a significant moderator: responses to repetitions were larger in 6-month-olds than in newborns, then decreased for 7-to-9-month-olds.

Conclusion: Our meta-analysis revealed no variability in infants' responses to repetition- and diversity-based rules attributable to Laboratory, indicating that effects were robust. Further, we found differential developmental trajectories for the two types of rules.

References

de la Cruz-Pavía, l. , & Gervain, J. (2021). Infants' perception of repetition-based regularities in speech: A look from the perspective of the same/different distinction. *Current Opinion in Behaviora!Sciences, 37,* 125- 132. https://doi.org/10.1016/j.cobeha.2020.11.014



The role of individual differences in emotional word processing: insights from a Spanish lexical decision mega-study

Juan Haro Rodríguez [1], José Antonio Hinojosa Poveda[2, 3], Pilar Ferré Romeu[1]
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The role of individual differences in word processing has been an overlooked area of research. However, they might explain some of the inconsistencies found in the literature. In the present research, we focused on emotional word processing, and conducted a lexical decision mega-study in which we examined the effect of several individual differences.

We collected response times for 7,500 Spanish words from 970 participants, in the largest speeded Spanish lexical decision mega-study conducted to date. We also gathered multiple emotional (valence, arousal), semantic (e.g., concreteness), and lexical variables (e.g., frequency) of the words. Importantly, participants also completed a personality scale (OPERAS) that provided values for the Big Five personality traits and an alexithymia scale (TAS-20), which measures difficulty in perceiving, identifying, and describing emotions.

We used linear mixed-effects models and Bayesian factors to analyse response times, including all the variables related to the words and to the participants. Apart from the classical effects of lexical and semantic variables (e.g., frequency, concreteness), several relevant interactions between personality traits and words' emotional variables were observed (e.g., an interaction between emotional valence and extroversion). Furthermore, there was an interaction between arousal and alexithymia scores, and between emotional valence and participant gender.

Overall, these findings highlight the importance of considering individual differences in the processing of emotional words and demonstrate the utility of a mega-study approach. They may also provide insights into certain discrepancies found in previous studies and shed light on how emotional content influences word recognition.

Fixation Related Potentials in visual search for words

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Searching for words is an everyday task that we perform, for example, when surfing the Internet. In these situations, parafoveal perception plays a central role in attentional guidance, which determines the efficiency of these sorts of tasks. Semantic parafoveal perception has been extensively studied in word processing in normal reading or in visual search with non- verbal stimuli. However, the meaning-based attentional guidance in visual search for words has received less attention. In a series of experiments, we have modified visual search tasks to adapt them to the eye-tracking, ERPs and FRP techniques. In these tasks, participants had to report the absence or the presence of target-words in displays of three-words: one in the centre and two in the parafovea (which could be either semantically-related or unrelated to the target word). Participants searched for target-words either given in advance (i.e. literal task), or defined by their semantic category (i.e. categorical task). Additionally, since the
amount of cognitive resources can be a strong determinant of the efficiency of parafoveal processing, we manipulated the foveal load by varying the lexical frequency of the word in the centre. Across experiments, consistent results were found between eye movement measures and different electrophysiological effects. Early (N1 and P2) attention-related effects were followed by semantic effects (N3 and N400) associated with meaning processing of the words perceived parafoveally. Considering the present results, some ideas will be proposed in relation to the advantages of the co-registration approach in more complex and natural situations.

Cognateness, frequency, and vocabulary size: an interactive account of bilingual lexical acquisition

Gonzalo Garcia-Castro[1], Daniela S. Avila-Varela[1,2], Ignacio Castillejo[3], Núria Sebastian-Galles[1]

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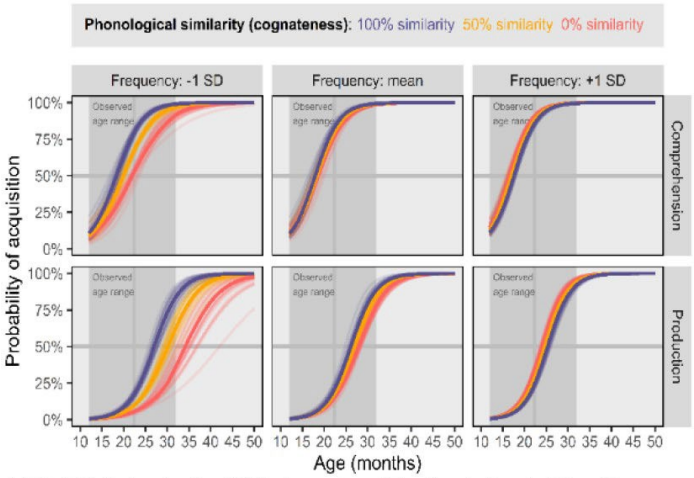
A prominent feature of the bilingual mental lexicon is that the activation of representations spreads in a language non-selective fashion. An instance of such non-selectivity is embodied by cognateness (i.e., form-similarity between translation equivalents, such as *flower-flor* in English and Spanish), which impacts lexical processing in bilinguals. Recent studies have suggested that cognateness facilitates vocabulary acquisition in bilingual toddlers—who show larger vocabulary sizes when their languages share many cognates—and an earlier age-of-acquisition for cognates than for non-cognates. The specific mechanisms underpinning such facilitation are unclear. We present an account of bilingual early lexical acquisition in which cognateness interacts with lexical frequency and language exposure to facilitate word acquisition. We evaluated this model against vocabulary data from 436 Catalan-Spanish bilinguals aged 12 to 34 months. We used a Bayesian Exploratory Item Response Models to estimate participants' probability of acquisition of 604 words, conditional to the cognate status and lexical frequency of the word-form, and the age and degree of exposure to each language of the toddler. We found converging evidence for an earlier age-of-acquisition for cognate words, and for such effect being mediated by lexical frequency and language exposure. Low-frequency words, and words from the language of least exposure were more strongly benefitted by their cognate status than high-frequency words. Our findings support an interactive account of bilingual vocabulary acquisition in which the lexical representations in one language interact with the acquisition of words in the other language.



Individual (thin lines) and median (thick lines) posterior predictions from the Bayesian IRT model.

Interactivity of newly acquired emotional words in the mental lexicon

Beatriz Bermúdez-Margaretto[1], Sara Montes[1], David Beltrán[2]
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The mechanisms underlying novel word representation have been extensively addressed at surface levels [1,2]. However, little is known about the formation of word-forms and corresponding modality-specific representations attributed via sensory-motor or emotional systems. We examined this question by training 18 novel visual-word forms in association (x10 exposures) with emotional (positive and negative) and neutral-valence sounds. Immediate post-learning evaluation included a free recall and an emotional priming task, in which previously trained words were presented as primes of familiar targets with congruent or incongruent emotional valence, either using unmasked (Experiment 1: SOA=300 ms, n=31) and masked paradigms (Experiment 2, SOA=50 ms, n=48). Participants were asked to categorize targets as pleasant or unpleasant words by pressing a corresponding key. Results obtained in Experiment 1 revealed a congruency effect ($F1,30=6.037$, $p=.02$), with longer RTs for targets presented in incongruent than congruent condition. Such interference was likely led by primes with positive emotional valence, although the interaction did not reach significance. Importantly, this was confirmed in Experiment 2, in which the congruency x valence interaction emerged ($F1,47=9.415$, $p=.004$). Negative target words preceded by incongruent positive primes showed longer RTs than the other prime-target combinations. Accordingly, recall data revealed a significantly better performance for those novel words rated as more positive by participants ($F2,557=10.308$, $p=.000$, $\beta^2= 0.77$, R^2Aj.$=.032$). Overall, our data indicate the rapid representation and interactivity of novel emotional words in the mental lexicon, particularly for those with positive emotional connotations, thus in line with previous findings suggesting a positive bias in language [3].

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Non-linguistic sensitivity to context mediates predictability effects in sentence reading: An eye-movement study

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Word predictability is a consistent factor affecting eye movements during reading (Ehrlich & Rayner, 1981). However, little is known about how domain-general cognitive processes mediate the way readers respond to facilitation versus prediction error during sentence processing. Here, we examined the role of non-linguistic sensitivity to contextual cues in mediating readers' susceptibility to predictability manipulations. Forty-four native-English speakers (Mean age: 21; SD = 0.9) read sentences varying in predictability of the upcoming word (Predictable- Unpredictable-Neutral) while their eye movements were recorded. Non-linguistic sensitivity to context was tested by means of a cognitive control task, the AX-Continuous Performance Test (AX-CPT; Rosvold, Mirsky, Sarason, Bransome, & Beck, 1956). We asked whether non- linguistic sensitivity to contextual cues, as reflected in the AX-CPT, would be related to the magnitude of facilitation (Predictable vs Neutral) and/or prediction cost (Unpredictable vs Neutral) during reading. We report preliminary results from three eye-movement measures: gaze duration, regression-path duration, and total time, analyzed with linear mixed-effects models.

Fixed effects were predictability, coded as two contrasts (Neutral versus Predictable and Neutral versus Unpredictable) and AX-CPT. We found that prediction-error cost (Unpredictable vs Neutral) was mediated by AX-CPT in all three eye-movement measures (Gaze duration: $t = -2.09$, $p = 0.038$; Regression-path duration: -2.22, $p = 0.028$; Total time: $p = -3.64$, $p < 0.001$), in that participants with more non-linguistic sensitivity to context experienced more processing difficulty when reading unpredictable words. This suggests that domain-general cognitive processes are particularly important at regulating predictability effects during reading.

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An ERP study on the processing of gender features in italian toddlers

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Italian nouns are preceded by articles, which change according to the noun gender and number. Nouns feature either a biological, transparent relationship between the referent's biological sex and the noun gender (*la*$_{detfem}$ *nonn*$_{grandma}$-*a*$_{fem}$ the grandma) or a formal gender, where the gender is assigned arbitrarily (*la*$_{detfem}$ *sedia*$_{fem}$ the chair). Previous studies on adults showed that a gender violation elicits typical ERP components: a posterior positivity (P600) sometimes preceded by a negativity (LAN/N400). However, little is known about how toddlers process gender. Here, we investigated biological and formal gender processing by Italian adults and 24-month-old toddlers. In each trial, participants were presented with a picture on the screen, associated with an auditory stimulus ("*Look at the*$_{masc/fem}$ *big [noun*$_{masc/fem}$*]").* This stimulus could correctly describe the image (Labelling condition), or not, creating a gender violation with the image (Mislabelling condition). Additionally, the nouns were divided based on the gender's type (Bio vs Formal). Analyses were conducted using a cluster-based permutation and showed that adults and toddlers detect the gender mismatch similarly, triggering an anterior negativity during the article processing. Concerning the gender's types, adults relied more on formal gender even though the results are not fully significant. During the noun time-window, both groups reveal a biphasic effect: adults showed a frontal negativity and a posterior positivity whereas toddlers showed the opposite polarity. In sum, these results indicate that the early processing of gender mismatch in noun phrases is already developed at age 24 months, even if some differences between children and adults emerged.

Different metaphorical construals of time affect valence estimations of temporal events

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Two different metaphors are typically used to describe motion in time (Gentner et al. 2002): in "ego-moving" metaphors, temporal events remain static, while the conceptualizer is the moving entity (e.g., "we are approaching the holidays"). Alternatively, in "time-moving" metaphors, it is the temporal events what moves, while the conceptualizer remains static (e.g, "the holidays are approaching"). Psycholinguistic research has proposed that the choice depends on the valence of the temporal event (Margolis & Crawford, 2008; Soriano & Piata 2022). Thus, we choose ego-moving metaphors for positive events, and time-moving metaphors to describe negative temporal events (e.g., "the deadline is approaching"). Laboratory experiments have confirmed this hypothesis using a very constrained experimental paradigm, which is based on answering the question "Wednesday's meeting has been moved forward two days" (e.g., Borodistky & Ramscar, 2002) which has different answers depending on the adoption of an ego- moving perspective ("Friday") or a time-moving perspective ("Monday").
The present paper moves out of this paradigm; we presented English (N=99) and Spanish (N=42) speakers with ego-moving and time-moving versions of the same temporal events, which were divided into "positive", "neutral" and "negative" using Warriner et al (2003) norming database. Our results confirmed the existing hypothesis: participants judged the temporal events more positively (using a 9-point Likert scale) when they met the same events in an ego-moving context. This applied to stimuli in the three valence bands, positive, neutral and negative. The theoretical repercussions of these results are discussed and future works suggested.

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Does linguistic identity influence social attention? It depends on the status of the language

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Eye-gaze stimuli can elicit orienting of attention in an observer, a phenomenon known as gaze- cueing of attention[1]. Recent evidence has shown that social factors modulate this phenomenon[2]. At the same time, recent evidence indicates that language is a critical cue for social categorization[3]. Here, we explore the role on categorization based on languages of different social status on the gaze-cueing effect. Italian native participants were first familiarized with 8 Caucasian faces together with auditory sentences. Half of faces were associated with the participant native language (Italian) and the other half with an unknown language (Albanian, Exp.1, N=48) and Basque (Exp.2, N=48) (faces were counterbalanced across languages). Participants performed then a gaze-cueing task (i.e., discriminate a target located in congruent or incongruent positions according to gaze direction) using the faces as cueing stimuli. In a last phase, the auditory sentences were presented again, and participants decided which face uttered each sentence. Results indicated that participants were more likely to confuse faces from the same language category than from the other language category, replicating the role of language in social categorization. In addition, results revealed a greater gaze-cueing effect for 'Italian' faces versus 'Albanian' faces (Exp.1), while similar gaze-cueing effects were observed between 'Italian' and 'Basque' faces (Exp.2), suggesting that differences in social status ascribed to the two unknown languages may modulate the gaze-cueing effect. Our findings revealed the impact of language as a social cue on the gaze-cueing effect, suggesting that social attention is sensitive to the language of our interlocutors.

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Exploring the nature of the gender-congruency effect

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In this study we explored whether grammatical gender activation can be biased by lexical information related to gender. To this aim, we designed two priming tasks in Spanish in which native speakers decided the grammatical gender of a pronoun (target) while ignoring the preceding noun (prime). The primes could have arbitrary gender (epicene nouns – tortuga FE *turtle* – or inanimate nouns – vaso MAS *glass*) or semantic gender (biological nouns – amiga FE *friend*—or stereotypical nouns– bombero MAS *fireman*). We expected to find a facilitation in the activation of linguistic information congruent in gender, as shown by faster RT and lower amplitudes of the N400 and P300 components. Moreover, we expected to find stronger congruency effect with semantic gender words than arbitrary gender words, as the former maps biological sex. The results showed that target's gender was processed faster and evoked lower amplitudes of the N400 and P300 components when preceded by gender congruent primes, including arbitrary gender primes. At neural level, gender congruency for inanimate nouns was exclusive of feminine targets, and for epicene nouns of masculine targets. Altogether, we corroborated that the activation of grammatical gender information at the lexical level bias access to grammatical gender, and this bias is stronger with semantic than arbitrary gender nouns, what indicates a transfer from lexical to semantic levels. For the first time, we showed that the feminine is the marked gender. Additionally, we found that in epicene nouns the masculine form works as the generic gender, activating both male and female referents.

Second language acquisition of telicity in L2 English by Slovak and Spanish speakers

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The paper presents an experimental study dealing with telicity judgments in L2 English with a particular emphasis on: (1) the role of syntactic cues (the [±quantized] feature of the object argument) and pragmatic cues (adverbial modifiers in aspectual coercion) in telicity interpretations (Slabakova & Montrul, 2008); (2) differences in L2ers' offline judgments vs. online processing of the same feature (Roberts & Liszka, 2013; Stockall et al., 2010); (3) the role of individual differences in telicity interpretations.

The data collected from Slovak L2ers of English (n = 50) and a control group of American English NSs (n = 15) in two AJTs were analyzed through linear mixed effects models with AJT ratings (6-point Likert scale) as a dependent variable and deviation-coded (-0.5, 0.5) fixed effects match (match, mismatch), group (NS, L2er), and match-group interaction. In AJT2, predicate type (activity, accomplishment, achievement) was added as an additional fixed effect. In both AJTs, proficiency (cloze test score), exposure (length of stay in English-speaking countries), and instruction type (EFL, bilingual) were included in the analysis.

The results indicate that predicate telicity is acquired at lower proficiency levels than aspectual coercion. Furthermore, the former improves with L2 proficiency, while the latter is positively affected by length of stay regardless of proficiency score.

To examine the role of L1-L2 differences in telicity encoding, we will also present preliminary analyses including data from the second experimental group of Spanish learners of L2 English (n = 50), and a pilot self-paced reading study conducted with speakers of both L1s.

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Supplementary information: Sentence structures tested in AJTs and SPRTs.

AJT 1: *telicity judgments based on syntactic cues (object argument):*

(1) John **ate a cake**, and he finished it. (telic_match)

(2) *John **ate a cake**, and he is still eating it. (telic_mismatch)

(3) John **ate cakes**, and now he eats ice cream. (atelic_match)

(4) *John **ate cakes**, and he is still eating them. (atelic_mismatch)

AJT 2: *telicity judgments based on pragmatic cues (adverbial modifiers):*

(5) John **wrote letters for half an hour** yesterday. (activity_match)

(6) * John **wrote letters in half an hour** yesterday. (activity_mismatch)

(7) John **wrote the letter in half an hour** yesterday. (accomplishment_match)

(8) # John **wrote the letter for half an hour** yesterday. (accomplishment_mismatch, coercion)

(9) # The girl **spotted the plane for five minutes** yesterday. (achievement_mismatch, coercion)

(10) The girl **spotted the plane in five minutes** yesterday. (achievement_match)

Electrophysiological insights on aspectual coercion

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This ERP study investigates the electrophysiological cues of aspectual coercion to ascertain whether lexical aspect is projected or composed. The rationale of the study is that the prepositions in and per featured in Dowty's aspectual diagnostics – given their skewed distribution, polysemy, and entropy – are the place where telicity is triggered rather than checked. We recorded the ERPs (59 active electrodes) of 28 right-handed Italian native speaker (Mean Age =24.46, Range=20-37) while they read 120 sentences adapted from the Dowty's test:

		Acceptable	Unacceptable	
Telic	*Maria ha svuotato la borsa* *Maria emptied the bag*	***in*** *in*	****per*** **for*	*un* ***attimo*** *al metal detector.* *a snap at the metal detector.*
Atelic	*Giuseppe ha camminato con piacere* *Giuseppe walked pleasantly*	***per*** *for*	****in*** **in*	*due* ***ore*** *nel parco.* *two hours in the park.*

Sample stimuli in the four conditions. ERPs were time-locked to the words in bold. The star sign (*) marks unacceptability.

After signal pre-processing (BrainVision Analyzer 2, filter: 0.15-35Hz; ICA for ocular artifacts; semi-automatic artifact rejection: 9.17%), we tested the effects of [Acceptability and Telicity] and [Longitude (Frontal, Central and Parietal)] at the past participle, the preposition and the noun (time window: 400-700ms) with linear mixed models in R. We found a significant effect at the preposition only. In particular, we report (A) a sustained anterior negativity or SAN (and no N400) in the 'unacceptable' condition for atelic but not telic predicates (Figure 2 (Telicity*Acceptability*Longitude: $F=7.79$, $p<.001$; Atelic unacceptable: $-0.78\mu V$, $t=-2.03$, $p=.04$), an index of integration processes (Paczynski et al., 2014), (B) which was larger for verb-preposition pairs that are less frequent in temporal contexts in the Italian input (driven by the telic 'acceptable' condition); (C) No differences between achievements and accomplishments. We suggest that predicates' telicity was not projected top-down but computed online via an *aspectual calculus*, which was modulated by the distributional properties of the prepositions. Therefore, the adverbial test might actually be a telicity reagent, not a telicity diagnostics.

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The role of Differential Object Marking, thematic roles and language dominance in the anticipation of direct objects in Spanish and Catalan

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This study examines the anticipation of direct objects in Catalan-Spanish bilinguals. Catalan and Spanish can mark [+animate] objects, but not [-inanimate] objects. Crucially, in Spanish all [+animate] objects can be marked (*Veo* ***a*** *la mujer* 'I see the woman'), whereas in standard Catalan only [+animate] personal pronouns are always marked (*Et veig* ***a*** *tu* 'I see you' vs. *Veig* ***Ø*** *la dona* 'I see the woman'). Moreover, bidirectional cross-linguistic effects have been attested in DOM (e.g. Puig- Mayenco et al., 2018).

Three groups of bilinguals with different dominances performed a Visual World Paradigm eye-tracking task with words (1 in Spanish, 1 in Catalan). Based on Andringa & Curcic (2015, 2016), participants heard transitive sentences while looking at two words. The task had 2 conditions (see examples): animacy of the object ([+animate, +DOM], [–animate, –DOM]) and animacy of screen words (different or same animacy).

In Spanish when there is DOM Spanish-dominants anticipate the inanimate object, whereas Catalan-dominants anticipate the animate one. In Catalan, when there is DOM Catalan-dominants do not anticipate any object, whereas Spanish-dominants anticipate the animate one. Balanced bilinguals do not show clear patterns in none of their languages in this context. When there is no DOM, the three groups anticipate the inanimate objects in both languages. We discuss that DOM is an anticipatory cue for [+animate] objects only in the non-dominant language and that thematic roles play a role in anticipation (Kamide et al., 2003), modulated by animacy, since inanimate objects (usually themes and inanimate) receive more looks.

Examples in Spanish

(1) [+DOM, ANIMATE]
Los camareros ensucian | **a la misma** | **clienta** con aceite en el restaurante.
('The waiters dirty DOM the same client with oil in the restaurant')
a. clienta – cazuela ('client – casserole') DIFFERENT ANIMACY [+ANIMATE, -ANIMATE]
b. clienta – persona ('client – person') SAME ANIMACY [+ANIMATE, +ANIMATE]

(2) [–DOM, INANIMATE]
Los camareros ensucian | **la misma** | **cazuela** con aceite en el restaurante.
('The waiters dirty the same casserole with oil in the restaurant')
a. clienta – cazuela ('client – casserole') DIFFERENT ANIMACY [+ANIMATE, -ANIMATE]
b. cazuela – panera ('casserole–breadbasket') SAME ANIMACY, [-ANIMATE, -ANIMATE]

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Speech traits can discriminate healthy aging, MCI and AD when assessed through the reading task with semantic load

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One of the main challenges in discriminating healthy aging from its pathological course is the possibility of early identification of cognitive decline leading to dementia. Specifically, an extended preclinical stage of Alzheimer's disease (AD) as the most common cause of dementia makes it particularly difficult to discriminate between Mild Cognitive Impairment (MCI) that will progress to AD and MCI that will not. Speech parameters are currently considered as one of the most viable and discrimination-sensitive options for MCI and AD identification.
The objective of this work is twofold. First, we aim to determine which speech parameters are significant for the discrimination of HC, MCI, and AD. Second, we pursue to test whether a semantically loaded reading task can be particularly relevant for obtaining sensitive speech values for the discrimination of HC, MCI, and AD. With this aim, we carried out an analysis of acoustic, temporal, and prosodic parameters based on a reading task with semantic load to a sample of 361 speakers (HC=197; MCI=90; AD=74).
Our results show that the evolution from HC to AD presents with a steady pattern of speech change parallel to dementia-related cognitive decline. Particularly, we identify increase in the duration and phonation time, extension of pauses and voice breaks, intensification of variation in syllabic production, and decrease in speech energy and intensity. We also confirm that a reading task with semantic load can be particularly relevant for the occurrence and identification of these parameters because of cognitive overload it leads speakers with cognitive impairment to.

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TALK CANCELLED
(AUTHOR'S NOTIFIED IMPOSSIBILITY TO ATTEND THE SYMPOSIUM)

COVID-19 related effects on early language development

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Language includes auditory and visual cues relevant to language learning. With COVID-19 the use of face masks became pervasive, affecting the speech cues available to infants. Alongside mask use, COVID-19 led to other changes in everyday communication and interaction. We investigated the impact of mask use and COVID-related changes in early word segmentation and language development. Seventy-seven 7-9-month-old infants performed an auditory (AUD) and an audiovisual (AV) word segmentation experiment in two conditions: without and with a N95 face mask. Concurrent and later vocabulary outcomes measured with the CDI at 12, 15 and 18 months were collected. A comparison with segmentation data and CDI measures from pre- pandemic time was performed (Figure 1). Unlike in pre-pandemic studies, no evidence for segmentation was found in AUD. A similar result was obtained for AV, although the mask affected infants' looking patterns. Concurrent CDI measures did not differ from the CDI same age (pre-pandemic) normative data. However, later vocabulary outcomes at 12 months revealed that infants scored lower for expressive vocabulary than same age infants from the CDI (pre-pandemic) norming study ($p<.001$, $Z=-2.9$). At 15 and 18 months, infants scored lower both for receptive (15: $p=.02$, $Z=-2.24$; 18: $p=.01$, $Z=-2.55$) and expressive vocabulary (15:$p=.03$, $Z=-2.1$; 18:$p=.06$, $Z=-1.84$). Mixed-model analyses showed that despite improving between 8 and 18 months, vocabulary development has not yet converged by 18 months. Our results suggest an overall effect of the pandemic on early segmentation abilities and language development, with significant delay patterns that persist until 18 months of age.

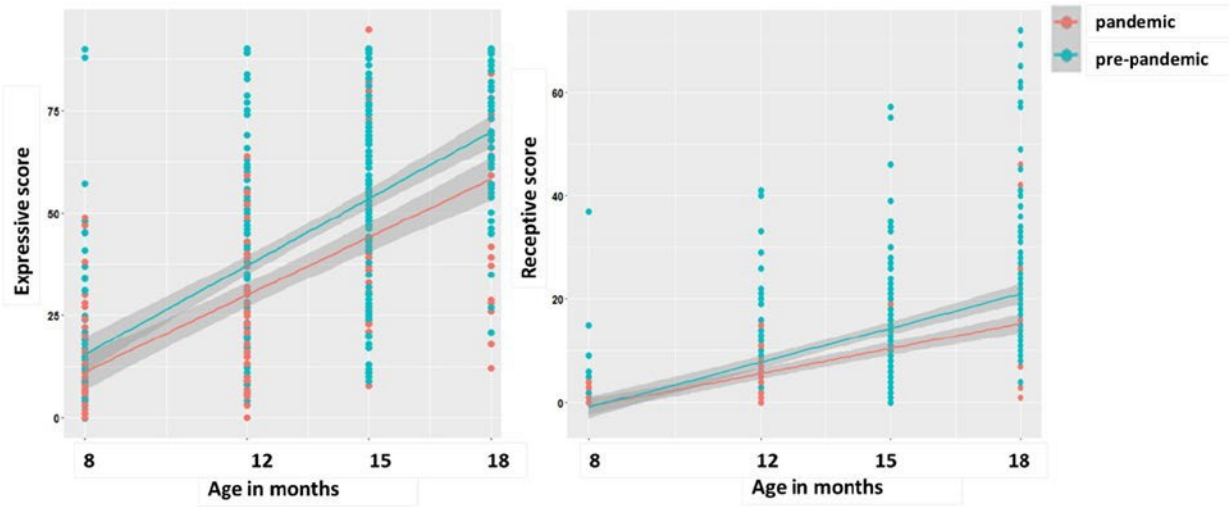

Figure 1. Concurrent and later expressive and receptive CDI scores in infants from the COVID-19 segmentation study (in red), and pre-pandemic normative data (in blue).

The shared origins of associative and taxonomic priming effects in infants

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Recent evidence suggests that even six-month-olds have the rudiments of a semantically organized lexicon (Bergelson & Aslin, 2017), with a number of studies reporting both associative (dog-bone) and taxonomic (dog-bear) priming in children younger than two (e.g., Arias-Trejo & Plunkett, 2013; Sirri, & Rämä, 2015). However, the nature and origins of early semantic links are still poorly understood. To shed light on this topic, we evaluated the potential contributions of simple word co-occurrence regularities in explaining the reported priming effects. To do so, we examined how a learner who has only (1) access to early developing associative learning mechanisms (i.e., ability to learn that words A and B reliably co-occur) and (2) access to language input to young children (i.e., CHILDES corpora, MacWhinney, 2000) would perform in the experiments which reported early associative and taxonomic priming. We demonstrate that in all (nine) priming studies selected for the analyses, related and unrelated conditions (including associative and taxonomic) can be differentiated based on a statistic that captures reliable word co-occurrence in CHILDES corpora (i.e., t-score, Evert, 2008). These findings do not deny the roles that other types of input and learning have in fostering early semantic links, but they do highlight a potentially powerful role of simple word co-occurrence regularities in shaping early lexicon. In addition, they demonstrate that unrealistically complex input and learning mechanisms typical for extant computational language models are unnecessary. We discuss these findings in the light of the contributions and limits of computational approaches in explaining language development.

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The development of conversational turn-prediction abilities in bilingual toddlers

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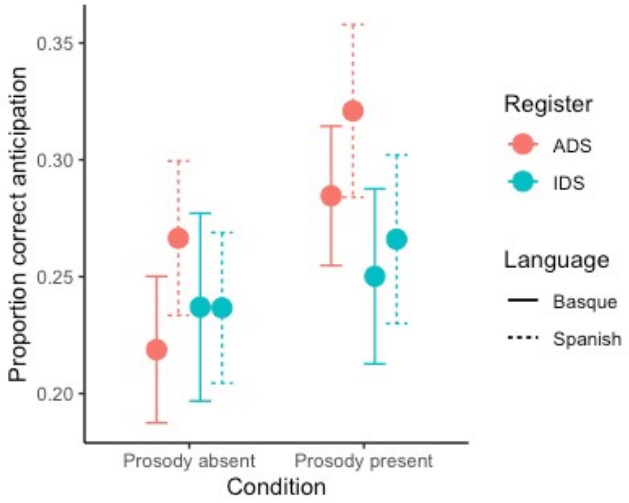
In conversations, speakers accurately identify when it is their turn to speak by predicting the completion of their interlocutor's conversational turns (CT). Adults rely on contextual, lexico-syntactic, and prosodic information, but all this information is not available to young children. Monolingual one-year-olds rely solely on prosodic cues to CT completion, especially in infant-directed speech (IDS). The ability to rely on lexico-syntactic cues appears after 36 months of age.

This study investigated early turn-taking abilities in bilingual children who face the additional challenge of learning prosodic and lexico-syntactic cues to CT completion in each of their languages. We administered an eye-tracking anticipatory looking paradigm to 30- month-olds (N=20) acquiring Spanish and Basque (M dominant language exposure =53.14%), two languages that differ drastically in prosodic, lexical, and syntactic structure. Toddlers watched puppets conversing in Spanish or Basque IDS or adult-directed speech (ADS) (three one-minute conversations per register/language). To test toddlers' reliance on prosodic vs. lexico-syntactic cues, CT completion was marked by prosodic and lexico-syntactic cues in half the utterances in each conversation but only by lexico-syntactic cues in the other half.

Toddlers anticipated CT completion more accurately when prosodic cues were available, but performance did not differ across languages and speech registers (Fig. 1). Bilingual toddlers thus benefit from access to prosodic cues to CT completion in their two languages, even when hearing the less familiar ADS. These results will be discussed in relation to bilingual children's degree of exposure to each language and the language-specific prosodic properties of bilingual IDS and ADS.

Fig. 1. Bilingual toddlers' proportion of correct anticipation of CT completions in Spanish and Basque IDS and ADS conversations



Learning repetition-based regularities in speech: a NIRS study with 7-month-old infants

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Infants exhibit a robust capacity for learning rules from speech. By 6 months of age, they can encode both repetition- and diversity-based regularities between adjacent syllables (e.g., ABB: ‘‘mubaba” vs ABC: ‘‘mubage”, respectively; de la Cruz-Pavía & Gervain, 2021). By contrast, non-adjacent repetitions (e.g., ABA: “bamuba”) have been investigated only in newborns (Gervain et al., 2008), who fail to discriminate them from diversity-based controls (ABC).

Since non-adjacent dependencies play an important role in language, in this study we investigate if 7-month-old infants can discriminate non-adjacent repetitions from ABC controls using Near-Infrared Spectroscopy (NIRS). We compare a repetition-based ABA artificial grammar and an unstructured ABC control grammar. Infants’ brain responses are recorded from the frontal, temporal, and parietal regions, bilaterally.

Data collection is ongoing. Preliminary results from 13 babies (6 females, mean age:
210.4 days) suggest that infants encode both non-adjacent repetitions and diversity-based structures as compared to baseline in bilateral temporal areas (Fig. 1).

If confirmed, these results suggest that infants are able to encode non-adjacent repetitions as early as 7 months of age, laying the foundations for grammar learning.

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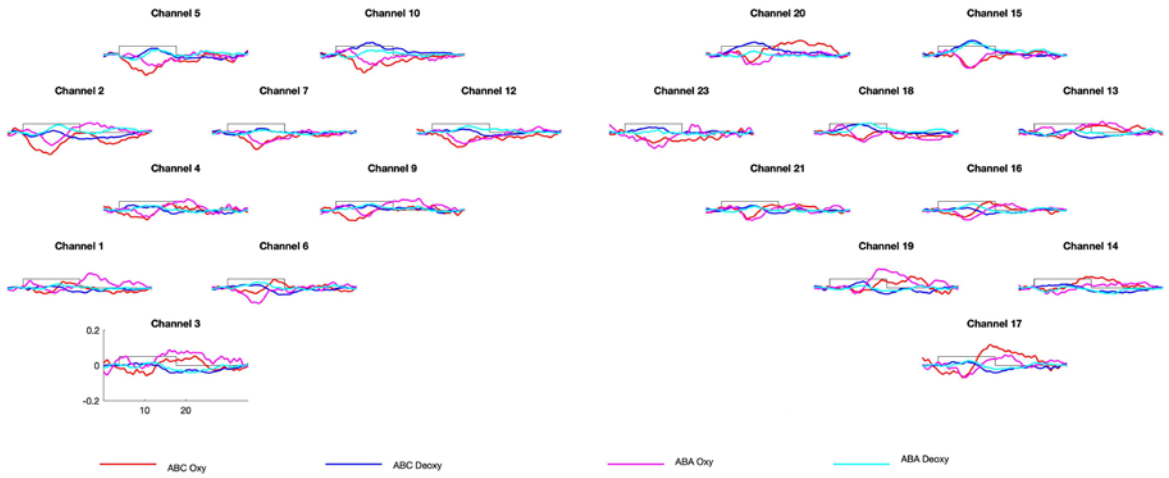

Figure 1. Infants’ grand average hemodynamic response to ABA and ABC patterns in frontal, temporal and parietal channels. The x-axis represents time in seconds; the y axis shows the concentration in mmol x mm. The rectangle along the x-axis indicates the time of stimulation.

Speech analysis to detect mild cognitive impairment and dementia

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Cases of age-related cognitive impairment have increased dramatically in recent years. This has led to a great interest in the development of screening tools for mild cognitive impairment and Alzheimer's disease. Our goal is to develop a dementia screening tool through automatic speech analysis. This analysis allows to exploit the behavioral consequences of cognitive deficits on the patient's vocal performance so that it is possible to identify pathologies affecting speech production such as dementia. Previous studies have further shown that the speech task used determines which speech impairment resources are produced. We believe that analyzing and combining the impairments in several tasks will improve the accuracy of screening through speech analysis. The sample consists of 72 participants divided into three equal groups matched by age and educational level of healthy older adults, people with mild cognitive impairment, or Alzheimer's disease. A complete neuropsychological assessment and two voice recordings were performed. First recording was a reading task, while the second one required the participants to complete a sentence with semantic information. A stepwise linear discriminant analysis was performed to select speech parameters with discriminative power. Two functions with the ability to discriminate between the three groups were obtained with an accuracy of 83.3%. This study is one of the few that have been carried out with simultaneous classifications of various levels of cognitive impairment and one of those with the best accuracy. Therefore, this would be a promising screening tool for dementia.

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TALK CANCELLED
(AUTHOR'S NOTIFIED IMPOSSIBILITY TO ATTEND THE SYMPOSIUM)

12-month-olds' understanding of negation

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Do pre-verbal infants possess a negation operator (NOT) that can support their reasoning and serve as a basis for later acquisition of negative vocabulary[1-2]? We present infants with a visual (non-verbal) disjunctive reasoning problem: One ball could be in A, B or C; it is not in A; therefore it is in B or C. Crucially, we also have a fourth location (D) which was never a potential hiding location, and therefore does not need to be eliminated from the set of possibilities in the same way as A. We use looking-time methods to ask whether 12-month- olds distinguish between an outcome where the ball is revealed in A (negated) vs. D (impossible) vs. B/C (possible). If 12-month-olds possess NOT and it supports their reasoning about location A, they should distinguish the A outcome from both B/C and D outcomes. In 3 experiments (N=24/experiment), we test each pair of outcome. We find that infants look longer to impossible outcomes than possible ones (Exp 1: t(23)=2.7872, p=0.01047); but we do not find a significant difference between looking to impossible vs. negated outcomes (Exp 2: t(23)=-0.32844, p=0.7456), or negated vs. possible outcomes (Exp 3: t(23)=0.44147, p=0.663). This pattern of results is compatible with the NOT hypothesis if we assume (i) negated possibilities have a status that is intermediate between possibilities and impossibilities (because a possibility is first represented and then ruled out) and (ii) our dependent measure lacks the sensitivity to reveal this pattern.

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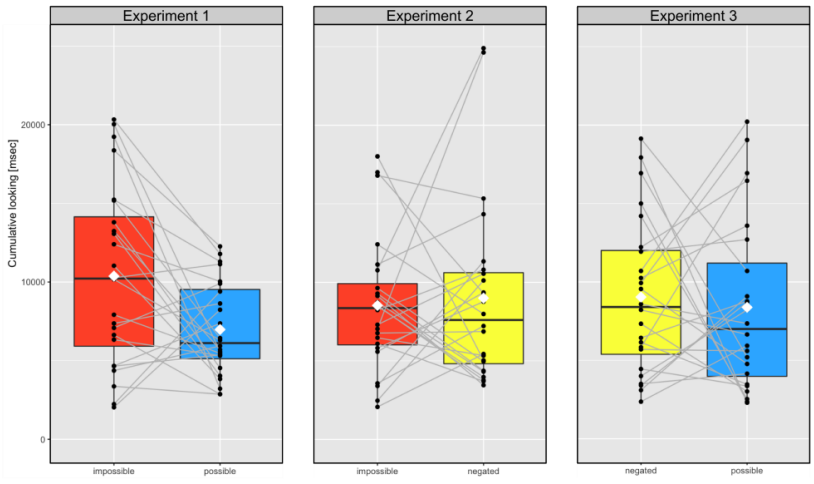

Are babies' cries already language?

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Newborns and young babies communicate through cries. This has generated the hypothesis that there may be a developmental continuity between cries and language. Indeed, a previous study found that French and German babies cry differently, the melody of their cries imitating the melodies of the native languages heard in utero (Mampe et al., 2009). Here, we tested this hypothesis by investigating whether newborns' cries triggered similar neural processing as speech in adults and in newborns, i.e. listeners who themselves can produce cries. Participants were newborns exposed to French prenatally and Italian-speaking adults who do not speak French. Adults unfamiliar with French were tested so that, as newborns, they cannot process the linguistic contents of the stimuli. The two groups were tested using the same paradigm, and their brain activity was recorded using functional near-infrared spectroscopy. Participants were exposed to blocks of cries and blocks of French sentences. Preliminary results from 28 adults and 20 newborns suggest that newborns have significantly heightened brain responses to cries compared to speech in bilateral temporal regions (Figure 1a), while adults show a significantly more pronounced response to speech compared to cries (Figure 1b). If confirmed, these results suggest that while cries are not processed identically to speech at either age, their processing may change during development as a result of their changing relevance for communication and production. Infants' heightened responses to cries may be related to the fact that they use them for communication.

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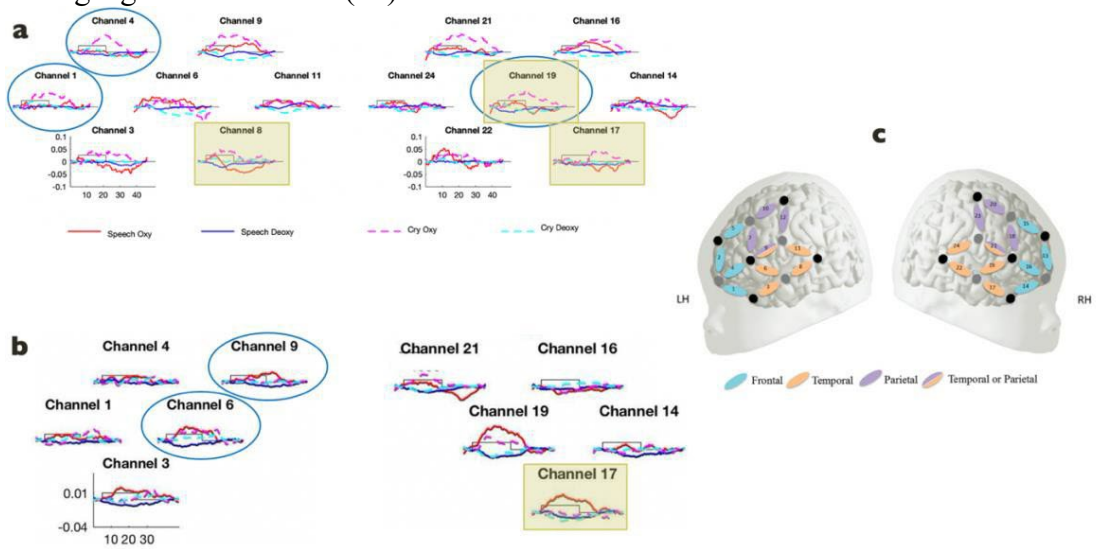

Figure 1. Newborns' (a) and adults' (b) grand average hemodynamic response to cries and speech in frontal and temporal channels. The x-axis represents time in seconds; the y axis shows the concentration in mmol x mm. Channels where a significantly different brain response was found between the two conditions are highlighted by green squares (difference in oxyHb concentration changes) and blue circles (in deoxyHb). (c) Configuration of NIRS measurement channels used in the study overlaid on a schematic newborn brain. Grey circles indicate detectors, while black circles indicate sources. Localization figure adapted from Abboub et al. (2016).

Categorical Speech Perception in Chinese Children with Autism Spectrum Disorder

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Categorical speech perception has been robustly demonstrated in typically developing (TD) adults (Liberman et al. 1957, 1967), where speech sounds that vary continuously along a physical dimension are perceived as distinct categories. Categorical speech perception emerges in prelinguistic infants (e.g., Eimas et al 1971, Werker & Tees 1984) and develops and matures with children's acquisition of their first language (e.g., Chen 2017). Few studies have examined whether children with ASD perceive speech sounds in a categorical fashion like their TD peers. Individuals with ASD exhibit perceptual processing patterns different from TD peers. They demonstrate enhanced perceptual performance in low levels that deal directly with the physical properties of the stimuli, e.g., pitch processing (e.g., Bonnel et al. 2003; Stewart et al. 2015), but they show deficits in higher levels of processing relating to mental representations such as interpretation of intonational phrases (e.g., Ashwin et al. 2007). Little research has investigated the perception of speech sounds in Chinese children with ASD.

This study investigated whether Chinese children with ASD discriminate acoustic differences in speech sounds categorically. Three sound identification experiments were conducted to examine the perception of consonants, vowels, and tones with 16 children with ASD (mean age 5;1, sd=0.66) and a control group of 17 age- and verbal-IQ-matched typically developing (TD) children (mean age 4;9, sd=0.55). Each experiment included six stimulus sounds: six consonants on the /ba/-/da/ continuum (i.e., da1-da6), six vowels on the /a/-/ɛ/ continuum (ɛ1- ɛ6), and six tones on the continuum of the first (high-level) tone to the second (mid-low-rise) tone in a carrier syllable ba (ba1-ba6). Each target sound occurred 6 times and resulted in a total of 36 trials presented in a random order in each experiment.

The results showed that both groups similarly perceived the target consonants categorically: da1, da2, and da3 were perceived as /da/ (100%) and da5 and da6 as /ba/ (100%). But on da4 the ASD group was significantly more likely to perceive it as /da/ than the TD group (53% vs. 32%) ($F(5, 31)=4.76$, $p<.05$). Both groups also showed categorical perception of the vowels: ɛ1 and ɛ2 were perceived as /ɛ/ (100%) and ɛ5 and ɛ6 as /a/ (80-100%), but on ɛ3 and ɛ4 the ASD group was significantly more likely to treat them as /ɛ/ than the TD group (ɛ3: $p<.05$; ɛ4: $p<.001$). On tone identification, the two groups also exhibited a clear categorical perception: they both perceived ba1 and ba2 as Tone 1 (100%), ba3 as Tone 1 (80%), and ba4, ba5, and ba6 as Tone 2 (90-100%). The results, taken together, indicate that preschool Chinese children with ASD are similar to their TD peers in showing categorical speech perception. They perceive the target stimuli on the two ends of the continua, i.e., the first and the last two or three stimulus tokens of consonants, vowels, and tones, categorically. But they differ significantly from the TD peers in the intermediate consonant and vowel tokens, suggesting some deficits in the accuracy in categorical perception.

Does non-native directed speech support non-native listeners' cortical tracking?

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Non-native directed speech (NNDS) is a clear speech register that native speakers use when addressing non-native listeners of their language. NNDS has acoustic features assumed to promote second language (L2) perception and learning, but there is no direct empirical evidence to back up this assumption [1,2]. To fill this gap, we used EEG to measure the impact of NNDS on cortical tracking (CT) of speech, which is a marker of linguistic processing during speech perception [3].

We recorded EEG activity of 20 Spanish participants listening to English continuous speech in NNDS and native directed speech (NDS). NNDS has lower speech rate than NDS, and this might shape CT [4]. Thus, we added another condition, hereafter Slow-NDS, including speech with the same features as NDS but low speech rate as NNDS.

We investigated CT of the stimuli speech envelope by using a filter that describes the linear transformation of the ongoing stimulus to the ongoing neural response, known as temporal response function (TRF) [5,6]. We also collected participants' comprehension scores in each condition. Given the presumed high comprehension of NNDS, participants were expected to show better comprehension and higher CT of NNDS than the other two conditions. Linear mixed effect model analyses confirmed that participants a) understood NNDS better than Slow-NDS and NDS b) had higher CT of NNDS than Slow-NDS, followed by NDS. This suggests that low speech rate alone does not promote L2 perception and that NNDS is particularly suited to support L2 comprehension and learning.

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What the microstructural properties of the Frontal Aslant of unimodal and bimodal bilinguals tell about language control

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The Frontal Aslant tract (FAT), a white matter tract connecting the Superior Motor Area complex with the Inferior Frontal gyrus, has been associated to the resolution of conflict among competitor motor programs (Dick et al., 2019). In the present study we investigated the role of this tract in bilingualism, comparing unimodal and bimodal bilinguals. Differently from unimodal bilinguals (UBs) who use two spoken languages, bimodal bilinguals (BBs) use a spoken and a signed language. The comparison between UBs and UBs allows addressing the issue of bilingual language control: While BBs can simultaneously utter a word and make a sign (Emmorey et al., 2008), UBs have always to select one word at a time for production. Using Diffusion Tensor Imaging we extracted the microstructural properties of the FAT from 24 UBs and 25 BBs and we correlated them with the performance in language production and comprehension tasks, performed in the first (L1) and in the second (L2) language. The correlational pattern reveals commonalities and differences between the two bilingual groups. The left FAT seems to be involved in the control of the L1 (spoken) during the production of the L2 (either spoken or signed). For BBs, the FAT is involved in the control of the signed L2 during the production of the spoken L1. Interestingly, the direction of the correlations suggests that the control exerted through the FAT diminishes as L2 proficiency increases, supporting the view that the locus of language control changes as a function of the degree of bilingualism.

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Uncovering the Role of Foreign Language on Acquiescence

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This study investigates the impact of a foreign language on acquiescence, the act of passively accepting something (Paulhus, 1991). The research is based on the "foreign language effect" which proposes that using a foreign language leads to more analytical thinking (Keysar et al., 2012), reduced emotional involvement (Duñabeitia & Costa, 2015), and higher cognitive effort (Dhaene et al., 2022). This, in turn, can impact social desirability bias and increase compliance with requests or social norms. Four experiments were conducted to test the foreign language effect on acquiescence. In Experiments 1a and 1b, 377 participants made dichotomous decisions to whether 100 personality traits describe them or not according to Knowles and Condon's(1999) paradigm on acquiescence. The results showed that participants took longer to generate negative responses in a foreign language (vs. native language), while showing no difference in positive responses. In Experiment 2a and 2b, 192 participants made dichotomous decisions to tell lies in social interactions (Cantarero et al., 2018). The results showed that participants were more likely to acquiesce to lie-telling for lies with low social desirability in a foreign language (vs. native language). These findings highlight the relationship between language and decision making, by showing that a foreign language can make people more acquiescent in certain cognitive and social domains. Our study has important implications for decision-making, particularly in international settings where people may communicate in a foreign language. In addition, the study adds to the field of social and cognitive psychology and provides valuable insights for future research.

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On the origin of bilingualism effects on cognition: social, cognitive or mixed? A systematic review

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Two ongoing debates surround bilingual adaptations on cognition. The former concerns the type of effect and can be analyzed in terms of three outcomes: positive, negative, and null. The status of the latter, which concerns bilingual adaptations' origin, is less clear. While many studies recognize some interaction between cognitive factors and social factors (Garraffa et al., 2015; Antón et al., 2019 inter alia), these observations are often made in passing. Consequently, it has not been yet determined what degree of the reported bilingual adaptations derives predominantly from sociolinguistic factors.

Our work addresses this question through a systematic review of 368 studies, 474 experiments, and 109.604 participants, following the PRISMA Statement (Liberati et al., 2009). The full database is available at: https://osf.io/8p73h?view_only=95009316afe3479aa3249b419551a6b4

Our results showed that 73.41% of studies reporting bilingual adaptations attribute them either to sociolinguistic factors alone or to the interaction of sociolinguistic factors with cognitive factors. Furthermore, data analysis revealed that studies that find bilingual disadvantages are more likely to attribute them to sociolinguistic factors, while studies that find bilingual advantages tend to link them to a cognitive origin.

Our findings show the importance of developing a detailed sociolinguistic theory of bilingual effects. Through adopting a social-based perspective, research on bilingualism may strengthen its explanatory power by considering the dense network of sociolinguistic and environmental factors that characterize the bilingual experience and make bilingualism a gradient phenomenon.

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Undoing gender in a gender-marking language: Gender-inclusive forms in plural role nouns in German

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German lacks linguistic means to refer to non-binary individuals. For plural role nouns, the gender-inclusive neo-affix -*innen has been suggested as an alternative to the generic masculine. However, this form has faced criticism for being unlicensed (Eisenberg 2018) and creating a female bias in interpretation (Körner et al. 2022). Yet, studies have shown a disadvantage for female referents following a generic masculine antecedent (e.g., Gygax et al. 2008; Misersky, Majid & Snijders 2019). We argue that there is an asymmetry between the gender-inclusive and generic masculine plurals (see Bobaljik & Zocca 2011), where the neutral plural is less marked and can more readily function as an antecedent for both feminine and masculine anaphora.

We conducted a judgment study to assess the neutrality and overall acceptability of generic masculine and gender-inclusive plurals in German. Our study followed a 2x2 design with MARKEDNESS (generic masculine vs. gender-inclusive) and ANAPHORA (gender-marked one-anaphora) as factors and consisted of 24 items (1)). The results (n=28) showed no main effects for ANAPHORA and MARKEDNESS, but a significant interaction. A pairwise comparison revealed a significant difference for anaphora in the generic masculine conditions, where feminine anaphora were rated significantly less acceptable than masculine anaphora following a generic masculine antecedent.

This study shows that the gender-inclusive affix -*innen is a viable alternative to the generic masculine form in German and that this gender-inclusive form includes both female and male referents without a bias and could potentially be used to represent all genders.

(1) a. Die Nachbarn haben sich am Mittwoch getroffen, **[genericMasc]**
the.PL neighbors have REFL on.the Wednesday met
b. Die Nachbar*innen haben sich am Mittwoch getroffen, **[genderIncl]**
the.PL neighbors have REFL on.the Wednesday met
… weil {einer/ eine} von ihnen ein Jubiläum hatte.
because one.MASC one.FEM of them a anniversary had

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Processing of synonyms and homographs in bilingual and monolingual speakers

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Most languages in the world contain both single-mappings (1 word referring to 1 concept) and double-mapping words (hereafter within-language double-mappings), commonly called synonyms (2 words for 1 concept) and homographs (1 word for 2 concepts).

Early highly-proficient bilinguals have long-lasting experience with cross-language double-mappings: Most concepts are linked, in the bilingual brain, to a word in their first and another one in their second language (i.e., 2 words for 1 concept; translation equivalents). Furthermore, false friends are quite common, at least in some closely-related pairs of languages (i.e., 1 word for 2 concepts; interlingual homographs).

Considering the strong prevalence of cross-language double-mappings in early highly-proficient bilingual language use, the main question of the project was the following: Do bilinguals differ from monolinguals in how they process within-language double-mappings because of the prevalence of, and their experience with, cross-language double-mappings in their daily life?

Across two behavioral studies, we compared performances from Spanish monolinguals and Spanish-Basque bilinguals on a behavioral picture-word matching task. The words were all presented in Spanish, the native language of all participants. Participants responded to synonyms and homographs (both double-mappings) or single-mappings (controls).

The reaction times in both studies showed clear and significant costs in processing within-language double-mapping stimuli, as well as intrinsic differences in processing homographs versus synonyms. However, these effects did not differ between bilinguals and monolinguals.

The present findings thus suggest that the bilinguals' extensive experience with cross-linguistic double-mappings does not transfer onto within-language double-mapping processing.

Orthographic effects in L1 speech production

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Orthography is known to influence first language (L1) speech perception [1] and second language speech production and perception [2]. Research into orthographic effects in L1 production is scarce and yielded mixed results [3, 4]. No research has yet examined orthographic effects on phonetic characteristics of L1 speech production. The present study addressed this gap by testing whether inconsistent orthographic forms affect speech sound production in L1. To this end, we investigated L1-Dutch speakers' production of /s/, which can be spelled <s> (more frequent spelling) or <c> (less frequent spelling) elicited in a pseudoword reading task. We considered four measures: center of gravity (CoG) in Hz, category compactness (standard deviation [SD] of the CoG), duration in ms, and speech onset time (SOT) in ms. First data of 10 L1-Dutch speaking young adults (data collection ongoing, final N=40 expected by March 2023) show that /s/ is produced with less variability when spelled with the more frequent orthographic form <s>, indicating more compact speech sound categories. In addition, pseudowords in which /s/ is spelled <s> elicit shorter SOT, indicating faster processing. No significant differences in CoG and duration were observed between <s> and <c> spellings. These findings demonstrate that the orthographic code affects L1 speech production suggesting that learning to read during childhood recalibrates speech sound categories that are already in place. As such, these results have important implications for models of L1 speech production.

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Exposure length to an artificial language significantly impacts adult mono- and bilinguals' segmentation strategies

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Endress and Bonatti (2007) show that exposure length to an artificial language (AL) impacts the nature of the representations extracted by the listener and argue that short exposures favor the projection of generalizations. We examine whether familiarization length impacts adults' parsing of an AL previously used to test adults' and infants' word order preferences (see de la Cruz-Pavía, Marino & Gervain 2021, for a review). The AL comprised strictly alternating frequent and infrequent elements and was rendered structurally ambiguous, allowing two possible segmentations: "phrases" could begin or end with a frequent element (frequent-initial vs. frequent final phrases). These two segmentations mirror the two possible distributions of functors and content words found in natural languages. We first exposed L1Basque-L2Spanish bilinguals—languages with opposite word orders—and Spanish monolinguals to the AL, for either 17 minutes or 2 minutes (4 groups, n=24 each), then tested them on their word order preferences. Results revealed that manipulating the amount of exposure to the AL significantly impacted the two populations' word order preference, even reversing it in the case of Spanish monolinguals. Analysis of the participants' linguistic background did not reveal any significant difference between groups, which suggests that it was indeed the amount of exposure that impacted their segmentation strategies. The cause of the unexpected frequent-final segmentation obtained in Spanish monolinguals remains to be determined. However, we speculate that it might originate in the heavily suffixing morphology characteristic of Spanish.

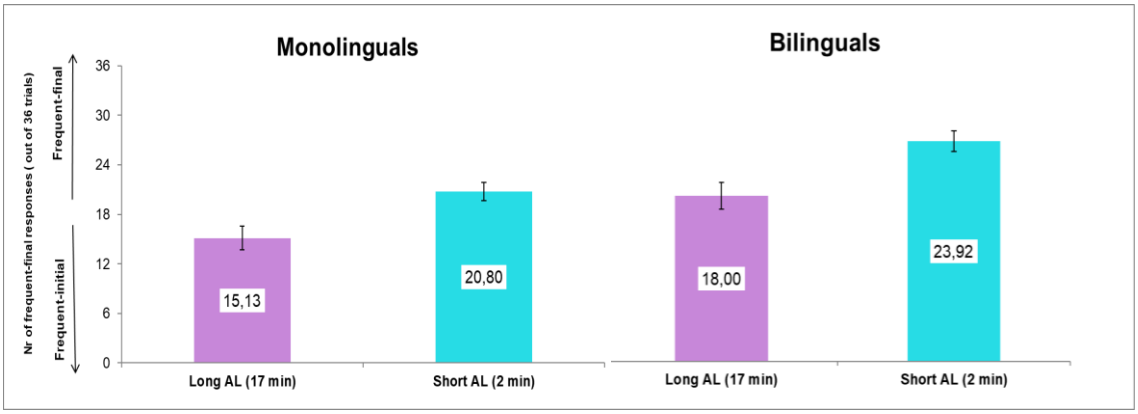

Figure 1. Mean number of frequent-final responses per group out of the 36 trials, when exposed to the long (purple) and short (blue) artificial languages.

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Using Pupillometry to Examine Costs of Speaker-Switching Within and Across Accents

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Prior work indicates that listening tasks with multiple speakers (versus a single speaker) result in slower and less accurate processing (Mullennix et al., 1989). Notably, the trial-to-trial cognitive demands of switching between speakers or switching between accents have yet to be examined.
We used pupillometry, a physiological index of cognitive load, to examine the demands of processing first (L1) and second (L2) language-accented speech when listening to sentences produced by the same speaker consecutively (no switch), a novel speaker of the same accent (within-accent switch), and a novel speaker with a different accent (across-accent switch). Inspired by research on sequential adjustments in cognitive control (Gratton et al., 1992), we aimed to identify the cognitive demands of accommodating a novel speaker and accent by examining the trial-to-trial changes in pupil dilation during speech processing.
Our results indicate that switching between speakers was more cognitively demanding than listening to the same speaker consecutively. Additionally, switching to a novel speaker with a different accent was more demanding than switching between speakers of the same accent. However, there was an asymmetry for across-accent switches, such that switching from L1 to L2 accent was more demanding than the reverse.
Findings from the present study align with work examining multi-talker processing costs and provide novel evidence that listeners dynamically adjust cognitive resources to accommodate speaker and accent variability. We discuss these novel findings in the context of an active control model (Magnuson & Nusbaum, 2007) and auditory streaming framework (Kapadia & Perrachione, 2020) of speech processing.

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Poster presentations

Eye-tracking the Experiencer Thematic role

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Experiencer role designates the participant of an event that experiences the mental state denoted by the verb (Arad, 1998). Following Proto-Roles (Dowty, 1991) approach, Experiencer fits into Proto-Agent category but it is less prototypical than Agent. There is hardly any psycholinguistic evidence that Experiencer has specific processing correlates (Rissman & Majid, 2019). To determine whether Experiencer role has distinctive processing correlates, we analysed argument structures with it: (1) psych verbs: [Agent-Experiencer] verbs, such as frighten; [Experiencer-Theme] verbs, such as love (Pesetsky, 1996). (2) Perceptual verbs, such as observe, with [Experiencer, Theme] structure (Levin, 1993). We expected Experiencer's distance from proto-typicality to involve higher processing cost than argument structures without it [Agent-Theme]. Our aim was to determine whether Experiencer role reveals specific processing correlates. Experiment. Eye-tracking reading task. 48 Spanish native speakers. Twenty verbs per condition, repeated twice, controlled by length and frequency, were selected to create forty experimental sentences (normativized for naturality) with four different versions each, as a result of crossing: Verb Type (Psych vs. Non-psych) and Argument Structure (Experiencer-Theme vs. Agent-Theme/Experiencer) variables. Results. Participants made larger fixation times on [Experiencer-Theme] than on [Agent-Theme/Experiencer] (Argument Structure effect). The interaction revealed larger reading times and fixation times on [Agent-Experiencer] than on [Agent-Theme] sentences (see table 1). Discussion. Structures involving Experiencer entail higher processing costs compared to those without it. Experiencer has specific processing correlates modulated by the other participant of the argument structure. We argue that these results provide psycholinguistic evidence for the Experiencer having specific processing correlates.

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Table 1. Results.

	Regions	Subject Region	Verb Region	Object Region	Post-Object Region
Eye-tracking measures	**Gaze Duration**	X	Main effect of verb type (p = 0.0322)	Main effect of argument structure (p = 0.056)	X
	Regression Path Duration	X	Main effect of verb type (p = 0.045)	Main effect of verb type (p = 0.0186)	X
	Re-reading Duration	X	Interaction (p=0.0088)	X	X
	Total Duration	X	Interaction (p = 0.00448)	Main effect of verb type (p = 0.0428) Main effect of argument structure (p = 0.0349)	Main effect of argument structure (p = 0.0246)
Reading Times		Interaction (p = 0.00404)			

An apple called Paula: The influence of grammatical gender on the perceived "biological" sex of objects

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All German nouns have a grammatical gender that is either masculine, feminine, or neuter. If the noun refers to something that does not have a biological sex, its grammatical gender is arbitrary. In this eye-tracking study we investigate whether the grammatical gender of an object influences it's perceived biological sex. Participants were presented with picture pairs containing either human figures of opposite biological sex or objects of opposite grammatical genders (male/female). Simultaneously they heard a sentence containing a name of either gender (e.g. "This is Paula"). In the active condition participants were asked to choose which picture fit best with the presented sentence, while in the passive condition no choice was necessary. We examined effects on dwell time, first fixation duration and total number of fixations. For dwell time we found a gender match effect for human figures and objects when the name was female. When the name was male, this effect was present for human figures only. We also found longer first fixation durations on objects, compared to human figures, in the active condition only. The effects for total number of fixations are more complex. We interpret the differences in dwell time effects between the male and female names as being due to male names being perceived as more generic and female names being perceived as more specific. The first fixation duration effects show that animacy influences eye movement as early as the first fixation, when a decision task is present.

The verbal fluency task in patients with post COVID-19 syndrome

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Introduction: Recent studies show that many patients who have overcome COVID-19 continue to suffer, even years after the disease, from symptoms that compromise their daily life activities. This condition, known as post COVID-19 syndrome (PCS), can lead to a wide variety of symptoms, including cognitive impairments in domains such as attention, processing speed or executive functions. Although PCS patients frequently report speech symptoms as well, this function has often been overlooked in most studies. The aim of this work, therefore, is to test the alterations in language production in a large sample of these patients by means of verbal fluency tasks.
Methods: 195 patients with PCS aged 26-64 years and 50 healthy controls aged 25-61 years matched on gender, age and educational level underwent a neuropsychological testing protocol that included verbal fluency tasks (semantic [animals], phonological [p], actions and excluded letter [words without E]). The responses were transcribed and analyzed in terms of psycholinguistic variables affecting performance.
Results: Significant differences were found between the two groups in the number of words in all tasks. Regarding variables, PCS generated more imaginable and/or more frequent words than HC in several tasks. Another striking effect was the effect of age as, contrary to expectations, younger patients performed significantly worse than older patients in some tasks.
Conclusion: This study highlights the need for further research on language impairment in these patients to try to shed light on the mechanisms underlying cognitive symptoms.

Processing of copular sentences in Spanish: Effects of coercion on adjectival predicates and subject nouns in a locative context

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The aim of this presentation is to report a series of experiments designed to test the processing of two kinds of copular sentences in Spanish. The target of our research are sentences that bear a dispreferred copula combined with adjectival predicates (1) or eventive and non-eventive nouns with locative predicates (2).

(1) a. El niño es pálido
b. La profesora está simpática
(2) a. La boda está en ese vídeo
b. El café es en el vestíbulo

In Spanish, so-called 'stage-level' adjectives (1a) preferentially combine with 'estar', while 'individual-level' adjectives (1b) combine with 'ser'. Similarly, location of eventive nouns (2a) requires 'ser', and that of non-eventive nouns (2b) 'estar'. These asymmetries allow to test the prevalence of lexical vs syntactic criteria in the choice and processing of copulas. If lexical features of predicates constrain the combinatorial possibilities of grammatical subjects, greater processing load should occur in sentences with dispreferred copulas, thus showing an effect of 'coercion' in their interpretation. Conversely, no coercion is expected if the syntactic structure determines the proper interpretation of predicates.
These hypotheses were tested in several self-paced reading experiments with Spanish native speakers, using adjectives and nouns of the above-mentioned types combined with copulas. Results show early coercion effects in 'individual-level' and no effects on 'stage-level' adjectives. In sentences with locative predicates, coercion effects emerge later and seem to be dependent on the relative order of subject and locative phrase. These results bear relevant implications for processing accounts and linguistic theories of copular sentences in Spanish.

Adult's appreciation of speaker vocal affect with explicit and implicit emotions in real time through eye-tracking technique, a pilot study

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Introduction: Previous studies have suggested that prosody plays a central role in emotional comprehension. Studies examining semantic and prosodic cues with eye tracking showed that prosodic meanings can be overridden by semantic cues when linguistic information is task relevant. This pilot study investigated the effects of emotional prosody and semantic content to identify different emotions in Catalan-Spanish adult population.

Methods: We used the eye-tracker-software *iMotions* in two experiments. Four images (data base of Karolinska Directed Emotional Faces) of the same person expressing different emotions (happy, sad, angry, scared, neutral) were presented (Figure 1). Participants (n=14) were asked to listen to some sentences (subject, verb and predicate). In Exp1 the emotions were said directly, (explicit sentences; e.g., "Laura is happy") and in Exp2 the emotionally were implicitly driven from the verb (e.g., "Cristina escapes from the dog"). Half of the trials were prosody-semantically congruent, and the other half were incongruent. Participants had to click on the expression face that matched with the oral cue.

Results: Behavioral and eye tracking results showed that the semantic target was significantly preferred in both congruent and incongruent conditions. When mistakes were made, there was not preference for prosodic targets. In congruent conditions, accuracy was better than in incongruent conditions

Conclusion: We saw an effect of semantic information predominates over emotional prosody at least in adult performance but incongruent condition made a greater indecision. A future study with children with learning disorders will be conducted to evaluate these tendencies.

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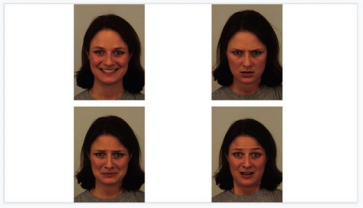
Supplementary information

Figure 1

Example of the screen that participants look at.



Assessing the role of consecutive verbs in the missing VP illusion with Spanish subject-verb inversion

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The "missing VP illusion" occurs in double center-embeddings like (i): removing the second verb (V2) renders the sentence ungrammatical, but, surprisingly, it does not reduce acceptability [1,2]. One factor contributing to the illusion may be the presence of consecutive verbs, which are infrequent and may therefore be hard to parse [2,3,4]. We evaluated the role of consecutive verb sequences in Spanish, a language with optional subject-verb inversion in embedded clauses. This allowed us to vary the number of consecutive verbs without changing the number of embeddings.

Seventy-seven native speakers performed a speeded acceptability judgment task. Materials (n = 24) manipulated the factors Grammaticality (grammatical: with all verbs; ungrammatical: without V2) and Inversion (no subject-verb inversion vs inversion in the most embedded clause) (ii, translation in (i)), yielding four conditions. If the presence of consecutive verbs contributes to the illusion, inversion should weaken the illusion, because it reduces the number of consecutive verbs.

We found a main effect of Grammaticality: ungrammatical sentences were more acceptable than grammatical sentences. We also found an interaction between Grammaticality and Inversion: the illusion was smaller in sentences with inversion (Figure 1).

The non-canonical Grammaticality effect indicates that the illusion occurs in Spanish. The interaction with inversion shows that it is smaller when the number of consecutive verbs is reduced. This supports the claim that the presence of consecutive verbs contributes to the illusion. Such an effect may be attributed to their infrequency in speech, and it underlines the importance of word-to-word probabilities in explaining acceptability.

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Supplementary materials

(i) The politician [who the spokesman [who the reporters interrupted] refuted$_{V2}$] fired the advisor.

(ii) El político [al que el portavoz [al que los reporteros.$_S$ interrumpieron / interrumpieron los reporteros.$_S$] desmintió / ~~desmintió~~$_{V2}$] despidió al asesor.

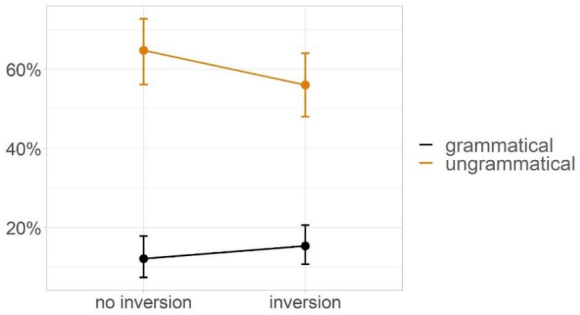

Figure 1. Acceptability by condition. Error bars show 95% bootstrapped confidence intervals.

The pseudoscience behind affective word processing: How your beliefs may change the effects of words' emotional content

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Individual differences have been proposed as one of the factors that may contribute to the inconsistencies found in the literature of affective word processing. Starting from previous studies reporting differential affective rating of words between paranormal believers and non-believers (e.g., Gianotti, 2003), we aimed to explore whether the variation on epistemically unwarranted beliefs (EUB) endorsement could have a role on the influence of affective properties during word processing. In order to do so, 97 participants that varied on the level of paranormal, pseudoscientific and conspiracy belief conducted a lexical decision task with 300 words (+300 pseudowords). The effects of several word properties and participants EUB scores over response times were analysed using linear mixed-effects models. Apart from the effects typically observed for each of the word properties, novel interactive effects were found: the effects of valence and arousal appeared or disappeared depending on the degree of EUB (especially true for pseudoscientific beliefs). Considering that participants can easily vary in the distribution of EUB endorsement (i.e., these beliefs are common rather than residual in the general population), these results highlight the need to consider individual differences in affective word processing.

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ENGRI CROWD: An investigation into the affective and lexico-semantic content of English loanwords and their Croatian equivalents

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This study aims at exploring the affective and lexico-semantic content of the most frequent unadapted English loanwords and their Croatian equivalents. Valence, arousal, familiarity, and concreteness ratings were collected for 391 English loanwords and 524 Croatian equivalents: 286 in-context equivalents, 146 out-of-context equivalents, and 92 adapted forms. Ratings were collected via online questionnaires from 678 native Croatian speakers, and are available in the ENGRI CROWD database, the first such database for English loanwords (Bogunović et al., 2022). Potential differences in ratings between English loanwords and the three types of equivalents were examined with Paired sample t-tests. The difference between valence ratings for English loanwords and in-context equivalents was not significant. In-context equivalents scored higher than English loanwords on emotionality, familiarity and concreteness, while the opposite was found for arousal. Out-of-context equivalents scored higher than English loanwords on valence, emotionality, familiarity and concreteness, but not on arousal. Adapted forms scored lower than English loanwords on valence, emotionality and familiarity, while the difference for arousal and concreteness was not significant. The results suggest that Croatian speakers perceive English loanwords as less emotional, less familiar and less concrete than Croatian equivalents, but more arousing. This supports the view that L2 vocabulary is less embodied than L1 vocabulary (Imbault et al., 2021). The arousal ratings can be explained by the exposure to English through media, in which the content is predominantly arousing. Finally, adapted forms were rated as the least positive, emotional, familiar and concrete, which reflects their marginal status in Croatian.

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Working memory and morphosyntactic comprehension and production in bilingual individuals with aphasia

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The current study investigates the morphosyntactic abilities of bilingual L1-Russian – L2-Hebrew-speaking people with aphasia (biPWAs) in their comprehension and production of a wide range of morphosyntactic structures in both languages. Furthermore, it evaluates the associations between the deficit in verbal working memory (WM) and language impairments in this sample.
Twenty chronic-stage biPWAs due to left hemisphere stroke were assessed using the bilingual aphasia test (BAT, short versions) in L1-Russian and L2-Hebrew. Verbal WM was evaluated through the digit span task in each language separately, listening span in L2-Hebrew [1] and modified listening span tasks in L1-Russian [2]. Visuospatial WM was measured through the Corsi block-tapping task.
Significant difficulties were observed in both languages when comprehending passive constructions and negation (both in active and passive forms). In L2-Hebrew, relative clauses with a past participle posed difficulties. In production, biPWAs faced greater difficulty producing object relative and passive sentences in L1-Russian and negative constructions in active and passive forms in L2-Hebrew. Also, due to the late age of L2-Hebrew onset, its morphosyntactic accuracy was lower than in L1-Russian. A more pronounced deficit was observed in verbal WM in both languages than in visuospatial WM abilities. Verbal WM was shown to be related to morphosyntactic comprehension and production. The study contributes to the understanding of the specific difficulties in the two languages of biPWAs based on the inherent properties of each language. Finally, it expands the link between language processing and WM to biPWAs.

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Brain regions in handwriting words: word frequency and consistency in an fMRI study.

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Handwriting is a complex task that involves both central (linguistic) and peripheral (motor) processes. Behavioral studies have demonstrated that these processes are not totally independent, and that central-linguistic processes affect motor execution when writing words. In addition, some previous research has obtained evidence that these processes have also different neural correlates.
We carried out a fMRI study where participants had to write words. That copy task was compared with reading words or sawing symbols. For words, frequency and phonology-to-orthography consistency (P-Oc) were manipulated.
Results revealed that some regions such as the left-lateralized fronto-parietal regions and the cerebellum are more activated in writing than in reading but in the production of writing-specific movements for words. The fusiform area appeared related to word frequency. Regarding consistency, some parts of the inferior frontal gyrus were selectively activated when writing words with a P-O inconsistency (e.g., *cabeza*), whereas the right Heschl´s gyrus was involved for handwriting consistent words. In addition, other motor and linguistic areas were also identified.
These outcomes suggest differences in neural substrates between lexical and orthographic processing of inputs and outputs, and they will be discussed according to the debate around the two spelling routes (lexical and sublexical).

Visual boundaries in sign motion: processing with and without lip reading cues

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Sign languages allow investigation of the hypothesis that language processing builds on neural circuitry underlying general, non-linguistic abilities – such as the ability to identify, parse, and interpret actions. They utilize articulator motion profiles, conveying event-based semantics and constructing grammatical features such as aspect. Studies of sign languages indicate that event structure is overtly expressed in verb sign dynamics, manifesting Event Visibility. Remarkably, this visual event structure can be recognized by hearing non-signers without any knowledge of sign language (Strickland et al. 2015). In two ERP experiments, we assessed the timeline of neural processing mechanisms in non-signers processing telic/atelic signs to understand the pathways for incorporation of physical-perceptual motion features into the linguistic system; furthermore, we probed the possible impact of visual information provided by lip-reading. Hearing German speaking non-signers (N=27) were presented with telic and atelic verb signs unfamiliar to them, which they had to classify in a two-choice decision task. Behavioral data confirmed that non-signers could classify telic/atelic verbs. More important, the timing and distribution of ERP effects appear to reflect both the differences in perceptual processing of verb types and the integration of perceptual and linguistic processing required by the task. These findings suggest that non-signers use visual-perceptual features of signs and appear to segment visual sign language input into discrete events as they try to map the observed sign language form to a linguistic concept that might represent the sign. Moreover, the observed ERP effects indicate easier event segmentation in response to telic stimuli.

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Using Random Forest models to predict auditory and visual integration for speech perception in two noise conditions

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Our previous psychoacoustic work showed general confusion in discriminating the Spanish rounded back vowels [o,u] in contexts of noise (with background babble comprised of 1-16 speakers and the signal-to-noise ratio, set at 0, -6, and -12 decibels, henceforth dB, and their interaction) by different populations (native monolingual Spanish-speaking adults, native monolingual Spanish-speaking children, ages 6-12, and native monolingual Spanish-speaking children with cochlear implants, ages 6-12). We attributed this confusion to the fact that tongue height, detectable through F1, is obfuscated by F3 (lip rounding) and that in the absence of a visual input by which a listener can discriminate mid and high vowels by a control parameter such as lip aperture (or jaw angle), listeners experience notable difficulty in discerning vowel categories. For the present study, we trained a series of Random Forest models in an unsupervised learning environment in addition to K-means clustering with visual (video) and audio (acoustic) data, with parameters specified for two noise conditions (mimicking our psychoacoustic tests) to test whether the integration of visual and auditory information computationally increases perception accuracy. Results from the models seem to indicate that the access to a visual stimulus increases discrimination accuracy in noise conditions, though not equally so for all empirically tested populations.

Automaticity in the left-right space-time conceptual metaphor

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Is left-right space activated automatically when processing words that have temporal reference? It is well established that judging the temporal reference of words generates a left-past/right-future congruency effect, which has been taken to support the existence of a left-right mental timeline that places past on the left and future on the right (in users of left-to-right scripts). Until recently, it was also considered well established that this effect does not arise automatically, i.e., when the dimension of time is not explicitly included in the task set. However, Grasso et al. (2022, JEP:LMC, 48, 304) recently reported an automatic left-right congruency effect in a lexical decision task. The key aspect of their procedure that seems to be responsible for this effect is that, instead of using left or right keypresses, they used long lateral movements of the right hand towards the left or the right. In the present study we aimed to replicate these findings while securing high power and pre- registering hypotheses, procedure, trimming and analytical decisions. Moreover, we used as response an even longer lateral movement of a lever. The results showed a significant
left-past/right-future congruency effect but a Bayes factor that clearly favours the null hypothesis. We conclude that Grasso's findings are not robust enough and that the left-right space-time conceptual metaphor is most probably not activated automatically.

Bridging the gap between 2D and 3D in single word recognition

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Among the tasks employed to assess human word processing, lexical decision task (LDT) is probably the most extensively used one. In this task, participants are shown a single word and must quickly and accurately determine if it is a real or made-up word (pseudo word). In recent years, the popularity of virtual reality systems has resulted in a considerable growth in the employment of these approaches in the field of psycholinguistic research, and the LDT has been already used satisfactorily within 3D settings. However, the emergence of these virtual reality approaches and techniques has not been accompanied by a systematic comparison with traditional display and recording systems based on 2D platforms. In the current study, and using a classic psycholinguistic paradigm such as the LDT with isolated single-word presentation, we compared the results obtained in a 2D experimental environment to those obtained in a 3D context with the same set of materials and in the same groups of participants. We collected data from a classic LDT presented in the two environments (2D and 3D). Participants were presented with a list of words and pseudowords, and their reaction times and accuracy scores were contrasted across modalities. Results showed that reaction times were shorter for words than for pseudowords (namely, a lexicality effect), and this effect was shown in both presentation modalities. Moreover, no significant differences were found between methods, illustrating that VR can be a viable medium for conducting psychological experiments.

Switching languages, same truth

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Recent findings regarding the effect of repetition on perceived truth have shown that a foreign language (L2) compared to a native one (L1) does not seem to moderate the *illusory truth effect* as one would expect considering a purely *processing fluency* account (Nadarevic et al.: Expt. 1, 2018). The present study further investigated the effect of repeated information in a *different language* than that of first presentation (L2→L1). Italian-English (n=82) and Greek-English (n=68) proficient, unbalanced bilinguals participated in four experiments of an exposure and test phase of unknown trivia statements (e.g. *Meryl Streep majored in Arts*) repeated either in the same language (English-English) or in a different language (English→Italian or English→Greek), which also bore a *different script* (Latin→Greek). In the exposure phase, participants indicated whether they found interesting or uninteresting (60) statements that were displayed on a computer screen, and after a distractor math task, in the test phase, they rated the truthfulness of (60) repeated and (60) new statements on a 6-point scale (1=completely false, 6=completely true). The results of both bilingual groups yielded an illusory truth effect regardless of ease of language presentation context, with higher assessed truthfulness for repeated sentences than for new sentences even when the repeated sentences were in a different language and script than the one they were first encountered. We interpret our findings in light of *referential theory* (Unkelbach & Rom, 2017) whereby activated references in semantic memory of proficient bilinguals act as primes for repeated sentences, resulting in the illusory truth effect.

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Parental code-switching modulates visual preference for native-language speakers in 4-month-old bilinguals

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Six-month-old monolingual infants show a visual preference for speakers of their native language over speakers that use a non-native language[1]. This preference seems to be hindered when these native and non-native languages are closely related (i.e., Catalan- Spanish)[2]. Interestingly, and despite language proximity, 4-month-old bilingual infants looked preferentially towards speakers of their dominant language[2]. In this study, we explore if exposure to parental code-switching modulates this visual preference in bilingual infants. We tested 61 4-month-old infants: 30 Spanish/Catalan monolinguals and 31 Spanish-Catalan bilinguals. For bilingual infants, we established their dominant language and measured parental code-switching. Eighteen infants had low parental code-switching exposure while 13 had high code-switching parents. Infants were familiarized with videos of two female speakers telling a story (one in Spanish and the other in Catalan). After familiarization, infants were tested with pictures of the two speakers presented side-by-side. We calculated the proportion of looking time to each one. Overall, monolingual and bilingual infants looked equally to both speakers [$t(29)=0.37$, $p=.71$; $t(30)=1.06$, $p=.29$, respectively]. However, within the bilingual group, we found differences depending on parental code-switching exposure [$F(1,29) = 4.35$, $p = .04$]. Infants with high code-switching parents showed a visual preference for the speaker of their dominant language [$t(12)=2.65$, $p=.02$], while infants with low code-switching parents showed no preference [$t(17)=0.46$, $p=.65$]. These results suggest that high parental code-switching might enhance the expression of a visual preference towards dominant-language speakers over speakers that use a close and familiar, but non-dominant language. Further research is needed to confidently interpret these findings.

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The distinctive role of color during the processing of logos: ERP evidence

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Logotypes are identified by visual elements such as the name, symbols, and color. As to the processing of the name, logos are particularly vulnerable to counterfeiting through misspelled branding (e.g., amzaon). Compared to common misspelled words (cholocate) names in logos are affected by letter transposition to a larger degree (Perea et al, 2021). This is so because logotype identification is more dependent on color and lettering styles than on the correct orthographic encoding, which plays a secondary role. Importantly, color seems to play the opposite role in logos: while color defines the brand name, this feature is lost early during the processing of common words (Dehaene et al., 2005). To further analyze the role of color in the identification of logos we presented participants with popular logos in their original or in an incorrect version (color was different) while they did a semantic categorization task on filler logos ("respond only to transport logos") and their EEG was recorded. ERP results showed an early color effect that was pervasively maintained throughout logo processing as shown by amplitude effects in the N1, P1, N2, N3 and N4. The scalp distribution of these ERP effects is also congruent with previous findings on color processing in object recognition, and show that color is a defining feature of logo representations.
These results reveal that although cognitive operations such as color and orthographic processing allow the identification of different stimuli, their role changes depending on whether the stimulus is a common word or a logotype.

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On the gender agreement of Spanish epicene nouns: when grammar and conceptualization compete

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We focus on epicene nouns in Spanish and their gender agreement with other syntactic categories. We ask whether grammatical principles alone are enough to determine agreement marking or whether conceptualization of the referent's gender interacts in this otherwise grammatical compositional process.

Epicene nouns are those that do not change their marking with respect to the referent, as other nouns in gender-marking languages do (Corbett, 1991). It is standardly assumed that this fixed gender triggers agreement.

However, epicenes create situations of mismatch between their grammatical gender and the referent's social gender:

(1) La niña es un genio en matemática
The $_{FEM}$ girl $_{FEM}$ is a $_{MASC}$ genius $_{MASC}$ in Math.
The girl is a Math genius.

Hypothesis. The referent's social gender can trigger agreement instead of the grammatical rule, suggesting that gender is not merely a grammatical feature, but rather has conceptual implications that connect to how speakers use their language. We predict that sentences like (2), where agreement is conditioned by the semantics of "the girl", would be equally accepted as (1).

(2) La niña es una genio en matemática
The $_{FEM}$ girl $_{FEM}$ is a $_{FEM}$ genius $_{MASC}$ in Math.
The girl is a Math genius.

Participants. 31 speakers of Argentine Spanish performed an acceptability-judgment task with four conditions: no mismatch, complete mismatch, mismatch and morphosyntactic agreement rule, and mismatch and "conceptual agreement".

Results, analyzed with an ANOVA test and mixed effects model, show acceptability differences of no-mismatch condition (Mean 4.5) and complete mismatch (1.9) but mismatch- conceptual agreement sentences were equally acceptable as those with morphosyntactic agreement (3.5 and 3.4; p-value: 0.3), indicating that the grammatical epicene rule does not exist so categorically in speakers' minds. Thus, during the gender agreement process, conceptual and syntactic information seem to overlap, and conceptualization of gender permeates over the grammatical gender system.

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Language diversity and bilingualism in aphasia research

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Previous research on aphasia has recognised the need for cross-linguistic studies and studies on bilingual aphasia (Kuzmina et al., 2019; Paradis, 2001). However, the quantitative study by Beveridge and Bak (2011) revealed that studies published between 2000-2009 were restricted to few languages, with a clear predominance of English. Similar results were observed by Mendia (2022) for the 2015-2019 period. The aim of this degree dissertation is to review the 2010-2014 period and to compare the updated literature with the previous one.

We analysed 146 articles published between 2010-2014 following the procedure by Beveridge and Bak (2011). We examined the number of language(s) represented and the number of bilinguals assessed in the two languages and the tools used, among others.

Results revealed that: **1)** there still is a pronounced bias towards studies on English speakers (Figure 1); **2)** that the distribution of language-families is similar in the two decades, with the exception of non-Indo-European languages, which have increased recently (8.1% vs. 13.6%; $\chi^2 = 6.7$, $p < .01$); and **3)** a significant increase between 2010-2019 was found on studies reporting bi/multilinguals' performance in more than one language (3.9% vs 7.8%; $\chi^2 = 5.17$, $p < .05$).

The literature on aphasia between 2010-2019 seems not to reflect the reality of the world's languages (Beveridge & Bak, 2011), despite a rising interest in non-Indo-European languages and bilingual aphasia. We discuss some possible explanations for these findings related to clinical practice (Norvik et al. 2022) as well as insights for future research.

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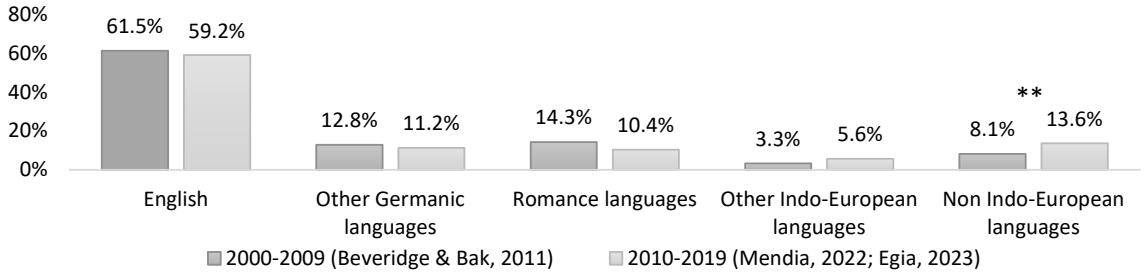
Figure 1



Processing verbal periphrases in Spanish: Native and non-native perspectives

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Periphrasticity being considered a central characteristic of all Romance languages (especially Ibero-Romance), temporal, aspectual, modal and diathetic values are often expressed by verbal periphrases (Pusch/Wesch 2003). However, their varied structural make-up, their variety- sensitivity as well as the typological differences to e.g. Germanic languages make them a particularly vulnerable domain in non-native language acquisition (cf. also e.g. Ellis 2006).
In order to investigate which structures are most problematic for German-speaking learners, a self-paced reading study was administered to a L1 German experimental group (proficiency level in Spanish B2-C2) and a L1 Spanish control group (cf. Marsden et al. 2018 for a methodological review). The stimulus material consisted of sentences in Spanish containing periphrastic verbal structures from 12 aspectual categories (80 items in total, 38 critical ones), which were presented on a computer screen using the moving-window technique (Just et al. 1982), immediately followed by an acceptability rating and a comprehension task.
First results (n=12) show highly divergent acceptability ratings and reaction times – among non-natives and natives, interestingly – especially with gerundival structures (except for the progressive) as well as specific infinitival structures expressing habitual, inchoative and terminative values. These divergences may be explained by frequency of use, regional variation, combinatorial preferences (cf. e.g. Gómez Torrego 1999, Yllera 1999, Bosque 2009, CREA) and (in the case of non-natives) instructional input. All of these factors coincide in the periphrases *ir*/*venir*/*andar* + gerund, expressing cumulative and distributive values (often with modal shades), making them a special case for native and non-native processing.

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Can accent trump the other-race effect?

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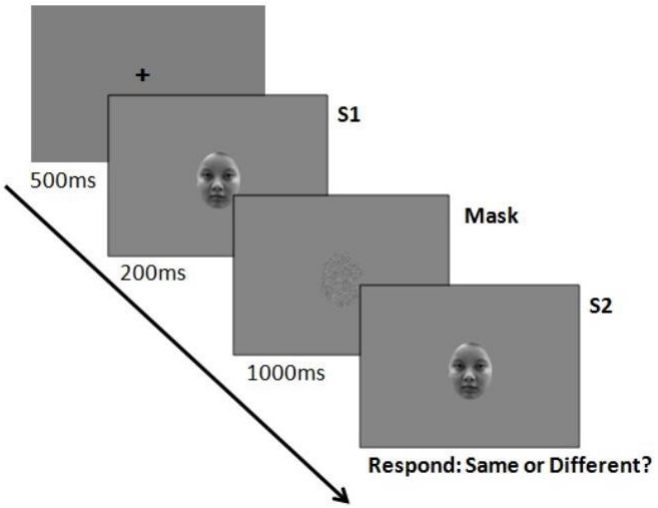
It is well documented a bias in memory recognition when participants have to decide whether they have seen a person before that belongs to a different ethnic group. At the same time, the language of a speaker influences the perception of their face. Recent evidence suggests that language and race interact in creating social categories. Here, we explored whether linguistic cues (i.e., *accent*) influence the perception of other race faces. Specifically, we aim to investigate whether a native or foreign accent affect the perception of an other-race (Asian) face by assigning them as in/out-group members. 54 participants completed a perceptual priming paradigm which consisted in 4 phases: Priming Task (see Fig1), Training Phase (where faces were associated with an accent), Post-training Priming Task (identical to the first phase) and finally the recognition phase (where participants saw new and old faces and have to decide if they had previously seen them). In a second experiment with another pool of 55 participants, everything remained the same except that the training phase accompanied flags instead of voices. Results showed a general other-race effect (ORE) in both pre- and post-training for both the voiced and flag conditions. The ORE was also reflected in the higher recognition accuracy for the Caucasian faces when compared to Asian faces un both experiments.

Supplementary material



Maternal mood and early language development in infants from birth to six months

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How language develops in children depends on multiple interdependent environmental and genetic factors. In particular, the interaction between mother and child plays a major role. But what influence do depressive maternal symptoms have on language development?
While some studies found evidence of a negative association between maternal postpartal depression and language skills in the first year of the infant's life[1], other studies could not demonstrate this relation[2]. Furthermore, there is evidence that only expressive language skills are related to depression symptoms[3]. The aim of this study is to investigate whether the language development in infants is correlated to the mother's mood from birth to six months after birth.
In a sample of 26 mother-child dyads we evaluated children's productive and receptive language skills with the Bayley Scales of Infant and Toddler Development (3rd Edition)[4] at six months of age. Maternal postpartal depression symptoms at two weeks and six months after birth were examined with the Edinburgh Postnatal Depression Scale (EPDS)[5], a screening instrument comprising ten questions about the mother's feelings over the last seven days.
Contrary to expectations, a positive correlation was found between maternal depressive symptoms two weeks after birth and children's productive language skills at six months (r_s=*.43, p=.03*). Six months after birth, no correlation was found. However, most mothers showed no indications of depression two weeks after birth, rather they reported feeling overwhelmed, anxious, and worrying too much. The greater the change in mood after delivery, the higher the infant's productive language abilities at six months.

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Spanish vowel perception in noise: A comparison of children with cochlear implants and children with typical hearing

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Cochlear implants (CIs) permit individuals with severe-to-profound hearing loss to have (better) access to speech, even though the signal is distorted (see, e.g., Faes and Gillis 2017). Therefore, although we see that perception improves after cochlear implantation, it frequently differs from perception patterns found for children with typical hearing (TH) (see, e.g., Faes and Gillis 2017). Moreover, humans often communicate in noisy environments, which makes speech perception even harder. Here we look at how children with CIs perceive the five peripheral vowels in Spanish [a e i o u] in noise, in comparison to peers with TH. We focus on Spanish-speaking children of 6 to 12 years, in both steady-state noise and background babble (6 talkers), and various signal-to-noise ratios (SNR; 0, 6, 12 dB). Our participants were exposed to the syllables [da de di do du] in noise and were requested to click on the syllable (written on the computer screen) that they heard (240 stimuli). First results (10 children, 5 from each group) pointed to a slightly inferior overall vowel-recognition performance for the children with CIs than for the children with TH (Accuracy: 73.0 % versus 77 %). The accuracy scores for individual vowels (data pooled across all participants, noise types, and SNRs) were [a] 94 vs. 82 %; [e] 90 vs. 87 %; [i] 70 vs. 82 %; [o] 70 vs. 60 %; [u] 38 vs. 74 %, for the children with CIs and TH, respectively. Vowel [u] seemed to be especially challenging for the children with CIs. It was often confused with [o] (45 %; in children with TH only 6 %) and problems even persisted for a SNR of 12 dB (Accuracy: 39 %). We will discuss these findings and possible relevant factors, such as the role of different formants in speech perception in noise or the lack of a visual, articulatory support.

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Qué nos cuenta sobre el ergativo *euskaldunen kode-alternantziak*? New evidence from case-marking in Spanish-Basque code-switching

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The ergative case marking has been widely studied in psycholinguistics. Several studies in children's (Duguine & Köpke, 2019; Ezeizabarrena, 2012) and adults' production (Rodríguez-Ordóñez, 2020) and processing (Zawiszewski et al., 2011) have provided empirical evidence on the difficulties of Basque bilinguals (especially L2 speakers) in using ergative case. However, little attention has been paid to case marking in Spanish- Basque code-switching (CS). A recent study in Basque CS revealed some trends and restrictions regarding ergative case production based on a limited corpus (Epelde & Oyharçabal, 2020). Thus, the constraints on case marking in Spanish-Basque CS are not fully understood. The goal of this paper, part of my Master's dissertation, is to investigate the relation between ergative case marking and CS in Spanish-Basque bilinguals. These are the RQs:
RQ1. Which patterns are observed in the use of case marking in CS? Are the same patterns observed than in unilingual Basque (i.e. omission errors > commission errors)?
RQ2. Do bilinguals prefer to omit ergative case in CS in comparison to unilingual Basque sentences?
We designed an acceptability judgement task (Bellamy et al., 2022) to test Basque monolingual and Spanish-Basque CS sentences with different structures (Basque- subject/Spanish-predicate vs. Spanish-subject/Basque-predicate) and types of verbs (transitives vs unaccusatives). We plan to have preliminary results by the conference time. This study will provide new evidence on the possible factors favouring the omission of ergative in Basque speakers. Besides, the findings have implications for the understanding of the grammatical constraints in CS in languages with different case systems.

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Is syntactic simplification in Alzheimer's disease driven by lexical-semantic impairment?

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Most studies on syntactic competence in Alzheimer's disease (AD) suggest that, despite relative simplification, the basic grammatical ability of speakers with dementia is preserved. Interestingly, syntactic simplification in AD asymmetrically dissociates from a pronounced semantic deficit, which is systematically reported as one of the key language features of dementia. Furthermore, the cognitive pathway of dementia itself affects different types of memory involved in syntax and grammatical production.

The aim of this study is to explore to which extent syntactic simplification in AD makes a direct outcome of a general cognitive impairment or, otherwise, can be predicted by the ongoing lexical-semantic deficit. We apply the model of syntactic maturity based on the original theory from Hunt (1970) to a sample of 60 older adults (healthy controls, HC=20; speakers with Mild Cognitive Impairment, MCI=20; speakers with Alzheimer' disease, AD=20), who performed the description task of the Cookie-Theft picture. We predicted that, since the Cookie-Theft task excludes important overload on memory, significant changes in syntax in AD would support the dissociation of syntactic impairment from lexical-semantic decline in dementia.

Our results support the dissociation of syntactic simplification from lexical-semantic decline in AD, specifically as measured by the indexes of T-units and the relation clauses-to-T-units. We discuss our results in the light of the model of language clusters in speakers with dementia.

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Network models predict distinct semantic and phonological activation in spoken word recognition

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Studies of spoken word recognition typically focus on form, with fewer studies concerned with meaning. In a previous study, our team found a robust impact of both phonological and semantic characteristics in lexical and semantic decisions. Here, we ask whether we can leverage the tools of network science to better understand how phonological and semantic similarity impact word recognition. We created a phonological network/graph by connecting phonological neighbors, a semantic graph based on similarities from a distributional semantic model (word2vec), and a merged graph (where words were linked based on either phonological or semantic similarity). We then asked whether network statistics (e.g., clustering coefficient [CC] and closeness measures) could account for additional variance in archival auditory lexical decision data beyond standard predictors (frequency, duration, neighborhood). Surprisingly, only one of the additional network predictors contributed significantly for each network: CC, the proportion of a word's neighbors that are also each other's neighbors. In contrast to previous findings, phonological CC was associated with faster lexical decisions. Semantic CC was associated with slower decisions. Predictors from separate phonological and semantic networks significantly improved multiple regression fits beyond standard predictors, and outperformed predictors from the merged graph. Together, these results (opposite valence for semantic and phonological predictors, and better fits with independent phonological and semantic graphs) suggest that phonological and semantic similarity have distinct influences on the processes of spoken word recognition.

Eye tracking agreement processing and attraction effects in the aging brain: A subject-verb agreement comprehension study in Spanish

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Crystalized and *fluid* abilities are two key factors that affect predictability and ungrammaticality detection in both young (YAs) and older adults (OAs) [1]. In previous work, we showed that compared to YAs, OAs had greater difficulties at processing ungrammatical sentences [2]. However, it is unclear whether these results were due to a prevalence of the crystalized abilities and a risky reading strategy (hypothesis 1) or to the prevalence of fluid abilities and a more cautious reading strategy (hypothesis 2). To arbitrate between these hypotheses, we will use an agreement attraction paradigm and manipulate subject-verb agreement computation to test: (a) whether OAs are more susceptible to agreement attraction than YAs; (b) whether cognitive abilities influence agreement computation during reading in Spanish. The eye-movement patterns of 40 YAs (18–34 years) and 40 OAs (>60 years) healthy Spanish speakers will be recorded while reading sentences containing attractor nouns that either match or mismatch the subject's number and are either grammatical or ungrammatical (Figure 1), and all the sentences have a plural verb as a critical region. We will also measure participants' working memory capacity, executive control, and print exposure [3]. Based on previous studies [4], if age modulates agreement processing (hypothesis 1), we expect that OAs should show stronger agreement attraction effects than YAs. If age modulates the influence of cognitive abilities during agreement processing (hypothesis 2), cognitive abilities should modulate agreement processing and attraction effects more for OAs as compared to YAs.

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(i) Grammatical-Mismatch (Plural subject-Singular attractor-Plural verb; PSP):
Los pasteles$_{PL}$ *con el dibujo*$_{SG}$ *nunca* ***ganaron***$_{PL}$ *un premio de repostería debido a la calidad de la masa.*
(ii) Grammatical-Match (SPP):
Los pasteles$_{PL}$ *con los dibujos*$_{PL}$ *nunca* ***ganaron***$_{PL}$ *un premio de repostería debido a la calidad de la masa.*
(iii) Ungrammatical-Match (SSP):
****El pastel***$_{SG}$ *con el dibujo*$_{SG}$ *nunca* ***ganaron***$_{PL}$ *un premio de repostería debido a la calidad de la masa.*
(iv) Ungrammatical-Mismatch (SPP):
****El pastel***$_{SG}$ *con los dibujos*$_{PL}$ *nunca* ***ganaron***$_{PL}$ *un premio de repostería debido a la calidad de la masa.*
The cake(s)$_{MASC.SING./PL}$ with the design(s)$_{MASC.SING./PL}$. never won$_{V^{o}PL}$. a price bakery due to quality dough.
Gloss: The cake with the designs never won a bakery price due to its dough quality.

Figure 1. *Sample sentences of an item in the four experimental conditions resulting from the manipulation of the attractor number (singular vs. plural) and grammaticality (grammatical vs. ungrammatical sentences). The 2 elements involved in the attraction relation are highlighted in black across all conditions, and the 2 ROIs (verb and spillover) that will be analysed are framed in squares across all conditions.*

Trigramstein: a pseudo-word generation algorithm based on trigram frequencies

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Pseudowords features have been shown to affect responses to lexical items in LDT (Ratcliff et al., 2004; Yap et al., 2015). This is why "good pseudowords" are important to guarantee the reliability of results (Keuleers & Brysbaert, 2010).

We have developed an algorithm based on chaining a sequence of real word trigrams to form pseudowords that are intended to match a source word. The pairing criterion is positional trigram token frequency and the Euclidean distance between the trigram frequency vectors for the word and the pseudoword.

This algorithm was automatized generation of 4565 pseudo words that paired with a same-size list of Spanish verbs and were used in an LDT task (Pérez-Sánchez et al., 2023, in prep.). Data analysis from 3386 participants shows a significant correlation between response times for words and their paired pseudowords ($r= 0.308$, $p<0.0001$), confirming empirical similarity between pairs. We further tested three scores derived from trigram frequency vector (TFV): mean TFV, sum TFV and module of the TFV to explain specific variance in response times and accuracy scores for words and pseudowords. Stepwise regression analysis revealed that number of chars and sum TFV were the two unique predictors for words and pseudo word response time. These results were replicated with data from Aguasvivas et al. (2020) and a vocabulary test that included words and pseudoword (Marín, 2018). General conclusion confirms that trigramstein algorithm produce excellent pseudowords for Spanish and that trigam based scores are relevant to explain word and pseudoword processing.

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Are we better thinkers in our native language? The Foreign Language Effect and deductive reasoning

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The Foreign Language Effect is a phenomenon observed in various psychological processes. Regarding moral dilemmas, the effect reflects a tendency to make more utilitarian (rational) decisions in a foreign language than in one's native language, particularly in people with low self-reported reading proficiency (see Circi et al., 2021 for a meta-analysis). However, research has found the opposite trend in reasoning tasks, where logical evaluations of syllogisms were worse in the foreign language than in the native language (Bialek et al., 2020). This study aimed to investigate the Foreign Language Effect on further logical reasoning problems. Two groups of Spanish-speaking participants (n=626) solved 16 conditional problems under two conditions (foreign: English, native: Spanish) on an online questionnaire. Participants were asked to write conclusions based on given premises (e.g., "If I used eggs, then I used pasta. I didn't use eggs. What can you conclude about the other ingredient?"). The native group solved more problems correctly (52%) than the foreign group (48%). However, significant differences were only found in invalid inferences, where more than one correct response was possible, and the native group outperformed (23%) the foreign group (15%). No significant differences were found between groups for valid inferences (where there was only one correct response). When subjects had to mentally represent more than one response to solve the problem correctly, differences between groups increased. These findings suggest that the less cognitive load associated with using one's native language may give reasoners easier access to different possibilities.

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Learning L2-specific categories: The effects skewed input, explicit rules and working memory

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Research couched in usage-based theory has proposed that the acquisition of linguistic constructions is facilitated by skewed (or "Zipfian") input, in which a small set of items are repeated with high frequency. Although early empirical work provided support to this idea (Casenhiser & Goldberg, 2005; Goldberg et al., 2007), subsequent L2 research has provided mixed findings on the role of skewed input (Nakamura, 2012; McDonough & Trofimovich, 2013). However, previous approaches have not explored the impact that cognitive traits (e.g., working memory) have on the effectiveness of input that is skewed or balanced (in which all lexical items are equally frequent).

The present study tested 82 native English speakers' ability to develop new L2 categories of adjectives that guide lexical selection in Spanish verbs of "becoming". Participants received training through exposure to the novel verb-adjective combinations (Spanish verbs of "becoming"). In a 2x2 design, conditions differed in (a) Input Distribution (skewed or balanced) during exposure to adjectives; and in (b) Instruction Type (no rule or explicit rule provided). Learning was measured in an immediate follow up test, and then in a generalization task containing untrained adjectives. Working memory was measured through the Operation-Span task.

The results showed that, when explicit rules are provided, low-working memory learners benefitted from reduced variability in skewed input, while high-working memory individuals benefitted from balanced input, which better allows for rule-based hypothesis testing. The findings help clarify previous mixed findings, and suggest a way forward for optimizing the L2 input based on individual traits.

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A longitudinal study of verb argument realization in child Mandarin Chinese

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The acquisition of verb argument structure has been one of the central topics in child language acquisition. Du Bois (1987, 2003) proposed the Preferred Argument Structure (PAS) as a discourse universal in adult speech to capture the statistical usage-based preference in the realization and distribution of the core arguments, subjects (agent, A) and objects (O) of transitive verbs, and subjects of intransitive verbs (S), which correlates strongly with the discourse-pragmatic factors. Recent studies have shown that both adults and children are sensitive to the discourse-pragmatic factors in argument realization or omission crosslinguistically (e.g. Allen & Schröder, 2003; Allen, 2008; Clancy, 1993; Clancy et al., 2003; Huang, 2012; Jiang & Chen, 2019; Narasimhan et al., 2005). Mandarin Chinese is a discourse-oriented language allowing extensive argument omission, and no studies have examined the correlation between the adult and child realization and omission of arguments in longitudinal naturalistic speech.

This study asks specifically whether the development of argument realization in early child speech of Mandarin Chinese follows the PAS (Du Bois, 1987, 2003) and the additional Mandarin- specific discourse-pragmatic features (Chui, 1992), and if children and adults are similarly influenced by the same discourse-pragmatic factors such as information status and animacy. Two naturalistic longitudinal corpora of two monolingual Mandarin-learning children (0;8 to 3;9) (Cheung, Chang, Ko, & Tsay, 2011; Deng & Yip, 2018, MacWhinney, 2000) were analyzed. A total of 8899 utterances containing the top 15 frequent verbs in the child and caregiver speech were extracted and coded for the grammatical roles, S, A, and DO (direct object), the information status (given vs. new), and the animacy (animate vs. inanimate). The data were divided into three developmental stages measured by the mean length of utterance (MLU) (MLU = 1.5, 2.5 and 3.5).

The results show that Mandarin children and adults follow the PAS patterns in Du Bois (1987) and the Mandarin-specific features in Chui (1992): they both prefer no more than one lexical argument per clause, non-lexical arguments in the subjects, no more than one new argument per clause, given referents in the subjects, and new and lexical objects. The omitted arguments are more likely subjects than objects and are dominantly given and animate referents, whereas the omitted direct objects are often given and inanimate. Such production patterns were also found true in development when the children's MLUs were at 1.5-, 2.5- and 3.5-word lengths respectively. Mandarin-acquiring children are thus sensitive to discourse-pragmatic factors and input usage patterns in argument realization from the very beginning of their syntactic development. This study supports the discourse-pragmatic and usage-based probabilistic approaches to language and language acquisition and contributes to the theoretical and empirical studies of the acquisition argument structure cross-linguistically.

Does task difficulty increase semantic feedback? A study on the effects of valence during lexical recognition of emotion-label and emotion-laden words

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Semantic richness is a multidimensional construct that includes different features (e.g., number of associates, number of senses, etc.). Words with greater semantic richness are recognized faster during lexical recognition by creating a stronger semantic activation, which in turn results in a faster response via feedback to the lexical-level. The effects of semantic feedback are more evident in conditions where the quality/visibility of the stimulus hinders lexical access, increasing task difficulty. In this study, we examined whether valence is a feature of semantic richness by using several lexical decision tasks, which varied in difficulty. In Experiment 1, we used illegal nonwords; in Experiment 2, we used legal nonwords; in Experiment 3, we used pseudohomophones and legal nonwords with a high number of neighbors; in Experiment 4, we used a degraded version of the legal nonwords presented in Experiment 2. We selected 336 Spanish words as our primary stimuli. They were divided into affective and neutral words. Among the affective words, there were words that make a direct reference to a specific emotion (emotion-label words, e.g., love) and those that do not make a direct reference to an emotion but that can provoke it (emotion-laden words, e.g., knife). Results showed an increased difficulty across experiments, reflected in slower reaction times in experiments 3 and 4. However, facilitative valence effects were only observed in Experiments 2 and 4. The results are discussed in relation to the effects of other semantic richness features.

Funding
Spanish Government (project PID2019-107206GB-I00 funded by MCIN/AEI/10.13039/501100011033 and the predoctoral contract 2019PMF-PIPF-23

Hebbian-learning based predictions during audio-visual processing account for the McGurk effect

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Multi-sensory information integrates to presumably reduce the uncertainty of uni-sensory information even during speech (Wallace & Stein, 2007). As so, the McGurk effect is typically conceived as a prototypical example of language audio-visual integration. The McGurk effect arises when in-congruent audio-visual stimuli are paired and perceived as a different syllable, usually as a "da" percept (auditory /ba/ + visual /ga/)(Mcgurk & Macdonald, 1976). However, not all people perceive McGurk stimuli as "da" (Van Engen et al., 2019). We propose a biologically inspired hierarchical computer model that relies on self-organization and cooccurrence experience of audio-visual information to explain speech processing.

Our model relies on Self-organizing maps (SOMs)(Kohonen, 1990) and Oja's rule (Oja, 1982) as Hebbian algorithm to process uni-sensory information and then make predictions about their integration to reduce uncertainty. We used this model to explain the McGurk effect as a result of bottom-up error reduction through predictions as consequence of previously learned audio-visual associations. We trained ten versions of our model and tested them with in-congruent McGurk-like stimuli. We then used mutual information to measure the similarity between congruent and McGurk-like audio-visual activations within the audio-visual integration layer of our model.

Our results suggest that audio-visual integration of ambiguous stimuli depends on the reliability of uni-sensory information and previous experience. We found that McGurk stimuli are highly ambiguous because their uni-sensory components are.

We discuss that the specific illusory percept that arises in each person with McGurk stimuli is the best congruent percept they have to reduce uncertainty.

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Can social interaction give rise to the perception and production of a new phonemic contrast? A behavioral and EEG study in a French regional variety

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Although research in dialogue has showed that speakers converge on the words they use (Brennan & Clark, 1996; Clark & Wilkes-Gibbs, 1986; Giles et al., 1991) and they also develop shared representations (Pickering & Garrod, 2004), it is still unknown whether speakers adapt their phonological representations to new phonemic contrasts after a social interaction. In our study, we investigated whether speakers can adapt their perception and production of the /e/-/ɛ/ contrast in open syllables, which does not exist in their Northern French dialect. If a social interaction with a speaker coming from another French regional variety and producing this contrast caused an adaptation, this would result in speakers accurately perceiving and producing the /e/-/ɛ/ contrast after the interaction. Sixteen Northern French participants interacted with a confederate producing the /e/-/ɛ/ contrast to solve riddles in order to find places on a city map. Forty minimal pairs of the word-final /e/-/ɛ/ contrast were produced by the confederate. To evaluate participants' abilities in production and perception, they performed sentence reading and same-different tasks before and after the social interaction. After the social interaction, participants still did not produce the /e/-/ɛ/ contrast and their correct responses in the same-different task were lower than chance. In line with behavioral data, event-related potential responses revealed a persistent phonological deafness in perceiving the /e/-/ɛ/ contrast. Conversely, participants accurately produced and perceived the /i/-/y/ phonemic contrast which is present in all French varieties. These findings will be discussed in light of current models of speech perception and dialogue.

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A self-paced reading study on the processing of the disjoint reference effect

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This self-paced reading study aimed to examine the processing of the disjoint reference effect. In Spanish, subjunctive clauses embedded under volitional, directive and causative predicates display a ban on coreference between the embedded and the matrix subject. In (1a) the matrix verb is marked with first-person plural features, and the embedded verb is marked with second-person plural features. In sentence (1a), the embedded subject is not the same as the matrix subject. In (1b) both the matrix and the embedded verb are marked with second- person plural features, violating the principle of disjoint reference. In (1c) the matrix verb has the second-person plural features, whereas the embedded one is marked for first-person plural features, and thus, the subordinate subject is not the same as the matrix subject. In (1d), both the matrix and the subordinate verbs are marked with the features of first-person plural, and thus, the principle of disjoint reference is violated.
We manipulated the person of the main verb (first vs. second) and person of the subordinate verb (first vs. second). Forty quartets such as (1) were used. We collected reading measures for sixty participants. We analyzed the reading times at the embedded verb and at the two following words.
There was a significant interaction at the subordinate verb: first person verbs produced longer reading times under first person than under second person main verbs; second person verbs produced the opposite pattern, that is, longer reading times under second person than under first person main verbs.

Supplementary materials

Table 1. Example of the four experimental conditions.

MATRIX	EMBEDDED		
First	Second	1a	Queremos$_{1stPl}$ que ganéis$_{2ndtPl}$ la carrera.
Second	Second	1b	*Queréis$_{2ndtPl}$ que ganéis$_{2ndtPl}$ la carrera.
Second	First	1c	Queréis$_{2ndtPl}$ que ganemos$_{1stPl}$ la carrera.
First	First	1d	*Queremos$_{1stPl}$ que ganemos$_{1stPl}$ la carrera.

Adult's emotional comprehension of mixed emotions in real-time through eye-tracking technique, a pilot study

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Introduction: Mixed emotions are defined as the presence of two opposite-valence emotions toward a single target. Studies examining age differences in experiencing mixed emotions have presented discrepant results. We aim to study if the adult population can identify mixed emotions through different contexts based on saccadic eye movements to displayed faces, as a pilot study. To the best of our knowledge, this is the first eye-tracker study that evaluates a complex emotional context and not only a single emotion.
Methods: We used the eye-tracker-software iMotions to present on a screen four images (from the database of Karolinska Directed Emotional Faces) of the same person expressing different emotions (figure 1). Participants (n=14) were asked to hear a sentence (with a neutral voice and an implicit meaning of the emotion in the verb of the sentence) and look at the screen according to how they believe the person who is talking feels. We randomly presented 12 sentences including mixed emotions and 12 including non-mixed emotions. The proportion of eye fixations was analyzed.
Results: Participants looked most of the time at the face expressing the target emotion in non-mixed condition. For mixed condition, they also stared at the target emotions, being able to switch from one to another.
Conclusion: The adult population seems to be able to discriminate different emotions (even with opposite valence) in a complex emotional context. A future study with children with learning disorders will be conducted to evaluate how emotional comprehension in complex contexts can affect learning difficulties.

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Supplementary information

Figure 1
Example of the screen that participants look at:
https://drive.google.com/file/d/1L3MUGS02KVscZHeVeXCQ-zch4YZzGCIn/view?usp=sharing
Example of sentences containing mixed emotions:
"Laura says goodbye to her best friend, (2") and remembers how much fun they had together"
Example of sentences containing non-mixed emotions
"Laura loses her doll (2") and she thinks she will not find it"

Experiencers in the visual world paradigm: How attention reveals thematic role processing

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In psychological predicates (1), the participant undergoing a mental state is thought to bear the experiencer role (Arad, 1998; Belletti & Rizzi, 1988; Brunetti, 2009).

(1) Mary fears dogs.

Some theoretical list-based accounts of thematic roles (Fillmore, 1971) claim that the experiencer role exists as a distinct category. By contrast, other accounts (Dowty, 1991) propose the categorization of event participants such as *Mary* is split between other categories, proto-agents and proto-patients, according to the entailments it shares with the proto-category. Since little evidence has been found to support the existence of experiencers as a distinct role in processing (Rissman & Majid, 2019), I conducted an eye-tracking experiment using the visual world paradigm to explore the processing of (assumed) experiencer subjects in Spanish.

I created 80 SV(O) Spanish psychological predicates modulating verb type (intransitive, transitive). In both conditions, the sentential subject was estimated to fit proto-agent entailments according to Dowty (1991). Trials were split into two lists of stimuli, with 40 experimental and 48 filler trials each. Forty native speakers listened to sentences while visual displays containing four drawings showed on the screen. In experimental trials, the sentential subject was strongly related to the visual target (e.g., sailor – ship). Gaze fixations to the target, which reflect the attentional resources devoted towards processing an entity, were monitored using an EyeLink 1000 Plus eye tracker and analyzed after verb offset, since this is the time period in which thematic role assignment can occur in processing.

Results showed that there was no difference in the activation pattern of the sentential subject after verb offset between conditions. The pattern obtained for both conditions (transitive, intransitive) seems to align with an agent-like pattern of reactivation after the verb (i.e., a high proportion of looks to the visual target peaking after verb offset), based on previous findings (Gómez-Vidal et al., 2022). Results reveal that the processing of some experiencer subjects in Spanish resembles that of agents, in accordance with proto-role accounts of thematic role and argument structure processing.

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Rhythmic discrimination of languages in hearing-impaired infants

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At birth, newborns show sensitivity to the rhythm of their native language, i.e. the language they heard prenatally, being able to discriminate it from a rhythmically different language (May et al., 2017; Pena et al., 2003). A current hypothesis (Gervain, 2018) suggests that prosody provides the basis of early speech perception and helps infants discover other linguistic units after birth, when the full-spectrum speech signal is available. Prenatal experience is thus hypothesized to be foundational for language learning. But what happens when prenatal experience is disrupted?

To investigate this, we are testing the ability of 0-10 month-old hearing-impaired infants (HI infants) to discriminate their native language (Italian) from a rhythmically different unfamiliar language (English). Sentences in both languages are presented forward and backward. Backward speech, with perturbed temporal features, is a standardly used non-linguistic control stimulus (Pena et al., 2003). A control group of age-matched normal hearing (NH) infants is also tested. Infants' brain responses are recorded using functional Near-Infrared Spectroscopy (fNIRS) covering the frontal, temporal and parietal regions, bilaterally.

Data collection is ongoing. Preliminary results suggest that while NH infants' brain responses are overall greater to all conditions, even HI infants show a weak response to the forward-presented native language. Analysis will explore whether the amplitude of the brain responses are related to hearing thresholds at the individual level.

Deficits as well as preserved abilities in prosodic perception in HI infants could provide theoretical insights into the role of prenatal and early postnatal experience in language development, as well as important applications for screening and intervention in this population.

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Exploring the differences in processing between Chinese emotion and emotion-laden words: A cross-task comparison study

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Affective words can be classified into two types, emotion words (EM words, e.g., “happy”) and emotion-laden words (EL words, e.g., “wedding”). Several studies suggest that there are differences in processing between these two types of words. However, these studies have not controlled for concreteness. EM words tend to be more abstract than EL words, so concreteness may have been a confounding factor in previous studies. On the other hand, the representation of these two types of words may show differences, because affectivity can be part of the core meaning of EM words, but not of EL words. In this study, we compared a set of Chinese EM, EL, and neutral words matched in concreteness in two tasks: a lexical decision task (LDT) and an affective categorization task (ACT). We expected differences in processing between EM and EL words to be larger in the ACT than in the LDT because only the ACT focuses on affectivity. Overall, the results revealed that participants responded faster to EM words than to EL words. This advantage was larger in the ACT than in the LDT. Furthermore, EL words took longer to respond to in the ACT than in the LDT. Moreover, positive words responded faster than negative words in the LDT, but not in the ACT. These results reveal differences in processing between EM and EL words that are not explained by concreteness and which can be related to differences in the relationship of these words with affectivity.

Word frequency cues to word order: A cross-linguistic study in Italian and Turkish adults

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Learning the relative order of function and content words is a fundamental aspect of language acquisition. While content words carry lexical meaning, functors define grammatical structure. Since functors are more frequent and phonologically more reduced than content words [1], infants can rely on these cues to distinguish them and use functors as anchors to the grammar of their native language [1]. The relative order of functors and content words varies across languages and infants are sensitive to this basic order by 8 months [1]; so are adults [2].

The current study tests the anchoring effect in Italian and Turkish adults. First, we test whether previous lab-based results with Italian adults [2] are replicable using online testing. Second, we leverage online testing to assess understudied languages such as Turkish. As in Gervain et al. (2013), after listening to a 17-minute familiarization with an artificial language, in which frequent words mimicking functors and infrequent words mimicking content words alternated, participants chose between test items with a functor-initial (Italian-like) and a functor-final (Turkish-like) order. So far, we tested 18 Turkish and 12 Italian adults.

Results (Figure 1) indicate that Turkish participants have functor-final preference, as predicted, while Italian speakers showed no preference. Pooling the results with previous study [2], we found a significant difference between Italian and Turkish speakers' preferences and no difference between the in-lab and online Italian groups.

The findings suggest that functors provide cues for learning new linguistic material, and adults show sensitivity to the frequency of distribution of functors.

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'Beyond the literal meaning': Processing implied emotion in second language discourse

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Emotion (pragmatic information), like semantic information, has been shown to be incrementally processed during sentence comprehension in a first language (L1), as a result of unification operations. Since processing multiple types of information is costlier in a second language (L2) than in an L1, especially when dealing with emotional content, we investigate whether implied emotion can be derived from sentences similarly in L2. To do so, we adapted Cao, Yang, and Wang's (2019) event-related brain potential (ERP) study and presented native Spanish speakers with sentences in which different emotionally neutral words rendered the whole sentence emotionally negative-semantically congruent, emotionally neutral-semantically congruent or emotionally neutral-semantically incongruent (see Table 1). Sentences were presented in Spanish (L1) and English (L2). We expected to find a larger N400 (300-600 ms) for words in the neutral-incongruent condition compared to the neutral-congruent condition in L1 and L2 being slightly reduced and possibly delayed, indicating increased semantic processing. We also expected to find a long-lasting positivity (600-1,000ms) for words in the negative-congruent condition being slightly reduced and possibly delayed in L2. Preliminary results show that the N400 to incongruent conditions is robust in L1 and reduced in L2. They also suggest that emotional effects are larger (costlier) in L2. These preliminary findings are in line with the emotional detachment theories of L2 vs L1 demonstrating that the construction of emotional meaning operates concurrently with semantic unification in L1 but this is not the case in L2.

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Supplementary information

Table 1. Examples of experimental materials.

Sentential Contexts (without CWs)	Negative-Congruent	Neutral-Congruent	Neutral-Incongruent
Una abeja vuela hacia el ___ de Jose y luego no se mueve.	*oído*	*patio*	*tenis*
A bee flies towards Joe's ___ and then doesn't move.	ear	yard	tennis
Zeina cortó la __ con una navaja.	*garganta*	*cuerda*	*fábula*
Zeina cut the ___ with a razor.	throat	rope	fable

Family Attitudes Towards Multilingualism in Bilingual Education Programs and Their Relationship with Academic Performance

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In recent years, interest in the attitudes of the family environment towards bilingual education and multilingualism has gained traction, especially in the context of theories of multilingual competence in which family attitudes figure not only as an orthogonal factor, but as a gateway and key modulating variable of language learning and academic success. The quantity and quality of exposure to different languages experienced by children throughout their life will have a direct impact on many aspects that go well beyond the language domain, affecting family, school, community, and social settings. This talk reports on a large-scale study investigating the overall perception of multilingualism in the family environment of children enrolled in an English immersion program in primary schools across Spain, and the potential relationship between these attitudes and the students' academic performance. 1001 families participated in the study, based on a tailored questionnaire that evaluated three main aspects: (1) parents' and guardians' ratings of their children's language skills; (2) language practices in the home, especially with respect to time allocated to different languages and typically multilingual practices such as code-switching; and (3) attitudes and general perception of the benefits and drawbacks of multilingualism in socioeconomic, cultural, cognitive and professional terms. Our results showed that, while multilingual practices are not widespread in our sample, multilingualism is by and large perceived positively, and considered to bring along benefits at different levels. Additionally, these complex results show some significant correlations with academic performance, which we discuss with some reference to their educational implications.

Producing words in speaking and typing: what does it change?

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Separate studies have shown that speaking and writing have a common cognitive architecture. However, a systematic comparison of the oral and written modalities is crucial to understand the general organization of the language system. The aim of this study was to systematically examine similarities and differences between Output Modalities (speaking and typing) of language production as a function of several production contexts or Input Types (picture, written word, and auditory word). Performance (accuracy, reaction time) was expected to be higher in speaking than in typing, and to decrease according to the assumed level of difficulty of each task: in particular, naming a picture is assumed to be harder than repeating an auditory word or copying a written word.

Forty participants produced 240 words, half through speaking, the other half through typing, in the three input types (i.e., 40 words in each condition). In line with our predictions, accuracy was higher and reaction times (RTs) were shorter in speaking than typing. On RTs, there were significant main effects of Output Modality and Input Type, and a significant interaction between Input Type and Output Modality. Durations were longer for typing than speaking and varied according to input type. RTs and accuracy were correlated between speaking and typing, while durations were not.

Our results suggest that, following lifetime experience, overall performance was better for speaking than typing. Durations varied according to Input Type, which suggests that response execution is dependent on response selection processes, in both speaking and typing.

Are parent reports reliable predictors of language skills in typical and atypical development?

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Introduction

Evidence shows that parent reports are reliable measures of language abilities in typically developing (TD) children (Dale, 1991), however, little is known about their predictive validity in Autism Spectrum Disorder (ASD). The present study aimed at assessing whether parent reports predict language skills in children with and without autism.

Methods

A total of 47 parents and their children (31 boys and 16 girls) participated in the study. 16 caregivers and their 16 children (2 females) diagnosed with ASD comprised the ASD group. 13 caregivers and their 13 children (7 females) comprised the High Risk for ASD group (by virtue of having an older biological sibling with ASD), and 18 caregivers and their 18 neurotypical children (7 females) comprised the TD group.

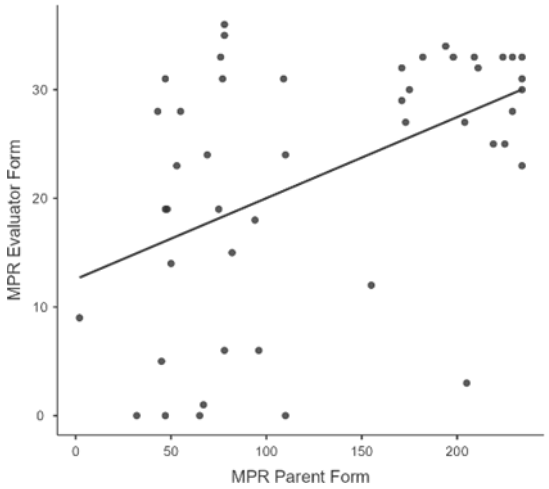
The Merrill Palmer-Revised Expressive Language Parent Form (MPR Parent Form) and the Merill Palmer-Revised Expressive Language Evaluator Form (MPR Evaluator Form) were used as measures. Caregivers filled out the MPR Parent Form and a clinical psychologist assessed children's language abilities with the MPR Evaluator Form a year later. Linear regression was employed to determine whether parent report scores reliably predicted children's expressive language abilities.

Results

Results show that MPR Parent Form scores reliably predict MPR Evaluator Form scores ($R^2 = .41$, $F(3, 43) = 10$, $p = < .001$) (see Figure 1).

Conclusions

Our findings suggest that parent reports are a reliable measure of expressive language abilities in ASD and TD.



Examining the links between L1 phoneme categorization and non-native phonetic learning

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Introduction: Listeners differ in how sensitive they are to subphonemic differences (Kapnoula et al., 2017; Kong & Edwards, 2016). Recent work by Kapnoula and McMurray (2021) suggests that subphonemic sensitivity reflects the degree of perceptual warping of acoustic cues around a phoneme boundary – with more warping likely linked to more robust L1 phonological prototypes (Samuel, 1982). Moreover, more warping may lead to stronger assimilation of L2 speech sounds, hindering learning. Here we examine the links between subphonemic sensitivity and non-native phonetic learning using a pretest-posttest design.
Methods: We trained native Spanish speakers on a novel phonetic contrast. We first collected behavioral measures of subphonemic sensitivity in an L1contrast (Spanish /b/-/p/). Then, we assessed the (baseline) discriminability of a novel phonetic contrast (English /b/-/p/) using the mismatch negativity (MMN) EEG component. Participants were then trained on the novel contrast over a period of two days. Finally, we collected a second (posttest) discriminability measure using the MMN.
Results: Based on preliminary results, gradient versus categorical listeners seem to exhibit different discriminability patterns. Despite this difference, listeners seem to be able to learn the new contrast independently of their subphonemic sensitivity (final accuracy = 77%).
Conclusion: If this pattern holds, our results would indicate that listeners' subphonemic sensitivity may carry a perceptual advantage; however, this may not necessarily lead to better non-native phonetic learning.

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Time conceptualization in English and Spanish: Time as Length vs Time as Quantity. A corpus and multimodal analysis

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There is a distinction between languages that tend to use the time-as-length metaphor (e.g., English, with expressions such as I have been waiting for a long time), and those which tend to use the time-as-quantity metaphor (e.g., Spanish, he esperado mucho tiempo 'I have waited much time'). This has been proven both with corpus-based (Casasanto et al 2004) as well as psychological evidence (Bylund & Athanasopoulos, 2017). Previous studies comparing the linguistic usage of these metaphors (e.g., Casasanto et al 2004) have collected temporal expressions related to length and to quantity; however that approach conflated two different aspects or construals of time: the temporal duration construal, which can use either length or quantity metaphors, (e.g. long time, that didn't last much time) and the time-as-a-resource construal, which mostly employs quantity metaphors (e.g. you spent too much time). The present study confirms through analysis of large corpus linguistic data that English favors the time-as-length metaphor when expressing the notion of temporal duration, while it favors the time-as- quantity metaphor when expressing the time-as-a-resource construal. On its part, Spanish employs the time-as-quantity metaphor in both duration and resource construals. These differences in metaphorical usage are also reflected in the multimodal behaviour of speakers when using temporal expressions. By analyzing a collection of video clips with gesture data extracted from the NewsScape Library (229 Spanish and 280 English), we confirm that the concept of temporal duration is represented through to two different metaphoric conceptualizations (length and quantity) in English and Spanish co-speech gestures.

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A self-paced reading study on the processing of sequence-of-tense restrictions under intensional subjunctives

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Stowell (1993) distinguished two types of subjunctives that correspond to the distinction between subjunctive lexically selected by a matrix predicate (intensional subjunctive) and subjunctive licensed by an operator (polarity subjunctive). In intensional subjunctives, the tense of the mood-selecting predicate imposes tense restrictions on the subordinate clause. The main verb in (1) is a subjunctive-selecting verb, and thus imposes restrictions on the sequence of tenses. In (1a) and (1b), the main verb is in its present form; in (1c) and (1d), it is in its past form. By crossing the tense of the matrix verb and the tense of the embedded subjunctive-verb, there were two grammatical conditions, and two ungrammatical ones. In the grammatical conditions, the tense of the subordinate verb was the same as the one of the main verb; in the ungrammatical conditions, the tense of the subordinate verb was different from the tense of the main verb, not respecting the restriction on the sequence of tenses.
The aim of the study was to examine the parser's on-line sensitivity to such tense anomalies. Forty quartets such as (1) were used. We collected reading measures for 48 participants. We analyzed the reading times at the embedded verb and at the two following words.
There was a significant interaction at the subordinate verb: verbs in past tense produced longer reading times under present tense than under past tense main verbs; present tense verbs produced the opposite pattern, that is, longer reading times under past tense than under present tense main verbs.

Supplementary materials

Table 1. Example of the four experimental conditions.

MATRIX	EMBEDDED		
Present	Present	1a	María quiere$_{present}$ que Eva lea$_{present}$ el pregón.
Present	Past	1b	* María quiere$_{present}$ que Eva leyera$_{past}$ el pregón.
Past	Present	1c	*María quería$_{past}$ que Eva lea$_{present}$ el pregón.
Past	Past	1d	María quería$_{past}$ que Eva leyera$_{past}$ el pregón.

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Is there base-rate-neglect in linguistic learning?

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Introduction. Research in cognitive psychology finds that in many categorization tasks participants neglect base-rates [1, 5, 6]. One hypothesis is that base-rate-neglect occurs during explicit, rather than implicit learning [2, 3]. This study tests whether base-rate-neglect affects learning of linguistic categories in a context resembling a bilingual setting (two language sources with unequal frequency).
Methods. Two artificial grammar learning experiments were run to test attention to base-rates in two conditions, training with feedback (known to increase explicit learning [4]), and no-feedback observational training. The task involved listening to nonsense words and categorizing them as city names in a frequent language A vs. an infrequent language B. Phonological cues of either syllable length, word-initial onset, or word-final coda were correlated with category/language.
Results. In Experiment 1 (phonological cue 100% predictive of category membership) participants successfully responded to all cues (effect of cue in a logistic regression = 1.21, $p<0.05$). The cue for the rare language was more effective in the observational condition, compared to feedback condition (log.odds = 0.68, $p=0.03$), possibly showing an advantage of implicit learning. In Experiment 2 (69% of words in the rare category and 23% of words in the common category have the relevant cue), the effect of cue was not significant showing decrease of performance with a switch to a probabilistic pattern. There was a significant effect of training mode (0.21, $p=0.01$) indicating that in the feedback condition participants better matched category base-rates. Overall, we found no evidence for base-rate neglect. Post-experimental questionnaires are still being analyzed to determine if explicit rule-staters showed a different pattern of performance.

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Emotional Prosody and Accent Processing: A Bilingual Perspective

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Recognizing emotions through voice is an essential aspect of social cognition and human communication, instantiated through emotional prosody. Two hypotheses underpin emotional prosody processing: emotional processing is universal (regardless of language background) and alternatively, an in-group advantage exists based on language background (Paulmann & Uskul, 2013; Pell et al., 2009). Previous behavioral work has shown similarities and differences between first language (L1) and second language (L2) emotional prosody processing (e.g., Bhatara et al., 2016). Less is known about how bilinguals differentially process emotionally vocalized sentences between their L1, L2, and associated accents. In this study, Turkish (L1) and English (L2) bilinguals (N = 54) participated in an EEG/event-related potential (ERP) paradigm examining the P200 (an index of emotional language processing; Paulman & Kotz, 2008). They heard semantically neutral Turkish and English sentences vocalized with three emotional tones (happy, sad, and neutral) by two female speakers (one native Turkish and one native American-English speaker). Participants showed larger P200 amplitudes when hearing L1 emotionally vocalized (happy, sad) sentences compared to L1 neutral sentences. Conversely, larger P200 amplitudes were seen for L2 neutrally vocalized compared to L2 emotionally vocalized sentences. This suggests that bilinguals have stronger emotional processing in their L1 compared to their L2. There was no interaction between emotion, accent, and language: hearing their L1 produced with an accent did not elicit the same emotional processing as when listening to a native L1 speaker. These results provide important information for theories of emotional prosody processing based on the nativelikeness of the input.

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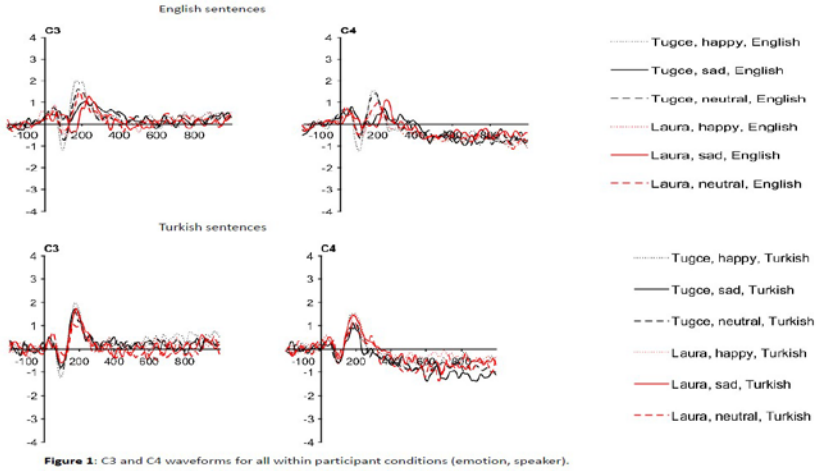

Figure 1: C3 and C4 waveforms for all within participant conditions (emotion, speaker).

Processing of Which-questions in Romanian-speaking Children: Evidence from VW-Eye-tracking

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Children exhibit an initial preference to interpret object which-questions as subject-questions, displaying an agent-first interpretation bias [1-3]. This initial misanalysis presumably occurs when the wh-pronoun is ambiguous between a subject and object interpretation. Romanian presents a useful test case for this hypothesis: it uses the differential object marker (DOM) pe to disambiguate between subject and object questions, thus allowing to examine whether early case disambiguation can preempt misanalyses and assist children's comprehension [4]. Study: Using the Visual World eye-tracking paradigm, we assessed for the first time the processing of which-questions by Romanian-speaking children. The goals were to investigate whether children show sensitivity to DOM both in their offline and online responses and whether additional morphosyntactic information, like number agreement, facilitates object which-processing. Method. 30 monolingual Romanian-speaking children (aged 6 to 9) saw a pair of pictures on a screen. While looking at the pictures, they heard a subject or an object which-question and were asked to choose the picture that matched the question. Each participant saw 32 test trials and 32 fillers. Children's eye-movements and offline responses were recorded. Offline results revealed significantly better performance with subject-questions ($p<.001$). Online results (Fig 1.) showed (i) an overall higher proportion of looks to Target in subject-questions and (ii) more looks to Target in object-questions disambiguated through DOM and Number agreement than in questions with only DOM. The results suggest that the cue from number marking together with DOM seems to guide online processing of object-which questions more than DOM on its own.

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Examples

1. Care tigru împinge ursul panda ? (subject which singular)
   'Which tiger is pushing the panda?'
2. Pe care tigrui îli împinge ursul panda ? (object which singular)
   'PE which tiger is the panda pushing?'
3. Care tigrii împing ursul panda ? (subject which plural)
   'Which tigers are pushing the panda?'
4. Pe care tigriii îii împinge ursul panda ? (object which plural)
   'PE which tigers is the panda pushing?'

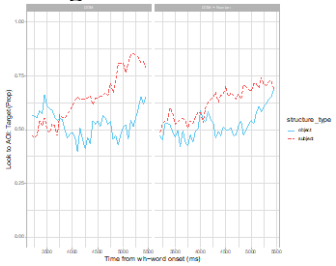

Fig. 1. Prop. of looks to the Target picture in 50 ms time bins starting from wh-word onset by question type (Subject vs Object) and disambiguating cue(s) (DOM vs DOM + Number).

Is L2 orthographic processing of complex words affected by L1 orthographic depth?

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The orthographic depth seems to influence L1/L2 orthographic processing (Katz & Frost, 1992). Writers having a deep L1 orthography (Deep_L1) tend to access previously-acquired words as whole forms (lexical processing). Conversely, writers having a shallow L1 orthography (Shallow_L1) tend to sequentially parse phonemes/graphemes or morphemes (sublexical processing). Furthermore, compared to Deep_L1, Shallow_L1 appear to rely more on L2 orthography during the phonological/orthographic processing of L2 words (Bassetti & Atkinson, 2015; van Daal & Wass, 2017). Nevertheless, little is known about the impact of L1 orthographic depth on L2 orthographic processing of morphologically-complex words.

Our study investigates whether cognitive cross-linguistic effects of L1 orthographic depth, as influenced by L1 morphological complexity, emerge during L2 orthographic processing of inflected words. We compare two groups of 48 adult L2 French learners (B2/C1) whose L1 is Spanish/Italian (shallow orthography+rich inflection) vs. English (deep orthography+poor inflection) dealing with a task of written-recall of dictated sentences in L2 French. We target homophonic (*arrive/arrivent* [aʁiv]) vs. heterophonic (*part* [paʁ]*/partent* [paʁt]) inflected French verbs, in order to observe to what extent the availability of phonological cues influences L2 written inflection processing in the observed groups.

Statistical analyses revealed that the performance of English L1 is negatively affected by homophony, whereas the audibility of the inflection does not affect the performance of Italian/Spanish L1. These results suggest that, while dealing with L2 written inflected words, Shallow_L1 with a richly-inflected L1 rely more on orthography-oriented morphological (sublexical) processing. Conversely, Deep_L1 with a poorly-inflected L1 rely more on phonology-oriented lexical processing.

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On the processes underlying negation-induced forgetting: interference or inhibition?

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Negation production (viz., responding "no") has been found to induce forgetting of negated information [1,2]. However, the specific processes underlying this long-term effect of negation remains contested, with available evidence being equally explained by associative or conflict-related interference and inhibition. To resolve this impasse, we present a study with a new memory paradigm in which neither associative nor conflict-related interference were involved in processing negations. In our new paradigm, the first task was to encode and learn a set of 24 trivia statements about facts that were unknown to all participants (e.g., "La Tavola is a painting from Da Vinci"). Next, the same set of statements were presented again, but now along with information about its veracity status (e.g., "it is true that La Tavola" or "it not true that …"). Instructions remarked that, in this stage, it was important to learn both the statements and whether they were either true or not true. In the following stage, a veracity task was administered, with statements appearing now without the veracity label and participants having to indicate whether, according to what was previously learned, the statements were true, by responding "yes" or "no". Finally, and after 4-5 minutes of a distractor task, memory for statement nouns (e.g., "La Tavola", "Da Vinci") was examined using both recognition and free-recall tests. Results revealed larger forgetting for nouns associated with a "no" response than for those associated with a "yes" response, suggesting thereby that negation long-term effects are better explained by inhibitory processes.

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Disentangling factors behind appositive attachment preferences

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Previous studies observed that non-restrictive relative clauses, also called appositives (ARC, e.g., The ophthalmologist of the writer, who was very unfriendly, performed the operation) with two potential hosts (DP1 of DP2 RC) prefer high attachment (DP1) to a greater degree than comparable restrictive relative clauses (RRC, e.g., The ophthalmologist of the writer that was very unfriendly performed the operation). These results have been explained by appealing to effects of prosodic juncture on attachment preferences (Fodor, 2002) or as a more general preference for ARC to prefer discourse prominent antecedents (see Dillon et al., 2018). Here we seek to test whether these differences between ARCs and RRCs previously observed in postverbal position also hold in preverbal position in Spanish, where nominal preverbal subjects are interpreted as sentential topics (Alonso-Ovalle et al., 2002) which makes them less salient and, we assume, less prominent in discourse.

We present the results of a forced-choice attachment questionnaire (N=52) and an acceptability judgement task (N=80). The results of the first study showed a higher preference for high attachment in ARC (89%) than in RRC (47%) ($p < .001$) in fully ambiguous sentences. In the second study, high-attached ARCs using gender morphology (e.g., The ophthalmologist_FEM of the writer_MASC, who was very unfriendly_FEM (…)) and low-attached RRCs (e.g., The ophthalmologist_FEM of the writer_MASC who was very unfriendly_MASC (…)) were rated as more natural than their counterparts (all ps $< .05$). The results show that preverbal ARC attachment preferences mirror results reported in postverbal position, irrespective of the subject discourse status.

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The B-Minds Project: Effects of Early Exposure to a Second Language in a Nursery Environment

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Increasing evidence suggests that the earlier in life the exposure to a second language (L2) is made, the better the results that can arise from it both at linguistic and non-linguistic levels. Studies aiming to analyse the effects of L2 exposure from early infancy (i.e., children below three years of age) are, however, scarce, limiting our understanding of when, how much, and what kind of L2 exposure should be provided to take full advantage of the benefits that bilingualism can bring to individuals and society as a whole. The B-Minds Project aims to analyse the impact of exposing 04 to 36 months children attending Efanor's nursery school institution, to English as L2. The program consists of ≈3 hours a day of exposure to English in highly-interactive activities led by children's nursery educators to approach L2 exposure as closely as possible to children's first language (L1), Portuguese. Behavioural and EEG measures will be collected from the same infants at different times for three years to monitor changes in L2 and L1 skills, as well as in executive functioning. Here we present the results obtained at this stage of the B-Mind's Project implementation regarding infants' L1 and L2 communicative and language skills as assessed through the Portuguese and English versions of the MacArthur-Bates Communicative Developmental Inventories (CDIs), and the Language ENvironment Analysis (LENA) technology, a device allowing the recording and processing of infants' vocalizations and the language spoken around them, as a function of the children's age and amount of L2 exposure.

Acknowledgments
This study was partially conducted at the Psychology Research Centre (CIPsi), School of Psychology, University of Minho, supported by the Fundação para a Ciência e Tecnologia (FCT) through the Portuguese State Budget (Ref.: UIDB/PSI/01662/2020) and also by Fundação Belmiro de Azevedo (Ref.: UMinho-FBA-2022)

The acquisition of Hungarian recursive structures

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Since Hauser–Chomsky–Fitch (2002) article, recursion and its acquisition have become an important topic in psycholinguistic research. Roeper (2011) and Hollebrandse (2014) claim that recursive structures are difficult for children under the age of five. Consequently, a non-recursive structure of the same complexity is assumed to appear earlier in the acquisition process than recursive structures. In Hungarian, complex PPs (1) are syntactically non-recursive (since the missing DP-layer), while relative clauses (2) and recursive possessives (3) are claimed to be recursive. The comprehension and production of these three structures were tested.

For the experiments on complex PPs and relative clauses, a wooden double decker and carton animals were used. To test the recursive possessives, we used a wooden house with various fairy-tale creatures, their animals and ingredients. In the comprehension test, the participants had to place the figures in the right location according to the instructions, while in the production task, they had to tell where the figures were put.

We found that comprehension begins at age four, while production starts at age seven for complex PPs and relative clauses and at age six for recursive possessives.

We claim that both comprehension and production are earlier developments in language acquisition than the cross-linguistic studies suggest. Among structures of the same complexity, children produce recursive ones earlier than non-recursive ones. Presumably, recursion is not difficult for children because of complexity, but because of the load on working memory and the syntactic features of the tested structures.

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(1) A tehén üljön le az egér fölötti macska elé
the cow sit down the mouse above cat in front of
'The cow should sit down in front of the cat above the mouse.'

(2) A tehén üljön le a macska elé, ami az egér fölött van.
the cow sit down the cat in front of that the mouse above is
'The cow should sit down in front of the cat that is above the mouse.'

(3) Tegyük a kosár-ba a boszorkány kacsá-já-nak
Let's put the basket-LOC the witch duck-poss-DAT
az almáját!
the apple-poss-ACC
'Let's put the witch's duck's apple into the basket.'

Non-c-commanding QPs Can Interfere With Antecedent Retrieval in Spanish

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Encountering a pronoun triggers retrieval of a feature-matching antecedent from among previously seen NPs. However, not all previously seen, matching NPs are grammatical antecedents. For example, the clitic 'lo' in (1) can take the referential 'el niño' as an antecedent, but not the quantificational NP (QP) 'ningún niño'. This is because QPs must c-command pronouns that they bind, and the QP does not c-command the clitic in (1). We ask whether early antecedent retrieval in Spanish can distinguish between grammatical antecedents and ungrammatical antecedents when processing a sentence incrementally.

(1) Las profesoras que el/ningún niño (no) respeta lo quieren castigar.
The teachers who the boy/no boy (does not) respect him want to punish.

Experiment (N=92). In a self-paced reading study, we manipulated gender-match between a QP/NP inside a relative clause (RC) and an object clitic in the main clause (MC). Following previous work [1,2], we used the gender-mismatch effect as an indicator of QP/NP accessibility to retrieval. If a QP/NP was accessible, we expected matching pronouns to be read more quickly than mismatching pronouns.

Results. Maximal LMEMs revealed a main effect of Match in the spillover region ($t = 2.423$).

Discussion. Our results suggest that non-c-commanding QPs can be retrieved as potential antecedents in Spanish, unlike in English [1,2]. We suspect that cross-linguistic differences relate to differences in the position of the pronoun: in English, object pronouns come after the MC verb, but the clitics in our study were pre-verbal. We discuss how these differences might influence QP accessibility.

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Crosslinguistic variability in non-fluent aphasia: the case of French and German

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This study discusses crosslinguistic variability in agrammatism in French and German. Agrammatism expresses itself through recurrent impairments at the morphosyntactic and syntactic levels, especially with verbal inflection and complex clauses (Thompson & Bastiaanse, 2012). Yet, despite these regularities, the syndrome displays high variability among and within subjects, preventing its thorough description and questioning its very existence (Penke, 1998; Pillon, 1987). Accordingly, one of the main issues in aphasiology is to determine whether variability also applies crosslinguistically. In this regard, systematic crosslinguistic studies of aphasia are unfortunately scarce, albeit essential (Beveridge & Bak, 2011). To fill this gap, I conducted an original experimental investigation aiming to test the production and reception of particular morphosyntactic and syntactic structures on four individuals with non- fluent aphasia in German and in French and matching control people. The tasks notably included lexical naming and judgement, verb elicitation and grammaticality judgement.
The preliminary analysis of the participants' answers reveals mixed results. Whereas specific linguistic elements are problematic in both languages —especially past tense inflection— language-dependent particularities are also present and confirms crosslinguistic variability. In the light of these results, I assume that variability is not an obstacle to the definition of agrammatism, as already suggested in the literature (De Bleser et al., 2012.; Kolk & Heeschen, 1992). Rather, considering it as an inherent property of the disorder is beneficial for research in aphasiology. Moreover, I argue that future crosslinguistic studies on that topic are necessary to refine the definition of agrammatism.

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The development of Italian vocabulary, morphology and syntax: an observational study

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The acquisition of Italian, a Verb-Object, morphologically fusional language, remains understudied. To fill this gap, we longitudinally document and analyze the language development of a cohort of 7 typically-developing Italian-learning toddlers. Our aim is to track vocabulary growth, morphological development, the emergence of syntax and the interactions between them, as well as to contribute a new Italian corpus to the CHILDES database.

Toddlers were first assessed between 18 and 29 months and followed longitudinally over 8 months. Spontaneous productions were recorded every two weeks and transcribed into CHAT format [1]. To assess syntactic development, we calculated the MLU in words and in morphemes. The frequency of major lexical categories, non-prototypical word order and the emergence of subordinate clauses were also marked. Additionally, the Italian version of the MacArthur-Bates CDI [2] and an adapted version of the Wug Test [3] were administered.

All children were within the norm for their age on the CDI. All achieved 100% correct responses on the Wug Test. Nominal suffixes for gender and number were also correctly produced in spontaneous speech [4]. MLUs scores increased considerably over the 8-month-period, and we documented the emergence of combinatorial syntax. Open-class words were more frequent than functors and nouns were predominant at younger ages, while verbs prevailed from 30 months onwards [5].

Our study documents the emergence of early productive language in Italian, an understudied language. The results support a model of language acquisition whereby different levels, e.g. morphology, syntax and vocabulary, develop in parallel, possibly interacting with one another.

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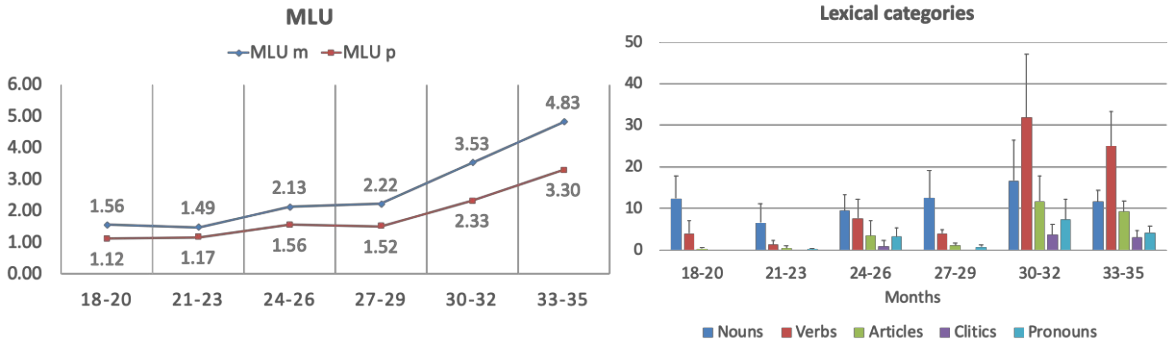

On the right, the development of MLU scores in morphemes (MLU m) and words (MLU p).
On the left, the development of lexical categories during the observational period.

Characterizing language production across modalities

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Despite perceptual and sensorimotor differences between sign and oral languages, language production is generally assumed to follow the same levels of representation in both modalities (from concepts to articulation). Consequently, our knowledge on how modality differences shape the organization of the mental lexicon remains very limited. The aim of the present study was to explore what linguistic and sensorimotor properties influence lexical processing, considering both modality-independent (lexical frequency) and modality-specific properties (iconicity in sign languages or word length in the oral modality). Specifically, we explored determinants of language production as well as brain-behaviour influences across modalities. To do so, we analysed data from Gimeno-Martínez and Baus (2022) and Baus and Costa (2015) involving deaf and hearing signers performing a picture-signing task and a word to sign translation on a large set of pictures (n=240) using machine learning techniques (random forests and Boruta algorithm) and generalized linear mixed models. Our results revealed that the importance of predictor variables on naming/signing varied depending on the task and the modality tested. These results highlight the need for normative datasets based on sign languages.

The selective access in bilinguals' phonemic representation: Pinpointing to the brain regions involved in phonetic processing in two language contexts

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We investigate bilinguals' language control during the early stages of phonetic processing. Phonetic processing was tested with an innovative passive linguistic paradigm that keeps participants immersed in one language. We report 27 Spanish-English bilinguals and 30 English monolinguals that listened to a pair of speech sounds that represent two phonemic categories ('ga' and 'ka') in the English language and represent one single category ('ka') in the Spanish language. The speech sounds were presented during an English language context or a Spanish language context to assess the degree of language control during phonetic processing. The ability to access the correct phonemic category (i.e., language control) was measured by means of the Event Related Potential (ERP) Mismatch Negativity (MMN). Our goals were (1) to replicate previous findings showing that the ambiguity in the speech sounds tested is resolved by bilinguals relying in the ongoing language context, and (2) to explore the brain regions that govern language control at the phonemic level by calculating current densities (sLORETA) in the MMN response. We replicated previous results and showed that bilinguals' sLORETA showed more left frontal-brain activation during the English language context when compared to the Spanish language context, and bilinguals showed stronger activation of the left frontopolar cortex than monolinguals. We interpret the observed frontal activation as bilinguals being able to allocate attention between various alternative meanings while simultaneously choosing the phonemic representation that best fits with the ongoing linguistic context. Our results add valuable information to the theories of language selection in bilinguals.

Language influences how Spanish speakers from different cultural backgrounds think, talk, and gesture about causality

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Causality is a shared general experience, but languages differ in the way they encode causal relations and actions (Bohnemeyer et al. 2010; Sanders & Sweetser 2009; Wolff et al. 2009). Some studies argue that the linguistic resources available in each language influence the way causality is cognitively processed by their speakers (Fausey & Boroditsky 2011; Filipović 2013; Bender & Beller 2017). For others, those cognitive differences are due to psychological factors stemming from differences between Western and Eastern societies (Choi et al. 1999; Hofstede 1980).

This research explores the possible correlation between society type, language and causal attribution in the way Spanish speakers think and judge causality. 202 native speakers of European and American Spanish participated in three different studies: (i) an adaptation of Singelis' (1994) psychological questionnaire for social in(ter)dependency, (ii) a non-verbal categorization task for the attribution of causal responsibility, and (iii) a multimodal (oral and gestural) description task for causal events. Data in studies ii and iii were elicited with a set of 58 causal videoclips from the CAL project (NSF BCS-1535846).

Results show that all Spanish speakers, regardless of their Western (Spain) or Eastern (Latin America) backgrounds, categorize and linguistically (i.e., both speech and gesture) describe these events based on the degree of the action's intentionality. In fact, a strong correlation between language and causal categorisation was found ($p = ,000$; $R = 0,395$), supporting the idea that language, and not culture, is a determining factor in the causal attribution.

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Testing the syntax-semantics mapping for locative case markers via reversible relations

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We use the preferential-looking paradigm to determine when infants have access to the syntax-semantics mapping for locative case markers (LCMs; e.g., "in"). Some aspects of morphophonological, semantic and syntactic competence with LCMs are in place by 2 years [1-3]. But do infants also have access to the syntax-semantics mapping: do they know which part of an LCM sentence labels the Figure (e.g., contents) and which labels the Ground (e.g., container)? We test 20-month-olds, asking if they can use only an LCM sentence ("The box is in the bucket") to find a target relation, when the distractor relation is of the same kind but differs in its internal participant structure (reversed relation: "The bucket is in the box"). We manipulate target relation within-subjects and measure vocabulary size (median-split, between-subjects). A 2x2 mixed ANOVA revealed an interaction between vocabulary and relation ($F(1,22)=4.972$, $p=0.036$) and a main effect of vocabulary ($p=0.017$) but not relation ($p=0.687$). Bonferroni-corrected posthoc analyses revealed a difference between the high- vocab and low-vocab groups for the box-in-bucket relation ($p=0.004$) but not the bucket-in-
box relation ($p=0.554$). Overall, high-vocab infants were above chance ($M=0.121$, $SD=0.169$, $p=0.031$) but not low-vocab infants ($M=0.049$, $SD=0.158$, $p=0.304$). These data suggest the syntax-semantics mapping for LCMs is emerging by 20 months, but is not entirely robust.
Infants with smaller vocabularies were unresponsive to the test sentence, always preferring to look to the same scene (bucket-in-box). In contrast, infants with larger vocabularies were able to look away from this scene when the test sentence labeled the other one.

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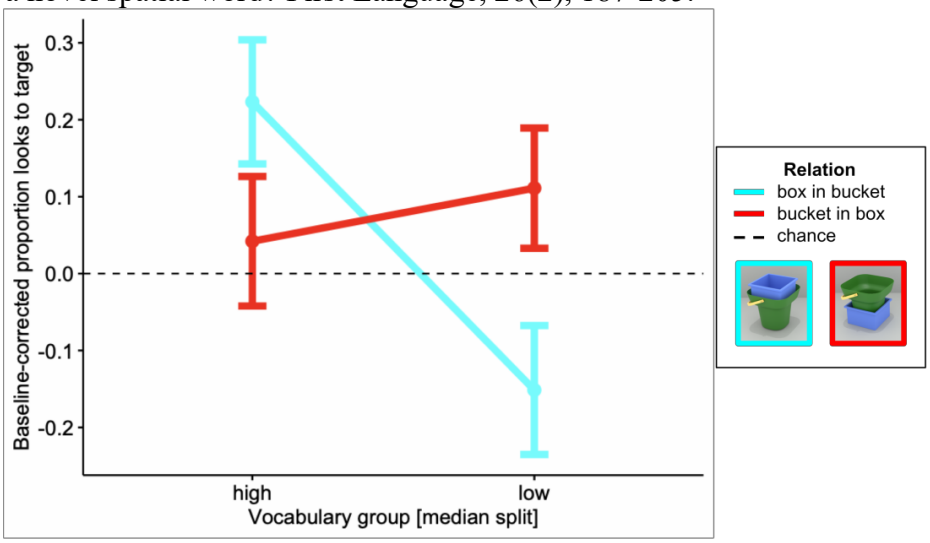

Reduced emotional sensitivity in the second language during language production: Electrophysiological evidence

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Accumulating electrophysiological evidence points to reduced sensitivity to negative language content when bilinguals operate in their second language (e.g., Wu and Thierry 2012, Jończyk et al. 2019). We recently extended this effect to language production in two EEG experiments: N400 and Late Positivity Potential (LPP) decreased in amplitude when Polish (L1) – English (L2) bilinguals orally translated written negative words from L1-L2 as opposed to L2-L1 (Jończyk, 2022; manuscript in preparation). Here, we attempt to further replicate this effect when participants repeat aloud or translate spoken words. Polish-English bilinguals listened to negative and neutral words in Polish and English. Each spoken word was preceded by a neutral or sad emoji informing about the emotional nature of the upcoming word. Emojis were either white or black in colour, indicating whether participants should repeat the word aloud in the language in which it was spoken or translate the word into the other language. Language was blocked; block order and cue color were counterbalanced.
Speech articulation artefacts in EEG were removed using the Residue Iteration Decomposition algorithm (Ouyang et al., 2016). Data collection is ongoing. Preliminary results from 19 participants show an enhanced N400 during negative vs. neutral word production in Polish only, irrespective of the task (see Figure 1). At a later stage, LPP increased during negative word production from English than Polish. These results provide novel insights into emotional language production in bilinguals in response to spoken words, mimicking naturally occurring communication.

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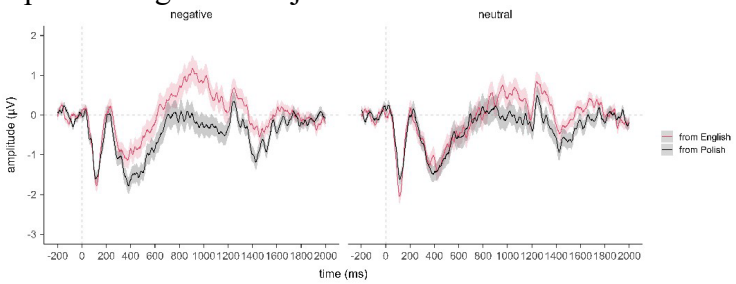

Figure 1. Mean amplitudes of the N400 & LPP time-locked to negative and neutral spoken word presentation in English or Polish. The ERPs reflect a linear derivation of 9 centro- parietal electrodes (C1,C2,Cz,CP1,CP2,CPz,P1,P2,Pz). Shaded areas depict 95% CI.

Fostering metalinguistic awareness and EFL grammar acquisition in L1 Spanish young learners by means of explicit metalinguistic explanations: An exploratory study

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Explicit learning is thought to facilitate the development of implicit learning and knowledge, given that it promotes the noticing and subsequent acquisition of otherwise neglected forms (N.C. Ellis 2005, 2015; Schmidt 1990, 2001). In this regard, metalinguistic awareness (MA), which refers to the ability to treat language as an object of reflection (Bialystok 2001), could play a key role in fostering explicit language learning processes. For MA to take place, metalinguistic knowledge, or knowledge about how a language works, is required (Gombert 1992; Roehr-Brackin 2018). Accordingly, metalinguistic explanations (ME), which provide learners with explicit insight about language, could potentially raise MA, providing a valuable advantage for young learners (YLs) in order to make the most of their limited EFL instruction time.

Following a sociocultural (Vygostky 1978) and interactionist (Long 1996) perspective, we investigated whether ME could help YLs boost their MA and, in turn, improve their performance in regards to two grammatical items during a collaborative dictogloss writing task. Using a pre-test/post-test design, a classroom of 16 L1 Spanish EFL 10-year-olds was divided into an experimental and a control group. Both groups completed an individual MA test (Tellier 2013) before carrying out a dictogloss task in pairs. Afterwards, the experimental group was asked to engage with a set of ME concerning two English grammatical features: his/her and third person –s. Additionally, an individual retrospective interview was carried out after the post-tests in order to triangulate collaborative data. The results showed an improvement of both MA scores and performance at the task for the treatment group. Pedagogical implications are drawn from these conclusions.

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The role of language in Social Cognition and Emotional Competence in 4- to 12-year-old children with ASD, DLD and SCD: a systematic review

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Introduction: As Social Cognition (SC) has shown to be interrelated with linguistic neural networks and children with Autism Spectrum Disorder (ASD), Developmental Language Disorder (DLD) and Social Communication Disorder (SCD) manifest, differentially, language and SC problems, this systematic review aims to find how language and socio-affective components interact with each other and identify linguistic and socio-affective profiles in target population. Methods: 1593 articles were systematically reviewed according to the PRISMA guide (Page et al., 2021), obtaining, through inclusion/exclusion criteria, a total of 38 articles. The qualitative assessment of the included studies was carried out between two independent researchers. Results: although SC is related to all components of language, Cognitive SC is strongly related with narrative and morphosyntax, whereas partially to lexicon. Pragmatics shows a complex relation with SC due to be more sensible to other factors like age or type of task. Prosody appears to be more related to emotional processes. Besides, ASD, SCD and DLD children showed different language and socio-affective performance. While DLD children have lower performance in general language, ASD and SCD children have more linguistic variation and are lower in pragmatic and SC performance, being SCD more related with language production difficulties and ASD with both receptive and productive language. Conclusion: each language component has a different interaction with SC. Likewise, different linguistic profiles are partially found for each disorder. These results are important for future lines of research focusing on specific components interaction and socio-emotional processes, as well as for clinical and educational treatment.

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To spell or not to spell? Explicit versus implicit creation of spelling expectations during spoken word learning

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When learning novel spoken words, literate children and adults generate preliminary orthographic representations (i.e., orthographic skeletons) even before seeing novel words' spellings (Wegener et al., 2018; 2022). Importantly, they do so even when novel words spellings are uncertain due to multiple spellings options (Jevtović et al., 2022; 2023). The present study investigates whether orthographic skeletons are generated automatically during spoken word learning (without participants' conscious attention) or whether generating them results from a voluntary process participants purposely engage in with the aim to facilitate the learning process. Two groups of participants were first trained on pronunciations of novel words with one (consistent words) or two possible spellings (inconsistent words).

Importantly, while half of the participants knew they were in a learning context (explicit learning group) the other half was naïve as to the aim of the learning task (implicit learning group). Next, participants were presented with words' spellings in a self-paced reading task. The results show differences in reading words acquired through explicit versus implicit spoken words learning. Participants from explicit learning group were faster to read previously acquired words with one as compared to those with two spellings, suggesting that orthographic skeletons were generated during the learning phase. By contrast, no differences in reading aurally acquired words with different spellings were observed in the implicit learning group. These findings show that generating orthographic expectations during auditory word learning is not an automatic process, but rather a strategy participants employ with the aim to facilitate the learning process.

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The facilitative role of cognates and cross-linguistic syntactic similarity in initial L2 syntax learning

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Easy-to-process words, e.g. cognates, can facilitate L2 syntactic processing (Lexical Bottleneck Hypothesis, Hopp, 2014). Additionally, cross-linguistically similar structures are processed more easily than dissimilar ones (e.g. Díaz et al., 2011). In two experiments, we tested whether cognates facilitate L2 syntax learning, focusing on Spanish-Basque similar and dissimilar structures.
We created two versions of a miniature language based on Basque, one with cognate verbs and one with non-cognate verbs. In Experiment 1, the two versions included SOV and OSV structures with postpositional case markers, existing in Basque but not in Spanish. In Experiment 2, the two versions contained SVO and OVS structures with a prepositional object marker that were similar to Spanish. Sixty Spanish natives without knowledge of Basque participated in each experiment. Participants were divided into two groups, each learning the cognate or the non-cognate version of the language. In both experiments, participants learnt the vocabulary with pictures. Then, they received (aurally and visually) sentences formed by the target structures, each accompanied by a descriptive picture. Finally, they learned novel non-cognate verbs, used in a picture-sentence congruency task and a written picture description task testing syntax learning.
The congruency task did not provide conclusive results. The production task showed that participants exposed to sentences with cognates described pictures significantly more accurately than participants exposed to sentences with non-cognates, but only when learning cross-linguistically dissimilar structures (Experiment 1), not similar structures (Experiment 2). This shows that lexical processing facilitates L2 syntax learning just when structures are not present in the L1.

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The labeling effect in autistic children

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Introduction. Children (10mths-to-11yo) presented with two objects that receive the same label expect that such objects share the same sound. Such expectation is reversed when objects receive distinct labels. Linguistic labels thus induce children to generate concepts. We replicated an experiment by Graham et al. (2013), but with autistic children, who could present difficulties in category generalization and mentalization.
Methods. 30 autistic children (3-to-9yo) were divided into two groups: same label (SL) and distinct label (DL). Children were presented with pairs of unknown objects in three conditions: [Predicted]: Two objects made the same sound; [Unpredicted]: The second object was muted; [Baseline]: both objects were muted and the experimenter didn't perform any action. Children in the DL group received the second object with a different label. Number of imitated actions on the second object (from the experimenter actions on the first one) were counted, and two conditions were compared: [Unpredicted SL], where expectations are violated because the second object is disabled, and [Predicted DL], where expectations are not violated because the second object (with a distinct label) is disabled. Expectancy violation in SL indicates generalization.
Results. We fitted a mixed effects model with number of actions on the test object as a dependent variable, group (SL / DL), condition (Baseline / Predicted / Unpredicted) and an interaction between group and condition as explanatory variables, and participant and label (nonceword) as random effects, which yielded a main effect of group ($p = 0.009$). In pairwise comparisons, we also encountered a significant difference between Unpredicted SL and Predicted DL ($p = 0.004$), which replicates the results by Graham et al.
Conclusions. Results suggest that autistic children are sensitive to the cognitive effects of acts of labeling.

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Idiomaticity, automaticity and control in cross-linguistic, figurative reformulation: the effect of L2 AoA

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Our study explored how different bilingual experiences modulate the automaticity in retrieving translations of figurative meanings across languages. We predicted that Age of Acquisition (AoA) would impact the immediacy of access to idiomatic representations for posterior translation. To be more specific, our hypothesis was that early bilinguals would be able to map L1 and L2 equivalent figurative expressions in a relatively more automatic and efficient way compared to late bilinguals. The two groups (early and late bilinguals) were compared on the availability of cognitive resources to process idioms for later translation. No differences due to AoA were observed in the allocation of cognitive resources to translate figurative expressions whose form (i.e., wording) was congruent between languages. Importantly, early AoA predicted automaticity in retrieving translation equivalents of figurative expressions characterized by formal incongruency between languages, suggesting a gradual independence from the L1 lexicon and a more chunked approach to L2 processing in translation. We also explored the interdependence between bilingual figurative processing and control process involved in a non-linguistic task (i.e., Flanker task). We found a relationship between these two processes for all bilinguals, but only in the case of incongruent units; possibly, this is attributable to the nature of mechanisms that are triggered to handle the taxing task of processing figurative meanings that are coded incongruently across languages. Results are discussed in the context of theories of bilingual figurative language processing and executive control.

The discrimination of Basque sibilants in bilingual children: New evidence from eye-tracking

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Perceptually difficult speech sounds do not always follow the typical acquisition trajectory (e.g., Narayan et al., 2010). Here, we test the discrimination ability of Basque sibilants (e.g., [s̻]-[ʂ]) by 4-5-year-old bilingual children with L1 Spanish. These sibilants do not exist in Spanish and cause perceptual difficulty for both competent Spanish-Basque bilingual adults (Larraza et al., 2016, 2017) and bilingual infants (Larraza et al., 2020).

Adapting the Anticipatory Eye Movement (AEM) paradigm (Albareda-Castellot et al., 2011), participants were conditioned to look to one side of the screen or the other depending on the presented fricative (e.g., [aʂu]). Then, during test, their anticipatory eye movements to that side of the screen for each sibilant were measured. Preliminary results indicate that bilingual children anticipate where the visual cue would appear, a behaviour that can only occur if children discriminate the contrast.

This study provides new data on the acquisition process of Basque sibilants. L1 Basque and L1 Spanish bilingual infants (i.e., 6-7 mo., 11-12 mo.) show poor discrimination on this contrast and no significant differences as a function of language experience (Larraza et al., 2020). However, prolonged exposure (beyond the first year of life) to the language seems to enable such discrimination in bilingual children, although again cause difficulties in certain bilingual adult populations, an issue we leave for future research. Our results are consistent with previous findings on the acquisition of word-initial nasals by Tagalog-learning children (Narayan et al., 2010). Thus, the discrimination of acoustically subtle contrasts might follow non-typical acquisition patterns.

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Same But Different: Parsing Mechanisms in Trilingual Processing

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The study investigates two cases of multilingualism with Russian, where Armenian-Russian and Tatar-Russian bilinguals acquire English as their L3. We argue that multilingual processing is operated by an integrated mechanism sensitive to individual grammars (different languages). A structural prediction triggered by the matrix verb affects subsequent processing of an ambiguous RC (1) in all languages. However, the amount of effect and the place it is observed vary across languages.

The experiment was a self-paced reading task with a word-by-word token presentation and comprehension checks after each target sentence. Software Linger recorded the participants' reading and response time and their interpretation choices. Subsequent data analysis used Generalized Liner Mixed Model in R.

Our results demonstrate that in all languages investigated the parser anticipates the eventive clause complement (2) after a perception verb (Grillo & Costa, 2014) and builds a mental structure for it. The initially generated structure creates a conflict with the RC (3) being processed; it increases processing time in all languages. The disambiguation (color-coded in (2) and (3) for English) occurs at different places in each language: At the head DP in Russian, at the embedded verb in English, and only at the response time in Armenian.

Therefore, the existence of a processing conflict between the CP and the RC in each language means there is a shared parsing mechanism operating human language processing. Though, the fact that reanalysis occurs at a different place in each language means the parser is sensitive to individual grammars.

(1) **Sample task, ambiguous relative clause (RC) followed by comprehension question**:
Bill saw the daughter of the woman that was playing with the kitten.

Who was playing with the kitten?

(a) the daughter *(b) the woman*

(2) **Eventive complement**:
Bill saw [$_{CP}$ the daughter of the woman was playing with the kitten in the yard]

(3) **Determiner Phrase (DP) modified by RC**
Bill saw [$_{DP}$ the daughter of the woman [$_{RC}$ that was playing with the kitten]].

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A test to classify the different types of anomia according to lexical access sub-processes

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This paper addresses anomia, a recurrent symptom present in language pathologies referring to the difficulty of accessing the lexicon. According to Cuetos (2003), three different processes take part in the act of naming: conceptualization, lexical labeling and determining its phonological correspondence. Following this classification, patients can suffer four different kinds of anomia depending on which process has been damaged: pure anomia, when they experience trouble in finding words; semantic anomia, if the problem has to do with the concept; phonological anomia, when the difficulty experienced involves sounds; and mixed anomia, when all of the processes are affected.

Our study focuses on patients who have had a stroke, and a very important issue is how to identify the damaged process, in order to improve the therapeutic approach. A specific test is needed to determine which kind of anomia affects the patient. The studies conducted by Diéguez-Vide and Peña-Casanova (2012), Cuetos (2003) and Cuetos et al. (2010), have so far examined the psycholinguistic's predictors. They concluded that phonological anomia can be detected by the variables phonological complexity and word length. For pure anomia the age at which the patient learnt the word and its frequency of use are crucial. Finally, the imageability and familiarity of the word would be the most important predictors of semantic anomia. However, we do not currently have any tests constructed by precisely manipulating these variables. This is our primary goal.

Our test is composed of three sets: the phonological, the lexical, and the semantic set, with four tasks in each one. The items that make up each of these sets are composed of stimuli in which the relevant variables (phonological in the first, lexical in the second, and semantic in the third) are maximized, while all other variables are controlled.

This test could have important repercussions on the design and implementation of therapeutic strategies for people with post-stroke anomia, allowing treatment to be accelerated and increasing its effectiveness, by identifying more precisely which cognitive sub-processes hinder lexical recovery in each patient.

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Processing of the Sonority Hierarchy in a nonhuman species (*Rattus norvegicus*)

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Despite the important variability observed across natural languages, some common structures can be found amongst them. Languages are rooted in universal constraints that shape their structures and learnability. A fundamental, unsolved question is how universal linguistic constraints emerge in humans hence what biological mechanisms might be at the basis of such constraints. Here we investigate whether the Sonority Hierarchy (SH), a phonological constraint that determines the universal structure of syllables1,2 is rooted into evolutionary- ancient sensory processing, testing a nonhuman species. SH imposes restrictions on how phonemes are combined into syllables based on their intensity, which rises towards the nucleus and decline right after it1,3. SH generates an arch-shaped intensity pattern that also mimics "melodies" frequently found amongst animal vocalizations4,5. Humans at birth are sensitive to violations of SH, showing distinct neural responses to well-structured (e.g., blif) vs. ill- structured (e.g., lbif) syllables3. In three experiments, we tested rats with the exact same language materials used with neonates3. Only rats familiarized with properly structured syllables (e.g., bran) showed successful discrimination between familiar and novel syllables at test (graph: exp. Rise and Plateau). Rats familiarized with syllables that completely violate the SH (e.g., rban) did not discriminate at test (exp. Fall). These findings suggest a processing advantage for syllables with rising or flat intensity patterns, conforming the SH, in a nonhuman species, mirroring results of human neonates. General sensory processing might explain early sensitivity to the SH, enlightening the possible biological origins of a powerful constraint at the onset of language acquisition.

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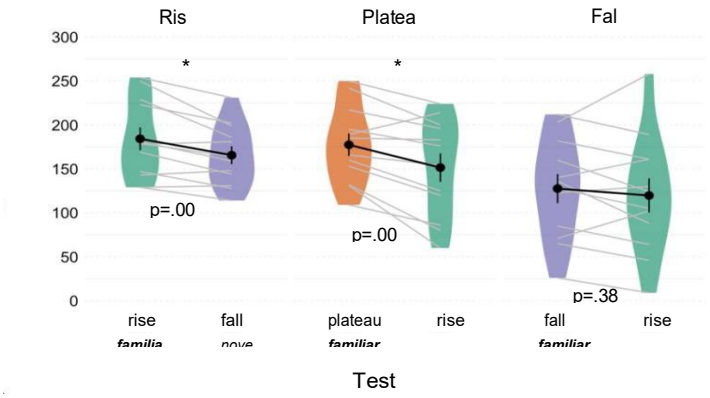

Graph. Y axis: number of nose- poking responses to syllables at test in the 3 experiments (Rise, Plateau, Fall; such labels indicate the type of syllables rats were familiarized with before test). X axis: types of syllables presented at test in each experiment. Dots indicate mean responses, error bars indicate standard error of the mean. P values indicate significant discrimination (paired-sample t-tests).

Anticipating location in Spanish copular sentences: evidence from bilingual speakers

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Spanish copula choice in locative constructions depends on the ontological category to be located: eventive subjects select ser whereas objects select estar. In Catalan, the distribution of the two copulas does not completely overlap, which could lead to crosslinguistic influence (CLI) in bilinguals: ser is the prototypical verb for locative constructions whereas estar adds an aspectual duration contribution.
In a VWP task in Spanish we investigated whether Catalan-Spanish bilinguals would anticipate the locative reading after hearing subject+copula sequences. 25 Catalan-dominant and 28 Spanish-dominant bilinguals were presented with aural copular sentences while looking at two words on the screen (location vs. property). The task had two conditions (6×2×2): type of copula (ser / estar) and type of subject (event / object). Anticipatory eye gazes to words on screen were computed during the region of interest (i.e. the embedded adverbial: …el banquete/menú es/está | afortunadamente en | catalán/ la taberna).
Results showed that locative ser interpretation with objects was blocked in Spanish-dominants bilinguals, while anticipatory processing emerged in event+ser sentences, as predicted; however, no anticipation was observed with estar. In contrast, Catalan-dominant bilinguals presented a significantly higher number of anticipatory looks to the locative in object+ser sentences, indicating signs of CLI from the broader Catalan copula ser. These findings are compatible with theoretical analysis for Spanish ser, but not for estar, since our Spanish-dominants did not show a preference for locative reading with estar, unlike our Catalan-dominant bilinguals.

When unpleasantness meets feminines: a behavioral study on gender agreement and emotionality

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The emotional connotation of words has been found to affect word and sentence processing, and there is abundant evidence demonstrating that emotional words are processed differently from neutral ones (Citron, 2012). However, both the when and the how of the interaction between emotion and grammar are still up for debate.

We conducted a behavioral experiment in which university female students read noun phrases (NPs) composed by a determiner and a noun in their L1 (Spanish). They were asked to perform a gender agreement task, pressing one of two buttons to respond if the NP was grammatically correct (elmasc camareromasc) or not (*lafem tornillomasc). We manipulated the type of gender (arbitrary vs. natural) as well as the emotionality (unpleasant vs. neutral in valence) and the gender (feminine vs. masculine) of the nouns.

As expected, response times and error rates analyses showed that participants' responses were faster and more accurate in correct trials than in incorrect ones. Interestingly, the type of gender modulated this effect. For arbitrary gender stimuli, the grammaticality effect was more pronounced in feminine nouns than in masculine nouns and it was independent of emotionality. Regarding natural gender, the grammaticality effect was influenced by both gender and emotionality, since for feminine nouns this effect only emerged in unpleasant stimuli.

Our results reveal that it is possible to find emotional effects in an intrinsically grammatical task at the behavioral level. Yet, these effects depend on gender properties like the semantic nature of biological gender.

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Examining the Impact of COVID-19 Pandemic Context on Phonological Awareness among Preschool Children

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Although it could be expected that the COVID-19 pandemic context negatively impacts preschool children's abilities associated with later reading skills, to our knowledge there is no research on the topic. Our study focused on the COVID- 19 pandemic impact on phonological awareness, a skill that reliably predicts later reading abilities (see Melby-Lervåg, Lyster, & Hulme, 2012 for a metanalysis). Seventy-nine typically developing European Portuguese children participated in this study (41 girls; mean age = 64.5 months, SD = 3.47). Children were enrolled in their last year of preschool, which was dramatically affected by COVID-19. Between November and December 2021, participants completed a syllable segmentation task, and results indicated that the COVID-19 pandemic context led to significant decreases in phonemic awareness of preschool children in comparison with pre-pandemic normative data, $t(166)=15.092$; $p<0.001$; Cohen's $d = 2.3$. Between January and March 2023, the same group of children is again completing the syllable segmentation task to explore the impact of the pandemic effect across time. These findings extend the literature about the effects of the COVID-19 pandemic on the learning progress of young children.

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Empirical evidence for realist irony

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Ironic assertions typically concern states of affairs/events in the world. In those cases, the speaker mocks/criticizes the state of affairs/event the utterance is about and the person she holds responsible for it (if any). We call this type of irony realist irony.

However, attributive theories of irony, like the echoic account (Wilson and Sperber 1992; 2012), cannot account for realist irony. These theories defend that the ironic speaker always attributes an utterance/thought to someone else (or to herself at a different time), and she criticizes the attributed utterance/thought and (possibly) its attributee. Hence, understanding irony requires second-order Theory of Mind, the ability to attribute thoughts about other thoughts. This may explain why autistic people find it difficult to understand irony (Happé 1993), and why it is more difficult to understand irony than literal or other non-literal speech (Bryant 2012).

Here we present empirical evidence that supports existence of realist irony and challenges attributive theories. We display data from one study with autistic participants and another with neurotypical ones in Spanish, French and English. The results (analysed in R using different generalised multilevel models) indicate that realist instances are perceived as ironic and that participants with autism or high-autistic traits had difficulties identifying the thought of the speaker both in ironic and literal stimuli. Furthermore, results suggest that participants had a partial understanding of ironic assertions since they were able to identify the negative stance even when they could not determine the speaker's thought.

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The impact of extralinguistic factors on the lexical crosslinguistic influence in L3 Spanish by Tagalog-English bilinguals

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The present study focuses on the influence of some of the less-studied factors in the field of crosslinguistic influence (CLI), namely language dominance, L3 proficiency, and psychotypology, on lexical CLI. Specifically, the study focuses on the production of Tagalog- English bilinguals learning Spanish as an L3, an understudied language constellation.

Fifty two (n= 52) early Tagalog-English bilinguals were grouped according to their language dominance using the Bilingual Language Profile (Birdsong, Gertken & Amengual, 2012) and to their L3 proficiency based on the Spanish proficiency test by Duffield and White (1999). The experimental tasks included a written and an oral picture description task administered a few days apart and a questionnaire that inquired about their perception on the distance between the languages involved. Following Ringbom (1987) and Hammarberg (2001), instances of lexical CLI were identified.

Results show that English was the main source language of lexical CLI in both modalities regardless of the participants' language dominance and despite the fact that they perceive Tagalog as closer to Spanish. It was also found that there is an inverse relationship between their L3 proficiency and the quantity of lexical CLI produced. Finally, the type of lexical CLI changed as their L3 proficiency increased but this was not found to be significant at higher proficiency levels. Overall, our findings suggest that other factors identified in the previous literature could still be more powerful at predicting the patterns of lexical CLI and at informing about the structure of the multilingual mental lexicon.

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Phonetic detail in trilinguals' speech production in online testing and testing with face masks

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Research into bi-/multilingualism is generally restricted by the local availability of participants, often leading to underpowered studies [1] and disproportionate research into well documented languages spoken in the vicinity of universities. Since the COVID-19 pandemic, psycholinguistic research moved online [2], but online testing results in recordings with diverse devices in diverse environments. It is unclear whether these uncontrolled circumstances allow for detecting phonetic crosslinguistic differences in multilinguals' speech production. When participants are tested in the laboratory, facemasks are often still required. Facemasks act like filters for the speech signal and may cause imprecise phonetic measurements. We tested whether phonetic crosslinguistic differences in multilinguals' speech production are reliably found in online studies and in laboratory-based studies with facemasks. We measured voice-onset time (VOT) production of 55 Spanish-Basque-English trilinguals (Mage=25 years) elicited in language-specific picture naming tasks in three sessions: in the laboratory without facemask (control); in the laboratory with facemask; online without facemask. Participants robustly devoiced /bdg/ more frequently in English than in Spanish and Basque and produced /ptk/ with longer VOT in English than in Spanish and Basque across all sessions. However, VOT of /ptk/ was shorter when elicited online than when elicited onsite without facemask across languages. In sum, these results demonstrate that testing online or onsite with facemask are reliable options when investigating crosslinguistic phonetic differences in multilinguals' speech production. Online testing can advance the field of bi-/multilingualism research as it facilitates recruitment, thus allowing for better powered studies and conducting research with less studied languages.

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Developing language-specific stress discrimination: An ERP study with European Portuguese-learning infants

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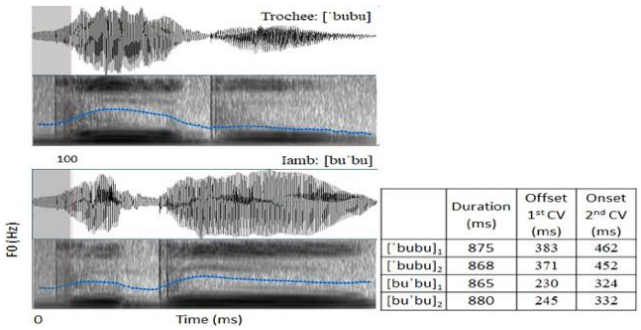
European Portuguese (EP) is a language with variable stress, a mixed prosodic profile and conflicting frequency distributions of trochaic and iambic stress patterns. Besides, duration and vowel quality, instead of pitch, have been claimed as the primary cues for stress perception in EP. Previous ERPs and behavioral studies have revealed diverging results regarding EP adult speakers' stress discrimination in the absence of vowel quality cues: EP speakers perceived the stress contrasts at the pre-attentive stage, but exhibited a stress "deafness" effect similar to that found in speakers of languages with fixed stress at the attentive stage. Nonetheless, both measures on EP adults demonstrated a processing advantage for the iambic stress pattern. Using a passive oddball paradigm, the present study examines how EP-learning infants at 5-7 months pre-attentively process stress contrasts without vowel quality cues (Fig. 1). ERPs data from 23 participants showed that the iambic stress pattern yielded a discrimination response (MMR) with a positive polarity at 500-600ms after stimulus onset. However, no significant discrimination effect was found for the trochaic stress pattern. In addition, a significant discrimination effect was elicited in the posterior region at the 500-600ms time window, with the deviant iambic stimulus being more negative than the standard iambic stimulus (Fig. 2). These results suggest that EP-learning infants develop their stress perception ability through an asymmetrical perception mechanism triggered by iambic stress. Future studies need to address when the pre-attentive discrimination of stress contrasts found in adult speakers develops, beyond the iambic preference.



	Duration (ms)	Offset 1st CV (ms)	Onset 2nd CV (ms)
[ˈbubu]$_1$	875	383	462
[ˈbubu]$_2$	868	371	452
[buˈbu]$_1$	865	230	324
[buˈbu]$_2$	880	245	332

Figure 1: Spectrograms of the trochaic and iambic stress patterns, with the duration and timings of the offset of the first CV and the onset of the second CV for each token.

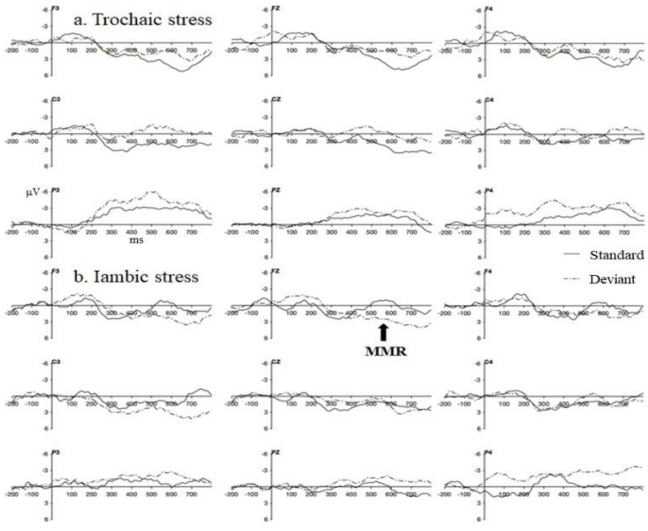


Figure 2: Grand averages of the frontal, central and posterior electrodes for a) the trochaic and b) the iambic stress patterns.

The Role of Cognitive and Social Factors in Processing Non-Binary Spanish Pronouns

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Spanish is a language that marks gender as masculine or feminine. More recently, to refer to non-binary individuals in Spanish, speakers have proposed the morphemes –x and –e to indicate neutral gender. This study adopted a psycholinguistic approach to examine how cognitive and social factors can affect the linguistic processing of –x and –e in Spanish pronouns. Participants were Spanish-English bilinguals who completed two self-paced reading tasks in Spanish, one that examined reading times on non-binary pronouns and another that assessed grammatical gender violations. They also completed the AX-CPT, an operation span working memory test, and the Gender Sex Diversity Beliefs Scale. The findings showed that pronouns with non-binary morphemes elicited longer reading times, but that this effect was modulated by Spanish proficiency and working memory. Higher proactivity on the AX-CPT was associated with shorter reading times across all conditions. Finally, participants with more traditional beliefs regarding gender had longer reading times on pronouns with non-binary morphemes. These results suggest that the processing of non-binary morphemes in Spanish-English bilinguals depends on cognitive, linguistic, and social constraints including verbal working memory, Spanish proficiency, and gender normativity beliefs.

Complicated families: morphological relationships associated with bound roots

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Sets of words exhibiting a semantic relationship attributable to a shared portion of their form are considered to be morphologically related. The sizes of such sets bear a well-documented relationship to lexical processing, suggesting that the mental lexicon is in some sense organized into morphological families. However, semantic compositionality is variable (Amenta et al., 2020), and morpheme forms exhibit both allomorphy and gradient parsability (Hay & Baayen, 2005). Thus, while morphological family size is a useful metric, its theoretical status is not clear. Here we focus on English words containing bound roots, e.g. dict in verdict, in which morphological structure has been obscured by the evolution over time of both formal and semantic composition. We first applied two unsupervised parsers (Smit et al., 2014; Virpioja et al., 2018; Xu et al., 2020) to quantify how easily bound roots are segmented in a sample of 3052 English words. We then measured semantic coherence and polysemy of possible morphological families using a vector-semantic model (Günther et al., 2015). We used parsability, family size, and semantic measures derived from these models to predict publicly available behavioral data (Balota et al., 2007). Both form-based and semantic measures predicted naming and lexical decision latencies, but we found evidence of a tradeoff in that polysemy effects were stronger for words in which the parsers did not isolate the root. These results require a more subtle theoretical approach to how words cluster around intersections of form and meaning (e.g. Baayen et al., 2019; Jackendoff & Audring, 2020).

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Dynamic interactional contexts: How heritage bilinguals recruit cognitive resources to speak each language

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Bilinguals regulate the concurrent activation of their language systems by attending to social and linguistic cues, which prompt them to remain in a single language, to switch from one language to another, or to mix languages when codeswitching. Successful language switching requires access to cognitive resources. We report a study that examines this process in heritage speakers of Spanish living in Southern California, a group of bilinguals that has received less attention in the literature. Unlike studies that examine this process by comparing different groups of bilinguals in distinct interactional contexts, heritage speakers are unique because the same speaker may be required to manage the demands of using their home and societal languages differently within the course of a day. To investigate the role of language switching, participants completed a series of linguistic tasks in Spanish and English (a cued picture-naming task and a verbal fluency task) and the AX-CPT task to assess their reliance on reactive and proactive cognitive control strategies. Bilingual experience was assessed through a series of language history questionnaires. Although most of the bilinguals in our sample are more dominant in English, the societal language, their lexical production in English draws on proactive cognitive control whereas production in Spanish relies more on reactive control. This in-progress study serves as an opportunity to establish a baseline for future studies to examine language switching in the presence of distinct cues for heritage speakers who live on both sides of the US-Mexico border.

Context modulates word prediction strategies in ambiguous idioms

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Idioms are multiword expressions with a figurative and conventional meaning that differs from the literal meaning of individual words. Compared to the compositional nature of literal meaning in sentence processing (i.e., "to bite one's nails"), idioms call for a faster retrieval mechanism instead, because co-occurring multiword strings are processed as wholes (i.e., "bite the dust"). Interestingly, the research on the processing of one type of idioms (ambiguous idioms: "break the ice") allows analyzing the cognitive operations underlying compositional and retrieval comprehension strategies using the same word strings.

For the present study, 88 ambiguous, familiar, opaque, 3-word idiomatic expressions were selected. Each idiom was embedded in highly constraining contexts that biased readers towards either its figurative or its literal interpretation. To address the impact of context in the prediction of the target word (i.e.,"ice" in "break the ice"), participants read sentences in a RSVP experiment and performed a lexical decision task on the critical stimuli (printed in red). In half of the word stimuli, the critical words were replaced by incongruent controls matched in length and frequency (i.e.,"hat" in "break the hat"). Results revealed faster RTs for the figurative vs literal condition and an interaction between Idiomacy and Congruency, with larger effects of Congruency in the figurative than in the literal interpretations. This shows that prediction of words in ambiguous idioms changes as a function of the preceding context. While figurative interpretations operate as a rigid template matching, literal interpretations allows for a more flexible integration mechanism.

Negation induces forgetting even after controlling for associative interference

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Negation has been found to produce forgetting of previously learnt information [1,2]. However, it remains unclear whether this long-term memory effect is due to negation itself or instead caused by basic mechanisms of associative interference. The reason for this stalemate is that, in previous studies, negation always acted upon information involving a more complex set of associations than affirmation. In this study, we matched the associative complexity of the to- be-negated and to-be-affirmed information as follow. Participants were first asked to read and simulate a story about the typical activities of a university student. Critically, our story was composed of both factual (e.g., "You run a 3-kilometers circuit") and counterfactual (e.g., "You would have liked to listen a science podcast") information. Next, the same descriptions were randomly presented, and participants asked to verify whether its epistemic status (factual or counterfactual) corresponded with that one shown in the initial story, responding either "yes" (e.g., "You run a 3- kilometres circuit") or "no" (e.g., "You would have liked to run a 3- kilometers circuit"). Epistemic status and response type were counterbalanced, ensuring thereby that both response types were always acting upon the same set of semantic contents (e.g., run, 3-kilometers, and circuit). Finally, and after a brief distractor task, participants had to freely recall as many words as they could. Results showed worse recall for no- than yes- responses. Thus, negation-induced forgetting remains even after completely controlling for associative interference.

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On the interaction between the verb mood and the scope ambiguity: a corpus-based investigation on the Spanish no-porque sentences

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The present study investigates the distribution of the scope ambiguity involving negation and the adverbial porque-clause in Spanish. An important contribution of 'non- structural' factors (pragmatics and prosody) has been suggested for the processing of the English not-because ambiguity (e.g. Jane didn't purchase the blouse because it was silk). Koizumi (2009) suggested that embedding the construction under an if-clause made the usual dispreference for the low attachment of the because-clause disappear, thanks to its pragmatic/prosodic effect. The present project extends this research to Spanish, where the choice of verb mood seems to disambiguate the sentence.

Kitada and Cifuentes (2018) observes that, in Spanish, the verb in the porque-clause is in indicative on the high attachment reading, and is in subjunctive on the low attachment reading (e.g. Julia no se compró la blusa blanca porque es/fuera de seda). In a sentence- completion task (Koizumi, 2019), only 4 of the 828 tokens were low-attachment but they always involved subjunctive mood. We investigated whether these results are in line with the naturally occurring productions.

Out of the 952 sentences extracted from CORPES XXI, 931 (97.8%) had indicative mood and 21 (2.2%) had subjunctive mood in the porque-clause verb. However, interestingly, the native speaker raters had difficulty interpreting the scope relations of the subjunctive mood instances, finding 13 of them 'impossible to determine' even with preceding and following contexts as well as the supposedly disambiguating effect of the verb mood. These results may highlight an important role of prosodic support in the resolution of this ambiguity.

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Three, two, one: Language switching and language similarity effects in trilinguals

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A convenient means for exploring cross-language interactions is Language Switching, the practice of alternating between languages in speech. Language Switching has been investigated using comprehension and production paradigms, and the results typically reveal a processing cost when the language used changes unexpectedly. For instance, using event-related potentials, Chauncey and collaborators (2008) asked French-English bilinguals to recognize words in two language blocks preceded by unrelated primes in the same (non-switch trials) or the other (switch trials) language. In the L1, results showed greater negativities for switch trials in the N400. Interestingly, language switching effects in the L2 appeared at 250ms post-target onset. Although these electrophysiological data show switching effects in both languages, evidence from behavioral studies is highly inconsistent. In this study, we explored covert language switches at early stages of processing using behavioral data. Portuguese (L1) - English (L2) - German (L3) speakers performed a masked priming Lexical Decision Task to words in three language blocks preceded by 50ms unrelated words in the L1, L2 and L3. Cross-language similarity was also manipulated by comparing cognate and noncognate targets. Mixed-effects analyses revealed language switching costs in the L2, but not in the L1 block. This suggests an asymmetry in automatized bilingual comprehension mechanisms, as proposed previously by Chauncey and collaborators with ERPs. No language switching costs were observed for the L3. Furthermore, cognate facilitation effects were found for the L3, but not the L1 or L2. The findings will be discussed in light of relevant models of bilingual and multilingual processing.

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Cross-modal distribution of semantic subcomponents: speech and gesture analysis of European Spanish oral descriptions

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Speech-accompanying iconic gestures are unconsciously produced while speaking about motion across languages [1]. Language specificity in motion event encoding has a reflect on co-speech gestures, which share a holistic underlying conceptual message with the spoken information they allign with ([2],[3],[4]). There is crosslinguistic variation in how semantic subcomponents are distributed across modalities, and gesture production mirrors typological patterns identified in speech ([5],[6]). However, speech-gesture semantic congruency (SGSC) still remains underexplored.

This research aims at exploring SGSC in European Spanish and asks whether and to what extent information provided in gesture is semantically congruent with that provided in speech. More specifically, this study focuses on SGSC (i) at the verb level (gestures aligned with Path or Manner verbs) (ii) at the clause-level (cross-modal distribution of semantic subcomponents). The corpus consists of 178 videotaped oral descriptions, produced by 12 native speakers of European Spanish. Data were elicited with the Tomato Man stimuli [7] and coded following procedure in [2]. Clip descriptions were transcribed using ELAN [8]. Qualitative and quantitative data analysis were performed using SPSS (nonparametric methods). Narrations of two participants were also coded by a second independent coder to check for inter-rater reliability.

Results suggest that (i) gesture expands the meaning conveyed in speech (by encoding the alternative component): Path and Manner are not strictly semantically-congruent with co_expressive gestures (ii) degree of SGSC depends on the element encoded in speech (Path vebrs are partially modified, but Manner verbs are totally congruent ; χ^2, z = 10, 707, p = 0,013).

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Listening Effort Contributes to Cortical Tracking of Speech in Adverse Listening Conditions

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Cortical tracking of speech has been found to be vital for speech segmentation and is linked to speech intelligibility. However, there is no clear consensus as to whether reduced intelligibility leads to a reduction or an increase in cortical speech tracking, warranting further investigation of the factors influencing this relationship. One such factor is listening effort, defined as the cognitive resources necessary for speech comprehension, and reported to have a strong negative correlation with speech intelligibility. Yet, no studies have examined the relationship between speech intelligibility, listening effort, and cortical tracking of speech. The aim of the present study was thus to examine these factors in quiet and distinct adverse listening conditions. Forty-nine normal hearing adults listened to sentences produced casually, presented in quiet and two adverse listening conditions: cafeteria noise and reverberant speech. Electrophysiological responses were registered with electroencephalogram, and listening effort was estimated subjectively using self-reported scores and objectively using pupillometry. Results indicated varying impacts of adverse conditions on intelligibility, listening effort, and cortical tracking of speech, depending on whether the speech temporal envelope was preserved. The more distorted envelope in the reverberant condition led to higher listening effort, as reflected in higher subjective scores, increased pupil diameter, and stronger cortical tracking of speech in the delta band. The findings suggest that using measures of listening effort in addition to those of intelligibility is useful for interpreting cortical tracking of speech results and have implications for future research investigating abnormal speech tracking (e.g., in dyslexia).

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Brand Names at Risk: Examining the Vulnerability of Popular Logos to Counterfeiting

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Brand names are unique assets for a company that are typically presented with a distinctive graphical composition. Recent studies have shown that the uniqueness of this configuration makes brand names vulnerable to counterfeiting via misspelling by transposition. In this line, a recent study has found that the transposed-letter confusability effect for misspelled brand names (e.g., "amzaon") is more robust when logos kept their typography and graphical design. However, little is known about the processing of brand names in logos at an incidental level. The present experiments explored this confusability effect by (1) analyzing behavioral data from virtual reality settings and (2) comparing the electrophysiological correlates of correctly spelled and misspelled brand logos. In the first experiment, participants were set in a highly immersive VR task and were incidentally exposed to logos. The incidental processing of brand names was evaluated offline. Participants were 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 had been correctly spelled, showing a false memory effect. In the second experiment, participants performed an orthogonal go/no-go task while processing logos with brand names. EEG responses to misspelled logos were remarkably similar to the ones of the correctly spelled logos. Taken together, the present VR and EEG experiments provide evidence of the vulnerability of popular logos to counterfeiting via the misspelling of brand names.

The impact of eye tracking sampling rate on lexical and oculomotor effects

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We present findings from a study that recorded readers' eye movements during reading at different sampling rates. In expensive eye tracking equipment typically offers much lower sampling rates than expensive equipment. It is generally assumed that a sampling rate of at least 500 to 1000 Hz is necessary for accurate measurement of eye movements during reading. However, it has not been tested so far whether and how lower sampling rates affect common eye movement effects in reading, such as the frequency effect (e.g., Inhoff & Rayner, 1986; Rayner, 1998), the word length effect (e.g., Rayner, 1998), and landing positions of saccades (e.g., Vitu et al., 1990). In the study, we aim to replicate these classic effects with data of different sampling rates. The results of this study have important implications for the design of eye-tracking studies, particularly those using cheaper equipment, and may shed light on the underlying cognitive processes involved in reading.

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Phenomena of interdependence of language and music rhythm in the choruses of Italian opera

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Music and language share some similarities, among which rhythm plays a central role. The main goal of this study is to identify the interdependence between musical and linguistic rhythm in the sung speech of the choruses of nine selected Italian operas by Rossini, Verdi and Puccini. I have chosen this particular genre among all the possibilities because within the evolution of classical music, it is in the opera that the language started gradually resembling everyday speech: a "music from which music is almost absent […] willingly attaches itself to concrete, palpable reality" (Schwartz 2016: 38).
To achieve this aim I analysed the interaction between the musical and linguistic metrical structures using the Generative Textsetting Model (Halle and Lerdahl 1993, see also Hayes and Kaun 1996), which joins the representation of the relative strength of the linguistic material and the implicit metric configuration of a given musical meter (see Figure 1). Following a set of given principles, the level of stress-beat match and mismatch has been computed and validated by statistical analysis. Moreover, important attention was given to the pre-pausal and post-pausal contexts, in which linguistic constraints play a crucial role in the duration and pitch distribution affecting the musical setting of linguistic prosodic structure. As expected, even if the composers do not always reproduce the rhythmic and the prosodic structure of spoken Italian, they reach a very high level of proximity with marginal discrepancies due to dramatic practices that cannot be avoided in such a refined genre as the Opera.

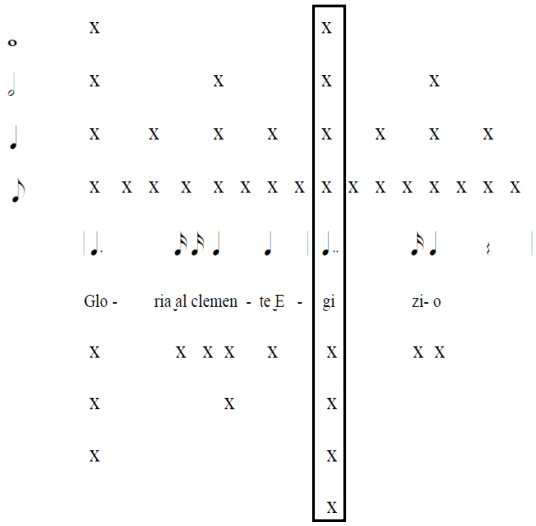

Figure 1 – Musical (at the top) and linguistic (at the bottom) metrical grids of the sentence "Gloria al clemente Egizio" in Aida, Act II, 2, bars 843-844. In this example, the musical grid and the prosodic metrical grid almost overlap, creating a perfect match: the strongest syllable of the sentence, which receive the highest column of x's on the grid, fall onto the first beat of the bar, within which it is the strongest musical position dramatic practices that cannot be avoided in such a refined genre as the Opera.

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Oral comprehension of grammatical structures among children with hearing loss

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Grammatical comprehension in school-age children with hearing loss (HL) is essential to attain the expected linguistic profile for an adequate academic performance (Nittrouer, & Lowenstein, 2021; Klieve et al., 2023). Acquiring Spanish morphosyntactic properties can be a complex process in HL, which highlights the need to study which grammatical aspects are harder and more vulnerable in children with HL from a receptive approach.

The CEG Test (Test de Comprensión de Estructuras Gramaticales) (Mendoza Lara et al., 2005) offers quantitative and qualitative measures of receptive grammar and error types from multiple choice of images, involving grammatical and lexical distractors, without requiring a verbal response. As a first step, the test was applied to a small sample (N=5, age=6.4 years) with congenital bilateral sensorineural HL (from moderate to severe-profound loss, equipped with hearing aids (HH) or cochlear implants (CI)), and no other additional diagnosis. Preliminary data showed a median direct score of 50, corresponding to a median percentile of 10 (mean value 24), with better results in HH participants. Overall, the presence of grammatical distractors significantly hindered the oral comprehension of structures (95.28%) compared to the presence of lexical distractors (4.72%). The most difficult grammatical structures were those involving a critical nominal pronoun and difficulties increased relative to utterance length of test items.

Future research is planned to assess receptive grammatical knowledge and its link to neurocognitive processes in children with HL, using more informative tools and laboratory tasks focusing on the more vulnerable areas in grammar comprehension.

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Online processing and offline ratings of English articles by Korean learners of L2 English and L3 Spanish

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This study examines the acquisition of L2 English articles by native speakers of Korean, an article-less language, compared to that of Korean learners of L2 English and L3 Spanish. The main hypothesis was that positive backward transfer would occur in the trilingual group's comprehension of L2 English articles based on their knowledge of articles in their L3. In order to assess correlations between transfer and implicit/explicit knowledge, twenty-two adult participants, with advanced proficiency in L2 English or/and L3 Spanish, completed an online self-paced reading task and an offline acceptability rating task. Each task was comprised of 30 distractors and 40 test items that consisted of grammatical and ungrammatical sentences with article errors to test whether the participants would be sensitive to the latter (lowering their reading speed and giving a low score in the online and the offline tasks). The findings revealed that the trilingual group featured higher sensitivity when distinguishing English articles than the bilingual group, which provides evidence for positive backward transfer from the L3 to the L2 in article comprehension by learners of English with an article-less L1. However, the findings also showed a task effect as the trilingual group underperformed in the online task probably due to the lack of activation of their explicit knowledge. In conclusion, the study showed that article use improves when participants are proficient in an L3 that is congruent with their L2, but there is a task effect, that is, they still have difficulties with an online task.

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