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Keynotes

Artificial Intelligence in Education. Challenges and Opportunities for (Language) Learning & Teaching.

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Like almost all sectors, education has also been impacted by recent developments in artificial intelligence (AI). From a realistic perspective, we explain why AI is crucial in empowering both the language learner, the language teacher, and the institution. We focus primarily on what AI specifically means for these three key actors in formal education. For the learner, this includes adaptive learning apps, open-ended tasks, and advanced forms of learner support. For the teacher, we address content creation, content recommendation, and classroom monitoring. Regarding the institution, we consider the monitoring of students at risk, student coaching, and the impact on administrative processes. We conclude with some reflections on what's next, in which we pay attention not only to further application possibilities, but also to the valid concerns associated with AI in education (AIED).

Machine Translation and the Challenge of Cross-Lingual Ambiguity

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Ambiguity has been a major challenge for natural language processing since the beginning of the field. For Machine Translation (MT), ambiguity is an issue when source words or sentences with several meanings result in different translations in the target language. For example, if it's pool time, is it time to play billiards or go for a swim? If the fans are out of order, is there a problem at the football (supporteurs) or a ventilation problem (ventilateurs)? Traditional MT was carried out sentence by sentence, and such sentences could be lacking the context necessary to choose a correct translation. In this talk, I will be presenting the problem faced when trying to take context into account, describing both some early challenges in the field and more recent work, including extending the notion of context from linguistic to visual context. A highly important issue for contextual MT is evaluation, and I will also focus on issues in MT evaluation, including the evaluation of how well MT models exploit context.

Enhancing Novel Speech Sounds and Word Learning in Second Language Acquisition

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Many second language (L2) learners encounter challenges when acquiring unfamiliar speech sounds, often failing to achieve native-like pronunciation and instead speaking with a distinct foreign accent. Given the potential for communication barriers and misunderstandings associated with speaking an L2 with a foreign accent, it is imperative for L2 learners to actively practice and refine their pronunciation during the learning process. We will present a series of experiments that indicate how L2 word acquisition and pronunciation accuracy can be enhanced through specific approaches. These approaches involve exposing learners to speech samples from multiple speakers and utilizing foreign-directed speech, while minimizing the influence of native language orthography and employing color-coded L2 orthographic representations. These findings have significant implications not only for models of L2 speech production and learning but also for the development of effective educational strategies and teaching methodologies.

Session 1 - Acquisition

”Each language opens a whole new world”: Parents’ views on multilingualism in early childhood

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Previous research has shown that parents who believe their children’s abilities are less malleable report more frequent engagement with literacy-related activities with their children (Muenks et al., 2015). As part of a mixed-methods study on parents’ beliefs and practices related to language as well as their beliefs about the malleability of their children’s abilities, we administered an online questionnaire (through Prolific) with 193 parents in the USA and conducted semi-structured interviews with a subset of twenty mothers of children ages 0 to 8 (mean age = 3.91 years, sd = 1.95, 89 girls and 104 boys). Our sample included monolingual English speakers and parents who also speak (or are raising children who speak) one or more of 25 other languages. In this presentation, we highlight some of the key quantitative results from the questionnaire, such as the finding that parents who think their children’s verbal abilities are less fixed are more likely to report reading to their child in a second language (1.30 difference in log odds, $p < 0.05$). We also share our qualitative findings obtained through thematic analysis of the interview data. We selected the 20 interview participants such that 10 were raising children learning more than one language and 10 were raising monolingual children. We asked all mothers how they believe children learn a language, whether there’s a relation between age and language acquisition, whether some children are born with a “knack” for languages, and what motivates children to learn another language. Zeroing in on parents’ practices and children’s language development, we asked mothers if they felt they could play a role in their children’s language learning and, if so, what that role entails. We conducted thematic analysis of the interview data, and results from our interview allowed us to form a deeper understanding of the nuanced – and sometimes seemingly contradictory - beliefs that parents hold about multilingualism in early childhood and the diversity of their children’s language environments, including how the parents contribute to shaping it. For example, while most parents said all children can learn a second language, several added that some children would pick up languages more easily and reach greater proficiency, as “some things come easier or harder” for different children. Given the importance of parental involvement in and knowledge about child development for children’s language outcomes, our findings could inform future policies and programs aiming to support parents raising multilingual children.

Phonological influences in early bilingual lexical development: A cross-linguistic questionnaire study on cognate knowledge in bilingual toddlers

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Over the last decades, research has documented a rich interplay between phonological and lexical abilities in both monolingual and multilingual children's early language development (see Byers-Heinlein 2018 for a review). Furthermore, simultaneous bilingual children's early vocabularies do not develop independently, but mutual concepts, denoted by "translation equivalents" (e.g. De Houwer et al., 2006), and "cognates", phonologically similar forms denoting such mutual concept, are important from very early on. Toddlers learning similar languages containing many cognates show larger vocabularies in general (Floccia et al., 2018) and cognate word pairs are known earlier than matched pairs of phonologically distant words (Mitchell et al., 2023). However, to our knowledge, the present study is the first to investigate the role of the phonological similarity on the level of individual children and word form pairs.

As part of a larger study, caregivers of 34 monolingual and 20 bilingual 18-month-olds (exposed to French and English, (Swiss) German, Italian, Portuguese or Spanish) filled in web-based questionnaires on their children's phonology (reporting the accuracy of consonant production in early words) and vocabulary (reporting comprehension and production of 461 translation equivalents, e.g. box-boîte-Dose-scatola-caixa-caja, adapted from WordBank, Frank et al. 2021) in all of their languages. The phonological similarity of word forms across languages was rated via Kohnert et al.s (2004) Cross-Linguistic Overlap Scale.

Partial Pearson correlations, controlling for sex and parental education level, show links between the number of different singleton consonants produced and number of words known, both when collapsing data across languages (production: $p < .001$, comprehension: $p = .041$) and when considering only French (production: $p < .001$, comprehension: $p = .056$). Furthermore, for bilinguals only, we ran two mixed logistic regression models, for production and for comprehension, with random effects for participants and items over all word pairs ($n = 9038$). Both show that knowledge of a word in French can be predicted from knowledge in the child's other language ($p < .001$) and its interaction with phonological similarity ($p < .01$), but there was no main effect of phonological similarity per se ($p > .10$).

Thus, our data provide evidence for strong links between phonology and the lexicon (here, especially in production) during early development for both mono- and bilingual toddlers, and a specific cognate boost on the individual item level for bilingual toddlers. We will discuss methodological challenges as well as the importance of our findings for bilingual lexical acquisition, its mechanisms, and its assessment.

Multilingual effects on co-speech gesture comprehension in school-aged children

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Because of their intertwinement with language and their relevance for an efficient communication, co-speech gestures' investigation has gained much attention in multilingual research over the past few years (Gullberg, 2012). While bilingual individuals have been shown to gesture more frequently than their monolingual peers (Nicoladis, 2007), studies on how multilingualism might impact gesture comprehension remains scarce. Preliminary studies posit that multilingual individuals might exhibit a heightened sensitivity to their communicative environment beyond speech itself, since preschool multilingual children have been found to better interpret communicative cues such as deictic gestures (i.e., pointing) than their monolingual peers (Yow & Markman, 2011). This study explores whether this multilingual advantage persists in school-aged children for whom communicative contexts become more complex, and whether it extends to additional communicative gestures, namely iconic (e.g., gesturing "ball") and conventional gestures (e.g., goodbye gesture) (McNeill, 1992). Eighty-eight six-to-eleven years old (Mean Age: $8;7 \pm 2;4$ months) monolingual ($N=56$) and multilingual ($N=32$) children of comparable non-verbal reasoning (as measured by the Raven's Progressive Matrices) and morphosyntactic skills (assessed with the TROG) took part in the study; multilingual participants had exposure to a second language before the age of 3 and more than 20% of their lifetime, as measured via the Q-BEx (De Cat et al., 2022). They were all tested in their most proficient language. Children performed a new digitalized task inspired by Dimitrova et al. (2017) assessing the comprehension of three types of gestures (deictic, iconic, conventional) and made available in four language versions. A binomial generalized linear mixed-effects model with a logit function enabled to analyse whether the two groups differed in their ability to recognize gestures and whether their performance was differently impacted by the type of gesture. Sex, age, socio-economic status, non-verbal IQ, general morphosyntactic skills, as well as the language of administration were entered additionally as predictors; participants and items were entered as random effects. In comparison to their monolingual peers, multilinguals were significantly better at recognizing gestures ($\beta=-0.70, p<.05$) irrespective of their type, while conventional gestures were significantly less well recognized ($\beta=-0.74, p<.05$) by both groups. Furthermore, a main effect of gender was found: girls exhibited better performance than boys ($\beta=-0.61, p<.05$), a finding consistent with previous studies exploring gestures' production (e.g., Hostetter & Hopkins, 2002), and comprehension (Wermelinger et al., 2020) in monolingual individuals. To our knowledge, this study is the first to show a multilingual advantage in co-speech gesture comprehension in school-aged children, further supporting the idea of a more accurate interpretation of non-verbal communicative cues by the multilingual population.

Session 2 - Education & Learning

Feasibility and emotions in a pedagogical translanguaging protocol for teaching L2 derivational morphology to migrants

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Background. Pedagogical translanguaging (PTL) refers to instructional techniques that incorporate a learner's linguistic repertoire in the teaching of a new language (L2)(1). The principle relies on analogical reasoning that facilitates pattern abstraction and predicts learning efficiency(2). Recent studies indicate that PTL is effective regarding the development of morphological awareness in children(3,4) and generates positive affect(5). This study explored whether PTL can successfully be implemented in adult migrants' classrooms.

Method. 141 migrant learners (79 forced migrants) and 13 teachers were involved in 23 2-hour lessons based on a PTL protocol to teach L2 French and Greek derivational morphology to migrants with A1-B2 proficiency levels. Questionnaires were used to assess the feasibility of the protocol and learners' emotions in both the PTL and the standard lessons (Achievement Emotions Questionnaire(6)).

Results. Teachers and learners gave high evaluations to the feasibility indexes, which were not affected by learners' level of education or L2 level but increased with learners' ratings of L1-L2 similarity. Anger, frustration and anxiety were reduced in the PTL lesson, while curiosity was increased. Forced migrants also showed higher joy in the PTL lesson. Given the impact of emotions on learning(7), PTL may benefit language learning itself, a question that is currently explored through objective language measures in a controlled experimental design.

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Can children in 4th grade learn novel English word pronunciation using a color-code?

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This study examines whether color cues can aid English-language learners in how to pronounce words with inconsistent grapheme-to-phoneme mappings (e.g. as in food, blood, or good). Learners typically remember more when they see the written form of a word. However, they may attain more target-like pronunciation when they learn words auditorily, without any exposure to orthography (Uchihara et al., 2022). However, very few studies have explored how to overcome the potential confusing and negative effects of orthographic input (Hayes-Harb & Barrios, 2021). In this purpose, the use of a color-code has been tested in adults in a recent study (Caudrelier et al., in revision). Color-codes are used for various purposes in language learning including pronunciation learning (Godfroid et al., 2017). No study has explored this topic in children. The present study aimed at testing the effectiveness of the color-code in children learning English as a second language.

Could children use color cues to learn how to pronounce English words? Could they generalize what they learn with color to other items (system learning)? And from color to black-text (item learning)?

We recruited 22 French-speaking children (Mean age = 9.6 year-old) in 4th grade in Lyon, France. They had to learn 8 novel English pseudowords with unpredictable pronunciation based on English grapheme to phoneme mappings (e.g. , pronounced /plu:d/ or /plɪd/) that were associated with pictures. While the picture was displayed, participants heard and saw the novel word which was written with the grapheme of interest (e.g.,) highlighted in color. In the experimental group, each phoneme of interest was associated to a specific color (e.g /u:/ corresponded to purple and /ɪ/ corresponded to orange). In the control group, one of two colors was randomly assigned to each word, regardless the phoneme represented. Both groups had to repeat what they heard. Performance was then tested in a post-test on a variety of tasks, related to orthography (word reading in color and in black) and unrelated to orthography (picture naming and auditory identification task). Pronunciation was assessed based on distance to native-target in (F1, F2) space.

Overall the results indicate that the use of color-cues may be beneficial to pronunciation learning languages with an opaque orthography like English. The use of color can even be generalized to novel items. These results have pedagogical implications, suggesting that color cues can serve as an effective tool in L2 pronunciation teaching.

Word learning interference in bilinguals: the influence of language proficiency.

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Studies suggest that memory consolidation processes take place following practice; however, this phase is susceptible to interference when subsequent learning involves information similar to what was initially learned. Bilingual children, acquiring words in both languages, may encounter interference in word learning, particularly when the words in both languages share meanings but differ in phonological patterns. Existing research has predominantly concentrated on interference during the word production (naming) phase. However, limited research has been conducted on interference during the actual process of learning new words in bilingual individuals. The aim of this study was to investigate is there an effect between the languages in bilinguals in learning new words. Forty 11-year-old bilingual Arabic-Hebrew (Arabic L1) subjects, participated in this study. Pretests showed that L1 was the more proficient language. Twenty-four artificial words (AWs) were used in the study: 12 of them correspond to the morpho-phonology of the Arabic language and 12 to the morpho-phonology of the Hebrew language. The AWs in each language reflected the same 12 meanings. The practice comprised three practice sessions - the second session a day after the first, and the third one week later. Practice was through two tasks: phonological recognition (comprehension) and picture naming. Participants were categorized into four groups. Group 1 (N=10) practiced Arabic AWs and, 30 minutes later, practiced Hebrew AWs. Group 2 (N=10) followed the opposite sequence, practicing Hebrew AWs first and then Arabic AWs after a 30-minute interval. Group 3 (N=10) and Group 4 (N=10) practiced only Arabic AWs or Hebrew AWs, respectively. The results revealed higher success in learning only Arabic AWs compared to only Hebrew AWs. Moreover, the highest achievements were observed when practicing Arabic AWs followed by practicing Hebrew AWs, while the least achievements were noted when practicing Hebrew AWs followed by practicing Arabic AWs. These results suggest that sequential learning of words in two languages may lead to interference and hinder performance. However, the level of language proficiency plays a crucial role in interference occurrence. While word learning in a language with low proficiency is susceptible to interference from word learning in a language with high proficiency, it seems that word learning in a highly proficient language is less susceptible to interference from word learning in a less proficient language. The implications of these results extend to both theoretical understanding and practical considerations in the context of word learning in bilingual individuals.

Poster session 1

1-02: Bilingualism From a Holistic Perspective: Investigation of Bilingual Effects on Cognitive Control

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Although previous studies on the bilingual effects have proliferated in recent years, many results remain inconsistent. To explain this inconsistency, the present study examines the bilingual effects by taking a holistic view, which assumes that the bilingual effects originate from a combination of multiple levels of linguistic and non-linguistic factors, including individual, interpersonal, social and ecological. 148 undergraduate Mandarin-English bilinguals were required to complete two common cognitive control tasks (the Flanker task and the Wisconsin Card Sorting Test (WCST)), which measured conflict monitoring, inhibition, and mental set shifting. Their linguistic and non-linguistic characteristics were also collected through questionnaires and interview. The results of within-group correlation and stepwise multiple regression analyses showed that L2 years of use predicted conflict monitoring, L2 proficiency predicted conflict monitoring and inhibition, whereas age and L2 speaking time in class predicted mental set shifting. These results indicate that different levels of factors restrain the impact on cognitive control, thus presenting a mixed result, which has profound implications in the bilingualism and cognition research regarding the bilingual advantage debate.

1-05: Deciphering Unfamiliar Languages: Mutual Intelligibility of Czech, Russian, and Spanish in Relation to Polish

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Mutual intelligibility is a phenomenon in which speakers of different but related languages can understand each other without prior exposure to a given language. However, its underlying mechanisms are still poorly understood. We explored the extent to which: (1) languages that vary with respect to similarity to Polish are intelligible to Polish native speakers, and (2) shared phonology and semantics alter understanding of an unknown language. Spanish was selected as a distant language, whereas Russian and Czech were selected as close ones with differences in script.

125 Polish natives were presented with 500 pictures and audio recordings of the picture names in one of target languages and were asked to indicate whether the recording and picture match.

Four conditions were introduced: match, i.e., correct words describing the picture presented; phonetic distractor, i.e., nonwords that differ from the correct ones in one vowel; semantic distractor, i.e., words from the same category as the correct ones; and unrelated distractor, i.e., nonwords that sound like plausible words in the target language. Guess rate was estimated for each condition.

Correct guesses were the highest for Czech, and the smallest for Spanish, with Russian falling in between. Likelihood of mistaking the correct word with their phonetic competitor was higher for languages more similar to Polish (i.e. Czech and Russian) compared to Spanish. Finally, guess rates for semantic competitors did not differ between languages.

The findings highlight the reliance on the shared phonology in attempts to decipher a word's meaning in an unfamiliar language, especially if close to one's native. However, the simple fact of reliance on phonology does not simultaneously lead to understanding the language - even though more words were guessed correctly in close languages than in distant ones, participants were also more lured to the phonetic competitors in those languages.

1-06: Developmental trajectories of German spoken language in hearing, hard of hearing children and children with developmental language disorders with forced displacement biography: a pilot study

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Orally-trained monolingual children with moderate to severe hearing loss encounter difficulties perceiving phonological structure. This is associated with deficits in different linguistic domains, such as phonology, lexicon and morphosyntax, which can quantitatively amount to deficits in children with developmental language disorder (DLD) (Briscoe et al. 2001; Klein et al. 2015; Ruigendijk/Friedmann 2017; Tomblin et al. 2015). However, little is known about the developmental course of spoken language in hard-of-hearing children with forced displacement biography (Cannon/Marx 2023). As to hearing children with forced displacement, recent research has shown that second language (L2) development trajectories can vary greatly depending on age of acquisition (AoA) of the L2, quantitative and qualitative input factors as well as socioemotional wellbeing (Paradis et al. 2022). In contrast, hard-of-hearing refugee children are subject to additional adversity factors as access to hearing devices or sign language are rarely warranted in the country of origin (Marx/Urbann 2022). Consequently, these children mostly arrive in the host country with limited- if any- first language (L1) abilities, be it, spoken or signed. Such language development may negatively influence their L2 acquisition (Crowe/Guiberson 2022, Schönström/Holmström 2022).

This longitudinal pilot study (two measuring points with an interval of 12-18 months) investigates oral language development in 3 late successive (AoA_L2 > 6 yrs.) hard-of-hearing refugee children (age: 12;2-13;1, LoE: 28-73 months at T1) and compares them, for the first time, with 3 age-matched hearing children with comparable biography and L1-background (LoE: 18-24 months at T1) and 3 younger bilingual children with DLD (7;4-8;11). Using German LITMUS sentence and quasi-universal nonword repetition tasks (SRT: Hamann et al., 2013; NWRT: Grimm et al., 2014), we focus on phonology and complex morphosyntax, which are identified as vulnerable in individuals with impairments in diverse languages (Chiat, 2015; D’Ortenzio/Valpato 2020; Scheidnes/Tuller 2019).

The results show great discrepancies in the trajectories of the hearing and hard-of-hearing refugee children. Within 30 months of exposure to the L2, the hearing refugee group performed > 60% on LITMUS-SRT and showed almost ceiling performance on NWRT at T1. Conversely, the results of the hard-of-hearing children quantitatively resembled those with DLD in that they performed below 30% on LITMUS-SRT even after 78 months of exposure. In contrast to the children with DLD, the hard-of-hearing children encountered more difficulties in the nonword-repetition task. This demonstrates that hard-of-hearing refugee children experience additional disadvantages due to their variable language experience in relation to their hearing LoE-matched peers.

1-07: Effects of Lexical Frequency and General Oral Proficiency on Spoken Word Recognition by Heritage Speakers, L2 Learners and Native Speakers of Korean

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This study investigates the effects of lexical frequency and general oral proficiency on spoken word recognition among heritage speakers and second language (L2) learners of Korean, compared with native speakers, to explore the potential role of age of exposure in L2 lexical development. The Lexical Enrichment Account (Diependaele et al., 2013) suggests that bilinguals possess less extensive and less entrenched L2 lexical knowledge compared to monolinguals due to their distributed exposure across languages. This account posits that the deficit in the L2 lexicon is more pronounced for low-frequency words and predicts that L2 lexical development is influenced more by general proficiency achieved through frequent L2 exposure and use, rather than by age of exposure. However, recent studies on heritage language development have shown that the lexical knowledge of heritage speakers, who are exposed to the language from birth, cannot be fully explained by their general language proficiency. No correlation was found between overall vocabulary knowledge and oral proficiency in Lee et al. (2009). In this study, we examined the spoken word recognition of heritage speakers in comparison to L2 learners and native speakers of Korean to assess the effects of word frequency and general oral proficiency on L2 lexical development and the role of age of exposure. Preliminary data from an aural lexical decision task, reported in Lee et al. (2009), were reanalyzed to compare accuracy rates and reaction times, first, by group (HS, L2, NS) and condition (high frequency, low frequency), and second, by group (HS, L2) and proficiency level (six levels). The results revealed (i) that judgments of high-frequency words were more accurate and faster than those of low-frequency words across groups; (ii) that heritage speakers displayed similar accuracy and reaction times to native speakers, while L2 learners exhibited statistically lower accuracy than native speakers for low-frequency words and slower reaction times than both heritage speakers and native speakers, regardless of frequency condition; and (iii) that no proficiency effect was observed in either group. In conclusion, heritage speakers demonstrated lexical knowledge and processing abilities comparable to those of native speakers, irrespective of their general oral proficiency in Korean, and outperformed L2 learners, all exhibiting a significant influence of word frequency on performance. The findings suggest a potentially positive role for early exposure in L2 lexical processing, underscoring the need for further research into the impact of age of exposure within the framework of the Lexical Enrichment Account.

1-08: Foreign Language Effect on Mental Imagery: Evidence from Brain Potentials and Psychophysiological Responses

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Existing behavioral studies claimed that using a foreign language might arguably reduce mental imagery among bilingual individuals (Hayakawa & Boaz Keysar, 2018), which is supportive of the foreign language effect. However, due to the methodological limitation, existing data could not provide adequate evidence (Montero-Melis et al., 2022). This study therefore aims to explore whether bilingual individuals would employ the same or distinct cognitive resources when they are performing mental imagery in their first (L1) and second languages (L2) drawing on both neural and psychophysiological measure. Thirty-one Chinese-English bilinguals completed four tasks (English Shape Imagery, English Category Judgment, Chinese Shape Imagery, and Chinese Category Judgment) while electroencephalography (EEG), electrocardiograph (ECG), electrodermal activity (EDA), and photoplethysmogram (PPG) were recorded simultaneously. Interestingly, behavioral results showed that task difference (Shape Imagery minus Category Judgment) was more pronounced in L1 Chinese than L2 English. ERP results revealed that foreign language effect on mental imagery was not significant on semantic N400, yet in a later time window of LPC. In addition, there was a significant language effect on EDA, such that L2 English elicited greater skin conductance levels than L1 Chinese. Results were interpreted in the (dis)embodiment framework of bilingual processing and thinking.

1-09: Gender-congruency effect in native speakers and bilinguals: exploring its neural correlates in bare nouns picture-word interference paradigm

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Different effects have been observed when processing two stimuli that share semantic, grammatical, or phonological features, supporting the notion that lexical representation comprises information specified at different levels. In Romance languages like Italian and Spanish, the congruence in grammatical gender induces interference during bare noun production (Cubelli et al., 2005; Paolieri et al., 2010; 2011), evidencing a competitive selection of grammatical gender in production even when agreement is not needed. We aim to shed some light on the underlying processes inducing the Gender Congruency (GC) effect in native and bilingual speakers due to the absence of GC in other languages, and the relevance of this proposal for language production models. We designed a picture-word interference task in Spanish and manipulated the GC between the name of the picture and the distractor word: half the distractors were congruent with the picture noun (e.g., barco-MAS boat, laberinto-MAS maze) and half incongruent (e.g., barco-MAS boat, mesa-FE table). Additionally, we manipulated the gender congruency between Spanish distractors and its Catalan translation: half of the distractor words were congruent between Catalan and Spanish (mesa-FE, taula-FE table), and half were incongruent (nariz-FE, nas-MAS nose). We tested Spanish native speakers and Catalan-Spanish bilinguals (Spanish-L2); we thought of using linguistic coactivation in bilingual individuals to enhance the GC for stimuli sharing the same grammatical gender in both languages. The electrophysiological responses during the Spanish naming task were recorded. We analyzed three different ERPs' time windows (TW): 1st (150-225ms), 2nd (200-350ms), and 3rd (350-450ms). We found longer naming latencies in both groups when the distractor was congruent in gender with the picture's noun vs. incongruent. In the 1st TW, bilinguals evoked more negative responses with between-language incongruent distractors vs. congruent, indicating the effect of coactivation of the distractor noun. In the 2nd TW, Spanish native speakers evoked more positive responses for the congruent vs. incongruent condition. Taking this positivity as the P2 component, it could indicate an effortful selection of the congruent target lexical representation. Finally, in the 3rd TW, both groups evoked more negative responses for the congruent vs. incongruent condition, indicating more difficulty accessing the picture's name. Moreover, this effect was stronger for bilingual participants. Altogether, our results support the notion that grammatical gender is an intrinsic lexical property and that its selection is crucial in bare noun production, in contrast with the idea of a pure syntactic feature selected only in noun phrase production.

1-10: Individual Differences in Artificial Language Learning: The Roles of Similarity, Grammaticality, and Rule Knowledge

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The language learning process can be taxonomized into the learning of relationships between stored instances and new information, and the extraction and application of abstract rules (Shanks & St. John, 1994). Focusing on individual differences, we separate the influence of similarity and grammatical rules on learning and ask if distinct groups of learners exist: those who rely on similarity between new information and stored instances, and those who rely on abstracted rules. We also investigate whether reliance on similarity or rules is affected by explicit instructions about the underlying structure. 131 participants, across two online studies, completed a matrix reasoning test (Mars-IB) and a word learning task. They learned 24 trisyllabic words as names of objects. These words featured four non-adjacent dependencies (NADs) between the first and third syllables (e.g. paxxto), where 'xx' came from a set of intervening syllables. In the first experiment, participants were unaware of this underlying structure. Participants in the second experiment were explained the non-adjacent dependency before the training phase. All participants were exposed to each image-word pair once and later tested on their recognition of the correct word among two alternatives. The incorrect alternative aimed to create interference and differed along two dimensions - similarity and grammaticality. A grammatical word adhered to the NADs present in training (e.g. pakato), and an ungrammatical word violated them (e.g. pakano). Levenshtein distances for similar and dissimilar alternatives were 2 and 6 respectively. We did not find any correlation between matrix reasoning performance and effects of grammaticality and similarity. We fit frequentist and Bayesian hierarchical models with experiment, similarity, grammaticality, and their interaction as fixed effects. To capture individual differences, we included random intercepts and random slopes per participant. We found no effect of experiment on accuracy; pre-existing knowledge of structure did not lead to an improvement, or a modulation in the effects of similarity or grammaticality. We found significant main effects of similarity and grammaticality. Across both analyses, there was evidence for better accuracy in when distractors were ungrammatical, and a benefit for dissimilar alternatives. Random slopes revealed that individuals differed in how much they relied on similarity and grammatical rules. Unimodal distributions of slopes, however, refute the existence of distinct groups based on strategies. It is likely that individuals employ both instance- and rule- based routes to varying extents when learning structures in a new language and this is unaffected by prior knowledge of rules.

1-11: Investigating ageism in a multilingual context: a case study of student teachers in China

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Ageism, a socio-psychological individual difference (ID) variable which refers to 'stereotypes, prejudice, or discrimination against people because of their chronological age' (Ayalon & Tesch-Römer, 2017, p. 1), remains under-investigated (Wilson et al., 2019). Scholars in different academic fields (e.g., sociology, gerontology, and communication) have suggested the need to explore ageism among university students (Scrivano & McCulloch, 2021). However, in language-related academic fields including sociolinguistics, educational linguistics and multilingualism research, limited research attention has been paid to investigating this socio-psychological construct.

Accordingly, the present study aimed to examine ageism towards older adults among student teachers, an important but much under-researched group of university students in the Chinese context, where multilingualism is the norm. Specifically, the study investigated ageism and its link to multilingualism (operationalized as English learning proficiency) among student teachers. A questionnaire survey comprising the adapted Chinese form of Fraboni Scale of Ageism (FSA) and one section soliciting sociobiographical data (e.g., age and gender) was conducted. A 'more refined' version of hierarchical regression analysis (Wei et al., 2020) showed that bilingualism exerted very important influence on ageism and a few other sociobiographical IDs influenced ageism to different degrees. For example, multilingualism ($\Delta R^2 = 2.75\text{--}4.79\%$) emerged as a very important predictor for ageism because its minimum ΔR^2 exceeded the "large" effect size benchmark (2%); as regards the direction of this influence, multilingualism was negatively linked to ageism, suggesting the higher level of multilingualism, the lower level of ageism.

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1-13: Keep Calm and Create On: Using the Second Language Reduces Semantic Interference During Creative Ideation in Bilinguals

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Creativity is probably the single most desirable skills of all human skills. One core finding is that brain oscillation power in the alpha range increases when individuals produce creative ideas, and creative individuals tend to produce more alpha than less creative peers. But no study has yet attempted to compare creative ideation across languages in bilinguals, although creative enterprises often engage the second language (L2).

Here, we compared creative output in the two languages of highly fluent Polish-English bilinguals engaged in a cyclic adaptation of the Alternative Uses Task (AUT). The AUT is a well-established creativity assessment, where participants propose alternative uses for common items (e.g., a brick) within a 2–3-minute timeframe. While convergent thinking may play a role, the primary emphasis is on divergent thinking. Our cyclic adaptation of the AUT required participants to report their single best idea at the end of each of three 30-second ideation cycles, instead of listing all the ideas that come to mind over a longer time period (classic task), thus increasing the focus on idea selection (convergent thinking).

Right posterior alpha oscillation power, known to reflect creative thinking, increased over cycles alongside an increase in originality ratings (with cycles 2 and 3 showing significant increases in Alpha power and originality ratings as compared to cycle 1). Whilst lower alpha power was significantly stronger in L1 than L2, this difference was not accompanied by a difference in originality between languages. Unexpectedly, we found greater beta desynchronization in L2 than L1, suggesting that bilingual participants suffered less interference from competing mental representations when performing the task in the L2.

This novel result suggests that, whilst creative performance is unaffected by language of operation overall, bilinguals are not subjected to the same semantic interference from irrelevant information in the L2 as they naturally experience in the L1. Given the prevalence of bilingualism in the world today and the lingua franca status of English, our result may provide the foundation for encouraging the use of L2 in creative ideation.

1-14: On the perception of non-native stress contrasts by French listeners: behavioral and ERP correlates

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French listeners have been shown to exhibit difficulties in perceiving non-native word stress, particularly in detecting a change in word stress position. Nonetheless, in all the behavioral studies examining the ability of French listeners to process non-native stress contrasts, French listeners performed rather well, above the chance level and achieved around an 85% accuracy. In this study, we provided a more in-depth examination of the time-course of the discrimination of non-native stress contrasts by French listeners, and we examined their ability to perceive word stress position. To do it, Event-Related-Potentials (ERPs) were recorded while participants performed a same-different task. They first heard four stimuli that were strictly identical in respect to both their phonemic and stress patterns, but produced by four different female speakers (e.g., /ʒy'vi/-/ʒy'vi/-/ʒy'vi/-/ʒy'vi/), and then heard a fifth stimulus, the target, always produced by a male speaker. The target was either the same as (identical condition; e.g., /ʒy'vi/), or different from the first four stimuli (deviant conditions). In the deviant conditions, the target stimulus differed from the first four stimuli, either in the phonemic (phonemic deviant condition; e.g., /ʒy'vi/) or in the stress (stress deviant condition; /ʒy'vi/) pattern. We measured the precise moment(s) at which phonemic and stress discrimination occurs by comparing the ERPs in the standard vs. deviant conditions. Although participants reached a 93 % accuracy, ERPs results indicated that a change in word stress was never detected (/ʒy'vi/-/ʒy'vi/), while a change in one phoneme elicited a MisMatch Negativity (MMN) response. Our results indicate that in the early moments of speech processing, non-native stress contrasts are perceived as being strictly similar. We conclude that the good performances observed in behavioral responses are due to attentional/decisional processes linked to the discrimination tasks, and not to automatic and unconscious processes involved in the processing of word stress.

1-15: Organizational and Pedagogical Conditions for Fostering a Polycultural Personality of a Student

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The purpose of this study is to explore the organizational and pedagogical conditions necessary to foster the multicultural individuality of students in an educational setting. This abstract delves into the organizational and educational conditions necessary to foster multicultural attitudes and competencies among students.

Research Methods:

1. Literature Review:

A comprehensive review of existing literature will be conducted to explore theories, frameworks, and empirical studies related to multicultural education, organizational structures, and educational practices. This will provide a theoretical foundation and identify gaps and areas for further investigation.

2. Case Studies:

In-depth case studies will be conducted with institutions known for their successful implementation of polycultural education. These case studies will examine institutional policies, curriculum design, pedagogical approaches, and student experiences in order to identify best practices and effective strategies.

3. Surveys and Interviews:

A questionnaire will be administered to students, educators, and administrators to collect data on their perceptions, experiences, and attitudes toward multicultural education and the effectiveness of existing organizational and educational practices. In addition, semi-structured interviews will be conducted with key stakeholders to gain deeper insights and perspectives.

4. Observations:

Conduct observational research in an educational setting to observe interactions, dynamics, and practices that contribute to or hinder the development of students' multicultural character. Document classroom activities, extracurricular events, and institutional policies related to multicultural education.

5. Comparative Analysis:

Compare and analyze data collected from different institutions, cultural backgrounds, and demographic groups to identify patterns, trends, and differences in institutional and educational approaches to multicultural education. Factors such as institution size, location, student demographics, and cultural background will be considered.

6. Qualitative Data Analysis:

Analyze textual data from literature reviews, interviews, observations, and case studies using qualitative data analysis techniques such as thematic coding and content analysis. Identify recurring themes, patterns, and emerging concepts related to organizational and educational conditions that foster multicultural distinctiveness.

7. Synthesis and Recommendations:

Findings from the literature review, case studies, surveys, interviews, observations, and comparative analysis will be synthesized to develop evidence-based recommendations for strengthening organizational and educational conditions to promote multicultural education. Practical strategies, guidelines, and policy recommendations will also be presented to support the implementation of effective multicultural education initiatives in educational institutions.

1-16: Processing Ambiguous Sentences in L2: A Comparison of Children and Adults

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The human parsers incrementally integrate the upcoming information when processing sentences. While processing potentially ambiguous sentences such as *While the students studied the music played all the time, the music could be attached as the object of the verb studied*. Previous work suggests that monolingual children and adults show longer go-past durations in syntactically ambiguous sentences. A connected phenomenon explaining this processing is "semantic persistence" (1). It proposes that even if the human parsers become aware of the problem in the sentence, they become attached to their initial interpretation without a reanalysis. In a second language (L2), both child and adult learners assign longer RTs in post-disambiguating region than disambiguating one, proving that semantic persistence is more severe. This study reports the RTs assigned to temporarily ambiguous sentences with (n=40) and without comma (n=40) through a self-paced reading task (SPRT). Turkish adults (n=30, meanage=22) and children (n=30, meanage=10) learning English as L2 participated in SPRT. The research questions addressed were (i) whether the RTs assigned to the disambiguating and post-disambiguating regions differed within the children and adults (ii) whether the RTs assigned to the disambiguating and post-disambiguating regions differed between the children and adults. For the data analysis, we developed a statistical model by taking group (children vs. adults) and condition (experimental vs. control) as the independent variables and the RTs as the dependent variable and ran a series of paired-samples and independent samples t-tests. The results indicated that the adults had prolonged RTs in the disambiguating region in sentences without comma ($t(29)=8, p< .001$) than those in post-disambiguating region ($t(29)=.99, p=.321$). Children, on the other hand, were not sensitive to the disambiguating function of comma in the disambiguating ($t(29)=.1.39, p=.164$) or the post-disambiguating region ($t(29)=.41, p=.682$). Children manifested longer RTs than adults when processing the disambiguating region in sentences with ($t(59)=13.75, p< .001$) and without a comma ($t(59)=5.54, p< .001$). A similar pattern was observed in the post-disambiguating region with ($t(59)=2.10, p=.037$) and without a comma ($t(59)=3.65, p< .001$). The main findings are that (i) the effect of ambiguity is more obvious in adults than children, (ii) adults do not show the effect of semantic persistence, and are able to activate reanalysis mechanisms.

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1-17: Schema Consistency Effects in L2 Word Learning

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Previous research has shown that experiences that match a learner's prior knowledge (so-called "schemas") are not only better retained, but may even use a different memory route than those unconnected to prior knowledge. In particular, such 'schema-consistent' content might be learned with less involvement of episodic memory, and be instead encoded directly into semantic memory (Van Kesteren et al., 2013). To address these findings in the context of bilingual word acquisition, word learning in an L2 was investigated across three experiments where Dutch participants learned words in Mandarin (Exp. 1), Italian (Exp. 2) or Swedish (Exp. 3). The degree of prior knowledge relevant to the learning materials varied in all three experiments. In Exp. 1, the words' phonemes either also existed in L1 Dutch or not. In Exp. 2 and 3, words were either cognates (i.e. overlapping in form and meaning) with Dutch or not, with varying degrees of predictability of the cognate form given the Dutch word. For instance, the cognates in Exp. 3 were almost identical to the Dutch word, with the exception of an additional -a suffix. In addition, in Exp. 3, participants were tested on two separate days to examine how passing time and consolidation influenced memory for cognates and non-cognates. To investigate the specific involvement of episodic memory, source memory (i.e.: memory for contextual information) was measured. Specifically, we tested memory for the voice (male / female) by which a word had been spoken during learning (source memory), along with memory for the word itself (item memory). The results of the first three experiments showed, first, that schema-consistent items (cognates, or phonetically 'easy' words) were recalled better than inconsistent ones. Critically, source memory in experiments 1 and 2 followed the same pattern. However, Exp.3 revealed no difference in source memory for cognates vs non-cognates. It is possible that the presence of very easily learnable words induced shallow encoding, leading to overall reduced source memory. In addition, the consolidation manipulation of experiment 3 revealed that item memory decreased more for non-cognates than for cognates between session 1 and 2, consistent with the idea that cognates already consolidated in semantic memory on day 1. These findings will be discussed in light of schema-based theory and resource-based theory, which predict opposite effects of prior knowledge on the acquisition of new information.

1-18: The impact of L2 use on L1 speech production: An exploration of different L2 tasks in comprehension and production

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Bilingual speech production necessitates the deliberate selection of a language according to a given context while concurrently disregarding the alternative language. Managing the simultaneous activation of two languages involves measurable processing costs. One instantiation of these costs, particularly evident in unbalanced bilinguals, is a lingering difficulty in lexical retrieval in the first language (L1) after naming pictures in a second language (L2), namely the L2 after-effect. Yet, the exact mechanisms underlying this effect are still not fully understood. The aim of the present study has been to explore the roots of this phenomenon by examining how various forms of L2 use (exposure) affect the subsequent speech production in L1. The L2 exposure involved manipulation of the complexity of the linguistic material (single words vs. narrative) and the type of the task (reading aloud vs. speech production following picture presentation). We analyzed how different L2 tasks-ranging from reading aloud to picture naming (i.e., single-word reading, narrative reading, and picture naming)-affect the subsequent L1 retrieval in a picture naming task in Polish-English bilinguals and the extent to which balance between L1 and L2 moderates this effect. 149 Polish-English bilinguals took part in the study, which included different L2 exposure tasks: reading single-words (N=56), reading short narratives (N=59), and picture naming (N=34) on a subsequent picture naming task in L1. The single-word and short narrative reading tasks did not yield a main effect of L2 on L1. This influence was also not modulated by the language balance. However, consistent with prior research, we found a significant interaction between the effect of L2 on L1 and language balance in picture-naming task, where the effect was more pronounced for unbalanced speakers. The results highlight differences in sub-processes involved in reading aloud vs. picture naming as potential candidates to explain the presence and absence of costs related to L2 processing. The absence of the L2 after-effect could either indicate that production of complex utterances is less challenging (as it is a well-practiced skill), or that the L2 after-effect is only present for tasks allowing near transfer. These insights contribute to our understanding of bilingual language processing and inform theoretical models, shedding light on the differential impact of various language manipulations for engagement of bilingual language control.

1-19: The role of semantic transparency in compound formation in first and second language: A comparison of children and adults

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Compound words are a combination of two words to form a new word. Compounds can be semantically transparent (T) (e.g., doghouse), semi-transparent (ST) (e.g., strawberry), and opaque (O), (e.g., hotdog). Under the dual route access accounts, strong facilitation of transparent than opaque compounds is predicted if opaque compounds have a single word-form representation and transparent compounds are assembled from both constituents. Cognitive maturity, morphological familiarity and semantic transparency play a role in the acquisition of compounds. English-speaking children start using compound words by age two and establish semantic relationships between the words that form compounds as they get older. Turkish-speaking two-to-four-year-old children understand transparent compounds better than the opaque ones. Four-year-old English-French bilingual children acquire compound words later than adjective phrases in both languages. Four-year-old Farsi-English bilingual children manifested transfer effects from English and lagged behind monolingual Farsi and English children in compound word production. Turkish-speaking adults assigned shorter reaction times to morphologically related compounds than those that are morphologically unrelated in a picture naming task. The level of transparency and language proficiency are reported to play a role in the processing of compounds by Turkish adult L2 learners of English. This paper focuses on the production of semantically T, ST and O compounds in Turkish, first language, and English, second language. The child (mean age= 9;5) and adult participants (mean age=22) were asked to produce compounds from pictures presented on PowerPoint slides in both languages. We ran binary logistic regression analysis by taking language (Turkish vs. English), condition (T vs. ST vs. O) and group (child vs. adult) as the independent variables, and response (accurate vs. inaccurate) as the dependent variable. The adults had the highest rates of accuracy in the ST condition in L1 and were above 85% accurate across conditions in L2. The children were more accurate in the ST compounds in L1 (86.9%) and L2 (47.5%), lending support to the dual route access accounts. The predicted variable language ($\beta=.70$, $SE=.06$, $Wald=132$, $p<.001$), condition ($\beta=.68$, $SE=.07$, $Wald=80.5$, $p<.001$) and group ($\beta= 1.58$, $SE=.06$, $Wald=611$, $p<.001$) were found to contribute statistically significantly to the model. Compound production could be driven by semantic relatedness and poor semantic priming for opaque compounds in L1 and L2 could be due to unrelatedness between the constituent meanings of compounds.

1-20: The third language imitation of Spanish rhotic-lateral contrast by Akan-English bilingual children and adults: the effect of first language transfer, orthography and age of acquisition

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Very little is known about the factors that modulate third language (L3) speech learning. This study explores L3 imitation by Akan-English bilingual children and adults, an understudied population. Specifically, it examines the following: (i) first language (L1) transfer in the imitation of the Spanish rhotic-lateral contrast, (ii) the effect of orthographic input on the imitation of the rhotic-lateral contrast in Spanish as an L3, and (iii) the effect of age of acquisition with the inclusion of a comparison between children and adults. Transfer (Flege & Bohn, 2021), orthography-induced-transfer (Rafat, 2016; Bassetti, Escudero, & Hayes-Harb, 2015) and age of acquisition (Birdsong, 1999; Paradis, 2024) have been explored previously in second language speech, however, not much is known about the role of these factors in L3 speech learning. Moreover, whereas rhotics and laterals are contrastive in most varieties of Spanish and English, they are in free variation in Akan (Guerini, 2018). The participants consisted of 20 Akan-English bilinguals between the ages of 8-10 and 18-55. The study consisted of three tasks: (1) an auditory imitation task (conducted in Spanish and English), (2) an auditory-orthography imitation task (conducted in Spanish and English), and (3) a picture-naming task (conducted in Akan). The participants also completed a Language Background Experience and Proficiency Questionnaire (LEAP-Q). The stimuli consisted of a total of 36 English words, 42 Spanish words, and 31 words in Akan, in addition to 19 distractors. The target segments analyzed in the study included the Spanish tap (r), trill (r) and lateral (l) and the English lateral (l) and approximant (ɹ). The stimuli were controlled for position and stress. Examples of Spanish words used in this study were /pero/ 'dog' (trill (r)), /pelo/ 'hair' (lateral (l)), and /caro/ 'expensive' (tap (r)). The productions of the target segments (4, 364 tokens) for each language were manually inspected in Praat by two trained individuals and labeled based on their acoustic and perceptual properties. A series of ANOVAs were performed. The results showed a significant effect of L1 transfer ($F(2, 4260) = 282.032$, $p < .001$) and positive effect of orthography ($F(1, 4260) = 175.555$, $p < .001$) $F(1, 4260) = 175.555$, $p < .001$). In addition, the children significantly outperformed the adults ($F(1, 4260) = 5.528$, $p < .05$). The findings are important because they shed light on the factors that modulate L3 speech learning in an understudied population.

Session 3 - Heritage speakers

Subject and object wh-question comprehension among Farsi-speaking adults, monolingual children, and heritage child speakers of Farsi

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The processing of object which-questions poses challenges for both adults and children: they display an agent-first interpretation bias which later requires revision (1-3). Morphosyntactic cues might effectively guide revision or even prevent the parser from committing to an incorrect interpretation (1-4). Farsi represents a good test case for this hypothesis because it has an object marker *ra*, following object nouns and bare wh-objects. Therefore, when the wh-object appears clause-initially, it offers an early cue that should prevent commitment to a subject/agent-first interpretation (or facilitate revision) in object which-questions (4). Our study is the first to investigate (a) whether Farsi-speaking adults and children are sensitive to the presence of *ra* and use it for the comprehension of object who and which-questions and (b) to what extent heritage children differ from monolingual children in their interpretation of subject and object questions.

The participants were 15 monolinguals (M=4;9yo), 16 heritage child Farsi speakers (M=7.3yo), and 33 Farsi-speaking adults (M=28;3yo). They were assessed on a picture-selection task in which they heard 32 items varying according to *structure_type* (subject/object) and *wh-word* (who/which).

A GLMER analysis of response accuracy yielded a significant interaction ($p < .001$) between *wh-word* and *structure_type*: while adults and monolingual children only showed a subject-object asymmetry with who-questions, heritage children also displayed this asymmetry with which-questions. A LMER on reaction times/RTs revealed a significant effect of *structure_type*, as all groups slow down when processing object questions.

The findings show that contrary to cross-linguistic evidence (1,2), object who-questions pose comprehension difficulties not only for monolingual and heritage children but even for Farsi-speaking adults. Unlike adults and monolingual children, heritage children are unable to integrate the information provided by *ra* to disambiguate between a subject and an object interpretation (5). Considering individual variation, heritage children with higher cumulative exposure are likely to comprehend object questions more accurately and the better heritage children perform in sentence repetition tasks (LITMUS-SRT), the higher they score on object questions.

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Priming motion event constructions within and across languages in heritage speakers of Italian living in Germany

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Within- and across-languages priming occurs with structures that are available in both of bilinguals' languages (e.g., Spanish and English passives; Hartsuiker et al. 2004). Investigating innovative structures could provide further insights into cross-linguistic influence, showing whether innovations can be primed across languages. It may also offer insights into the mechanisms of how innovative structures enter a language via contact-induced language change.

In this contribution we focus on motion event constructions, which are sensitive to cross-linguistic influence in bilingual populations (Engemann 2022; Montero-Melis et al. 2016). Following Talmy's (1983) typology, German prefers satellite-framed (SF) constructions, where Path is encoded in the verbal periphery, whereas Italian prefers verb-framed (VF) constructions, where Path is encoded in the verb. By comparing the results of a within- and an across-language priming experiment we investigate if SF constructions can be primed in Italian (innovative option), depending on whether the prime is in Italian or in German.

We tested 27 Italian HL speakers in Germany (f=18, m=9) between 11-58 years (M=15; SD=3.96), who were either simultaneous or sequential bilinguals (AoO=6 years). In two separate sessions, spaced at least a week apart, participants performed a within- and an across-language production priming task. In each session, participants had to describe in Italian 30 target videos showing motion events after being presented with 30 primes (15 VF and 15 SF), each coupled with a video. Primes were either presented in Italian (within-language task) or in German (across-language task). We adopted the same lexical items (or translation equivalents) in prime and target sentences.

Overall, participants preferred VF (74.72%) compared to SF (25.28%) constructions. A Generalized Linear Mixed Model of the probability of producing an SF target sentence revealed: an effect of prime (SF vs. VF) ($\beta=2.53, SE(\beta)=0.37, z=8.09, p<.001$), such that SFs were produced more after an SF prime; an effect of task (within vs. across) ($\beta=0.61, SE(\beta)=0.29, z=2.13, p=.03$), indicating that SFs were produced more in the within-language task; and a significant interaction ($\beta=1.53, SE(\beta)=0.40, z=3.75, p<.001$), whereby SFs were produced more in the within-language task following an SF prime (Figure 1). Therefore, innovative structures can be primed both within and across languages, suggesting that language contact can induce innovations to emerge. However, when primes and targets share the same language, as in the within-language task, the probability of producing an innovative structure increases. This suggests that innovations are more likely to occur when they arise within the language itself.

Examining Accentedness in Russian Heritage Speakers: The Influence of Bilingualism Onset Age

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The current study investigates the presence and intensity of a foreign accent in the Russian language among heritage language (HL) speakers. HL speakers are individuals who are exposed, to varying degrees, to a language at home that is different from the dominant societal language (SL) (e.g., Benmamoun et al., 2013). While it is widely acknowledged that the phonological domain of HL speakers is native-like and relatively unaffected by factors such as diminished input and cross-linguistic influence (Chang, 2021; Polinsky, 2018), evidence suggests the presence of a foreign accent in HL speakers (see Kupisch et al., 2014; Marecka et al., 2020).

To evaluate accent levels in HL speakers, this study focuses on HL maintenance across three distinct bilingual Russian-Hebrew-speaking groups, differentiated by the age of onset of bilingualism (AOB) and a group of monolingual controls: BL-Early (n=20), including those who arrived in Israel before age 5 or were born to Russian parents there; BL-Late (n=20), immigrants arriving in Israel between ages 5-13; Immigrant Control (n=20), adults immigrating to Israel after age 13; and MonoRU (n=20), monolingual Russian speakers without an immigration background, serving as the baseline. All bilingual participants resided in Israel for an average of 20 years. Samples were elicited for the four groups based on the RUEG protocol (Wiese et al., 2022). Speech samples involved describing an incident in a parking lot shown via video recording. Twenty monolingual Russian raters residing in the Russian Federation evaluated narratives produced by participants from the four control groups (BL-Early, BL-Late, Immigrant Control, and MonoRU). Narratives were assessed for the prominence of a foreign accent (rated from 0 to 6) and the raters' certainty level (rated from 1 to 3).

Mixed-effects modeling revealed group differences for the raters' accented rating. Participants in the BL-Early group significantly exhibited the most noticeable accent, followed by those in the BL-Late group who showed a lesser degree of foreign accent. The Immigrant Control group displayed minimal to no foreign accent, aligning closely with the MonoRU group. Furthermore, the study discusses how individual characteristics of the speaker (e.g., language proficiency, childhood and present linguistic input patterns) may predict the level of accentedness.

In conclusion, this study sheds light on the presence of a slight accent among HL speakers, deepening our understanding of accent acquisition and maintenance in this population.

Session 4 - Lexicon

Recognition memory for L1 and L2 words in bilinguals

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Evidence from memory research suggests that the degree of prior knowledge may change the way we encode and store new information. In particular, schema theory postulates that new information that is consistent with prior knowledge, or schema's, can be learned largely while bypassing the hippocampal, episodic memory system and be integrated directly into the neocortical, semantic memory system. As a result, this schema-consistent information should be remembered better, but with less episodic detail, such as context information of the learning episode (source memory). In this study, we examined whether language membership (L1 vs. L2) can be seen as an instance of 'stronger' (L1) vs. 'weaker' (L2) prior knowledge, and whether this prior knowledge manipulation elicits similar effects on item and context memory as those reported for other materials in the memory literature.

We instructed unbalanced bilingual speakers to remember Spanish (L1) and English (L2) words blocked by language that were surrounded by a coloured frame. After each block, they were tested for recognition of these words among new word foils. For every recognized word, they were also asked about the word's frame colour. We asked whether memory for items and their frame colours (source memory) differed by language (L1 vs. L2), and also by the bilinguals' level of English proficiency.

To investigate the precision of item memory, we additionally added a set of synonym pairs in each block, one of which was shown in the learning phase and the other one in the testing phase (thus, requiring a 'no' response). A possible increase in false alarm rates on these synonyms compared to other foils would indicate a lack of memory precision, something that was observed for schema-consistent learning content before.

The results show, first, that L2 words were recognised better than L1 words, contrary to the typical prior-knowledge effects in the memory literature. Furthermore, different from the predictions of schema theory, language did not significantly affect source memory (frame colour). Importantly, though, participants showed more false alarms on synonyms in L1 Spanish than in L2 English, but only for participants with relatively low proficiency in English. Thus, L2 words are encoded more reliably and with more precision for the exact word form, but not for context details, than L1 words, possibly a consequence of increased salience of words from the less frequent and less automatized L2, especially when L2 proficiency is not very high.

Impact of Lexical Tone Similarity on Mandarin Word Processing in French Learners

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In Mandarin, the lexical meaning of syllables is determined by four main tonal patterns, with tones 2 and 3 exhibiting smaller differences in acoustic properties compared to other tone pairs. Research with native (L1) speakers has shown that the degree of acoustic deviance influences auditory processing of tonal contrasts (Lee & Cheng, 2020; Chandrasekaran et al. 2007); however, limited attention has been given to L2 learners' sensitivity to this factor. To fill this gap, we recruited 17 French learners of L2-Mandarin and a control group of 25 L1 Mandarin speakers. In the match-mismatch task, participants heard a monosyllabic prime word repeated three times by different native speakers, followed by a target word pronounced by another native speaker. Primes were created to fulfill four conditions: Match, Similar-tone Mismatch, Dissimilar-tone Mismatch, and Vowel Mismatch. In the lexical decision task, disyllabic Mandarin words were presented along with nonwords created by altering the tone of the first character of a real word to a similar tone (similar-tone nonword) or a dissimilar tone (dissimilar-tone nonword). Participants' discrimination ability was indexed by their d-prime score. Both L1 and L2 participants exhibited a larger positive response bias for similar-tone mismatches compared to dissimilar-tone and vowel mismatches. Additionally, both groups showed a larger positive response bias towards dissimilar-tone mismatches compared to vowel mismatches. For the lexical decision task, L1 participants showed high accuracy and no significant difference in d-prime scores as a function of tone similarity. In contrast, L2 learners displayed a larger positive response bias (lower d-prime) for similar-tone compared to dissimilar-tone nonwords, suggesting they experienced greater difficulty in determining lexical validity with smaller tonal variation. Altogether, our behavioral data indicated that the degree of acoustic difference impacts auditory processing of monosyllabic words for both L1 and L2 listeners. In contrast, for more complex stimuli involving 2 characters/syllables, only L2 learners showed an effect of acoustic similarity during lexical processing. We conclude that while both L1 and L2 listeners are sensitive to acoustic differences between tone contrasts, only L1 listeners overcome this impact when the task requires processing at a lexical level. Our study reveals significant implications for L2-Mandarin instruction, emphasizing the importance of addressing nuanced tonal distinction within complex linguistic contexts to enhance learners' proficiency.

The acquisition of motion events construal by German learners of L2 Italian: Do learners adapt to new lexicalization patterns and semantic constraints?

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Motion event construal is a domain in which L2 learners have difficulties adapting to the target language norms (e.g., Laws et al., 2022), even at relatively high proficiency levels. According to Talmy's typology (Talmy, 1983), languages vary according to the way they encode motion events. Satellite-framed (SF) languages (e.g., German) typically encode Path in satellites (e.g., into), whereas verb-framed (VF) languages (e.g., Italian), usually encode Path of motion in the verb stem (e.g., entrare, 'enter'). Thus, German learners of Italian need to learn a new way of encoding specific aspects of motion in new L2 forms. This task is particularly challenging considering that, despite a general VF preference, Italian allows the use of SF constructions, especially in contexts in which motion events do not imply the crossing of a boundary (boundary-crossing constraint) (Slobin, 1994).

In the present work, we investigate a) whether German learners of Italian show differences in their lexicalization preferences compared to native speakers of Italian possibly due to cross-linguistic influence b) whether learners are sensitive to the boundary-crossing constraint. To answer these questions, we conducted a video-description task eliciting 16 boundary-crossing motion event constructions and 16 non-boundary-crossing motion constructions. A total of 37 participants took part in the task (20 native speakers of Italian - mean age: 22.5; and 17 upper-intermediate German learners of Italian - mean age: 36.1).

The results of a GLMM – lexicalization pattern as the dependent variable (VF = 0; SF = 1); speaker group (L2 vs. L1), condition (boundary crossing vs. non-boundary-crossing) and their interaction as fixed effects – suggest that L2 learners overproduce SF constructions compared to native speakers ($\beta = -2.54$, $SE(\beta) = 0.51$, $z = -4.95$, $p < .001$), but also that they adhere to the boundary-crossing constraint ($\beta = -1.48$, $SE(\beta) = 0.54$, $z = -2.76$, $p = .006$), (see Figure 1). Follow-up analyses revealed that with higher exposure to VF languages – including Italian – the use of SF constructions by L2ers decreased ($\beta = -0.66$, $SE(\beta) = 0.31$, $z = 2.12$, $p = .034$), whereas no effects of proficiency and exposure to Italian were found.

The results of the study suggest that learners rely on their L1 when encoding motion events in the L2, but that they are also sensitive to frequency distributions of motion event constructions in the L2 input, as their productions suggest a sensitivity for the boundary-crossing constraint. Preliminary findings also suggest that exposure not only to the target language, but also to related L2s might play a role in the acquisition of motion event construal.

Session 5 - Phonetics, phonology

Auditory cortex anatomy reflects multilingual phonological experience

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This study explores the relationship between the anatomy of the auditory cortex and multilingual experience, shedding light on the complex mechanisms of auditory processing in humans. Integrating previous research on auditory information processing and the impact of bi- and multilingualism on brain structure, we investigate how the morphology of auditory brain regions reflects individuals' language experience and, more specifically, their phonological repertoire. Leveraging two distinct samples comprising over 200 participants, each exposed to between 1 and 7 languages encompassing 36 different languages, we explore whether the morphological variability of auditory brain regions reflects individual language experience, specifically focusing on the phonological repertoire. Additionally, we examine the potential influence of typological distances between languages spoken by multilingual individuals on the neural signatures of multilingualism within the auditory cortex. Our findings revealed a relationship between the average thickness of the left and right second transverse temporal gyrus (TTG) and participants' language experience. Model comparisons demonstrated that the inclusion of phoneme-level information in the language experience index accounted for the greatest variance in average TTG thickness (bilaterally). The direction of this effect was negative, indicating that a more extensive and more phonologically diverse language experience was associated with thinner cortices in the second TTG. Across two independent datasets, we provide robust evidence linking the degree of language experience and typological distance between languages to cortical thickness in early auditory brain regions. We propose that this phenomenon may reflect experience-driven pruning and neural efficiency, warranting further investigation through longitudinal studies of language acquisition. Moreover, our findings support the notion that experiences with typologically similar languages differ from those with typologically distant languages, offering valuable insights into the intricate relationship between language diversity and brain structure. Our findings also indicate that early auditory regions seem to represent phoneme-level cross-linguistic information, contrary to the most established models of language processing in the brain, which suggest that phonological processing happens in more lateral posterior STG and STS.

Listening to a foreign friend in a noisy restaurant: Neural correlates of listening to nonnative-accented speech in multi-talker background noise

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In today's globalized world, people increasingly encounter bilingual or multilingual speakers with a nonnative accent. Nonnative-accented speech can pose comprehension difficulties to native ears, as listeners must reconcile incoming deviating acoustic signals with their existing L1-based phonological representations. These challenges can be exacerbated when the nonnative-accented speech is embedded in noise (Bent & Holt, 2018), as may happen when you listen to your foreign friend in a noisy restaurant. However, few if any neurolinguistic studies have examined how listeners process nonnative-accented speech embedded in multi-talker noise as sentences unfolds in real-time. In this study, we examined the neural and cognitive mechanisms underlying the semantic processing of nonnative-accented and native-accented sentences embedded in multi-talker noise, in adult (Experiment 1) and child (Experiment 2) listeners.

Implementing a semantic violation paradigm, 36 English-speaking adults (Experiment 1) and 43 children (aged 9-12; Experiment 2) listened to Chinese-accented (nonnative) sentences and American-accented (native) English sentences while their brain activity was recorded using EEG. The sentences were presented in quiet or embedded in multi-talker babble noise, and contained a semantic anomaly or were well-formed (e.g., "Kevin reached into his *funeral/pocket to get the keys"). After hearing each sentence, participants verbally repeated the sentence, which was scored as an offline comprehension accuracy measure. The pattern of offline behavioral and online neural findings was remarkably similar for adults and children. The negative impact of background noise on sentence repetition accuracy was higher for nonnative-accented than for native-accented sentences, in both adults and children. This decrease in offline comprehension accuracy was associated with challenges in accessing the meaning of words while the sentence unfolds in real time, as evidenced by the ERP analyses. For both adults and children, the N400 effect for semantic anomaly was larger for native-accented than for nonnative-accented sentences, and was also larger for sentences presented in quiet than in noise. Moreover, no semantic N400 effect was observed for nonnative-accented sentences presented in noise, in both children and adults.

Together these data indicate that an acoustic mismatch between the speaker and the listener incurs processing challenges, impacting online lexical-semantic access (demonstrated by reduced/absent N400 effects) and offline sentence comprehension accuracy. When adults and children listen to nonnative-accented sentences embedded in multi-talker noise, their brains have a harder time to generate timely predictions based on the preceding semantic context which then also impedes comprehension accuracy.

Neural correlates of lexical alignment in native and non-native interactions

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Speakers tend to align to the lexical choices of their interlocutors, a term referred as lexical alignment. While lexical alignment is argued to contribute to mutual understanding and ultimately to successful communication in native-native interactions, it is relatively unknown how interactions involving a non-native speaker might influence lexical alignment. Two possible explanations have been proposed: the priming account considers that the occurrence of lexical alignment is due to the priming of speaker's lexical representations. Within this framework, lexical alignment should not be modulated depending on the linguistic characteristics of the interlocutor. The audience design account, on the other hand, assumes that interlocutors have into consideration the linguistic characteristics of the interlocutor. Within this framework, differences between native and non-native interactions would be expected. In two EEG experiments, we evaluated the behavioral and neural signatures of lexical alignment in native-native and native-nonnative verbal interactions. In a joint picture naming task, participants were asked to take turns with a native or a non-native "confederate". We manipulated whether the confederate named the picture (e.g., COLOGNE) with a favored name (name agreement of 60-70%) or with a disfavored name (name agreement of 30-40%). Behavioral and EEG alignment responses were obtained when speakers interacted with native and non-native partners. Participants aligned to their partners by using disfavored names rarely used otherwise. Lexical alignment was modulated by the interlocutor's accent, with participants aligning more with individuals of the same accent than those speaking with a foreign accent. ERP responses locked to the production of the interlocutor (comprehension trials) revealed more negative waveforms when hearing disfavored than favored words starting around 300 ms after the auditory stimuli onset. In addition, ERP responses locked to the pictures assigned to the participant (production trials) revealed differences between pictures whose corresponding names were previously named with a disfavored than those pictures named with a favored name (P200). This effect was larger for participants interacting with native partners. Our results suggest lexical alignment as an important feature of language in interaction, modulated by non-goal directed (priming of lexical representations) and goal-directed mechanisms (i.e., beliefs about the communicative competence of interlocutors).

Session 6 - Cognitive processes

Overlap in the Cerebral Processing of Language and Executive Control: Effects of Age, Sex, and Bilingualism

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Balanced bilinguals demonstrate the ability to easily switch between their two languages. This language control (LC) is supposed to arise from shared neurocognitive mechanisms with executive control (EC). However, the extent to which these mechanisms are shared across domains, and whether LC is therefore domain-general or domain-specific, remains debated. Furthermore, it remains unclear how LC manifests in men and women from different age groups, and in late bilinguals with different proficiency levels.

Eighty healthy adults (40 women and 40 men), equally distributed into a young (20-39 years) and middle-aged (40-59 years) group, participated in this study. Dutch was their native language and English their second language. Bilingual proficiency was assessed using both subjective (Bilingual Language Profile) and objective measures (Lexical Test for Advanced Learners of English (LexTALE)). This study investigated the cerebral processing of language and executive control, and the effects of age, sex and bilingual proficiency using electroencephalography (EEG). The EEG paradigm comprised a carefully matched language and task switching paradigm, where language switch costs served as an index for LC, and task switch costs for EC. Control processes were compared both at the goal (cue) level (i.e. the cue indicates the language or task to be performed) and at the task performance (stimulus) level (i.e. the cue and the stimulus are shown together, and a response needs to be given).

No significant differences between language and task switch costs were found for cue and early stimulus processing. These findings support domain-general LC. However, a trend for domain-specific LC was found for late stimulus processing, possibly representing more difficult word meaning retrieval in language switch trials compared to repetition trials. In terms of age and sex effects, the middle-aged group showed a trend of reduced amplitude and an increased latency compared to the young group for cue processing. Additionally, men showed an increased latency compared to women for early stimulus processing. In terms of bilingual proficiency, a significant negative association was found between the bilingual proficiency scores on the LexTALE and language switching latencies during late stimulus processing.

Cerebral Networks of Bimodal Extreme Language Control - Functional Imaging of Sign-Oral Interpreting

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Multilingual language control is a cognitive mechanism for selecting and using the appropriate language while avoiding interference from further acquired languages, depending on the communicative need. A vast body of research on language control and bilingualism has shown that language control is a complex and demanding process that shares overlapping brain regions engaged in domain-general executive control functions. In addition, evidence shows that language control is employed regardless of modality differences between languages, such as bimodal bilingualism, which involves acquiring and using sign and spoken languages. However, further work is needed to elucidate the neural underpinnings of language control utilized in bimodal bilingualism (or multilingualism), which involves acquiring and using sign and spoken languages. To investigate this, we used functional magnetic resonance imaging (fMRI) to examine the neural basis of a simultaneous interpreting (SI) task in early Turkish-Turkish Sign Language (TID) bimodal bilinguals (N = 20 recruited, 17 included in final analyses due to data quality issues). SI in pairs of oral languages has been a focus of investigation due to the claim that it requires "extreme language control", since it poses an unusual language control demands – unlike most communicative contexts, which are monolingual and consequently require the suppression of the language (or languages) not in use, SI requires simultaneous access to two languages: the language to be interpreted (source language), and the language that must be produced (target language).

The investigation included two interpreting directions: from Turkish to TID and TID to Turkish, and control conditions: TID shadowing, Turkish shadowing, as well as passive observation of TID and passive listening to Turkish. Our analyses revealed overlapping activations in motor regions, including the precentral gyrus and insula, for shadowing in Turkish and TID. However, we report distinct neural mechanisms employed in SI in two directions: When interpreting from Turkish to TID, domain-general structures such as the precentral gyrus and cerebellum were engaged, and conversely, interpreting from TID to Turkish involved activation of the posterior part of the superior temporal gyrus. The findings provide new insights into the neural mechanisms of bimodal language control, contributing to our understanding of how bilingual individuals manage and switch between languages across different modalities. Overall, we discuss the complex processes involved in bilingual language control, particularly in bimodal bilingualism, and lay the groundwork for further exploration in this field.

Working memory affects performance in L1 verbal fluency tasks more than L1 lexical abilities do: Evidence from middle-aged and older multilingual individuals.

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A recent meta-analysis (Bylund, Antfolk, Abrahamsson, Olstad, Norrman & Lehtonen, 2023) showed that monolingual and bilingual adults perform comparably on verbal fluency tasks completed in participants' L1 (henceforth L1FluencyTasks). This result could be accounted for by assuming that the factors affecting L1FluencyTask performance act in opposite directions. These factors might be L1 lexical abilities (henceforth L1LexAbilities) such as vocabulary size and lexical retrieval speed, and short-term/working memory capacity (henceforth WorkingMemoryCap). WorkingMemoryCap subserves resolution of between- and within-language lexical competition (Kaushanskaya, Blumenfeld & Marian, 2011). A bilingual disadvantage and a bilingual advantage have been reported for L1LexAbilities (Bialystok, 2009) and WorkingMemoryCap (Grundy & Timmer, 2017), respectively. Additionally, Fyndanis, Cameron, Hansen, Norvik and Simonsen (2023) found that, the more languages one knows, the greater their verbal WorkingMemoryCap is.

The current study aims to identify the relative contribution of L1LexAbilities and WorkingMemoryCap on L1FluencyTask performance focusing on multilingual adults. Based on the literature, we assume that the more languages one knows, the worse their L1LexAbilities; and the more languages one knows, the greater their WorkingMemoryCap. If L1FluencyTask performance depends more on WorkingMemoryCap than on L1LexAbilities, the more languages one knows, the better their L1FluencyTask performance should be. If L1FluencyTask performance depends more on L1LexAbilities than on WorkingMemoryCap, we would expect the following results: the more extensively the L1 is used, the better the L1FluencyTask performance; the later the age of acquisition for the L2 (L2AoA), the more deeply entrenched the L1 becomes, leading to better L1FluencyTask performance; the more languages one knows, the worse their L1FluencyTask performance; and the higher the mean foreign language proficiency, the worse the L1FluencyTask performance.

Eighty-two middle-aged and older sequential multilinguals of the same socioeconomic status (high) and immigration status (nonimmigrants) completed a language background questionnaire, Raven's Standard Progressive Matrices, three tasks measuring WorkingMemoryCap, a letter fluency task, and a category fluency task in their L1. We performed correlational and regression analyses considering the following variables: L1 amount of use, L2AoA, number of languages known, mean foreign language proficiency, age, education, nonverbal fluid intelligence, physical activity and WorkingMemoryCap.

Results showed that the more languages one spoke, the better their performance in each L1FluencyTask was. Moreover, the more languages one spoke, the greater their WorkingMemoryCap was, and the latter was significantly and positively correlated with L1FluencyTask performance. Taken together, the results suggest that L1FluencyTask performance depends more on participants' WorkingMemoryCap than on their L1LexAbilities.

Closing Distances: How Aging Redefines Semantic Connections in Monolingual and Bilingual Speakers

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Semantic memory, encompassing general knowledge and the mental lexicon, is foundational for communication. Despite assumptions of its stability with aging, declines in tasks like verbal fluency, changes in semantic cognition's neural networks, and early deterioration in neurodegenerative diseases warrant closer examination.

We aimed to investigate whether aging affects the way concepts are interconnected within the semantic network and the role of bilingualism in this process. We selected 180 word pairs in Basque and Spanish from a computationally grounded semantic similarity database, where semantic similarity was computed using word embeddings, which are distributional representations of words (Goikoetxea, Arantzeta, & San Martin, submitted).

The experiment involved 256 participants (85 monolingual Spanish and 171 highly proficient bilingual Basque-Spanish speakers), aged 30-80, completing tasks in their first language. Participants undertook a semantic judgment task, a distraction task, and an unexpected memory recall in which they were requested to evoke all single nouns that they could remember from the experiment. We collected judgment accuracy and reaction times in the first task, and recall performance in the last. Analysis used generalized and linear (mixed) models.

The findings underline the significant role of semantic similarity across concepts in semantic judgment accuracy and speed. As individuals age, they have a more restricted semantic field for recognizing concept relationships, and the semantic similarity threshold to consider two concepts related is even higher in monolingual than in bilingual speakers, regardless of age. However, monolingual speakers were marginally faster than bilinguals. The semantic judgment needs more time as a function of age, and the reaction time is strongly modulated by the semantic similarity between the word pair and the provided judgment itself. In the memory recall task following the experiment, the number of items recalled was modulated by verbal fluency abilities and visual working memory. Overall, monolingual speakers performed worse than bilinguals. Additionally, the semantic similarity of a word pair significantly affects recall likelihood, with a notably stronger effect in younger adults than in older ones. This indicates that older adults benefit less from semantic closeness, highlighting age-related changes in the impact of semantic memory on recall.

Our study highlights how semantic similarity impacts semantic judgments and recall abilities, showing a decline with age and a sharper challenge for monolinguals. Bilinguals navigate semantic connections more effectively, suggesting a complex dynamic between aging, bilingualism, and semantic cognition, cautiously indicating that bilingualism may provide subtle cognitive enhancements in semantic processing.

Poster session 2

2-02: Constraint interaction in L1 and L2 cataphoric pronoun resolution: c-command and event construal

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Cataphoric pronoun resolution is constrained by binding Condition C, a constraint that prohibits coreference between a referential expression and a pronoun that c-commands it (Chomsky, 1981). However, its interaction with discourse-pragmatic constraints can lead to a reduction in its strength (e.g. Harris & Bates, 2002). Here we examine how the likelihood of violating Condition C in English and German is affected by the temporal ordering of events, and how Condition C and event construal interact in L2 comprehension. 61 L1 German/L2 English speakers (mean age: 24.8, SD: 7.5) with similar self-reported L2 proficiency and acquisition histories completed two parallel antecedent evaluation questionnaires, one in English and one in German. The English questionnaire was also completed by 62 English native speakers (mean age: 38.1 years, SD: 13.9) with no knowledge of German. Ten item pairs were created for each language by manipulating the temporal connectives in sentences such as (1) so as to reflect different temporal orderings of the events described.

(1) He turned off the lights before/after Peter left the room.

Participants had to decide for each stimulus sentence whether the pronoun it contained could refer to the named character. The statistical analysis of participants' responses showed that

- L1 German speakers were generally more likely to violate Condition C (before: 77% coreference acceptance, after: 73%) than L1 English speakers (before: 31% coreference acceptance, after: 18%);
- German speakers were more likely to violate Condition C in L2 English compared to L1 English speakers;
- German speakers were affected by the type of connective in L2 English (before: 71% coreference acceptance, after: 51%), as were our L1 English speakers, but not in L1 German.

These results show that event construal influences the application of Condition C in English: If the linear ordering of two clauses matches the corresponding events' temporal ordering, coreference is more likely compared to when linear and conceptual ordering mismatch. German speakers' response pattern in L2 English resembled the L1 English pattern with regard to their sensitivity to the impact of different temporal connectives, whilst resembling the L1 German pattern with regard to the overall high proportion of permitted coreference readings.

Taken together, our results revealed both language-dependent and language status-dependent differences in constraint weightings, and indicate that pragmatic constraints affecting the application of Condition C are easier for L2 learners to acquire than the relative strength of Condition C itself (i.e. the impact of c-command configurations on coreference).

2-03: Documenting the acquisition of two majority languages by foreign children residing in Malta: A longitudinal case study approach

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Malta, conforming with global trends, is experiencing an influx of international migration. This is resulting in an increasing number of foreign children residing in Malta. Therefore, alongside at least one minority language spoken at home, these foreign children are being exposed to English and Maltese, the bilingual country's official languages. Exposure to these two host languages (HtLs) alongside their home languages (HLs) suggests potential for unique multilingual development. This paper reports on a study that aimed to evaluate the development of the HtLs Maltese and English in five foreign children residing in Malta.

Of the five children participating in this study, two were females aged 4;6 years and 3;3 years at the start of data collection. The three boys were aged 3;1, 5;4 and 5;11 years at the onset of data collection. Data collection was conducted longitudinally at three points in time over a year. Three children were exposed to Italian as their HL. One child was exposed to Ukrainian and Turkish at home, and one child was exposed to Tamil. A parent interview was used to gather information on the children's language background, environment, and use at the start of data collection. Parent-completed vocabulary checklists, completed at the three points of data collection, provided a measure of the children's receptive and expressive vocabulary in Maltese and English. These parent report measures were utilised alongside a battery of direct assessment tools, addressing receptive and expressive vocabulary skills, story retelling and comprehension, a non-word repetition (NWR) test, and the Raven's Coloured Progressive Matrices. The parent interviews demonstrated that all five children had very diverse sociodemographic and language backgrounds, even if their HL was the same, as in the case of the Italian-speaking children. Over the data collection period, all five children were generally observed to progress in NWR, vocabulary comprehension and expression in English and Maltese, and narration in English. However, the study's findings were inconclusive with regards to narrative skills in Maltese. These findings inform both clinical and educational practices, and serve as a foundation for future studies on HtL development by foreign children residing in Malta, perhaps through the use of a larger participant sample. They hope to inspire future investigation into the influence of various sociodemographic and language variables on HL and HtL acquisition by foreign individuals residing in bilingual countries, and to shed light on the utility of parent report when studying HtL acquisition in foreign children.

2-05: Exploring Morpho-Syntactic Errors in Child and Adult Heritage Language Speakers with Hebrew Dominance: Insights from Narrative Tasks

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Heritage Language (HL) grammars systematically differ from the baseline grammar, i.e., grammars of monolingual speakers or bilingual speakers who are dominant in that language (e.g., Benmamoun, Montrul, & Polinsky, 2013; Rothman, 2009), suggesting that HL grammars might undergo restructuring (Meir & Polinsky, 2019). Mechanisms of HL grammar variations are still debated (e.g., Polinsky & Scontras, 2020). Oral narratives provide a rich source of data using a relatively natural context; narrative analysis allows assessing multiple linguistic features, including microstructural elements (e.g., Heilmann et al., 2010; Gagarina et al., 2016).

The current study assessed morpho-syntactic abilities of 80 Russian speakers divided into 4 groups: 2 groups of monolingual baseline speakers (i.e., adult and child (aged 4-8) speakers residing in Russia) and 2 groups of bilingual Russian-Hebrew speakers with the age of onset of bilingualism before age 5 (adult) and child (aged 4-8). Participants watched the video and then were asked to produce a story based on it following the RUEG protocol (Wiese et al., 2022). We examined a variety of morpho-syntactic errors in descriptive narratives in Russian. The main focus of the study was on nominal and verbal morphology errors; functional element type errors alongside lexical and code-switching issues were observed. Hebrew and Russian offer an opportunity to test how properties of the dominant language might be related to acquisition/maintenance of HL. In both languages, gender and number in nominal morphology (together with person in verbal morphology) presented similarly. However, only Russian shows rich case morphology, while in Hebrew it is sparse; aspect is a very important feature in Russian verbal grammar, while in Modern Hebrew it is not expressed systematically. If properties of the dominant language shape HL acquisition, in HL-Russian in contact with Hebrew better performance is expected on gender, number, and person features, while case and aspect features are hypothesized to be more fragile.

First, all the groups showed a relatively equal use of incomplete sentences, indicating that all participants were affected by the condition of spontaneous speech. In both nominal and verbal morphology, adult HL speakers exhibited a higher number of errors and a wider range of error types compared to all the groups. Only the case feature in nominal morphology demonstrated vulnerability in the two HL groups. The results confirmed the vulnerability of morpho-syntax in bilingual child and adult HL speakers with an early AoO, highlighting the key role of AoO in HL development.

2-06: Exploring Preposition Priming in Late L2 Acquisition: Cross-Linguistic Structural Priming in Artificial Languages

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Structural priming refers to the implicit activation of linguistic information at both the lexical and syntactic levels in the mind, which can influence subsequent linguistic behaviors (Pickering & Ferreira, 2008). In a seminal experiment by Levelt and Kelter (1982), the effect of lexical persistence at the preposition level was demonstrated through a simple telephone scenario ("At what time does your shop close?"). However, little is known about priming at the written prepositional level, where the recycling of a preposition in text-based contexts, might shape subsequent linguistic behavior. In this study, we employ an artificial language constructed based on Frisian language, involving 120 Dutch-speaking undergraduate students from Ghent University. Our aim is to explore whether prepositions can be primed in text-based contexts and determine whether such priming facilitates the acquisition of new vocabulary. We examined three data sources: (1) analysis of written text for reused prepositional phrases, (2) keylogging time during responses as a measure of attention, and (3) pretest-posttest comparisons to assess the impact of priming on vocabulary learning. The results unveiled (1) a significant priming effect at the prepositional level, (2) the potential of priming to enhance lexical acquisition, and (3) a non-significant influence of attention on priming. The implications and findings are discussed.

2-08: Gender Assignment in Code-Mixed Russian-Hebrew Noun Phrases

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In recent years, linguists have focused on how bilinguals comprehend, produce and evaluate mixed utterances, especially noun phrases (hereafter NPs), which include linguistic material from two languages (e.g., *bol'shoj XALON* 'big window', wherein the adjective 'big' is in Russian, while the noun 'window' is in Hebrew). Much of this research has focused on the assignment of grammatical gender in mixed NPs, one of the most frequent code-switched sites in the bilingual speech (Bellamy & Carmen, 2021).

Most previous research in this area has focused on one-gendered language (e.g., Licerias et al., 2008; Gómez-Carrero, 2015; Zabrodskaia, 2009; Füller & Lehnert, 2000; Montes-Alcalá & Lapidus, 2011). Considerably less research has been done on two gendered languages.

The present study compared two gendered languages with different gender systems in order to trace gender assignment in mixed Russian-Hebrew NPs. In order to do so, acceptability ratings from bilingual Russian-Hebrew speakers were collected. Each participant was asked to listen to sentences in Russian that incorporated Hebrew code-switched nouns and rate each sentence from 1 meaning 'totally unnatural' to 7 'absolutely natural'. The experimental task tested four main gender assignment strategies previously reported in the literature: (1) default; (2) translation-equivalent; (3) insertion; (4) shape-based (i.e., phonological cues) (Bellamy & Carmen, 2021; González-Vilbazo et al., 2011). Previous research has yielded inconsistent results regarding the use of gender assignment strategies by bilingual speakers across different language pairs.

One of the questions addressed in the present study dealt with gender assignment in mixed NPs between two bilingual groups of Russian-Hebrew speakers: (a) Heritage Language (HL, n=20) speakers, i.e., bilinguals who acquired Russian from birth and Hebrew before the age of 5, therefore these speakers are weak in Russian and dominant in Hebrew and (b) bilinguals who immigrated to Israel after the age of 13 (IMM, n=20) who are dominant in Russian and weaker in Hebrew.

The results demonstrated strong evidence for the usage of diverse gender assignment strategies among bilingual Russian-Hebrew speakers. Most participants in the study clearly preferred two gender assignment strategies: shape-based and insertion. However, there were cases in which the ratings differed between the HL and IMM groups: the HL group favored the insertion strategy, while the IMM group showed a preference for the shape-based strategy. The study enhances our understanding of gender assignment strategies in two gendered languages in bilinguals speaking with different levels of proficiency.

2-09: How language constrains communication of affect: an EEG hyperscanning study of language-emotion interaction during a live word exchange game

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Emotional responses have been shown to be reduced in the second language (L2), but it is difficult to extrapolate the effects to real world communication between bilinguals from studies of individual participants. Here, we investigate for the first time how operating in an L2 context may affect responses to emotional words in bilinguals engaged in a communication game.

We tested 30 pairs of Polish-English bilinguals, half of which were couples involved in a romantic relationship for at least one year. Participants engaged in a game of word-picture matching involving negative and positive picture prompts, and corresponding negative or positive words. Participants underwent EEG recording in two separate booths. On each trial, both participants saw a picture accompanied by four words from which one participant (the Sender) selected the item that they thought was the best fit for the picture. Then, the other participant (the Receiver), saw either the selected item, or an alternative chosen randomly by the computer, and was asked to determine whether or not the displayed word was that selected by the Sender. Roles were reversed on each trial, and points were awarded for a correct judgment. The experimental design featured three predictors: Word Valence (positive, negative); Language (Polish, English) and Relationship (Strangers, Partners).

In the analysis, we will focus on event-related potential (ERP) modulations elicited by critical stimuli (picture, displayed word, outcome of the trial) and variation of frequency power over time throughout the period separating the word display and the feedback. In particular, we will compute measures of entrainment between participants' EEG recordings over the same period.

We expect that emotional responses, as indexed by EEG, will be stronger when participants send or receive negative compared to positive information, but reduced when communication happens in an English (L2) as compared to a Polish (L1) context. Analysis of entrainment measures will be exploratory, focusing on the degree of synchrony between participants, which is expected to be affected by valence, language, as well as relationship status. We hope to shed light on language of operation-emotion interaction in bilinguals engaged in an act of communication and to test the hypothesis that reduction in communicative effectiveness in L2 (especially in partners), may be compensated by desensitisation to negative content.

2-10: Inhibition of Negative Content in the Native Language: a P300 Study of Visual Word Presentation in Polish-English Bilinguals

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Bilinguals are thought to experience decreased sensitivity to emotional content in their second (L2) compared to native (L1) language, a phenomenon known as L2 emotional detachment. Behavioural studies have mostly relied on conscious and overt evaluations and very few electrophysiological (EEG) studies have focused on brain activity correlates of emotional word processing in bilinguals to investigate emotional detachment (but see Wu & Thierry 2012, Jończyk et al., 2016, Jończyk et al., 2019a).

Here, we investigated spontaneous shifts of attention triggered by words with a negative valence in an oddball paradigm manipulating Valence (negative, neutral) and Language (Polish, English) and using the P300 event-related potential as an index. In an oddball paradigm, stimuli from different conditions are presented with different frequencies (frequent or rare) and P300 amplitude provides a reliable index of spontaneous attentional shifts.

We asked Polish–English bilingual participants (n=34) to detect words referring to fruits or vegetables (target stimuli, ~5.6%) presented amongst frequent neutral or negative words (standards with a frequency of ~80%) and rare neutral and negative words (deviants with a frequency of ~10% each). The semantic category detection task ensured that participants processed the meaning of each word. Importantly, the procedure was conducted once in English and once in Polish, with blocks order counterbalanced between participants.

Preliminary analyses show that English words overall attracted more attention than Polish stimuli overall, that is, P300 amplitude was greater for deviant stimuli in English than Polish, irrespective of valence. Moreover, P300 amplitudes elicited by negative deviants was lower than those elicited by neutral deviants in English, but not such difference was observed for deviants in Polish.

Contrary to expectations from L2 emotional detachment theory, L1 deviants elicited lower amplitudes overall, suggesting that L2 stimuli generally attracted more attention than L1 stimuli, regardless of valence. However, the interaction between language and valence (to be confirmed by statistical modelling) suggests that negative L2 words comparatively attracted less attention than neutral L2 words, whilst no difference in the case of L1 Polish. These preliminary findings suggest differential patterns of negative word processing in L1 and L2, shedding light on the complex interplay between language, emotion, and attentional mechanisms in bilinguals.

2-11: Is foreign-language-based bilingualism linked to a lower-level of national identity among ethnic minorities? Evidence from a national survey

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Psychological variables remain a much under-investigated sub-category of individual differences (IDs) compared with cognitive ones in language-related academic fields including sociolinguistics and bilingualism research. The study aims to add to the understanding of the psychological effects of bilingualism by investigating national identity (NI), a psychological ID variable that has rarely been examined based on representative random samples. This study drew upon relevant data concerning ethnic minorities from the 2015 Chinese Social Survey (CSS), which utilised a nationally representative sample (N = 10242) from different parts of China; the 2015 wave of CSS was chosen because it was the very first time in the CSS waves that both measures of bilingualism (operationalised respectively as mastery of foreign language skills and use of foreign language skills) and NI were included in the same survey. Accordingly, the data from the 2015 CSS offered a unique opportunity to examine (1) the level of NI among Chinese ethnic minorities, and (2) the influence on NI from bilingualism, vis-à-vis other sociobiographical variables. Regarding (1), descriptive statistics revealed that the ethnic minority participants (N = 813) achieved a mean score of 4.16 (out of five, a higher score indicating a higher level of NI) with the bootstrapped 95% confidence interval (4.09 - 4.23), which indicated a high level of NI as it exceeded the mid-point value of three. Regarding (2), hierarchical regression analyses showed that the two measures of bilingualism exerted negligible influence on NI, whereas some other sociobiographical IDs (e.g. age) influenced NI to different degrees. In other words, one key finding from the present study is that one's mastery of FL skills or use of such skills (viz. foreign-language-based bilingualism) had nothing to do with his/her NI. Future research directions for NI and similar psychological IDs should give due attention to making fuller use of effect sizes in both reporting and interpreting the results; regarding effect size reporting, it is suggested a more refined version of hierarchical regression be adopted so that a range of effect sizes can be generated to provide a more comprehensive picture of the contributions of the predictors (Wei, Liu, & Wang, 2020); regarding effect size interpreting, a benchmark system more relevant to the design of a particular study (e.g. survey-based) should be adopted (Wei & Hu, 2019). Policy implications for the Chinese government when re-evaluating the importance of learning a foreign language (e.g. English) in the curriculum are discussed.

2-12: Is language control similar to register control? Evidence from a switched naming task

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In bilingualism and mental lexicon study, the issue of accessing the right language at the right time has led to extensive discussions. Key mechanisms to tackle this issue are language control inhibitory processes, which ensure lexical selection occurs within the target language by reducing non-target language interferences. According to Green's Inhibitory Control Model (1998), language control processes rely on language tagging systems: each entry of the bilingual lexicon contains a tag defining their belonging to one language over another, hence facilitating overall inhibition of the non-target language.

Literature on bilingual lexical access and language control considers tagging systems as singularities of the multilingual cognition enabling mental representation of language memberships only. However, Declerck et al.'s (2020) recent study suggests that tagging systems could also be at work in single language processing for speech register representation and control. If this finding is replicated, similarities between bilingual and monolingual lexical access would have to be reconsidered.

To further delve into the eventuality of a register tag and the resulting similarity of single and dual language control mechanisms, we compared language and register processing in: a) a lexical decision task, b) a switched naming task and c) a discourse production task. For this presentation, we will focus on the switched naming task.

This task investigates the similarity of control mechanisms during lexical access in single and dual language context. 63 French speakers of English with English levels ranging from A1 to C2 participated, which allowed an analysis of bilingualism as a continuous variable. Participants have named 16 pictures alternating a) French and English (homme vs. man) and b) formal and informal French (homme vs. mec) (Declerck et al., 2020), for a total of 336 trials for each condition. RT analysis will allow us to establish mixing and switch costs in both conditions. We will use linear mixed-effects regression modeling to determine the relation between switch costs in the two conditions and their modulation by their bilingual profile through the inclusion of data concerning L2 proficiency, L2 exposure, AoA, switching habits and so on, all determined through language tests and background questionnaires.

Similar costs for switching languages and registers would suggest that similar control mechanisms might be at work in single and dual language context, specifically in the case of register control, and support the eventuality of a register tag in lexicon. Results will be discussed with respect to Declerck et al.'s (2020) conclusions.

2-13: Linguo-axiological specifics of proverbs and sayings in the Spanish and Ukrainian languages

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This study of proverbs and sayings as the phraseological fund of a particular language focuses on a linguistic toolkit with the help of which axiological information reflecting the values of the ethnic community can be extracted.

The research aims at studying the phraseological funds of the Spanish and Ukrainian languages through the prism of the values of linguistic and cultural communities represented in them. The stated goal involves solving the following tasks: 1) to analyze the semantics of phraseological units from the point of view of the values of the Spanish and Ukrainian linguistic and cultural communities; 2) to study, in axiological terms, Spanish and Ukrainian phraseological units expressing cognitive differences.

The research methods are as follows: descriptive analysis aids in describing and summarizing data of a comprehensive study of the Spanish and Ukrainian phraseology; component analysis – to identify similarities and differences in terms of content and figurative component of phraseological units; comparative analysis – to compare the semantics and figurative components of the phraseological units under study, and identify the national and cultural specifics in each phraseological fund.

In accordance with the quantitative approach to the composition of the phraseological fund, ideographic areas are identified, indicating the emphasis of the nation in a certain sphere of the universe, which implies the value of a particular reality of existence for a certain linguistic and cultural community. As a result of analyzing the meanings of the phraseological units, it is revealed that in Ukrainian phraseology such moral values as the preservation of family traditions, fidelity, hospitality, cordiality are more actualized. Spanish phraseology is dominated by such national and cultural values as freedom of sexual relations, as well as the importance for a person of gastronomy and various types of entertainment.

Studying unique components within phraseological units and distributing them among ideographic areas also makes it possible to identify national and cultural values on the basis of the analysis. In Ukrainian phraseology, the components of units represent such conceptual spheres as rural life and crafts, the cultural and ritual sphere, folklore and mythology, etc. In Spanish phraseology, lexical components determine the following value ideographic areas: economics, gastronomy, entertainment, etc.

It has been established that the axiological aspect of a phraseological unit can be transmitted through its semantics due to a set of individual evaluative meanings. Evaluativeness is inseparable from expressiveness and emotional evaluation, and in general they correlate with the stylistic characteristics of a phraseological unit.

2-14: Oscillatory Determinants of Graphomotor Performance in Mono- and Biscrptuals

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Handwriting is a complex motor skill that requires years of practice before full proficiency is reached. Current knowledge about the neural and cognitive correlates of handwriting is largely based on evidence collected from Latin script writers. However, a large number if not the majority of literate adults master two writing systems simultaneously. This phenomenon is termed biculturality. Among the possible implications of biculturality, we are interested in the "low-level" graphomotor processing, and we have recently evidenced that Latin-Arabic biculturals displayed a better graphomotor coordination performance than Latin monoscriptuals. Here, we aim to investigate the neurocognitive foundations of this bicultultural advantage by examining the neurophysiological correlates of graphomotor coordination in 31 Latin-Arabic bicultultural and 31 Latin monoscriptual individuals using a combination of behavioral and electroencephalography (EEG) measures. Participants completed a loop-tracing task on a digitizing tablet while the kinematic data and EEG signals were recorded and synchronized. Behavioral analysis confirmed the previously observed bicultultural advantage, with higher loop production frequency and decreased loop variability in biculturals compared to monoscriptuals. Additionally, directional preferences in tracing performance were observed, with all participants demonstrating shorter reaction times and better coordination in the left-to-right tracing conditions compared to the right-to-left ones. We analyzed theta, beta and delta oscillatory dynamics of the EEG signal to test whether this advantage is consequent to a better sensorimotor control, to more optimal executive control, or a combination of both. Midfrontal theta dynamics are thought to mediate domain-general cognitive control functions, whereas delta and beta dynamics are associated to sensorimotor processes. Preliminary Power Spectrum Density (PSD) analysis demonstrated significant group differences in the amplitudes of theta oscillation (4-7Hz) in prefrontal regions, lower beta oscillation (13-20Hz) in the occipital region, and delta oscillation (2-4Hz) in the midfrontal region. Preliminary Time-Frequency (TF) analysis suggested that theta oscillation power was also significantly modulated by the tracing direction during movement, with higher theta power observed in more challenging writing directions. Overall, the integration of behavioral and EEG data provides valuable insights into the neural underpinnings of graphomotor control and its variations according to expertise. It highlights the complementary role of sensorimotor and executive processes in the emergence of the bicultultural advantage.

2-15: Is a First Language More Emotional? Evidence From Pupillary and Behavioural Responses to Emotional Words in Bilinguals' First and Second Language

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Bilinguals often report feeling an emotional distance in their second language (L2) compared to their first language (L1). While studies using physiological measures, such as pupillometry, overall support this "emotional distance" hypothesis (Toivo & Scheepers, 2019), the use of experimental paradigms targeting the impact of emotion on cognitive processes yields inconsistent results (Ponari et al., 2015). It is unclear whether this discrepancy stems from variations in bilingual characteristics across studies or the distinct emotional components assessed. Addressing this, our study employs a multi-measure and within-subject design to examine the extent to which bilingual adults exhibit different emotional effects in L1 compared to L2.

Fifty-four French-English bilinguals performed two lexical decision tasks, in L1 and L2, in which we collected reaction time (RT) and pupil dilation data. Words were manipulated according to emotional valence (positive, neutral or negative) and arousal (high or low).

Faster RTs were found for positive compared to negative words, and for highly compared to low arousing words. These effects were observed independently of language, i.e., both in L1 and L2. Positive words also elicited a smaller pupil dilation compared to neutral and negative words. Surprisingly, this effect was slightly stronger in L2. Furthermore, pupil dilation was slightly larger for high compared to low arousing words. Notably, this effect only emerged in L1.

Taken together, these findings suggest that emotional distance in L2 may not apply to all the dimensions involved in the emotional processing of words. On one hand, behavioural data indicates emotional effects, both in terms of valence and arousal, regardless of language, in line with Ponari's et al. (2015) findings on valence. In contrast, rather than an overall emotional advantage, our data aligns with studies showing a positivity effect in word processing (see review by Kauschke et al., 2019). The slightly enhanced valence effect in L2 pupil data will be discussed drawing upon the specific contexts of use and acquisition of L2 as compared to L1. On the other hand, despite faster lexical access to highly arousing words in both languages, a dimension so far unexplored by bilingual studies, pupil dilation was modulated by emotional arousal exclusively in L1. These findings resonate with embodiment models of word processing, which differentiate the so-called linguistic from the embodied systems (Barsalou et al., 2008). As such, although L2 appears to be emotionally resonant enough to modulate cognitive processes, it may lack the physiological emotional response observed in L1.

2-16: Systematic Review of Factors Affecting Reading Comprehension in Monolingual and Multilingual Primary School Children with and without Reading Difficulties: The Role of Oral Language

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The acquisition of written language, a crucial milestone in children's development, can be impacted by difficulties related to reading comprehension, which is in turn linked to oral language skills. Hence, understanding the factors influencing reading comprehension in different reader profiles (monolingual vs. bi- or multilingual; children with vs. without reading difficulties) is crucial for better early detection of and intervention for difficulties in literacy acquisition. Thus, a systematic review of recent research in the field of reading comprehension was conducted in October 2022 following internationally recognized criteria. Multiple raters searched three databases (ASHA, PubMed and Scopus) using keyword combinations, and identified additional literature for an initial screening of 1492 articles. Using strict inclusion criteria concerning the topic (passage or text comprehension in 6- to 12-year-old children) and the quality of the article (in particular, we rejected articles lacking a clear definition of the linguistic and clinical status of the participants, as well as those lacking statistical analyses), only 25 articles were retained, approximately half of which include speakers of non-alphabetic languages. Whether in monolingual or multilingual contexts, oral language skills emerge as a crucial factor for predicting reading comprehension abilities. For multilingual participants, awareness of linguistic structures (phonology, morphology, and syntax) in both languages seems to have a large impact (but these skills were also studied more often in multilingual than in monolingual populations). Additionally, depending on reader profiles, other factors related to reading, such as executive functions, memory, and context also appear to play a role. Finally, we will discuss other factors that may affect reading comprehension in these populations but have not yet been explored by the researchers of the selected articles.

2-17: The Woes of Babel: Language Interference and Multilingualism

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The article deals with the problem of language interference and its influence on multilingual learners' acquisition of another foreign language. It consists of two parts. The first part discusses theoretical insights of previous works in the field of linguistics making sense of the terms interference and transfer which are often used interchangeably. The factors leading to interference are elucidated as well as the role of language reflection in predicting and modeling its influence on language acquisition and use. The overview aims at generalizing the findings of the existing theoretical works on interference and multilingualism as well as systematizing the relevant terminology drawing on the wealth of psychological, psycholinguistic, neurolinguistic, sociolinguistic, linguistic, and methodological studies. The results are used as a ground for quantitative and qualitative research on the role of interference in acquiring EFL by students with multilingual background. For that purpose, alongside established research techniques we incorporated a relatively new qualitative method of personal narratives (also called language-learning protocols, language journals or diaries) to offer both researcher and learner-generated views on the process of language learning that can enrich the existing theoretical studies on multilingualism. The collection of language autobiographies published in the book *The Multiple Realities of Multilingualism: Personal Narratives and Researchers' Perspectives* (2009) was used to track the problem of language interference in multilingual learners. With the help of MAXQDA transcribing and coding software such factors as ethnical background, gender, age and context of language acquisition, typological distance between languages, personal traits, attitudes, and emotions were scrutinized. Content analysis was applied to identify emotion words and establish attitudes and values in language learning as well as means of self-evaluation. Coupled with the research on multilingualism and the development of adequate research approaches, the investigation of individual learning experiences and acquisition stories can unveil factors of language interference previously unexplored. The findings will be used to develop a comprehensive guide outlining the nature of interference and providing multilingual university students with a better understanding of the hurdles on their way to mastering English. The guide seeks to equip language learners with effective strategies and tools to manage interference and capitalize on their linguistic abilities.

2-18: The cognitive effects of sign multilingualism: sign language expertise enhances language- and modality-specific statistical learning abilities.

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Sign multilingualism provides novel insights into the modality-specificity of language learning processes (Rosen & Quinto-Pozos, 2023). This study investigated the effects of sign language expertise on statistical learning abilities, both general and sign language specific. We compared two groups predicted to differ in learning performance and predictors: 37 adult hearing non-signers (first language English) versus 27 native signers (first language ASL/BSL, 15 deaf and 12 hearing bimodal bilinguals). We focused on implicit language learning (Hofweber & Marshall, 2022). Participants watched a weather forecast in Swedish Sign Language containing 22 target signs differing in (a) occurrence frequency (low=3x/high=8x) and (b) iconicity, i.e. form-referent similarity. Subsequently, we tested participants' form recognition and meaning assignment of target signs versus distractors. In terms of cognitive abilities, we measured visual statistical learning for non-linguistic or linguistic stimuli, as well as mental rotation. A detailed questionnaire captured demographic and language background

Native signers and non-signers performed equally in general visual statistical learning but differently in the sign language specific task. Form recognition was positively predicted by frequency, iconicity and sign expertise. Specifically, distractor rejection accuracy was greater for native signers (M=74%) than for non-signers (M=60%, $p=.04$). Distractor rejection accuracy correlated with mental rotation in signers ($R=(1,26)=.49$, $p=.01$), and with non-linguistic visual statistical learning in non-signers ($R=(1,36)=.49$, $p<.01$). Meaning assignment accuracy was predicted by iconicity and sign expertise (native signers: $M=40.23\%$ > non-signers: $M=14.73\%$; $p<.001$). Crucially, frequency effects, i.e. evidence of input-based semantic learning, were limited to signers (Fig.1). Meaning assignment accuracy correlated marginally with linguistic visual statistical learning for signers ($R=(1,26)=.40$, $p=.06$). Importantly, all group differences were due to sign expertise, not deafness effects ($p>.05$): hearing native signers' (bimodal bilinguals') performance patterned onto that of deaf native signers, not hearing non-signers. Our results suggest that native signers develop modality- and language-specific learning skills resulting in heightened levels of sensitivity for extracting information about the form and meaning of visual linguistic input. Our findings help develop bespoke teaching methods for different learner groups.

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2-19: The role of L1 variation in L2 sound learning: how Austrian high-school students realize French sibilants

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In German, there exists a variation of the realization of s: while in Northern varieties it is pronounced as voiced in initial and intervocalic position (e.g., Sonne ('zɔnə) 'sun'; Reise ('ʁaɪzə) 'journey'), in Austria the voiced variant is usually only realized in intervocalic position. In word-final position s is realized as voiceless (final-obstruent devoicing) in Northern and Southern varieties. In the case of postalveolar fricatives, the voiced variant /ʒ/ exists only in French borrowings, and only in Northern varieties (e.g., Gelatine (ʒelan'ti:nə) 'gelatine'). In Austria, the voiced variant does not exist (Moosmüller et al. 2015). In French, on the other hand, /s/:/z/ and /ʃ/:/ʒ/ are phoneme oppositions (e.g., seau (so) 'bucket' vs. zoo (zo) 'zoo'). According to current L2-learning-models (Best/Tyler, 2007; Flege/Bohn, 2021), the production of these phonological contrasts might be challenging for Austrian learners of French. They are expected to map (z) and (ʒ) onto the acoustically and articulatorily closest native categories (s) and (ʃ). However, given that Austrian teenagers (1) are daily influenced by audiovisual media in which northern German varieties dominate and (2) in more of half of the cases have at least one other L1 that differentiates between unvoiced and voiced sibilants (Glantschnigg, 2023), it remains unclear how French sibilants develop in the speech of Austrian high school students.

To answer this question, within the research program Pro2F (Pustka et al. 2021), we analyzed the frication and voicing duration of French sibilants in initial (e.g. zoo vs. seaux), intervocalic (e.g. des zoos vs. des seaux) and word-final position (e.g. cage vs. cache) in the speech of 145 Viennese high-school students performing a word-reading task. 29% of the latter are multilingual; 83% have an L1 in which voiced sibilants exist (e.g. Croatian, Romanian). The results were compared to German produced by the same Austrian students while reading aloud the text "Nordwind und Sonne" ("The northwind and the sun").

Results show that French voiced sibilants in final position pose more problems than in initial or intervocalic position. Neither plurilingualism nor the presence of voiced sibilants in the heritage language significantly influences the pronunciation patterns. However, French pronunciation seems to mirror German pronunciation patterns. Because contrary to what has been assumed for Austrian German, some students also realize voiced sibilants in German. This suggests that L2 phonological learning seems to be strongly influenced by inter-individual differences which need to be considered in further L2-learning-models (Flege/Bohn, 2021).

2-20: What's in the semantic fluency task? An exploratory study of the dynamics of semantic fluency during bilingual development and the role of clustering and switching.

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The semantic fluency task (SFT) is frequently used with disordered populations to assess both lexical retrieval and executive functions. In bilinguals, the task seems sensitive to dominance effects (e.g., Lam & Yoon, 2023), and might be a good candidate as an objective measure of dominance patterns. However, systematic investigation of the links between the latter and results on the SFT for each language is still scarce (see Paap et al., 2019 for review). Moreover, hardly anything is known about the dynamics of SF skills over bilingual language development. A recent study (Lethinen et al., 2024) suggests that it might be interesting to take into account not only overall scores, but also measures of clustering and switching patterns (Troyer et al., 1997) that seem to evolve during bilingual language development. While both have been shown to be necessary for efficient processing of the SFT, their evolution in bilingual language development is not clear yet. Clustering refers to the capacity to exploit subcategories of the semantic category elicited (e.g., for animals: pets, farm animals, wild animals...) while switching refers to the ability to switch to a new subcategory when the preceding is no longer productive. The use of these strategies is likely to depend on language proficiency. Moreover, categorization, and hence clustering in the SFT, is likely to vary with respect to cultural settings.

In the present study, we will explore acquisitional data of the SFT collected with 25 Syrian learners of French (age 18-68 years) with variable proficiency who spent from 1 month -10 years in France. The participants were tested twice, at T1 and approximately 12 months later (T2). This allows us to document the evolution of semantic fluency both longitudinally and cross-sectionally taking into account L2 level at data-collection, age at arrival in France and length of immigration. All tasks were performed first in French (L2) and then in Syrian Arabic (L1). Two semantic categories known to be particularly productive were used: animals and fruit. These data will be compared to the semantic fluency data of 25 matched Lebanese bilinguals (a population culturally and linguistically close to the Syrian speakers) in both Lebanese Arabic and French. This comparison will allow us a) to document the evolution of clustering and switching strategies in relation to bilingual proficiency, and b) explore cultural specificities in the content of the two semantic categories used.

Session 7 - Sociolinguistics

Adult L2 learners' attitudes towards the acquisition of sociolinguistic variation in Flanders: a Q-study

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The acquisition of sociolinguistic variation has gained increasing recognition as a crucial aspect for second language (L2) learners: "It permits people to interact in a meaningful way with others, and includes the knowledge of how and when to speak, to whom, how to shift style, register and so on" and "enables humans to bond with others" (Regan 2010:22). At the same time, it is well-documented that the acquisition of variation poses significant challenges for L2 learners, and especially for so-called late-starting learners, who do not encounter the target language until adulthood (Ender 2017).

This study sheds light on late-starting learners' viewpoints towards sociolinguistic variation in Flanders, the Dutch-speaking part of Belgium. As in many countries, Flanders strongly encourages newcomers to learn the language, on the assumption that certified competence will enhance integration. However, formal education mainly focusses on Standard Dutch, which is rarely spoken. Instead, L1 speakers typically speak so-called 'tussentaal', an umbrella term for the continuum of colloquial, regionally coloured Dutch situated in between Standard Dutch and the dialects.

To make L2 learners' attitudes explicit regarding several topics related to their experiences with sociolinguistic variation in Flanders, we used Q methodology (Watts & Stenner 2012), a method based on a set of statements which have to be ranked on a grid. 29 participants had to rank 42 carefully selected opinion statements which formed a response to the question "What are your experiences with and opinions towards (acquiring) sociolinguistic variation in Dutch, in and outside the L2 classroom?". Via PQMethod software (Schmolck 2014) participants with similar opinions were grouped together, to gain insight into the distinguishing elements that constitute one viewpoint or the other.

The findings reveal that these L2 learners hold at least three different viewpoints concerning the importance they attribute to learning 'tussentaal', the underlying reasons they have for doing so, and the role of L2 education in the acquisition of 'tussentaal'. During our talk, we will delve into these viewpoints.

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Teenagers' attitudes towards multilingual literacy and reading in the heritage language at school

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Previous research suggests that multilingual approaches that value and utilize students' first language (L1) may benefit their sense of school belonging, motivation and self-confidence (Duarte, 2020; Garcia & Kleifgen, 2020; Van der Wildt et al., 2017). Yet, whilst many children in the Netherlands speak a language other than Dutch at home, little attention has been paid to multilingual literacy and its potential role in education.

In order to investigate how students experience multilingual literacy activities at school we organized a multilingual book club project, in which multilingual students were given the opportunity to read and discuss a book in their L1 during Dutch language classes, using translations in different languages. The project was carried out during a period of 5 weeks in first grade of secondary school (age 12-13). Using questionnaires and semi-structured interviews, we investigated (1) students' attitudes towards reading in the home language and multilingual literacy, (2) their perception of the book club project, and (3) their attitudes towards the use of different languages at school.

So far, 96 students who participated in the book club project completed the questionnaires: 63 of them were multilinguals and 37 chose to read a book in their L1 (i.e., Turkish, English, Arabic, Spanish, German, French, Polish, Hungarian or Romanian). In addition, 38 multilingual students were interviewed.

Our data reveal relatively positive attitudes towards reading in the L1, as compared to Dutch. Most students appreciated the project, and an often-mentioned reason for this was the multilingual approach. With respect to this, three themes emerged. The first theme relates to students' sense of identity and pride in being multilingual. For example, one student emphasized that reading in Turkish made them 'feel their Turkish side'. The second theme relates to the relative ease or difficulty of reading in the L1. While some students chose to do so because it was easier for them, others did so precisely because it was a challenge or because they wished to improve their L1 proficiency, often to facilitate communication with relatives abroad. The third theme relates to 'newness'. Some students believed it was 'very special' or 'weird' to read in their L1 at school, while others simply appreciated the change from the regular program.

All in all, this study sheds light on the perspective of teenagers on their own multilingual literacy and the use of heritage languages at school, providing valuable insights for translanguaging in literacies approaches.

The use of morphologically unintegrated English-origin verbs in Montreal Hip Hop

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In Quebec, a prevailing ideology in the public discourse is that the use of English-origin words (commonly called anglicisms) is a sign of contamination and deterioration of the French language (Walsh, 2014). But regardless of this belief, anglicisms are part of most French-speaking Quebecers' speech, and the most common practice for them has been to integrate the lexical borrowings from English into the French language (Poplack, 2018). The following sentence illustrates this integration:

(1) J'ai watché un programme avant que tu viennes.

But in recent years, verbs borrowed from English have been used differently by a number of French-speaking Quebecers, especially among the youth in the Montreal area: the borrowed verbs are not integrated into the French language. Instead, speakers use the bare form of the verb, as illustrated in the following sentence:

(2) On a bypass la file d'attente.

The present study investigates the use of morphologically unintegrated English-origin verbs in the lyrics of Dead Obies, a Montreal-based Hip Hop group. Our main objective is to better understand how this new lexical insertion strategy for English-origin verbs is being used in Quebec French and to answer the following research question: What is the internal conditioning for the use of morphologically unintegrated English-origin verbs in Quebec French? To this end, we created a database of 82 songs from the Quebec post-rap band Dead Obies and found a total of 131 English-origin verbs that were unintegrated (e.g., Mais t'es mieux d'run le shit; n=80) and integrated (e.g., On a droppé l'school; n=51) into French. These verbs were coded for five linguistic predictors: verb tense, position of verb in phrase, relative position in phrase, presence of other English-origin lexical items in the phrase, and following sound. Results for feature importance indicate that the use of morphologically unintegrated English-origin verbs is favoured when they appear towards the end of the sentence (relative position in phrase) and when they are followed by a vowel (following sound). They also imply that there are two strategies for inserting English-origin verbs into Quebec French: morphologically integrated and morphologically unintegrated. Therefore, Hip Hop artists may be contributing to the spread of the unintegrated (and non-standard) form.

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Session 8 - Learning

Learning L2 words with social feedback: evidence from pupillometry and EEG

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Evaluative social feedback is a key factor in social learning but has not been thoroughly investigated in connection with L2 learning. Whether in more formal classroom-type settings or informal daily exchanges, L2 learners constantly receive social feedback, which they use to update their knowledge of the L2. Despite growing behavioral evidence of the important role that social cues play in second language (L2) learning, the neural correlates of this facilitation have not been extensively explored. The current study examined the cognitive processes underlying L2 word-learning with social feedback and aimed to establish neural and psychophysical markers of such. In a within-subject design, participants learned novel L2 words via a forced choice task using auditory words and line drawings. We recorded EEG and pupillometry during learning with naturalistic videos representing either Reliable social feedback or Unreliable social feedback, as well as images representing Reliable Symbolic non-social feedback. Behavioral performance was measured both during training and 10 days later. Results showed greater pupil dilation prior to feedback for both Reliable Symbolic and Reliable Social feedback during the first half of word exposures and only for Reliable Social feedback during the second half of exposures. ERP and pupillometry analyses showed very clear effects for the valence of the feedback as well as its informative value. While pupil dilation and a late positive component were enhanced for negative compared positive feedback in the Symbolic and Reliable social conditions, as an index of on-going updating of information, no effects were observed for the Unreliable condition. Analyses of the sustained negative component preceding feedback showed increasing amplitude across learning for both informative conditions, Reliable Symbolic and Reliable Social, reflecting the built-up of more precise expectations on the incoming feedback. Intriguingly, the late positive component was time-sensitive to the disambiguation of feedback information, being delayed in the social condition, as information unfolded in time. Finally, behavioral results showed improved learning and retention with Symbolic and Reliable Social feedback compared to Unreliable Social feedback. Together, these results suggest that learning is very sensitive to the informativity of feedback, and that reliable social feedback engages motivational and anticipatory processes crucial to effectively encode L2 words. This study is the first to examine the cognitive processes underlying L2 learning with social feedback and provides novel evidence of how L2 learners benefit from social feedback information to encode new word meaning in memory.

Morphological decomposition of novel derived words: behavioral and neural evidence

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Introduction: We examined the role of morphological decomposition in early stages of learning derived words in native Hebrew speakers. While learning morphological inflections in a second language has been extensively studied, less is known about decomposition of derived words. We predicted that morphologically complex words will be decomposed, and thus learned faster than mono-morphemic words, and that this knowledge will be generalized to untrained words. We also expected this would be related to participants' morphological skills in Hebrew. We included mono-morphemic words and two types of complex words that also occur in Hebrew: Linear, with salient concatenative structure, and Non-Linear, which is a prominently used non-concatenative structure in participants' L1. **Methods:** 41 participants were trained on the 3 types of words across 4 sessions, and 29 participants were scanned using fMRI after the first and last sessions. 72 novel nouns were learned from three conditions: Complex Non-Linear (CNL, 'gulbaki'=fisherman, root: g-l-b-k=fish, pattern: XuXXaXi=person), Complex Linear (CL, 'zomgine'=birdwatcher, root: zomg=bird, suffix: -ine=person), and a Simple condition ('bunkut'=shoemaker). At the last session, generalization to untrained words was tested. **Results:** Behavioural results showed better overall learning and generalization of the morphologically complex conditions compared to the simple condition, particularly CL. They also showed that learning the root morpheme, which carried a concrete meaning, was better than learning template/suffix morphemes, which were more abstract. fMRI results revealed involvement of frontal areas, associated with decomposition, only for CNL words after just the first session. In contrast, CL words showed greater reliance on hippocampal activation. We also observed that training-related increases in activation in temporal areas for CNL words was correlated with participants' morphological awareness in Hebrew. **Conclusions:** Our behavioral results show decomposition of both types of morphologically derived words in early stages of learning, which rely mainly on the extraction of morphemes with concrete meaning. However, learning of derived words with linear and non-linear structures rely on different neuro-cognitive mechanisms. In linearly structured words the perceptual salience of discrete units results in easier decomposition, even for speakers highly familiar with the non-linear structure in their L1. Such decomposition relies on episodic memory in the hippocampus that facilitates word learning. In contrast, words with a non-linear morphological structure rely on decomposition already during the first training session, as evidenced by activation in frontal regions. Learning of these words relies more on the transfer of morphological skills from the native language.

Are pupils with developmental or learning disorders more at risk in immersion education?

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Although immersion education has gained much popularity worldwide, it is often regarded as an elitist approach focused on the cognitively most gifted pupils. Hence, the question whether this bilingual education method is also profitable for pupils with developmental disorders, remains largely unanswered. We conducted 2 studies in French-speaking Belgium, within schools providing the European type of immersion education, also known as Content and Language Integrated Learning (CLIL). We investigated whether pupils with dyslexia (study 1) and pupils with AD(H)D (study 2) can also benefit from an immersion education experience or whether their reading or attention problems puts them more at risk. In study 1, 28 5th and 11th-grade children and adolescents with diagnosed dyslexia and 112 matched controls were identified within a sample of over 800 participants. A first analysis performed on this large initial sample showed that the prevalence of dyslexia in our immersed sample was comparable to the prevalence amongst the pupils in traditional education. Then, we compared immersed and non-immersed pupils with or without dyslexia (4 groups), in terms of linguistic abilities (in both French and the target foreign-language: Dutch or English) and acquired academic content. In study 2, we recruited more than 50 5th and 6th-grade children with various attentional profiles, including children with diagnosed AD(H)D. Half the sample was enrolled in an immersion program. We assessed their attentional and executive control abilities in addition to their foreign-language proficiency. Overall, our findings suggest that there is no measurable disadvantage for pupils with dyslexia or with attentional difficulties to attend immersion education, neither for foreign-language learning, nor for acquiring academic content. Also, we observed that immersion education did not exacerbate the reading or attentional problems of pupils with dyslexia or AD(H)D, respectively. These results are not only useful for theorizing about the interactions between bilingualism and learning disabilities, they will also help to guide parents, educators and speech therapists who are confronted with questions about the accessibility of immersion education for atypically developing children.

Session 9 - Communication

Bilingualism, bidialectalism, and agreement attraction errors: A social-based approach to bilingual language processing

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Bilingual adaptations remain a subject of ongoing debate, with varying results reported across cognitive domains (Valian, 2015; Lehtonen et al., 2023). A possible way to disentangle the apparent inconsistency of results is to focus on the domain of language processing, which is what the bilingual experience boils down to (Leivada et al., 2021). Our study delves into the role of the bilingual experience in the processing of agreement mismatches. Given the underrepresentation of bilingual speakers of non-standard varieties (Scaltritti et al., 2017), we advanced a comparative perspective that includes Italian monolinguals (n = 27), Italian-Spanish bilinguals (n = 27), and two groups of minority language bilinguals who speak standard Italian and an Italian dialect, namely Italian-Agrigentino bilinguals (n = 28) and Italian-Pavese bilinguals (n = 26). We developed an auditory timed acceptability judgement task in Italian, featuring Subject-Verb agreement mismatches. After completing a detailed sociolinguistic questionnaire based on the LSBQ (Anderson et al., 2017), participants evaluated the stimuli on a 5-point Likert scale and reaction times were recorded. We ran both generalized linear mixed-effects models and linear mixed-effects models where accuracy and RTs were the dependent variables, while language group was the independent variable, together with factors related to language use and practices. The results did not reveal significant differences between the speakers of standard languages (i.e., Italian monolinguals and Italian-Spanish bilinguals). Instead, significant differences were found between monolinguals and the two groups of minority language bilinguals, as well as between Italian-Pavese and Italian-Agrigentino bilinguals. Italian-Pavese bilinguals were faster than both Italian-Agrigentino bilinguals and Italian monolinguals, while Italian-Agrigentino bilinguals were less accurate than both Italian-Pavese bilinguals and Italian monolinguals. These results are explained through variables associated with second language use and switching patterns in each bilingual community. Despite standard Italian and the local dialect co-existing in both Pavia and Agrigento, language attitudes towards the dialect and language practices significantly differ between the two communities, affecting language processing outcomes. Our findings highlight the importance of considering the impact of various sociolinguistic aspects of the bilingual experience. If bilingualism is viewed as a yes/no phenotype, the different cognitive outcomes of the bilingual experience may appear inconsistent. If, however, we accept that bilingual adaptations are shaped by the environmental ecology of each bilingual trajectory, variation across bilingual processing outcomes is unsurprising. We argue that specific sociolinguistic factors behind each bilingual experience can reveal where bilingual adaptations on language and cognition stem from.

Greetings in multilingual communication: Case of Czech, French and English

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The paper discusses the parallel use of greetings in Czech, French and English. The contrastive analysis comprises the most frequent greetings in these languages and discusses their translation equivalents in fictional dialogues. This approach broadens the scope of the traditional systemic contrastive analysis into the field of multilingual pragmalinguistics and conversational analysis.

The present analysis is inspired by various works focused on politeness within the cross-cultural and multilingual communication (Watts 2003; Válková 2004; Janney – Arndt 2005), and refers to authors' previous research in translation studies and contrastive analysis.

With regard to pragmalinguistic concepts that deal with this phenomenon (Ducrot 1984; Grepl – Karlík 1998; Leech 2014; Nekula 2017), polite features in language are described as the indirect realization of illocutionary acts. Greetings are therefore understood as the expressions of politeness representing a basic speech act.

For the purposes of the research, authors created a primary corpus of the most frequent greetings in Czech, French and English which were mutually contrasted in the parallel corpora InterCorp within the genre of fictional dialogues imitating real communication. Subsequent evaluation of equivalents was carried out within the framework of functional contrastive analysis.

The research tested the following hypothesis: (1) prevalent manuals for language users, i.e., monolingual and bilingual dictionaries or grammars don't provide sufficient information on the use of greetings; the skill of using adequate greeting (as same as other polite features) in the foreign language is, therefore, acquired only due to the direct contact with the particular culture; (2) formal and informal greetings are used asymmetrically in Czech, French and English, and this fact implies translation difficulties.

The aim of this paper is to describe multilingual and cross-cultural differences in terms of politeness in three formally distinctive languages (Czech, French, English) and to evaluate functional equivalence of greetings examined. The paper thus seeks to illustrate the current state as well as development of greetings in present-day Czech, French and Anglophone societies. The results of the present research can be applied in teaching and learning Czech/French/English as foreign languages and in translation training.

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