COM2018

Conference on Multilingualism

Ghent, Belgium

16 - 18 December 2018

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Monday, 17 December 2018

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17.00

19.00   Conference dinner

Tuesday, 18 December 2018

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12.30   Lunch + Poster session 3

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14.00   Symposium 4: Cross-language activation in bilingual children

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[S4.2]   *Cross-language activation in German-English bilingual children*
Gregory Poarch

[S4.3]   *Bilingualism affects reading in Frisian-Dutch bilingual children*
Evelyn Bosma & Naomi Nota

[S4.4]   *Cross-linguistic influence during syntactic processing in bilingual children: Online and offline comprehension of long passive and adverb-initial sentences by 5-9 year olds*
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Coralie Hervé

15.40   Afternoon break

16.00   **Keynote 3: Ramesh Kumar Mishra**

17.00   Conference closing

About COM 2018

Conference on Multilingualism 2018

The Conference on Multilingualism has a longstanding tradition, albeit under different names. It started in 2005 at the University of Trento as 'Workshop on Bilingualism'. Since then, the conference has also been held under the title 'Workshop of Neurobilingualism' and 'Neurobilingualism'. As of 2016, the conference is known under the name 'Conference on Multilingualism'. This makes the current edition number 11 in the gathering.

On Sunday evening 18:30h, 16 December, there is a COM welcome reception at Het Pand (Onderbergen 1, 9000 Ghent). Everyone is cordially invited to attend. The COM conference dinner takes place on 17 December at 19:00h in Pakhuis (Schuurkenstraat 4, 9000 Ghent).

Note that proofs of participation and presentation can be obtained electronically upon request. Please email us at com2018@ugent.be.

Find us on social media

COM 2016 will be posting updates on the conference on both Facebook and Twitter. To go to our Facebook page, enter the following link:

https://www.facebook.com/ConferenceMultilingualism2018/

To follow us on Twitter, use this link:

https://twitter.com/COM2018_Ghent

If you like to tweet something about the conference yourself, you can use #COM2018.

Welcome to Ghent

The City of Ghent

The history of Ghent began in the year 630, when Saint Amandus chose the site of the confluence (or 'Ganda') of the two rivers, the Leie and the Scheldt, to construct an abbey. Nearly 1400 years of history are still palpable in the city today. Nowhere else does one find so much history per square metre than in the historical heart of Ghent. Some places to see or visit are:

- **Saint Bavo Cathedral:** A Gothic cathedral consecrated in 942. The chapel was subsequently expanded in the Romanesque style in 1038, and during the 14th through 16th centuries, nearly continuous expansion projects in the Gothic style were executed on the structure.

- **Belfry:** Through the centuries, the belfry served not only as a bell tower to announce the time and various warnings, but also as a fortified watchtower and the place where the documents evidencing the municipal privileges were kept. The bells in the belfry originally only served a religious purpose. Gradually the bells got a secular role by regulating daily life in the growing medieval city. Construction on the Belfry began around 1313 and reached completion in 1380.

- **Saint Nicholas' Church:** Next to the Belfry and Saint Bavo Cathedral, the third medieval tower that overlooks the city of Gent. Erection began in the early 13th century as a replacement for an earlier Romanesque church. Construction continued through the rest of the century in the local Scheldt Gothic style (named after the nearby river). Typical of this style is the use of blue-grey stone from the Tournai area, the single large tower above the crossing, and the slender turrets at the building's corners.

- **Graslei harbour:** A scenic quay at the right-hand side of the Leie alongside historic houses, some dating from as long ago as the 13th century.

- **Boekentoren (Book Tower):** Designed in 1933 by the Belgian architect Henry van de Velde, this tower is part of the Ghent University Library and currently houses three million books. The Boekentoren is directly adjacent to the Blandijn, the buildings of Ghent University's Faculty of Arts and Philosophy. Situated on the highest ground in the city, the site offered the architect a unique opportunity to give to Ghent its fourth tower, not for the ringing of bells this time, but for books.

At this time of year, when Christmas is just around the corner, the city of Ghent also hosts the 'Gentse Winterfeesten' ('Ghent's Winter Festival') from the beginning of December until the beginning of January. The centre is turned into a Winter Wonderland, with an ice-skating rink set up under the City Pavilion, a giant Ferris wheel located in front of St Bavo's Cathedral allowing a panoramic views of the city, and a Christmas market with cosy stalls at the Korenmarkt. Interesting to know: The Guardian has put Ghent at number three in the 'top 10 best Christmas shopping cities in Europe'.

For more information, you can also surf to the Visit Gent website.

Ghent University

The Rijksuniversiteit Gent (State University of Ghent) was officially opened under the rule of King William I on 9 October 1817, which means it will celebrate its 200 anniversary in the upcoming year. The first rector was the physician Jean-Charles Van Rotterdam and the official language of tuition was Latin. In 1930, the university became the first institution in Belgium to teach in Dutch and in 1991, the name Rijksuniversiteit Gent was officially changed to Universiteit Gent (Ghent University)

Ghent University is not a campus university. Over the years, the university's sites and buildings were set up scattered across the city, and today the university has seamlessly fused with the city. Geographically speaking, the university is spread out over and around the city centre. Most of the university buildings are located on the north-south axis, stretching from the historical city centre (including the Aula and Het Pand) to the buildings on the Sterre and the Ghent University Hospital. In terms of origin and style, the university's patrimony is also characterised by its enormous diversity; from the thirteenth century monastery Het Pand, to the classical façades of the Aula Academica, the Plateaustraat and the Rommelaere Institute, and the famous Book Tower of Henry van de Velde.

Ghent University has 117 departments across 11 faculties, offering high-quality research-based educational programmes in virtually every scientific discipline. It is the Faculty of Psychology and Educational Sciences that is organising this Conference on Multilingualism.

Venue The Faculty of Psychology and Educational Sciences

The Faculty of Psychology and Educational Sciences is one of 11 faculties at Ghent University. It takes the lead in a number of academic Bachelor and Masters level programmes: Psychology, Educational Sciences, Social Work, and teacher Education. The institution started in 1927 as an educational institute within the Faculty of Arts and Philosophy and evolved into an independent faculty in 1969. In 1973, it moved into the building on the Dunantlaan 2, in which it still resides today. Campus Dunant has now expanded with another building on the Dunantlaan 1 and more classrooms and offices added to the original building.

Keynote addresses

Context, control, and bilingual cognitive flexibility

Ramesh Kumar Mishra

University of Hyderabad

Bilinguals in everyday conversations not only shift, switch between languages but they show sensitivity to contextual cues. Moving beyond the psycholinguistics of bilingual lexical management and the question of bilingualism's effects on neuroplasticity, now more recent focus has been on question of contextual effects on language selection. Bilinguals select languages for particular interlocutors keeping in mind its suitability and this happens very dynamically. In this talk I will present a theoretical overview and also empirical data that show in the Indian context bilingual speakers dynamic adjustment of control with regard to interlocutors demands both in language planning and also in non-linguistic control. For instance, Kapily & Mishra (2018) showed that Telugu-English bilingual speakers choose and modulate their language selection during a voluntary naming task depending on the cartoon interlocutors who are passively present during the task. Such sensitivity to potential interlocutors is based on a dynamic understanding of the interlocutor's language proficiency since in the Indian context often bilinguals talk to other bilingual and rarely one is monolingual. Language selection for a particular interlocutor also influences the domain general components of the executive control system. Studies at my lab show that certain types of bilinguals bring in a particular kind of control settings when they are in the presence of particular types of interlocutors. This then reflects on their performance on the non-linguistic attention tasks. Such experiments bridge the gap between language selection and domain general control. Bypassing the controversial issue of bilingual cognitive advantage these studies suggest that a central attribute of bilingualism is cognitive flexibility in the social domain and during interactions. I will also present eye tracking results that show dynamic reference to interlocutors tagged to certain languages when bilingual speakers prepare to speak. Linking these threads together, I will present theoretical proposals that suggest a very flexible bilingual linguistic and non-linguistic control system in the presence of interlocutors that probably facilitates bilingual communication in several ways.

Multilingualism and the "scaled" conceptual life of language(s)

Stef Slembrouck

Ghent University

The current globalized era has been identified as one of "multilingualism". This appears to be the case, when it is looked at from the point of view of international economic, professional and commercial mobility and from the point of view of migration flows and their implications for the functioning of host context institutions - education in particular. A third perspective is what counts, from the vantage point of the global South, as sociolinguistically representative for the multitude of linguistic contexts around the world. The multilingual turn has in a number of respects challenged prevailing concepts of "language community", of what is "language" and "a named language". In my presentation, I want to address the various concepts and definitions of language and language use which underpin contemporary multilingual practice and scientific research about multilingualism. I will argue that the different notions of "what is (a) language" depend situationally on scaled epistemologies of categorization (transnational, national, local,

situational, textual, etc.). Different "scales" push one in a particular direction in which the identification of "named languages" (and their boundaries) matters less or more, or towards assessments in which the existence of named languages is more, or less, taken for granted. This is never a value-free exercise. The question of "what is" cannot be separated from how it is being "evaluated" – as an asset, a deficit, as problematic, as pathological, as resourceful, as functionally adequate, as proficient, etc. It is further worth noting how the current era has also been one which has sought to reconnect language use with the scale of the individual body, though this has led to different interpretations in more cognitive traditions (the brain/mind is the locus where things are held together), compared to more sociolinguistic traditions of interactional analysis (in which socially meaningful bodily behaviour is the actual nexus of understanding). This "secondary" turn has also been indicative of the relative dislocation of "linguistics", as knowing about language (use) appears to be subordinate to other, more central concerns - sociological, psychological, neurological, educational, etc. According to some, the question arises whether we are facing "the end of linguistics, as we know it", as we no longer seem to agree on whether/how languages in fact do exist and what matters more/most about their modalities of existence? How do we engage with this complexity?

Beyond words: Investigations of bilingual comprehension across higher levels of language

Debra Titone

McGill University

Much of what we know about bilingual language processing comes from studies of single words, often in isolation or increasingly, within whole sentence contexts. Thanks to this work, a rich story has emerged about the nature of within-and cross-language activation during first and second language processing, as well as some of the linguistic and individual difference factors that modulate comprehension. In this talk, however, I will focus on studies of bilingual language processing that extend well beyond the single word. Specifically, I will review several studies from my group highlighting how bilingual language processing occurs across a range of contexts, and plays out in terms of cross-language syntactic processing as well as more pragmatic aspects of language, such as the use of figurative or ironic language.

Symposia

Symposium 1
Foreign language use in education

To CLIL or not to CLIL? That's not the question!

Philippe Hiligsmann

Université Catholique de Louvain

The first part of the presentation aims at briefly presenting the multidisciplinary research project Assessing Content and Language Integrated Learning (CLIL) (UCLouvain-UNamur, 2014-2019). Drawing on an innovative combination of different research methods and perspectives, this project tackles the interplay between linguistic, cognitive and socio-affective aspects of (non-)CLIL education. The analyses are based on data collected from French-speaking CLIL and non-CLIL L2 learners of English and Dutch in the last two years of primary and secondary school education (see Hiligsmann et al. 2017).

The thorough analysis of the collected data provides a balanced answer to the question whether CLIL learners really outperform non-CLIL L2 learners as far as L2 proficiency, attitudes, motivation and cognitive profile are concerned (see Bulon 2019, Bulon et al. 2017, De Smet et al. 2018, Hendrikx et al. 2019, Simonis et al. (submitted), Van Mensel et al. 2019).

Cognitive implications of learning content through a second language

Stéphanie Roussel

University of Bordeaux

Teaching academic content through a foreign language is one of the forms that internationalization takes all over the world. The political reasons (international attractiveness, and professionalization) are clear and consensual. But the essential question remains whether teaching content through a foreign language can lead to better learning of the academic content and of the foreign language itself simultaneously.

From a cognitive load theory (Sweller, Ayres, Kalyuga, 2011) point of view, learning academic content through a second language implies learning two kinds of secondary knowledge (content + language) at the same time. Simultaneous learning of this kind can be considered a very demanding task and is likely to overwhelm working memory. Unlike primary knowledge such as native language, secondary knowledge (such as reading, doing mathematics, learning a foreign language as an adult, studying law or any other academic content), cannot be acquired by simple immersion (Sweller, 2015) and requires time, effort and explicit instruction.

A critical review of the current research (Macaro, Curle, Pun, An, & Dearden, 2018) and a reflection on the theoretical foundations of these approaches led us to conduct five controlled experiments within higher education that provided a better understanding of cognitive processes involved when a foreign language is used to learn academic content.

In the three first experiments, a written text was presented to 294 students in three different conditions: their native language, a foreign language, and a foreign language with a translation into their native language. We varied the foreign language (English, and German) and the domain (Law, and Computer Science). In the fourth experimentation, 79 French students of Law and Political Science listened to an audio document about the European Court of Humans Rights

under four conditions: in their native language (French) twice; in the foreign language (German) twice; first in French, then in German; or first in German then in French. In the last experimentation, 103 French students of Law and Political Science listened also to an audio document about the European Court of Humans Rights in their native language (French) twice; in the foreign language (German) twice, in the foreign language (German) with German written subtitles, in the foreign language (German) with French written subtitles or in the native language (French), with German subtitles. In each experiment, after the reading or listening task, we tested the participant's understanding of the foreign language and of the academic content.

All of our results indicated a significant effect of the experimental conditions on the language and on the content post-tests. Learning (listening or reading) academic content in the foreign language was never the best condition to learn either language or academic content. We concluded that considerable care should be taken when transmitting academic content in a foreign language, without explicit foreign language instructional support. Our results also show that the bilingual conditions (reading or listening in both languages) lead to the best results to learn both language and content, helping students to build bridges between specific concepts in both languages. Listening to the content in the native language before listening to it in the foreign language was also beneficial. Native language subtitles (in written form) considerably helped the participants to understand content and specific terminology. These results suggest that learning a second language is facilitated by explicitly teaching that language rather than solely via immersion.

English-medium higher education in Denmark: Outcomes and ideologies

Jacob Thøgersen

University of Copenhagen

The increase in English-medium instruction (EMI) in higher education in non-Anglophone Europe can best be understood as a response to certain social processes of post-industrial societies (Gregersen, Thøgersen & Hultgren 2014). Universities have taken new roles in societies, and EMI can be seen as academia's response to the challenges posed by these roles. As such English-medium instruction is always steeped in political and ideological debates. In my talk, I will present a selection of the studies on EMI to come out of the University of Copenhagen's Centre for internationalization and parallel language use over the last decade or so of relevance to the conference's theme. These can be grouped into four strands:

- Studies on experiences, attitudes and ideologies both on the individual level (e.g. questionnaires to teachers) and the societal level (e.g. governmental reports).
- Quantitative studies of L2 (English) production, i.e. rate-of-delivery etc. in speakers speaking their L1 and L2.
- Qualitative studies of stylistic changes instigated by the language change. These are studies aiming at addressing the question: what happens to the content of the lecture and to the interaction between participants as the nominal language of instruction changes?
- Experimental studies in L2-comprehension of L2-speakers production of English. Typically, studies in L2-comprehension have focused on non-native speakers' comprehension of native-speaker English, or native-speakers' comprehension of L2-accented English (e.g. Derwing &

Munro 1997). EMI in non-Anglophone communities challenges us to look also at non-native speakers' comprehension of other non-native speakers.

The different strands of studies present evidence that something happens as institutions change their language policies and adopt EMI. Whether these changes are significant or negligible, fundamental or trivial, negative or positive are, as stated, a matter for political and ideological debate about the goals for education and the roles of universities in our societies.

The anglicisation of higher education in the Netherlands: Reasons and risks

Annette de Groot

University of Amsterdam

During the last couple of years Dutch higher education has anglicised in a seemingly unbridled fashion. This holds especially for the universities, where this academic year the tipping point from more programmes taught in Dutch to more taught in English has been reached. In this talk the possible consequences and risks of this anglicisation process will be discussed, with a primary focus on the effects on language and language use. In addition, the (alleged) reasons for anglicising Dutch higher education will be presented and the effectiveness of the driving force that presumably contributed most to the process, student recruitment, will be illustrated.

Studying texts in a non-native language: Is the L2 recall cost a production effect?

Marc Brysbaert & Heleen Vander Beken

Ghent University

In previous studies (Vander Beken & Brysbaert, 2018; Vander Beken, Woumans, & Brysbaert, 2018) we reported that studying an expository test in a non-native language (L2) does not cause inferior performance in a yes/no recognition test (even not after one month), but does result in a large L2 cost in a free recall test (d = .8). In these studies, L1-L1 (study in the native language, test in the native language) was compared to L2-L2. So, the origin of the L2 recall cost could be due to (a) a less organized mental model of the text, and/or (b) less proficient memory recall in L2 written production. To test the latter hypothesis, we ran a new study in which we compared L1-L1 to L2-L2 and L2-L1 (i.e., studying in L2, but being tested in L1). The results will be discussed and the implications for models of text memory and educational practices will be considered.

Symposium 2

The role of in- and out-of-school exposure

Out-of-school exposure to English: when and for whom is it beneficial?

Claire Goriot

CLS Radboud UniversityNijmegen

Dutch early-English pupils (who receive English lessons from age 4) tend to outperform pupils from mainstream schools (who receive English lessons from age 10) (e.g. Unsworth, Persson, Prins, & de Bot, 2015). At the same time, research has shown that this is not the case for pupils of all ages (Goriot et al., 2018), and some mainstream-school pupils have better knowledge of English than early-English pupils (de Graaff, 2015). Many factors may influence English proficiency, one of which is out-of-school exposure to English. In this study, we investigated how English proficiency develops along the different grades of primary school, and how English education and/or out-of-school exposure to English relate to this development.

250 pupils (4-12 years old; 140 early-English pupils) were tested on English vocabulary with the PPVT-4 (Dunn & Dunn, 2007). Parents filled in a questionnaire about out-of-school exposure to English. The results showed that early-English pupils outperformed mainstream pupils, and that out-of-school exposure was related to English vocabulary in both groups, but only for pupils in the higher grades. This shows that children do not only profit from English lessons at school, but also from other activities in English, especially when they are older and get more exposure to such activities.

Learning English through out-of-school exposure: how do word-related variables influence receptive vocabulary learning?

Vanessa De Wilde, Marc Brysbaert, and June Eyckmans

Ghent University

The international status of English and its prevalence in contemporary media has led to a situation in some European countries in which children are exposed to English long before they start their formal L2 English instruction. Several studies have shown that this media exposure leads to incidental language acquisition (Lefever, 2010, Lindgren & Muñoz, 2013, De Wilde & Eyckmans, 2017).

In this paper the results 780 Flemish 11-year-olds obtained on a receptive vocabulary test (the first 120 items of the Peabody Picture Vocabulary Test 4) will be examined in light of a number of word-related variables: frequency, age of acquisition, concreteness, orthographic similarity and cognateness. The children had not yet received any English instruction. We will also investigate whether the same variables play a role in the vocabulary development of children who have different amounts of out-of-school exposure to English and of children who have higher or lower receptive vocabularies.

By means of regression analyses the explanatory value of the different word-related variables will be discussed in order to shed more light on what makes a word easier or harder to learn in an incidental language learning context. Preliminary results show that learning is mainly affected by cognateness and frequency.

The essential role of extramural English for Dutch young English language learners' vocabulary learning

Nihayra Leona

University of Amsterdam

In countries where English is not the dominant language, formal English language learning used to be the main means of exposure to English. Motivation to learn English played an important role in this type of learning. Nowadays, young children are being extensively exposed to extramural English, which may result in a central role for informal English language learning. In this study we investigated the extent to which different types of extramural English activities and different motivational factors predicted Young English Language Learners' (YELLs) English vocabulary. A total of 279 Dutch children of 9-10 years old filled in two questionnaires, one measuring their exposure to extramural English activities and the other their motivation to learn English. They also completed two English vocabulary tests. A path model analysis showed that English language vocabulary is strongly predicted by exposure to extramural English in the family and informal entertaining media, but that the role of motivational factors is marginal. Moreover, when a distinction was made between YELLs who had not yet received formal English education at school, and YELLs who had already started with formal English education at school, exposure to extramural English activities remained the most important predictor for both groups, but the role of motivational factors differed. It is concluded that exposure to extramural English is more important than motivation for YELLs' vocabulary knowledge.

The development of Dutch and English language proficiency in students of Dutch bilingual secondary schools

Annelies van der Lee, Vanessa Lobo, and Roeland van Hout

CLS Radboud University Nijmegen

Previous research in the Netherlands has shown that in the first three years of secondary school, students following a bilingual education program reach a higher level of English than their peers who follow a mainstream education program. We conducted a study at Varendonck College in Asten, the Netherlands, a secondary school offering both bilingual and mainstream monolingual education on the pre-university (VWO) level. Students were tested yearly over the course of three years, 2014-2017. The Peabody Picture Vocabulary Test (English and Dutch) and the Oxford Placement Test (English) were used to test students' language proficiency. In addition, students' CITO scores and final exam results were collected.

First, we can conclude that both the monolingual and bilingual groups progress in their English language learning, with the students following bilingual education reaching a higher level of English. This difference is seen starting from the first school year, stays consistent in all six school years, and can be observed in their English final exams. Second, we can conclude that following a Dutch-English education did not negatively affect the participants' Dutch language proficiency nor their exam results in Mathematics. When correcting for CITO score, bilingual students score on the same level as monolingual students for the PPVT-NL and their Dutch and Mathematics final exams.

Symposium 3

You are what you speak

A study of the semantic and constructional properties of manner, path and caused motion verbs in Modern Standard Arabic

Amal Albureikan and Panos Athanasopoulos

Lancaster University

In this working paper, we present a first set of analyses that is part of a larger-scale cross-linguistic study of Motion Events in Arabic and English speakers, and Arabic-English bilinguals. Typically, MSA is classified as a verb-framed language (reference), where manner of motion is expressed outside the main verb (e.g. John entered the house running). However, this typological status has not been empirically verified to date. Here we bring usage data to argue that Modern Standard Arabic (MSA) does not quite fit into the typological classification put forward by Talmy (1985, 1991, 2000). In order to standardize the lexicalization patterns of Manner, Path, and Caused motion events in MSA, we used elicited narratives (Frog, where are you; Mayer, 1969), and a grammaticality judgment task. The wordless frog story attempts to elicit participants' discourse behaviour. The grammaticality judgment task, on the other hand, attempts to probe MSA speakers' knowledge of the grammaticality of motion verbs constructions. Findings from both tasks showed that although prototypical verb-framing may be an acceptable pattern for motion lexicalization in MSA, numerous other patterns are available to describe motion, many of which are compatible with patterns found in satellite-framing languages, contrary to traditional linguistic accounts of MSA.

The effects of mental imagery on time perception and semantic representation among individuals with aphantasia

Caél Rooney and Panos Athanasopoulos

Lancaster University

This research aims to further our understanding of language and the perception of time, and furthermore whether an inability to conjure mental imagery – known as aphantasia, has any bearing on behavioural psychophysical experiments and the effects of language priming. Supporting previous studies, English monolingual controls are more deceived when judging the duration of growing line stimuli. These participants also demonstrate effects of novel linguistic primes, which consisted of engineered vignettes and a memory test based upon either distance or quantity spatiotemporal metaphors. All participants recalled a higher percentage of distance metaphors – the preferred cognitive mapping for English speakers. Participants with aphantasia have largely fluctuating degrees of interference from stimuli, including multiple cases of negative interference in the duration tasks. Additionally, these participants do not seem to be affected by linguistic primes in a conventional way, in contrast to controls. Consequently, experimental participants appear to have a non-standard semantic link between cognition and language – at least from these data, as language does not appear to affect experimental participants in the same way as controls. These results therefore suggest that mental imagery not only plays a role in the ability to reproduce duration stimuli, but potentially also in cross-dimensional mappings of language.

Brain potentials reveal the modulation of grammar on object perception and categorisation: A case for grammatical gender

Sayaka Sato, Aina Casaponsa, and Panos Athanasopoulos

University of Lausanne
Lancaster University

Research in the domain of object (Boutonnet et al., 2013) and colour (Thierry et al., 2009) categorisation suggests that verbal categories, specifically *labels*, impact visual perception and categorisation by enhancing their conceptual boundaries through linguistic encoding. While these findings are often taken as support for the involvement of language on cognition, research regarding the impact of dynamic grammatical structures remain yet to be investigated. In the present study, we examined the extent to which grammatical gender modulates categorisation and perception by providing French-English bilinguals and monolingual English controls with an object categorisation task while event related potentials were recorded. Participants were presented with objects associated with a male or female gender and had to decide their conceptual relatedness with a subsequent face gender. The object-face pairs were manipulated for their conceptual gender relatedness, and their grammatical gender match between the object and face gender. Results showed that categorisation, as reflected in the N300, was modulated by grammatical gender for the bilinguals, but conceptual gender for the monolinguals. Importantly, grammatical gender also modulated the N1 component exclusively for the bilinguals, indicating the involvement of grammar at early perceptual processes. The findings provide further support for the contribution of language on cognition.

Fast modulation of colour perception by language context in Greek-English bilinguals?

Laurie Mortimore, Panos Athanasopoulos, and Guillaume Thierry

Bangor University
Lancaster University

Language and perception have been shown to interact across domains of colour processing (Thierry et al., 2009) and object categorisation (Boutonnet et al., 2013). Whilst language context effects have been shown behaviourally in the case of motion event conceptualisation (Athanasopoulos et al., 2015), it is unclear whether perception can change with language of operation in bilinguals. Here, we examined automatic responses to unattended colour oddballs in Greek-English bilinguals whilst they performed a semantic decision task on words in either of their languages. Participants were asked to detect words referring to an animal within a stream of words. Blue and green colour circles were flashed at the periphery of each word, following the same ratios as in Thierry et al. (2009). We expected greater visual mismatch negativity amplitudes for blue oddballs (given the distinction between *ghalazio* – 'light blue' and *ble* –'dark blue') than green oddballs (*prasino* in Greek) when participants made semantic decisions in Greek rather than English. We failed to find the predicted colour x deviancy x language interaction, and even a deviancy main effect ($p = 0.07$). We aim to pre- register a follow-up study with improved stimulus deviancy salience (relative contrast) and addressing issues regarding temporal and within-modality perceptual competition.

Categorical perception of objects in bilinguals: An ERP investigation of incongruent categorical distinctions across languages

Aina Casaponsa, Acebo García-Guerrero, Alejandro Martínez, Guillaume Thierry, and Panos Athanasopoulos

Lancaster University
University of Deusto
Valladolid University
Bangor University

Language influences categorical perception, that is, our ability to better discriminate objects from two categories than objects from the same category. Different languages, however, label categories differently. Learning a new language thus entails internalizing novel categorical distinctions but also restructuring existing ones (Athanasopoulos, 2015). Here, we investigate the neural correlates of perceptual categorical distinctions that arise from differences in terminology between languages by measuring the visual mismatch negativity (vMMN), and index of automatic processing of unattended stimuli. 30 Spanish(L1)-English(L2) bilinguals, and 30 English and 30 Spanish control monolinguals, performed a visual detection task within an oddball paradigm adapted from Stefanics et al. (2012). The study features four conditions differing in terms of categorical distinctions/overlaps across languages: objects with (1) two terms across languages ('desk'–*mesa* and 'table'–*escritorio*), (2) a single term across languages ('chair'–*silla*), (3) two terms only in L2 (mug and cup –*taza*), (4) two terms only in L1 ('glass' –*copa* and *vaso*). Although data collection from the bilingual group is still ongoing we expect that the results will establish for the first time the neural correlates of object categorical perception when languages name categories differently, shedding unprecedented light onto the plasticity of the bilingual conceptual system.

Symposium 4

Cross-language activation in bilingual children

On the road to bilingualism: The role of native language knowledge in foreign speech processing

Katie von Holzen and Rochelle Newman

University of Maryland

Bilingual toddlers activate both languages simultaneously during lexical processing (Von Holzen & Mani, 2012) and are sensitive to the cross-language phonological overlap when recognizing words (Von Holzen, Fennell, & Mani, 2018). Monolingual toddlers also recognize phonologically similar (i.e. cognate) words produced in foreign speech, suggesting a role for native L1 knowledge in initial foreign speech processing. In addition to these prior studies a new set of studies will also be discussed, which examine the earliest stages of L2 acquisition and how cross-language connections may begin to form. Preliminary data (n = 5) shows that monolingual 2-year-olds listen longer to novel words compared to words previously heard embedded in foreign speech, suggesting segmentation after a few minutes of exposure (e.g. Pelucchi et al., 2009). Planned follow-up studies focus on children's ability to leverage their existing native L1 knowledge to segment embedded words in foreign speech by 1) comparing cognates with non-cognates (e.g. Carroll, 2012) and 2) testing whether the presence of cognates further boosts segmentation of adjacent, non-cognates. To examine potential developmental differences, both infants and toddlers will be tested. These studies provide an examination of how monolingual children use their native L1 knowledge to initially process foreign speech.

Cross-language activation in German-English bilingual children

Gregory Poarch

University of Münster

The present study explores cross-language activation during lexical retrieval in 38 German-English bilingual children (*mean age* = 6.6, *SD* = 0.9) and builds on previous work on L2 learner, bilingual, and multilingual children (Poarch & Van Hell, 2012). Specifically, lexical retrieval in word production was examined in bilingual children with varying language proficiencies to explore non-target language co-activation. With the assumed language control mechanism being Green's inhibitory control model (1998), the main questions were whether the children would show bidirectional cognate facilitation effects (which would indicate the expected non-target language activation of both German and English) and, if so, how strong the effects are, and whether possibly found cognate effects were correlated with language proficiency. To address these questions, the children were asked to name pictures of concrete cognates and non-cognates in German and English and to perform receptive grammar tasks in both languages. The results indicate (1) overall slower picture naming in English than in German and (2) cognate facilitation effects in both language conditions. Critically, the effect magnitude was larger in English than in German. Finally, (3) while the performance in English was marginally correlated with language proficiency, this was not the case for German.

Bilingualism affects reading in Frisian-Dutch bilingual children

Evelyn Bosma and Naomi Nota

Leiden University

Bilingual adults are faster in reading cognates than non-cognates in both their first (L1) (Van Assche et al., 2009) and second language (L2) (Duyck et al., 2007). This cognate effect has been shown to be gradual in the L1 (Van Assche et al., 2009). The aim of the present study was to investigate whether cognate facilitation can also be observed in bilingual children's reading.

Frisian-Dutch bilingual children between 9 and 12 years of age completed a reading task in both their languages. All children had Dutch as their dominant reading language, but most of them spoke mainly Frisian at home. Identical cognates, non-identical cognates and non-cognates were presented in sentence context, and eye-movements were recorded. We controlled for word class (all nouns), number (all singular), word frequency, word length, number of syllables, and orthographic and phonological neighborhood density.

Data collection is ongoing, but preliminary analyses (*n* = 18) showed a non-gradual cognate effect in Frisian: identical cognates were read faster than non-identical cognates and non-cognates. In Dutch, however, no cognate effect could be observed. These results show that bilingual children use their dominant reading language when reading in their non-dominant one.

Cross-linguistic influence during syntactic processing in bilingual children: Online and offline comprehension of long passive and adverb-initial sentences by 5-9 year olds

Chantal van Dijk, Sharon Unsworth, and Ton Dijkstra

Radboud University

Ample evidence exists that cross-linguistic influence (CLI) occurs in young bilinguals (e.g., Nicoladis, 2002; Serratrice, 2013). However, hardly any study considers CLI in 2L1 during real-time language processing (*online*). Therefore, it remains unclear whether bilingual children use one language while processing the other. The aim of this study is to investigate this by means of a self-paced listening task (online; e.g., Ferreira et al., 1996) and an acceptability judgement task (*offline*).

Participants were 5-to-9-year-old bilinguals (40 English-Dutch, 42 German-Dutch) and Dutch monolinguals (*n* = 44). They were presented with long passives in Dutch with the by-phrase either preceding (PP-V) or following the verb (V-PP):

	PP-V	V-PP
Dutch	De beer wordt door de leeuw gekust.	De beer wordt gekust door de leeuw.
English	*The bear is by the lion kissed.	The bear is kissed by the lion.
German	Der Bär wird vom Löwen geküsst.	*Der Bär wird geküsst vom Löwen.

Offline, there was no evidence of CLI: groups performed similarly. Online, however, the German-Dutch bilinguals finished parsing the PP-V passives – the grammatical order in German – earlier than the other two groups. This shows that bilingual children can use one language while processing the other, without CLI being necessarily visible offline.

The acquisition of genericity in French-English bilingual children

Coralie Hervé

University of Essex

Recent research posits the role of processing mechanisms on cross-linguistic influence (CLI) (Vasilyeva et al., 2010; Nicoladis, 2012; Hervé et al., 2015). The aim of this paper is to (i) examine further how online vs. offline processing, and (ii) individual measures of both fluency and language exposure affect CLI at the determiner level in 8-to-10-year-old French-English children. French requires the projection of a determiner in generic context when English allows bare mass nouns and bare plural nouns.

Forty-five French-English children took part in a self-paced reading (SPR) task and an Acceptability Judgement task (AJT) in their two languages. French and English monolinguals (n = 24) were also included. A parental questionnaire measured language exposure and fluency (Cattani et al., 2014).

Unlike previous studies (Hervé & Serratrice, 2018; Kupisch & Pierantozzi, 2010; Serratrice et al., 2009), our results provide evidence of CLI from French to English but not the reverse. In the English SPR task, we observe increased reading times as a function of fluency in French. In the English AJT, there are significant effects of grammaticality, condition, and group with the bilinguals in France being significantly less accurate than the bilinguals and monolinguals in the UK. Differences between the online and offline tasks are discussed in terms of implicit and explicit knowledge.

Talk sessions

Talk session 1
Multilingual state

The absence of English in Flemish dinner table conversations

Eline Zenner and Dorien Van de Mieroop

Katholieke Universiteit Leuven

In Flanders, like in the rest of Western Europe, English is the ultimate lingua franca, and a prime source for contact-induced change (see Zenner et al. 2012). Research has revealed that Flemish primary school children are also subject to its influence, having implicitly acquired a substantial amount of English words prior to the start of formal English tuition in the second year of secondary school (De Wilde et al. 2017). A standing question is where and through which channels this implicit learning occurs.

This paper studies the role of primary caretakers in children's acquisition of the English language in Flanders, focusing on the social function of child-directed speech (Ochs & Schieffelin 2014): through code selection, caregivers implicitly help children acquire the community norms of language variation, as such revealing their language regards (Preston 2011). Studying self-recordings from eight Belgian Dutch families with children under 8 years old during dinner table conversations (Blum-Kulka 1997), we find that less than 1% of the collected 25,000 utterances contain English insertions (following the definition of English insertion used in Zenner et al. 2012).

Through multimodal discourse analysis (Goodwin & Goodwin 2004) of the contexts in which the rare English insertions are attested and of relevant excerpts from sociolinguistic interviews with the parents, two questions resulting from the low number of English in the Dutch dinner table interactions are addressed. The first question is why we find so little English insertions, contrasting two hypotheses: (1) parents explicitly socialize their children towards the use of Dutch, away from English (see Ochs & Schieffelin 2004); (2) English-prone semantic domains (e.g. IT, swearing; see Zenner et al. 2013, Dewaele 2017) are not typically present in dinner table conversations. The second question is where children pick up on English, if not in the family home, discussing the role of (1) secondary socialization in school contexts; (2) the contested influence of the media (see Tagliamonte 2014).

The findings of our paper will be discussed against the theoretical background of developmental sociolinguistics (De Vogelaer & Katerbow 2017) and the methodological background of dealing with negative evidence in corpus linguistics (e.g. Ambridge et al. 2009).

The effect of mind maps on the retention of learning material in first and second language

Sara Dhaene and Evy Woumans

Ghent University

An exponential growth has been observed in the provision of English-taught education programs all over the world. Evaluating the educational consequences of using a non-native language as medium of instruction, Vander Beken and Brysbaert (2017) compared memory for texts in first (L1) and second (L2) language. The data revealed a substantial L2 recall cost, with much lower performance for L2 material. Exploring possible ways to overcome this cost, the present study assessed the effect of advance organizers (AO) on memory for L1 and L2 material. To this end, Dutch-English bilinguals (N = 115) were asked to study two texts, one in L1 and one in L2, either

with or without the help of a mind map. Results revealed a significant effect of language with lower test scores in L2. Contrary to our hypothesis, there appeared to be no significant effect of AO. However, partial analyses of subscores revealed that the use of a mind map did enhance memory for items depicted in the mind map, but also lowered performance on other items. This effect was the same in L1 and L2. We conclude that well-designed AOs can effectively support the learning process, both in native and non-native languages.

Language influence on ninth-graders' mathematics performance in a multilingual educational setting

Sophie F. Martini and Sonja Ugen

University of Luxembourg

Mathematical learning and achievement is influenced by language, socio-economic status (SES), and motivational factors. This study aims to examine these different factors influencing mathematics in a multilingual setting. In the Luxembourgish educational system, students acquire literacy skills in German from grade one on and learn French from grade three onwards. Mathematics is taught in German in grades one to six and then there is a switch of the teaching language to French in grade seven. The student is population is furthermore very heterogeneous in terms of their home languages.

To disentangle different factors that could influence math proficiency, we analysed data from the computer-based, national standardised mathematics test in which ninth-graders could choose and switch between two test languages (German, French). We analysed reading comprehension skills (German/French) and SES as predictors for mathematics achievement for pupils from six mono- and bilingual home language backgrounds, using linear regressions. Furthermore, we examined students' test language choice in relation to their reading comprehension achievement (German/French) and math and language-related motivational factors (interest, self-concept, and anxiety).

The results indicate that SES and reading comprehension in the test language are predictors for mathematics achievement. Differences between students in the six home language groups strongly decrease or become insignificant when controlling for these two factors. Students often take the math test in the language in which they have the highest reading comprehension score, and/or have higher interest and self-concept and less anxiety, but which language is (mainly) chosen differs between home language groups. This indicates that proficiency in the test language and motivational factors matter for mathematics achievement and should be considered in a multilingual setting.

Phonological similarity as an index of short-term memory precision in monolingual and trilingual speakers

Marion Bouffier and Steve Majerus

University of Liège

Short-term memory (STM) precision has been defined as the resolution with which items are maintained in STM (Joseph et al., 2015). It has to be distinguished from STM capacity, which refers to the number of items that are recalled in STM (Miller, 1956; Cowan, 2010). So far, this concept has received little interest in the verbal STM domain. In two studies, we assessed the sensitivity to different degrees of phonological similarity between memory and probe items as a potential index of verbal STM precision. In Study 1, we assessed STM precision in 60 monolingual, French-speaking young adults. In Study 2, we aimed at taking advantage from the potential differences in STM precision stemming from differing language representations in 35 speakers of German, French, and English. In both studies, participants were presented auditory lists of 6 words. After a delay, a probe was presented, and participants had to decide whether it had been in the list or not. Negative probes showed different degrees of phonological proximity with the target word in the memory list. In Study 1, the lists were presented only in French, while in Study 2, the participants carried out the task in German, French and English. We also assessed comprehension and production of these three languages. Using Bayesian repeated measures ANOVA, we observed in both studies decisive evidence for an influence of phonological proximity on STM probe recognition performance: the more similar the negative probes to the target word, the higher the rate of false recognition. Study 2 revealed additionally that this effect was maintained across languages and that performance correlated positively with language proficiency, the best scores being reached in L1. Finally, we observed significant inter-individual variability in the sensitivity to phonological proximity. These studies suggest that memory-probe phonological similarity is an important variable for the development of measures of STM precision in the verbal domain and is stable across the languages spoken at different levels of mastery.

Parafoveal processing in bilingual readers within and across languages

Liv J. Hoversten and Clara D. Martin

Basque Center on Cognition, Brain and Language

A great deal of research in psycholinguistics has investigated the quality of information that a reader can extract from the parafoveal word to the right of the currently fixated word. Nonetheless, very few studies have considered bilingual readers and the role language membership information may play in parafoveal processing. This experiment thus investigated parafoveal processing in bilinguals when reading in both their L1 and their L2. We used the gaze-contingent boundary technique in which a critical word embedded in a sentence (the preview) was replaced with a different word (the target) when the eyes crossed an invisible boundary prior to the critical word. This paradigm allowed us to examine whether and how semantic codes from a parafoveal preview are accessed and integrated with a target word upon fixation. 60 Spanish-English bilingual participants read complete sentences while their eye movements were recorded. Sentence frames appeared in only one language (the base language) in separate sessions of the experiment, and different experimenters conducted each session and spoke only in the target

language of that session. To mask the presence of the alternate language in each session and ensure a relatively monolingual language context, target words always appeared in the same language as the rest of the sentence. However, parafoveal previews appeared either in the same language as the rest of the sentence (non-switch) or in the alternate language (code-switch). Half of each of type of previews were semantically related to the target word (i.e., a within-language synonym or a cross-language translation), and the other half were unrelated but grammatical continuations of the sentence. As a control, we also included a valid preview condition in which the preview and target were the same word. Results showed that code-switches were less likely to be skipped than non-switches, suggesting that words in the alternate language were more difficult to access when reading in one language. Additionally, preview benefits emerged across different measures of eye movement behavior based on both language membership and semantic relatedness to the target word. We will discuss the time course of these effects and interpret them with regard to the time course of lexico-semantic processing during reading within and across languages in bilingual readers.

Talk session 2

Aptitude and acquisition

The language network of polyglots

Olessia Jouravlev, Zach Mineroff, and Evelina Fedorenko

Carleton University

The neurocognitive mechanisms of impaired language processing have received a lot of attention in the last few decades. Much less is known about individuals with a special talent for language, like those able to master multiple languages (Erard, 2012). We report the first fMRI investigation of seventeen polyglots (M(languages)=11.6; range(languages)=5-55). We asked two questions: (1) Does the language network of polyglots differ from that of non-polyglots?; and (2) How are multiple languages represented in polyglots' brains?

Study 1: The language network was identified in each individual with a language localizer that contrasted responses to sentences and nonwords (Fedorenko et al., 2010). The polyglots were compared to carefully pairwise-matched (including on IQ) non-polyglots, and a larger population of non-polyglots (n=217) all of whom had performed the same localizer. The polyglots showed both less extensive activation (p<0.001) and a smaller Sentences>Nonwords effect (p<0.001). No group differences were observed in two control brain networks (the Multiple Demand network and the Default Mode Network), arguing against ubiquitous differences in information processing between polyglots and non-polyglots.

Why might polyglots use smaller patches of cortex to process language? One possibility is that they process language more efficiently from birth, even as they acquire their first language. Another possibility is that language processing becomes more efficient as a result of acquiring multiple languages. Without establishing a genetic basis for polyglotism combined with longitudinal investigations of individuals as they acquire new languages, both possibilities remain viable.

Study 2: We examined the polyglots' neural responses to passages in their native language (L1), three non-native languages of high to moderate proficiency (L2-L4), two cognates of languages familiar to the participant (L5-L6), and two completely unfamiliar languages (L7-L8). Each language included a control scrambled-speech condition matched to the critical conditions acoustically but with no discernable linguistic content (Overath et al., 2015). The Intact>Scrambled contrasts for the different languages activated highly overlapping areas within the language network. The Intact>Scrambled effect was reliable in all languages (ps<0.03), but its size generally scaled with proficiency, decreasing from L2 to L8, except for the response to L1, which was relatively low. Statistical comparisons revealed that a) the response to L1 was marginally lower than to familiar non-native languages (p=0.05); b) the response to both L1 and familiar non-native languages was stronger than to unfamiliar

(non-cognate) languages (ps<0.004); c) the response to familiar non-native languages was stronger than to unfamiliar cognate languages (p<0.001); and d) the response to unfamiliar cognate languages was stronger than to unfamiliar non-cognate languages (p=0.05). Thus the ability to extract high-level linguistic information from the speech signal appears to lead to stronger responses in the language regions. Further, the response scaled with proficiency: the Intact>Scrambled effect decreased from L2 to L3 to L4, and could be predicted from self-rated proficiency ratings (p=0.038), in line with the idea that as proficiency increases one is able to extract progressively more meaning from the signal. However, one's native language constituted an exception: the response was lower than to familiar non-native languages, perhaps reflecting greater efficiency.

The meaning and form of definiteness in Belarusian learners of Swedish

Anders Agebjörn

University of Gothenburg

Second language (L2) acquisition of the Scandinavian noun phrase (NP) with its multiple definiteness marking (den svart-a katt-en; DEF black-DEF cat-DEF) has been extensively investigated (e.g. Jin 2007; Nyqvist 2016; Nordanger 2017). However, despite the interest in the meaning–form relation among L2 researchers (DeKeyser 2005; Slabakova 2008), the question whether this structure can be acquired independently of the pragmatic meaning of definiteness has never been explicitly addressed. The present study demonstrates that the meaning and form of definiteness are indeed unrelated in learners of Swedish, lacking articles in their first language.

Twenty-four Belarusian learners of Swedish solved a communicative, oral task that elicited on average 89.1 modified and non-modified NPs in definite and indefinite contexts. Three variables were calculated: the suppletion of articles in obligatory contexts; the article–adjective agreement; and the article-selection accuracy in the pragmatic context.

The suppletion- and agreement-rates correlated with each other ($r = .80$; $p < 0.001$). On the contrary, there was no correlation between either suppletion and accuracy ($r = .20$; $p = 0.342$) or agreement and accuracy ($r = .06$; $p = 0.767$). Thus, the morphosyntactic form of definiteness was not associated with its pragmatic meaning in the learners. Moreover, they frequently corrected the NP structure but never their choices of articles.

This result, suggesting that meaning and form are in some sense unrelated in L2 learners, is explained within the cognitive, modular framework proposed by Sharwood Smith and Truscott (2014). Not least the potential role of consciousness in relation to meaning and form is discussed.

Foreign language lexical stress perception: can music help?

Pauline Degrave

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Previous studies revealed that music can facilitate foreign language acquisition, for example when learners show some musical training or abilities (1), or when music is used in foreign language teaching methods (e.g. use of songs or rhythmical activities) (2). However, surprisingly enough little is known about the effect of music on prosody acquisition, in particular on lexical stress perception (3). This acquisition is often problematic for speakers of a language that does not contain lexical stress (4). Moreover, research has not yet examined the interaction between the learners' musical characteristics and the musical teaching methods in FL classroom: do musical methods equally benefit learners with or without musical abilities? In our research, we examined whether music, either as a characteristic of the learner (musical training, abilities, interest etc.) or as a characteristic of the task (use of music or of beat) can facilitate foreign language lexical stress perception. We tested three groups of French learners of Dutch: one group of musicians and non-musicians (N = 46), one group of learners of Dutch at the university (N = 80) and one group of secondary school students who learn Dutch with or without CLIL-program (N=120). They all performed a XAB discrimination task: they heard stimuli of three Dutch words and non-words

varying in the position of the lexical stress and mentioned which of the two last matched with the first one. The stimuli were either naturally spoken, either spoken with a beat on the stress (rhythmical stimuli), either sung (musical stimuli). After the perception tests, participants filled in questionnaires to evaluate their musical profile. Results show that both musical characteristics of the participants and musical characteristics of the stimuli facilitate lexical stress perception and that there exists an interaction between these two variables.

The linguistic and neural effects of short novel language learning

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Although there has been an upsurge of bilingualism research in the past decades, little is known about the very early markers of novel second and foreign language learning. The goal of this study was to investigate the behavioral and neurophysiological (EEG) signatures of the earliest stages of novel language learning, and to assess the role of immersion in this process. 20 US-based native English speakers learned Dutch for up to 1 hour/day for ten days through commercial language learning software. Importantly, 36 other participants completed the same study while immersed in the Netherlands. All completed a Dutch picture naming task (composed of cognates and non-cognates), and a verbal fluency task in Dutch immediately after the completion of the language training. In addition, a subset of immersed participants (n=11) also completed an EEG semantic categorization task in Dutch both before training started and immediately after it was completed.

The behavioral results show that all learners acquired a significant amount of new Dutch vocabulary in only a short time of language training (M=5.55 words per hour of training) as measured by the picture naming, and the verbal fluency task. Importantly, all learners achieved higher accuracy for cognates (M=76.8%) than non-cognates (M=61.6%) in the picture naming task, although only immersed learners exhibited faster naming latencies for cognates. The ERP data showed a significant reduced negativity starting at around 400ms when comparing studied words after training to those same words before training, and demonstrated that the effect was even stronger for cognate words. The behavioral and ERP results jointly demonstrate an overall effect of novel language learning even after a few hours of exposure. Importantly, the data reveal that immersion plays a role in boosting the learning effect. In addition, performance was better overall for cognates than for non-cognates, stressing the importance of cognate status in the early stages of language learning.

Connectivity of the hippocampus and Broca's area during acquisition of a novel grammar

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In an effort to advance the understanding of brain function and organisation accompanying initial phases of second language learning, we investigate the neural substrates of novel grammar learning in a group of healthy adults. Following Opitz and Friederici (2003), who suggested interactions of the hippocampal system and the prefrontal cortex as the neural mechanism underlying novel grammar learning, the present fMRI study investigated functional connectivity of bilateral BA 44/45 and the hippocampus during an artificial grammar learning (AGL) task. Our results, contrary to the previously reported interactions, demonstrated parallel (but separate) contributions of both regions, each with their own interactions, to the process of novel grammar acquisition. The functional connectivity pattern of Broca's area pointed to the importance of coherent activity of left frontal areas around the core language processing region for successful grammar learning. Furthermore, connectivity patterns of left and right hippocampi (predominantly with occipital areas) were found to be a strong predictor of high performance on the task. Finally, increasing functional connectivity over time of both left and right BA 44/45 with the right posterior cingulate cortex and the right temporo-parietal areas points to the importance of multimodal and attentional processes supporting novel grammar acquisition. Moreover, it highlights the right-hemispheric involvement in initial stages of L2 learning. These latter interactions were found to operate irrespective of the task performance, making them an obligatory mechanism accompanying novel grammar learning.

Talk session 3

Language control

Electrophysiological investigation of the mechanism governing code-switching in fluent Welsh-English bilinguals

Awel Vaughan-Evans, M. Carmen Parafita Couto, Bastien Boutonnet, Noriko Hoshino, Peredur Davies, Margaret Deuchar, and Guillaume Thierry

Bangor University

It is interesting to note that bilinguals effectively adapt with regard to their socio-interactional context (Green & Abutalebi, 2013). Using a voluntary object-naming paradigm we investigated if bilinguals monitor their language selection and production with respect to their interlocutors' L2 language proficiency. Thirty Telugu-English bilinguals (M=22.9 years, SD = 2.6 years) were introduced to audio-visual stimuli that consisted of animated human-like cartoons (interlocutors) that spoke in English (L2) and Telugu (L1). The interlocutors were either high or low proficient in English (L2). After which, the participants briefly interacted with these interlocutors. The main experiment consisted of three blocks that were based on the monitoring conditions. In block,1 participants were presented high and low L2 proficient interlocutor with 3: 1 ratio, similarly, in block 2 the ratio of presentation of the interlocutors were reversed. In block 3 both the interlocutors were presented for an equal number of times. On every trial, participants were presented to an interlocutor for a brief amount of time after which an object was presented for naming. The participants were asked to name the object in the language that comes to their mind a response to that particular interlocutor. We predicted that the participants would choose and switch into the language with reference to the interlocutors L2 proficiency. The results indicate that the participants' monitored their language choices (t = -4.06) and switch rates (t = 2.61) based on the perceived awareness of the interlocutors' language proficiency in L2. This pattern was observed across all the blocks. However, interlocutor specific effects were not found on naming latencies (t = 0.56) and switch-cost (t = 0.37). As a measure of the baseline, a control experiment (with-out interlocutor) was conducted on the same set of participants. It was found that the language choice, switch rate, naming latencies and switch costs were modulated as a function of language dominance of the participants. These results suggest that the bilinguals can effectively adapt by carefully monitoring their language choice according to the interlocutors' language context. These results are also in support of the previous findings by Kapiley and Mishra, 2018.

High lexical selection demands when switching into L1 versus switching into L2

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When bilingual speakers switch between their languages, they rely on their language control system. It has previously been found that switching from first (L1) into second language (L2) creates increased demand on different brain areas compared to switching from L2 into L1: namely response selection areas when switching from L2 to L1, and attentional and monitoring brain areas when switching from L1 to L2 (Branzi et al., 2015). This finding predicts that only switching into L1, not into L2, is demanding in terms of lexical selection and should therefore interact with lexical selection demands.

We tested whether lexical selection is more demanding when bilinguals switch into their L1 as compared to when they switch into their L2. We investigate bilingual speakers' lexical retrieval performance by manipulating lexical selection difficulties (i.e. low versus high lexical selection demand) and the direction of the switch (i.e. switching into L1 as compared to switching into L2). We manipulated lexical selection demand by asking participants to repeatedly name small sets of pictures from the same semantic category (homogeneous context) or from different semantic categories (heterogeneous context). It is known that naming pictures in a homogeneous condition leads to slower responses than naming pictures in a heterogeneous condition due to higher lexical selection competition (e.g., Damian et al., 2001; Belke et al., 2005). A group of 46 Arabic[L1]-English[L2] bilinguals named pictures alternating between their languages. When switching into a language, participants either named a new set of pictures (i.e. different items cross-linguistically) or the same set of pictures (i.e. same items cross-linguistically). We predicted that switching into L1 would be particularly hard in a situation of high lexical selection demand, especially when compared to switching into L2.

Participants slowed down significantly in the homogeneous blocks compared to the heterogeneous blocks, independently of whether they continued naming the same pictures ($F(1,43)=23.01$, $p<.001$) or named new pictures ($F(1,43)=22.37$, $p<.001$) when switching language. Importantly, the effect of homogeneity was significantly larger when switching into L1 compared to switching into L2, but only when participants continued naming the same pictures (New pictures: $F(1,43) = 2.55$, $p=.118$; Same pictures: $F(1,43)=7.56$, $p=.009$). In addition, participants named new pictures generally more slowly when switching into L1 compared to L2 ($F(1,43)=15.90$, $p<.001$). Furthermore, we found that participants' performance when switching under high lexical selection competition correlated with their inhibition ability, measured by a Flanker task. Taken together, our results provide evidence that switching into L1 as compared to L2 is demanding in terms of lexical selection when accompanied with an increased lexical competition (i.e. homogeneous condition) and when continuing naming the same pictures in the other language. This finding is consistent with the proposal of Branzi et al. (2015).

The development of repetition priming in picture naming for Spanish-English bilinguals

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Computational models of cognitive processes are typically created to explain performance on laboratory tasks that even poorly motivated college students perform with ease. Implicitly, such models often make developmental predictions that are rarely evaluated empirically. Error-proportional learning algorithms, for instance, explain behavioural repetition priming in tasks like blocked cyclic picture naming as resulting from a gradient descent function that creates larger changes earlier in the learning process than later. Conversely, observed repetition priming magnitudes are sometimes taken to directly index incremental learning functions, implying that young children's repetition priming should exceed that of adults, and repetition priming in ones less-overlearned second language should exceed that in ones first.

Here we examine short-lag (1-6 intervening trials) repetition priming in picture naming latencies from a cross-sequential investigation of Spanish-English bilingual children (5-12 years) and

college-aged adults from approximately the same population. Adults' mean latencies show typically robust repetition priming after the first naming cycle, decreasing as a negative power function. In contrast, and apparently violating the model-derived prediction, the youngest children's data suggest a monotonic increase in naming latencies after the first repetition, that gradually gives way to a sustained decrease as children mature. Moreover, this shift to an adult pattern seems to occur, if anything, earlier in the children's L1 (Spanish) than in their L2 (English).

To constrain possible explanations for this surprising developmental pattern, we use Ex-Gaussian analyses to characterize changes in the RT distributions. Parameters mu and sigma estimate the mode and standard deviation of the normal part of the distribution, respectively, whereas tau more specifically reflects the heavy tail. To the extent that repetition provides a headstart to processing (priming the pump), one would therefore expect mu to decrease with repetitions, and adults show this pattern in both languages. Similarly, mu decreased or remained stable with repetition for all but the youngest children. Factors that affect RTs sporadically should instead increase sigma and tau, contributing more to tau if they tend to delay responses considerably. Adults showed stable values for sigma and slight decreases in tau, consistent with previous distributional analyses. For the children, in contrast, sigma and tau increased over repetitions for younger ages, suggesting the sources of RT increases may be characterized as external to the intended scopes of incremental learning models, such as lapses in attention. We conclude by discussing implications of this developmental change in repetition priming patterns for learning models of language production.

Choosing your language: How do personal preferences and external primes affect bilingual language choice?

Angela de Bruin and Clara Martin

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In a bilingual society, bilinguals are often free to use two languages and switch when they want. What affects a bilingual's language choice and drives them to switch between languages? Previous studies have suggested that language choice and switching can be primed by the language(s) used in previous utterances (e.g., Fricke & Kootstra, 2016) as well as by non-linguistic external cues (e.g., Bhatia, Prasad, Sake, & Mishra, 2017). In addition, personal language preferences may play a role. These preferences may be highly individual and can depend on individual bilingual-item combinations (de Bruin, Samuel, & Duñabeitia, 2018). The current study therefore assessed in more detail the relationship between language choice, individual language preferences, and external non-linguistic and linguistic primes. Highly proficient Spanish-Basque bilinguals (current N = 44) completed a picture naming task in three conditions. In all conditions, they were free to name the picture in their language of choice. In the 'no prime' condition, participants just saw the pictures. In the other two conditions pictures were either preceded by a Spanish or Basque flag ('non-linguistic prime') or participants were asked to produce a short sentence in Basque or Spanish prior to naming the picture ('linguistic prime'). Two weeks prior to the experimental tasks, participants completed a questionnaire indicating their language preference for each picture. Language choice in the picture naming task was related to language preference. While Basque was typically used as the default language, items were named relatively less often in Basque when a participant preferred to name that picture in Spanish. Additionally, Basque was used less often when the picture was preceded by a Spanish linguistic or non-

linguistic prime and bilinguals were less likely to switch to Basque and more likely to switch to Spanish after a Spanish prime. These results suggest that both external primes and personal language preference contribute to the decision which language to use.

Language of instruction impacts language control in the third language

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Applied linguistic work claims that multilinguals' nonnative languages interfere with one another based on similarities in cognitive factors like proficiency or age of acquisition. In two experiments, we explored how trilinguals regulate language control of native- and nonnative-language words. Experiment 1 tested 46 Dutch-English-French trilinguals in a phoneme monitoring task in which subjects decided if phonemes were present in the target language name of a picture; phonemes from non-target languages result in longer response times and more false alarms compared to phonemes not present in any translation (Colomé, 2001). The second-language (English) interfered when our subjects monitored in their least proficient language, French. Experiment 2 tested 95 further subjects in the same phoneme monitoring task on an artificial language, to explore the possibility that the language from which a bilingual learns a third language provides practice inhibiting that language, but not their other known language. Results suggest that language of instruction impacts interference in phoneme monitoring tasks, and may therefore reduce language interference effects previously attributed to similarities in cognitive factors, and that learning to regulate lexical information is a critical part of the language acquisition process.

Talk session 4

Language and cognition

How do language and attention interact? The case of bilingual vs. monolingual context

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How does our general attentional system manage with our constantly changing linguistic conversations? Specifically, do we adjust our attentional mechanisms depending on whether we are in a bilingual or a monolingual situation?

This research is based on findings by Wu and Thierry (2013) that bilingual language context seems to modify the workings of inhibitory control mechanisms. In a non-linguistic conflict paradigm (flanker task) they found enhanced inhibitory capacity when participants were set in a bilingual as compared to a monolingual context. This is a relevant result, since it shows that inhibition and language context interact and how flexible the two cognitive systems are.

We further explore whether language context (bilingual vs. monolingual) does not only affect inhibition, but also the functioning of other central attentional mechanism, like alerting and orienting with electrophysiology (EEG). We use the Attentional Network Task (ANT) task that allows us to measure three types of attentional processes: alerting, orienting and inhibition. Crucially, while performing the ANT task participants also saw words that did not require a response. The words were presented in only one language (e.g., Catalan; monolingual context) or in two languages (Catalan and Spanish; bilingual context). This allowed us to assess whether the three attentional processes would be modified by language context.

Language context modified attentional capacity within alerting and inhibition networks, but not orienting. Specifically, within these networks a bilingual context as compared to a monolingual one led to a greater P3 amplitude, which is associated with greater availability of attentional resources and hence to an enhancement of attentional focus. Thus, a bilingual context can enhance attentional capacity towards non-linguistic information.

More difficult to explain is that we found enhanced attentional processing within the inhibition network, instead of improved inhibitory functioning, as Wu and Thierry (2013) did. Further, our main finding could be attributed to low-level variability of stimuli in the bilingual context. In a control experiment, we manipulated color rather than language context (Catalan words presented in red only (single-context) or in red and blue (mixed-context). No P3 modulation was found, suggesting language context, not low-level variability, modifies attention. Thus, a bilingual context may create a state of alertness preparing the system for possible changes.

Individual difference in language diversity predict second language abilities and organization of executive control networks

Jason Gullifer and Debra Titone

McGill University

Bilinguals vary in their language usage across social contexts, which holds consequences for language and executive control. Theoretical and empirical studies in the neurocognition of bilingualism attempt to capture this variability, but there remains a focus on classic measures of

language experience, including static measures like age of acquisition and one-dimensional measures like current exposure to a second language. These measures may fail to capture the full range of bilingual experience. Drawing on insights from information theory, we propose an innovative measure of language experience: language diversity formalized as entropy.

Language entropy continuously characterizes individuals' language diversity from compartmentalized (one language usage, low entropy/diversity) to integrated (balanced dual language usage, high entropy/diversity). On a large sample of bilinguals (N=507), we show how language entropy relates to classic measures of experience: language entropy is weakly associated with AoA and strongly associated with overall L2 exposure. Crucially, language entropy is a significant predictor of self-reported L2 abilities over and above classic measures, indicative of its utility as a measure of bilingual experience (Gullifer and Titone, submitted). Together with work from our lab showing that language entropy predicts resting state organization of functional brain networks and executive control abilities (Gullifer et al., 2018), these results suggest that language diversity is an important construct, in line with predictions made by recent neurocognitive theories of bilingualism such as the adaptive control hypothesis (Green & Abutalebi, 2013).

Executive function and phonological perception in L2 English learners: A correlation study

Kristy Sigmeth

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Research into L2 phonological acquisition has traditionally focused on examining learner-external factors that drive the process of non-native speech production, such as age, L1 background, L2 use, and the context of acquisition (Piske et al., 2001). The role of learner-internal factors in the process and L2 perception in particular, in turn, remains relatively under-researched. The current study thus sets to examine the relationship between executive function (EF) and L2 phonological perception, based on the hypothesis that enhanced inhibitory control may aid L2 speech perception. The few studies that have examined this claim have reported mixed results (Lev-Ari & Peperkamp, 2014; Darcy, Mora, & Diadone, 2016). In the present study, 24 seventh grade pupils with L1 German and 6 years of L2 English performed an ABX task testing their discrimination of the English /w-v/ and /e-ae/ contrasts. They performed two EF tasks: the Flanker task, a test of distractor inhibition, and the Corsi Block-Tapping Task, a test of visuo-spatial working memory. The Test for Reception of Grammar (TROG-2) was used as an indicator of their English language proficiency. A correlation was found between the L2 learners' Flanker effect scores and their accuracy in the perception of the L2 English /e-ae/ contrast (p < .01), with lower flanker effect values (i.e., an indicator of enhanced inhibitory control) corresponding with higher accuracies in the performance on the ABX task. This is in line with the findings of Darcy et al. (2016), suggesting that higher inhibitory control may enhance the processing of phonologically relevant information and ultimately lead to a more accurate L2 speech perception.

Active bilingualism as a cognitive reserve factor against cognitive decline

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Introduction. There is growing evidence that bilingualism acts as cognitive reserve (CR) factor in older adults and age-related disorders. In this study we investigated the underlying cognitive and neural mechanisms which might explain such a bilingual advantage in the context of CR. Under the hypothesis that active bilingualism may lead to an advantage on cognition and changes at neural level, we compared two groups of bilinguals: a) bilinguals who actively used their two languages and b) passive bilinguals (people that understand two languages but that basically speak only one of them). One sample of individuals was tested with tasks of executive control (EC), attention and episodic memory. In a second sample of individuals structural neuroimaging data were acquired and compared between these two types of bilinguals.

Methods. We tested three groups of participants: healthy older adults, patients with Alzheimer's disease (AD) and patients with Mild Cognitive Impairment (MCI). 'Active' bilinguals were early and high proficient Catalan-Spanish bilinguals, they had a high frequency of use of their L2, and they switched between languages in their everyday life. 'Passive' bilinguals were Spanish speakers with exposure to Catalan (L2) and low use of their L2. One sample of 260 participants was tested in four EC tasks and episodic memory and from a sample of 140 participants we collected neuroimaging data.

Results. We found that active bilinguals with MCI: a) showed delayed symptoms of cognitive impairment later than passive bilinguals; b) outperformed passive bilinguals only in tasks of conflict monitoring; and c) showed more grey matter volume reduction in the posterior temporal and parietal areas than passive ones, suggesting that their brain is more resilient to cognitive decline.

Conclusions. These findings add new evidence that bilingualism acts as a CR factor, also in the preclinical stage of dementia (MCI). Specifically, age of L2 acquisition and language use are crucial variables in determining such bilingual advantage. The increased EC efficiency boosted by the active use of the two languages might act as a compensatory mechanism in delaying the cognitive symptoms associated with age-related disorders.

Poster presentations

Poster session 1

Assessing the role of emotion in naturalistic L2 reading using the Ghent Eye-tracking Corpus

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Affective words seem to be processed differently than neutral words. A number of eye-tracking studies on L1 speakers have found that processing of both positive and negative words occurs faster than that of neutral words. Conversely, studies regarding affective processing in the L2 suggest that the relative lack of 'real-life' input causes impoverished connectivity. This translates to, for instance, smaller pupil dilations and reduced skin conductance in comparison with L1 speakers. Furthermore, at least one eye-tracking study suggested that the processing advantage for negative words that was found in the L1 is absent in the L2. One issue with these studies, however, is that the experimental paradigms used do not necessarily reflect naturalistic processing mechanisms. The present study, therefore, utilizes the Ghent Eye-Tracking Corpus. This corpus was constructed by having bilingual participants read one half of a novel in their L1, and the other half in their L2. Due to the large size of the corpus, and the lack of explicit tasks given to participants, results of this study should be more reliable and representative.

Moses or Noah? A case of 'potato-potahto' when using a foreign language

Sara Dhaene and Evy Woumans

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Research among unbalanced bilinguals suggests a foreign language (FL) advantage for various tasks requiring a more systematic processing style. For instance, in decision making bilinguals tend to be less prone to heuristic biases when the dilemma is presented in their non-native language. Based on this finding, the present study aimed to determine whether such an FL advantage may also be observed in the detection of semantic anomalies. A semantic illusion occurs when a certain term has been replaced by a semantically related (but incorrect) term, without being noticed by the receiver. In the case of the Moses illusion, for example, many people answer the question "How many animals of each kind did Moses take on his ark?" with "two", the answer that would have been correct if the question comprised "Noah" instead of "Moses". To test whether FL affects susceptibility to such semantic illusions, participants were presented questions with and without anomalies, both in their NL and FL, while their eye movements were recorded. They were required to provide the correct answer to the question, unless they noticed that it comprised an anomaly. For both languages, participants failed to detect the anomaly in more than half of the trials. Crucially, more illusions occurred for questions presented in their second language, suggesting an NL rather than FL advantage in detecting semantic illusions. In addition to the verbal responses, recorded eye movements did not reveal implicit detection of the anomalous terms. These findings suggest that people often overlook erroneous terms and are even more prone to semantic illusions in their non-native language. This is consistent with the idea that use of an FL increases cognitive load, limiting the cognitive resources available for anomaly detection.

Predictability in L1 and L2 natural reading

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Predictability of the upcoming word while reading a sentence is assumed to be an important factor in lexical processing. In monolingual reading, it has for example been found that the processing of predictable words is facilitated: they receive shorter fixations or are skipped more often (e.g., Kliegl et al., 2004). It is however an important question whether these effects are similar in second language processing. It could for example be that L2 readers rely on top-down information to a greater extent, as their bottom-up processing is impaired for their less developed language, resulting in a larger predictability effect.

To address this matter, we analyzed the data of participants reading a novel in English, either as their L1 or L2. We investigated various eye movement measures (both timed and probabilistic) of the GECO database (Cop et al., 2016). Instead of classic cloze ratings, we applied a computational approach: predictability was operationalized as a combination of two components: entropy and surprisal (e.g., Willems et al., 2016). For each of these components, a 5-gram corpus-based value was calculated. This allowed us to have predictability estimates for each of the 54 364 English word tokens in GECO.

In the timed measures (both early and late) we found that there was an overall facilitation (shorter fixations) of more predictable words. The predictability components sometimes interacted differently with other predictors (such as word frequency) between the L1 and L2 reading times, but overall this did not result in a larger predictability effect for L2 compared to L1. In the skips and regressions however, some evidence was found that the predictability effect was larger for L2 reading compared to L1 reading.

Foreign-accented speakers are not that incredible

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Behavioural studies have shown a negative bias towards foreign-accented (FA) speakers. Accent seems to reduce the speaker's credibility, and unknown information is assessed as less true when spoken by a FA speaker than by a native speaker. However, awareness of this bias reduces the effect (Lev-Ari & Keysar, 2010). This study aimed to replicate behavioural data and to examine the impact of accent on credibility and sentence processing at neural levels using event-related brain potentials (ERPs). Dutch native speakers (N=17) listened to and assessed the veracity of sentences spoken by a native or a FA speaker, containing true or unknown information and world knowledge violations ('One of the colours of the French/Gabonese flag is blue/green). Sentences were

presented with the speaker's photo. To assess unknown information, participants could not rely on their own knowledge and had to trust the speaker's. If the FA speaker's credibility is reduced, information coming from this speaker should be costlier to accept, which would be reflected mainly by a larger N400 component (associated with lexico-semantic processing). After the first block, half of the participants were made aware of the FA bias. Participants were also asked to rate their impression of both speakers for the strength of accent, intelligibility, solidarity, affect and status. Preliminary results showed a significant N400 for sentence type, more negative for unknown and world knowledge sentences than for true sentences, and true sentences were rated higher than unknown and world knowledge sentences. Critically, there was no interaction between sentence type and the speaker, block or awareness, neither in the behavioural nor in neural data. The native speaker's status was rated significantly higher than the FA speaker's, and this factor correlated with the amplitude of the N400, i.e., the lower the status attributed to the FA speaker, the larger the N400. Overall, the findings suggest that accent does not directly affect speaker's credibility but has an impact on the speaker's status, which consequently modulates how information coming from the speaker is processed.

Investigating the role of context on bilingual language processing

Opangienla Kechu and Bidisha Som

Indian Institute of Technology

Bilinguals show sensitivity to visual cues such as faces and national flags that help them select the context appropriate language. Faces or cultural icons show facilitation/inhibition on language selection tasks. We administered the translation recognition task on two groups of Rongmei/Meitei bilinguals from the state of Manipur in North Eastern India. These bilinguals live in a dual language context but show ethnic and cultural sensitivity to both differentially. We hypothesized that such bilinguals will show sensitivity to specific ethnic symbolism of the tribes which in turn should influence their language processing. Each of the tribes has a different pattern of weaving on the similar looking wrap dress and the tribe can be identified solely on the basis of the color and pattern of the weaving. The task used was a primed translation recognition task, where the prime was a figure [both male and female figures were used] wearing either of the traditional dresses of the two communities. Figure with neutral [jeans & T-shirt] dress was used as filler. Altogether six prime pictures were used and total of forty Translation Equivalent [TE] pairs were used, these were counterbalanced by an equal number of non-TE pairs. The participants were instructed to press the assigned keys to denote if the target word was a translation of the previous word or not. The task was carried out in two blocks, one L1 to L2 direction and the other L2 to L1 direction. The study was carried out on two groups of speakers: group 1 consisting of young members who stay in Guwahati (a multilingual city in the state of Assam) [age: 18-33; mean= 22.44, SD= 3.23] and group 2, comprising of elderly members who have never stayed outside Manipur [age: 40-59; mean = 46.88, SD= 5.54].

We examined if culturally congruent or incongruent figures influenced reaction times in the translation recognition task. We were also interested if this influence was specific to particular language directions (L1-L2 and L2-L1). When the language that could be tied with the figures was congruent with the target, it facilitated translation access in the backward direction in the bilinguals who came from Guwahati. However, there was no such modulatory effect in the forward direction. Similarly, for the older bilinguals who were from Manipur, we obtained a similar effect in

the backward direction but not in the forward direction. These results suggest that cultural cues, when they are linked to specific languages, prime language activation selectively in particular language directions. Given that, most bilinguals translate lexical words from their L2 to L1, if they are not very proficient in the second language, culture cues may push this mechanism during translation access. Given that we selected participants who stayed in two different socio-linguistic contexts and obtained similar patterns of results, it allows us to suggest that culture cues do influence language selection in bilinguals even if they are staying away from their native culture zones. These results from the translation recognition tasks also extend previous studies in this area where researchers have used object naming and lexical access as tasks. Most importantly, these data reveal the important role of culture cues in translation access in a less studied group of bilinguals from India.

The effect of tv series on pragmatic development and awareness: When watching is not enough

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Exploring how language learners acquire and develop second language or foreign language pragmatics has been one of the main aims of Interlanguage Pragmatics (ILP) (Yazdanfar & Bonyadi, 2016). However, especially in foreign language (FL) contexts, due to classroom constraints and lack of input, pragmatic competence continues to be hindered (Alcón & Martínez-Flor, 2008). The use of audiovisual material in the classroom has received substantial attention as it provides abundant pragmatic features (Barón & Levkina, 2018; Alcón, 2005; Martínez-Flor & Fernández Guerra, 2002). Nevertheless, there seems to be a lack of studies exploring the effects of captioned audiovisual support on pragmatic learning outside FL classrooms. This study thus aims to shed light on this gap of research. Twenty-nine undergraduate EFL learners were assigned to two groups (captioned/non-captioned). The participants were exposed to one season of a TV series as part of their extracurricular activities and not as a task in the classroom; moreover, neither of the groups had received instruction on pragmatics in class. In order to test pragmatic learning (more specifically. suggestions), a written discourse completion test was used following a pre/post-test design. Additionally, an oral interview was used to provide insight into the participants' experience. Results show an overall positive effect of the audiovisual support on the use of some of the suggestion strategies and on certain aspects related to pragmatic awareness; however, there was no clear effect of the use of captions versus the non-captioned condition. Findings are discussed in the light of previous studies in Interlanguage Pragmatics.

Literacy in Limburgian bidialectal children:

The effect of raising Limburgian children bilingually on their reading and writing abilities

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A prejudice still prevalent today is the thought that speaking a Limburgian dialect has a negative influence on the language abilities of a Limburgian child going to primary school. However, proper evidence in the form of scientific research to counter this prejudice does not yet exist. Therefore, the current study examined whether one can speak of a possible relationship between speaking a Limburgian dialect and the reading and writing abilities in Dutch within primary school children in Limburg of grade 4 and 8. In this study, it was hypothesized that there would be no or a positive relationship between the reading and writing abilities of bilingual (bidialectal) Limburgian children speaking a local Limburgian variety and Dutch. CITO spelling and reading comprehension skills test scores and language background information from 283 primary school children in Limburg were collected and analysed statistically to answer the research question of this study. A five-way independent factorial ANOVA revealed that there is a positive relationship between speaking a Limburgian dialect and performance on the Dutch spelling test and that there is no relationship between speaking a dialect and performance on the Dutch reading test. Furthermore, it was found that there is a positive relationship between the amount of spelling and reading scores and the library visits of the bidialectal children. Finally, positive relationships were found for the amount of reading of the child itself to other persons, the amount of library visits, the amount of reading by the parents and the height of the spelling test scores. Especially the bilingual children seem to benefit from more frequent reading by their parents and library visits. Finally, we can draw the conclusion that the beliefs that many Limburgian governmental institutions, teachers and parents have, namely saying that Limburgian bidialectal children have lower writing and reading abilities than Limburgian monolingual children, are false.

Poster session 2

**Lexical development and emergency of translation equivalents in early trilingualism:
A case study**

Linda Badan and Giuliano Izzo

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This study examines the lexical differentiation in early trilingual development of Eva, a Spanish-Italian-Dutch trilingual child. The home languages are Spanish and Italian, spoken respectively by mother and father, and the community language is Dutch, to which Eva is exposed at the crèche. With our work, we aimed at verifying whether the lexical development in Eva's language is in line with respect to other trilingual children (Montanari 2010, Chevalier 2012, Quay 2011). Moreover, we aimed at evaluating whether there is a relationship, and which is the correlation, between input and the emergency of translation equivalents (TEs).

We examine the lexical differentiation through an analysis of the emergency of the TEs, the neutrals, the relationship between the three languages, and the intervals produced by Eva. We reconstructed the child's cumulative vocabulary between 0 and 2 through diary records and audio-recordings, and we calculated the absolute and the relative quantity of input in the three languages. The results of our study show that: The TEs were produced from early on, precisely from 1,4, and they increase significantly from 1,7, similarly to bilingual children; the correlation between input and the emergency of TEs holds. Our study also highlights that even if the quantity of input is crucial, also its quality plays a fundamental role. We notice, in fact, that the TEs emerged always spontaneously in the conversation at home, between Eva and the two parents, where it is used a particular family language policy (King & Wright Fogle 2016), never examined in previous studies so far: The parents speak constantly and coherently only their own language without using any other lingua franca nor switching to one of the two home languages. Moreover, we notice that the typological difference between the languages play a fundamental role for the emergency of TEs, the number of neutrals, and the vocabulary development in general.

**Lexical and conceptual expectations in native and non-native speakers' processing
of verb-noun collocations**

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Although advanced bilinguals have shown facilitation in processing L2 syntagmatic collocations (e.g. utter failure, run risk) similar to L1 speakers, most still produce, and remain unable to discriminate unfelicitous combinations (e.g. powerful coffee) even after many years of immersive exposure (Foster et al 2014). One possible explanation is that the less predictive nature of L2 processing reduces the efficiency of error-based adaptation which should eventually inhibit these combinations.

The present study explores the possibility that non-native speakers may develop expectations for upcoming concepts, while still having difficulty generating specific predictions about the words that encode these. Adapting a paradigm developed by Thornhill and Van Petten, 2012, we exploit the phenomena of lexical collocation to measure native, and advanced non-native,

speakers' sensitivity to violations of conceptual and lexical expectations. Lexical collocations are particularly suited to this investigation as they instantiate both co-textual predictability, via statistical association between syntagmatically related forms, as well as contextual probability, as the canonical expression of particular concepts (e.g. brush teeth vs brush dentals).

We measured eye movements of monolingual and advanced bilingual speakers whilst they read high/low constraint sentences which contained either highly predictable [BEST] sentence completions, semantically similar but lexically discrepant [RELATED] completions, or completions which were discrepant on both counts [UNRELATED].

The coach's constant criticism caused Jim to lose   CONFIDENCE/MORALE/WORK last year.

She couldn't remember what caused Jim to lose   CONFIDENCE/MORALE/WORK last year.

BEST completions were created from verb + noun collocations (lose confidence), with mutual information scores ≥ 4, embedded in high/low cloze contexts. Measures of target and post-target reading times allow us to determine not only the lexical specificity of native and second language speakers' expectations, but also whether expectations generated on the basis of statistical association are independent from contextual predictability.

Lexical retrieval and semantic interference in fluent bilingual aphasia

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Introduction. Individuals with aphasia frequently show lexical retrieval deficits due to increased interference amongst competitors during word selection. This has been demonstrated in tasks where this competition originates at a semantic level, such as naming pictures grouped by semantic category. To what extent lexical retrieval in semantic interference conditions affects a second language (L2) has not been extensively explored. Moreover, there is little agreement over the degree of language independence in semantic processing, possibly suggesting similar deficits between two languages in bilinguals.

Methods. In this study we explore the naming performance of bilinguals with aphasia (n=12) and age-matched healthy controls (n=14) in a semantically blocked cyclic naming task for the two languages (Catalan and Spanish). All the participants were early bilinguals and high proficient in Catalan and Spanish with a balanced use of the two languages. Furthermore, we explore whether lexical deficits extend to comprehension by testing participants in a word-picture matching task during a mixed language condition. Finally, a flanker task is used to investigate whether executive control deficits may predict the degree of lexico-semantic impairment of the two languages.

Results. In the semantically blocked cyclic naming task, the semantic interference effect was similar in bilingual patients with aphasia and healthy controls when required to perform the task in their first language (L1). However, bilingual patients showed a larger semantic interference effect and they were less accurate than controls when naming stimuli in their L2. Similarly, in the word-picture matching task, patients suffered more delay than controls when the task required to switch from L1 into L2 than vice versa. In the flanker task, patients with aphasia were overall slower than

healthy controls, but no difference in the magnitude of the conflict effect was found between groups.

Conclusions. Taken together, these results suggest that L2 retrieval may be selectively impaired in bilinguals during those conditions in which semantic competition is higher. Moreover, these lexical deficits extend to those demanding conditions in which both languages are involved, as well as when words are not intentionally retrieved for production.

MultiPPA: Prospective Multicenter Study on multilingualism in primary progressive aphasia

Ana Sofia Costa, Regina Jokel, Kimiko Domoto-Reilly, Philippe Paquier, Jean Christophe Bier, Álvaro Machado, and Kathrin Reetz

Aachen University

Primary progressive aphasia is a rare neurodegenerative disorder characterized by progressive deterioration of language. Reports of PPA in multilingual individuals are scarce, despite more than half of the world population being multilingual. We have recently described demographic, clinical and linguistic characteristics of 33 multilingual PPA patients in a multicenter retrospective study, which identified considerable heterogeneity and several limitations in the current assessment and management of multilingual PPA patients, including the lack of systemic assessment in more than one language, presumably due to the lack of multilingual resources. Such obstacles surely lead to delays in diagnosis and limit possible therapeutic interventions. We present the design of an observational, prospective, multicentre study with two main goals: (1) the development of a registry of clinical, demographic and linguistic characteristics of multilingual individuals with PPA, assessed with a standardized protocol to identify factors relevant to diagnosis and prognosis; and (2) the creation of a platform with information and resources that allows communication between clinicians and researchers, promote the development of new methods, and supports diagnosis and clinical management of multilingual individuals with PPA.

**Dutch language development in Turkish-Dutch bilingual children
compared to monolingual children**

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Purpose: The purpose of this study was to investigate the language skills of 25 Turkish-Dutch bilinguals compared to 25 age and gender matched monolingual Dutch children. Secondly, in 9 Turkish-Dutch bilinguals and 13 monolingual Dutch children longitudinal data of three years (at the age of 6 years and at the age of 9 years) were collected and compared.

Method: Fifty children born in 2007 were included in the study. The subject group consisted of 25 bilingual Turkish-Dutch children with a mean age of 9;6 years (range: 8;11 – 9;10 years, SD: 0.26) with Turkish as the dominant home language. Language exposure to Dutch was at least 2 years. An age and gender matched control group of monolingual Dutch children was compiled.

Language skills were investigated using the CELF. In 22 children, language skills were reassessed three years later in a follow-up study. Data were compared using the Mann-Whitney-U-test and Wilcoxon matched-pairs signed ranks test.

Results: The general language skills, language comprehension and language production were significantly lower in the multilingual Turkish-Dutch children compared to the monolinguals. The follow-up study showed no significant differences in language skills in both the multilingual Turkish-Dutch and monolingual children. Language production in the bilingual children was mainly influenced by the occupation of the mother and the home language.

Conclusion: After three years, the language delay in bilingual Turkish Dutch children remained.

Proactive language control during bilingual language production? A closer look at three measures

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A longstanding issue in psycholinguistic research on bilingualism concerns the nature of language control, which is the process used to select words in the appropriate language and to minimize cross-language interference during bilingual language processing. This is a necessity for bilinguals, since words from the non-target language are also activated during language processing, and sometimes even selected by mistake. In the current study, the focus is on proactive language control, which entails a control process that is implemented as an anticipation of non-target language interference disrupting the selection of the target language word. Several studies have already investigated and found evidence for this process, mostly with mixing costs, the reversed language dominance effect (RLDE), and the blocked language order effect. However, there are issues with each of these measures, where the former two can even be explained without proactive language control and the latter is seemingly not reliably observed in the literature. Through analytical methods on newly acquired data and a meta-analysis, evidence is acquired for each of these measures, providing more straightforward evidence for proactive language control during bilingual language processing.

Academic language proficiency as a predictor of university achievement in monolingual native speakers and language minority speakers

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Globalization and migration led to an increase in the linguistic diversity of students in higher education. In Flanders the absence of entry requirements in universities except for Medicine has led to a massification of enrollment, including a rise in language minority speakers (LMS) (Glorieux, Laurijsen & Sobczyk, 2014). Flemish high school students, including LMS, are assumed

to have an adequate language proficiency to start university studies. However, this might not always be the case (Deygers, Van Den Branden & Peters, 2017).

While language proficiency of LMS is often considered a cause of underachievement, a complex set of interrelated factors related to a lower socioeconomic is more likely to be responsible (Cummins, 2017). We will look at the predictive value language proficiency in monolingual native speakers and LMS controlled for the influence of age, SES, gender, pre-university education and average high school score. A digital, low stakes academic language screening, developed at the KU Leuven will be used as a measure of language proficiency. It is a practical instrument consisting of selected-response vocabulary and reading items, lasting maximum 30 minutes.

Language proficiency is a small, but significant predictor of achievement: students scoring below the cutoff score have a higher risk of obtaining low first and second semester exam scores. Having a different language background is negatively related to achievement, even when controlled for language proficiency. These results are in line with Cummins' claim that other factors than language proficiency contribute to the achievement of LMS.

From whom do we learn?

Effects of the language background of a conversation partner on learning new words in L2 dialog

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Much of what we learn in a second language (L2) is not acquired in the classroom, but 'in the wild': We pick up new words from others easily and sometimes even without noticing. However, there is little research on this kind of spontaneous, naturalistic learning from spoken input, possibly due to problems with simulating natural situations in a laboratory. In previous studies (de Vos et al., under revision; Egger et al., in preparation), we developed an experimental paradigm that has proven extremely successful in this respect, but that nevertheless allows us to fully control the learning input that the participant receives. Participants are made believe that they are taking part in a study about price estimation. In a dialog game between a participant and the experimenter or a confederate (which can be replaced by audio recordings), both partners take turns making price judgments on pairs of visually presented objects in the participants' L2, e.g. English (e.g., "a flower is cheaper than a table"). Critically, some of the object pairs contain words the participant does not know in the L2 (e.g., "whisk"), as verified previously in a pre-test that is also about price estimates. Despite the fact that participants were unaware of the learning character of the study, we previously observed fairly high learning rates (about 50% for non-cognate words after two exposures). We used this method here to investigate the effect of the conversation partner's language background on the rate of naturalistic L2 word learning. Three groups of native Dutch participants 'played' the game in English with either a native speaker of British English, a Dutch L2 speaker (same L2 background) or a German L2 speaker (different L2 background). Results of Experiment 1 that is currently being replicated under improved conditions indicate that participants who had been in 'dialog' with a speaker from the same L2 background (native speaker of Dutch) learned more words than those who 'interacted' with a native English or a native German speaker. This seems to suggest that one learns most words in L2 from a peer

with the same language background, and not, for instance, from the most competent partner. We also found that English vocabulary size, as measured by LexTALE (Lemhöfer & Broersma, 2012), was a significant predictor of learning rate.

L2 PersProfiling: A new corpus for personality profiling research of non-native speakers of English

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Background. Presently, text-based personality profiling is a promising field which is being dealt with by a number of scholars. However, almost all of these studies have been conducted for texts written in an author's first language (mostly English) while there is a significant groups of bilinguals who speak English, the world's leading international language, as L2. The studies of personality profiling in English as L2 are limited due to the lack of appropriate corpora.

Methods. The purpose of the suggested research is to introduce a new corpus specially designed for text-based personal profiling research in English as L2. It contains samples of written speech samples (an essay on a chosen topic and a description of the pictures from the Thematic Apperception Test) and video-recorded interviews representing the participants' individual language-learning stories and their perceptions of English and its role as an international language. The participants were advanced speakers of English as well as native speakers, which makes it possible to compare the efficiency of personality profiling techniques using the texts by native and non-native English speakers. The corpus also includes rich metadata (age, gender, occupation, linguistic background of the authors, general attitude to language learning as well as the results of series of psychological and neuropsychological tests to identify personality traits and type of handedness).

Results and conclusions. As of now, the resulting corpus which was collected at Montclair State University (New Jersey, USA) contains texts from 75 participants (53 non-native speakers, 22 native speakers). It is expected to have a lot of applications for bilingualism, personality profiling, language identity, L2 writing, etc. studies. We are currently seeking to expand the corpus by samples by native and non-native speakers of other European languages and compare the data for different languages.

Exploring the effects of gaze during novel morphosyntactic learning

Evidence from eye-tracking

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Concordia University

Recent years have witnessed increased interest in identifying how various types of exposure and individual learner profiles contribute to novel morphosyntactic pattern learning. One line of

research has exposed participants to text, images, and action during learning. Other studies revealed that a speaker's gaze can affect learning process in novel utterances. The current study extends the prior findings and aims to explore to what extent gaze cue can enhance novel pattern learning.

English-speaking university students (N = 36), all speakers of Germanic or Romance languages with no prior knowledge of Georgian, carried out a construction learning task followed by tests. The target patterns involved completed (bich-ma kocn-ul gogoit, "boy kissed girl") versus ongoing (bich-su kocn-ar gogoit, "boy is kissing girl") events, with affixes on the noun (subject) and the verb. Participants first learned six Georgian nouns and three verbs by associating them with relevant toy characters (e.g., girl) and actions (e.g., kiss). They then watched 36 videos depicting completed and ongoing actions performed by an actor. The actor gazed at the subject character in the video scene when the sentence unfolded. Participants' eye movements were recorded as they listened to an N1-Verb-N2 sentence. In tests, participants heard 24 sentences featuring correct and incorrect combinations of target morphemes and selected the corresponding event images.

Preliminary results showed that, in tests, participants relied on the morphological marking on the first noun more when the actor's gaze was present that it was not. Eye-gaze results further revealed how learning progressed. Participants tended to look at the subject character for completed actions more than ongoing actions. However, after verb onset, they attended to the object character for ongoing actions more than completed actions. This suggests that the participants acquired the morphosyntactic marking on the first noun (subject) and the verb early in the learning process. Implications of findings for novel morphosyntactic learning are discussed.

Comparing the cognate effect in spoken and written L2 word production

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Ghent University
Thomas More Antwerpen

Studies involving cognates – words that share form and meaning between two or more languages such as English SHIP and Dutch SCHIP – provide important insights about the bilingual mind. The cognate effect, the finding that cognates are faster accessible than words that are different across languages, suggests that bilingual speakers activate both their L1 and L2 during language processing. This robust phenomenon has been observed in several language modalities such as reading, listening and speech production. Here we report a study that directly compared the cognate effect in spoken and written production in a direct manner. We asked a) whether the cognate effect is also present in typewriting, and b) whether its time course is similar to that of spoken production. To investigate this, native Dutch speaking students who had English as their L2 performed either a spoken or a written picture naming task in English on the computer. The target names could be Dutch-English cognates or control words. First keystroke latencies (in the written condition) and voice onset times (in the spoken condition) were registered and interpreted as indicators for lexical access. There was a cognate effect in both modalities, showing significantly faster latencies for cognates in comparison to control words. The magnitude of this effect was around 200 ms (6.9 % of total RT) in written production and around 130 ms (10.8 % of total RT) in spoken production. However, written responses tended to be slower in general.

Additionally, a qualitative analysis was conducted on the errors that participants committed. There was a similar error pattern in both modalities. In sum, these results suggest that common underlying processes are responsible for the cognate effect in language production.

Foreign language training in seniors to prevent old-age disorders

askia Nijmeijer, Merel Keijzer, and Marie-José van Tol

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Bilinguals constantly need to mentally juggle several languages, which is said to carry over from the language to the general cognitive domain (Grant, Dennis, & Li, 2014). This effect has behaviorally been found to be manifested as better cognitive flexibility (Kroll & Bialystok, 2013), a skill needed to separate the two languages in one mind (Bice & Kroll, 2015). More so than when learning other new skills, learning a new language interferes with earlier acquired language skills; it impacts first language processing and storage (cf. Li, Legault, & Litcofsky, 2014). It is for this reason that foreign language training is expected to boost cognitive flexibility more than other cognitive training programs. Although there is a wealth of observational studies into bilingual advantages, experimental studies remain scarce. The primary objective of this study is to determine whether a bilingual experience affects cognitive flexibility and its neural underpinnings in 189 elderly speakers with subjective, but not objective, cognitive decline which may or may not be accompanied by mood disorders. We assess the unique role of foreign language training compared to a music training and social intervention. In this paper, we present the method that underlies this study. For three to six months, participants practise the language at home for 45 minutes a day, 5 days a week, and participate in real-life classes every fortnight. We assess cognitive flexibility by means of a color-shape switching task and WCST and we simultaneously measure brain activity using combined fNIRS/EEG methods. We expect an increase in cognitive flexibility and positive effects on health outcomes as a result of both training methods, but more so in the language training compared to the music training. Also, we expect increased power in the theta band network measured through EEG and less hypo-activity in the lateral and medial PFC during switching measured through fNIRS. If effective, foreign language learning could serve as an important tool towards healthy aging: it could contribute to a higher cognitive reserve, slow down cognitive aging and reduce vulnerability for depression.

Do you speak American? Dialect entrainment in word production indicates language-like tagging

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Do speakers represent the elements of dialects as ad hoc assemblages, identified only upon effortful etymological evaluation, or as coherent categories, capable of priming other elements via dialect associations? Previous research largely focussed on comparing dialects to languages, e.g. considering analogues of the 'translation' priming often observed for separate languages in

picture-word interference. Relations between dialect elements are clearly less complementary than between elements of languages, though—e.g. in UK English, the Americanism 'truck' exists alongside the Britishism 'lorry' in common usage—so it is unclear how empirical expectations from bilingualism should apply to bidialectism, even if both were represented and processed according to the same principles. Here we take a different tack, using word choice priming in a two-session picture naming/memory task to assess whether elements of a dialect prime each other in retrieval (does naming one picture as 'faucetUS' instead of 'tapUK' promote retrieving 'sweaterUS' instead of 'jumperUK'?), and whether the dialect-tagging of an episode might generalise in memory (do you recall individual words, or a dialect representation for an interaction as a whole?). Methods: Comparing picture naming norms for US and UK English, we selected 65 pictures as critical items. These had dominant names that were substantially more common in the US norms than UK norms, and unique UK alternatives. In Session 1, 26 UK-English-speaking university students named each of 525 IPNP line drawings in five large blocks (460 fillers), receiving written feedback after each response, which they were requested to use subsequently. For critical items, participants received either the image's UK name (in the first two blocks) or its US name (the remaining three blocks). When participants returned for Session 2, 1-3 days later, they were instructed use the names learned in Session 1 (in a different order), but received no further feedback. Results: In Session 1, logistic mixed effects regressions demonstrate that the likelihood of US-dialect responses linearly increased after the introduction of US-dialect feedback in Block 3, indicating that speakers' representations allow biasing one dialect over another. In Session 2, US-dialect responses were six times more likely for items that previously received US-dialect feedback, attributable to item-specific memory rather than dialect-tagging Session 1 as a whole. For items that previously received UK-dialect feedback, US-dialect names linearly increased across Session 2, internally replicating the gradual generalisation that appeared in Session 1, but as a purely production-internal phenomenon.

"Morphosyntactic development in oral production data: differential case marking and agreement in Hindi as a heritage/second language"

Aaricia Ponnet and Kristof Baten

Ghent University

The present paper investigates to what extent the linguistic abilities of heritage speakers compare to those of second language (L2) learners. Heritage speakers and L2 learners show significant differences in age of onset and amount of exposure to the heritage/second language, which results in heritage speakers portraying native-like abilities in phonological skills; more than L2 learners (Montrul, 2012). However, for other linguistic areas, especially those with complex syntax-semantics mappings, heritage speakers often show high variability and nonnative behaviour. In order to shed empirical light over this observation, we present the results of a study that examined the accuracy pattern of L2 learners regarding case marking and agreement in Hindi and compare it with previous findings on heritage speakers of Hindi (Montrul et al., 2012).

Case marking and agreement in Hindi involve complex syntax-semantics mappings, given that both subjects and direct objects are divided in different classes with respect to overt case marking, resulting in split ergativity (i.e., ne-marking) and differential object marking (i.e., ko-marking), respectively. In addition, these markers determine verbal agreement, resulting in subject, object, or default agreement. The complexity of these mappings has been shown in

Montrul et al. (2012), who found clear asymmetries in the use of morphology among Hindi heritage speakers (n = 28). Whereas the accuracy of ko-marking is still relatively high, ergative ne-marking is clearly problematic with a high omission rate. Verbal agreement is in general more accurate, with default and subject agreement close to 100%. However, object agreement was significantly less accurate.

For our comparison with L2 Hindi learners, data was collected among two groups of L2 learners by means of a spontaneous oral production task: group 1 studying a year abroad in India (n = 15) and group 2 studying in Belgium (n = 15). Preliminary analyses using classification trees suggest that learners in group 1 resemble heritage speakers more than do those in group 2. The diversity in learner behaviour will be discussed in light of the type and amount of exposure to Hindi, which is crucial to understand the linguistic abilities of L2 learners and heritage speakers.

Acquisition of kanji composition rules by Polish learners of Japanese as a second language – The relationship between language experience and use of composition rules in a character decision task

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Jagiellonian University
Abo Akademi University

In learning Japanese as a second language, knowledge of kanji structure is crucial for language competency but is rarely explicitly taught for complex characters. We investigated the relationship between the acquisition of kanji composition rules and language experience in Japanese and Mandarin in a sample of 46 Polish native speakers studying Japanese at university. The participants were shown an array of pseudo-characters as well as real characters of low and high frequency of occurrence. Our pseudo-characters were composed by combining radicals (or "building blocks") that could appear in either left or right position in a complex kanji character. This led to creating four classes of pseudo-characters: left and right radicals in correct positions (L+/R+), left correct/right incorrect (L+/R-), left incorrect/right correct (L-/R+), and both radicals incorrect (L-/R-). Radicals used in pseudo-character creation were matched as regards frequency of occurrence. We divided language experience into two categories: self-assessed proficiency (in Japanese and Mandarin) and exposure to Japanese and Mandarin (learning experience in years and also estimated use of Japanese outside classroom environment). We found weak positive correlations between the proficiency and exposure variables.

Using linear mixed effects modeling, we computed the null model, the proficiency model and the exposure model. We conducted separate analyses for accuracy and reaction times (RTs). For accuracy, the exposure model provided the best fit. We found the main effect of character type, with real characters and L-/R- pseudo-characters being identified most accurately, as well as main effects of years of use of Japanese and Mandarin, where longer exposure to the languages contributed to greater accuracy. We also found an interaction between all three variables of interest and character type: longer and more frequent exposure to Japanese characters facilitated character decision. For RTs, the exposure model also provided the best fit. We found the main effect of character type and an interaction between character type and weekly contact with Japanese outside the classroom: participants using Japanese more often were faster at

recognizing real characters. Our results suggest that exposure to a language is an important factor in implicit acquisition of its rules even in second language learning in adulthood.

Shared syntax in bilingual children? Priming possessives

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The general consensus in the child bilingual literature is that bilingual children's two languages develop separately (e.g., De Houwer, 1990), but under certain circumstances, for example where there is surface overlap, one may influence the other (e.g., Hulk & Müller, 2000). Recent work using structural priming (e.g., Hsin et al., 2013; Vasilyeva et al., 2010) suggests, however, that early bilinguals may in fact share syntactic representations across languages. In light of these findings, it has been proposed that cross-linguistic influence (CLI) can be conceptualized as cross-language structural priming (Hervé et al., 2016; Serratrice, 2016). This study tested this proposal and more specifically, the hypothesis that within- and cross-language priming is modulated by structural overlap, using data on possessive NPs in Dutch. Like English ('the astronaut's father' vs. 'the father of the astronaut'), Dutch allows both pre-nominal and post-nominal possessives ('de astronaut z'n vader' vs. 'de vader van de astronaut'), whereas only post-nominal possessives are possible in Spanish ('*el astronauta su padre' vs. 'el padre del astronauta'). For common animate possessors, preferences differ, however, with Dutch preferring the post-nominal and English the pre-nominal ('the father's astronaut'). Previous research on monolingual children (Skarabela & Serratrice, 2009) and bilingual adults (Bernolet et al., 2012) shows possessive structures can be primed.

Participants were English-Dutch (n=31) and Spanish-Dutch (n=25) 5- to 7-year-old bilinguals, plus monolingual peers (n=28). Pre- and post-nominal possessives were primed using a "snap" game (Messenger et al. 2012) with a baseline, priming and post-test phase (Skarabela & Serratrice, 2009). There were two conditions: within-language (Dutch to Dutch) and cross-language (English/Spanish to Dutch).

Preliminary results show that for prenominal possessives, that is where the two languages overlap, English-Dutch bilinguals showed more within-language priming that monolinguals, with longer-lasting effects (Kidd, 2012; Skarabela & Serratrice, 2009). In addition, priming appeared to be more frequent in the within-language than the cross-language condition (cf. Kantola & van Gompel, 2011). Contrary to our hypothesis, Spanish-Dutch bilinguals were primed at comparable rates to the other two groups but these effects were short-lived. Furthermore, four of the Spanish-Dutch children showed cross-language priming of the ungrammatical prenominal form ('el astronauta su padre') (Ivanova et al., 2017; Hsin et al., 2013; Nicoladis, 2012). Taken together, these findings are on the whole consistent with the idea that like bilingual adults, children share syntactic representations across languages (Hartsuiker et al., 2004; Hervé et al., 2016).

Language specificity in monolingual and bilingual later lexical development

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Although children may productively use concrete nouns after limited exposure, complete mastery of adult-like patterns of noun usage can take up to 14 years (Ameel, Malt, & Storms, 2008). The challenge is created in part by language-specific exceptions to similarity-based naming patterns. People who speak different languages share a perception of similarity. Despite the shared non-linguistic appreciation, its relation with linguistic categorization is complex (Malt, Sloman, Gennari, Shi, & Wang, 1999). For children growing up with two languages, the challenge also entails dealing with two inputs with different language specificities. This study probed the nature of later lexical development for monolinguals and bilinguals by examining word use for three kinds of word-referent-mappings: similarity-driven in both languages, violation of similarity in one language, and violation of similarity in both languages. We collected free naming data for pictures of nearly 200 household containers from 499 Belgian children, aged 5 to 14, and adults, raised with either (a) both French and Dutch; (b) only French; or (c) only Dutch. Overall, young children produced largely shared, similarity-based naming patterns which became more language-specific and also more consistent within-language over time. However, monolinguals and bilinguals diverged in some key aspects of their developmental profiles. Monolinguals produced a more language-specific naming pattern beginning at age 8, showing lower agreement between than within languages. This differentiation between languages did not emerge for bilinguals until age 12, and it emerged only for objects with labels that violate similarity in one language. Thus monolingual and bilingual children follow a similar trajectory from shared to language-specific patterns of word use, but bilinguals differentiate later and for only some word uses.

The relation between inhibitory control ability and language switching performance for bilinguals in a minority language setting

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Bilinguals continuously involve a language selection process, and they are supposed to transfer this language ability into the development of executive functioning (Costa et al., 2009). Specifically, some scholars have proposed that inhibitory control plays a role in the language production process of bilinguals (Costa, Santesteban & Ivanova, 2006). Recent studies suggest that the sociolinguistic context of bilingual languages moderates the performance of bilinguals' cognitive ability (Blom et al., 2017). Within sociolinguistic settings where a majority and a minority language cohabit, individual language users may show a great variety of different language dominance types and it may be suggested that these bilingual types as well have an effect on cognitive ability.

The present study therefore examined this relation with three groups of Uyghur-Chinese bilinguals from the Uyghur Autonomous Region of China, who are respectively dominant in Uyghur, in Chinese, and balanced in both languages. A total of 93 participants (each group 31) were

administered two cognitive tasks, i.e. flanker task and Simon task, and one language production task with switching conditions, i.e picture naming task. Based on the Inhibitory Control Model, the hypothesis is that a greater inhibition ability may have an effect on the language switching cost in response times. The grouping of participants allowed us to assess if differences in types of language dominance may have an effect on this relationship.

By using repeated measures ANOVA, we found a main effect of switch and conflict for all three tasks across all three bilingual types. On the picture naming task, we found a significant interaction effect Switch × Language. In the L1 dominance group, a reduced switch costs in L2 was significant compared to the cost of switching to the dominant L1.

L2 dominance group has the greatest response time in L2 switch cost, while L1 dominance group has the largest switch costs when the switching language is L1. In the correlation analysis, when switching into or from L2, a greater ability of inhibitory control in Simon task was related to a smaller amount of switching costs.

These results suggest the importance of language dominance on the interaction between language switching and cognitive control. L2 dominance group with a great inhibitory ability may reduce their L2 switching costs. Further regression analysis will be conducted to in details explore the link between executive control and language switching by each bilingual type.

Poster session 3

Narrative skills of Arabic-Dutch bilingual children

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Background. According to some authors, storytelling is a less biased approach of language investigation in bilingual individuals. This study wants to gain better insight in the narrative skills of Arabic children who have Dutch as a second language compared to a group of monolingual Dutch speaking controls.

Methods. 27 bilingual Arabic-Dutch children and 27 monolingual Dutch children participated in this study. They were all between 6 and 10 years old and were matched on gender and age. The bilingual group was exposed to Dutch for at least 3 years. In both groups, language samples of the Action Picture Test and the Bus Story Test of the Renfrew Language Scales (Dutch version) were analyzed for macrostructure and microstructure elements. Parents were asked to complete a questionnaire about general and language specific characteristics of their child.

Results. No significant differences were found in information transfer on sentence level, but the bilingual children achieved significantly lower scores in information transfer on story level. Arabic-Dutch children have worse proficiency in morphosyntactic and semantical Dutch competences compared to Dutch controls. They make more mistakes in word order, articles and prepositions and have more lexical substitutions.

Conclusion. This study prudently suggest that both the macrostructure and microstructure differs between groups. Arabic-Dutch bilinguals are less proficient in Dutch related to monolinguals.

Learning formulaic language through L2 subtitles: The effects of genre and input enhancement

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Numerous research on the use of L2 subtitled videos has shown that English as a Foreign Language (EFL) students can learn new words from watching TV series (Montero Perez et al., 2013; Peters et al., 2016; Peters & Webb, 2018). However, the issue of genre has been overlooked as no previous studies have been conducted on the effect of genre in learning formulaic language from subtitled videos. The present study fills this gap. This papers reports on an exploratory experiment examining whether genre affects meaning recognition of target multi-word expressions (MWEs). The study also explores the effectiveness of input enhancement of target MWEs. 40 EFL adult learners participated in this experiment (N=40). Participants were exposed to four short video clips that varied in its format as well as in genre. The videos were representative of four distinct (and radically different) genres: animal documentary, public lecture, detective story, and comedy. The videos were displayed in the original version with L2 subtitles. Half of the learners watched the videos with the target MWEs enhanced. The highlighting was

removed from the target MWEs for the other half. The findings showed an effect of genre at the level of meaning recognition as learning gains varied across genres. The analysis suggests that under specific genres EFL learners detected and at least superficially processed more MWEs than in others. Additionally, findings showed limited but positive effects of input enhancement of the target MWEs. Results were triangulated with qualitative findings from a retrospective protocol analysis.

3M: Multilingual education in Frisian primary schools

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Due to a surge in migration, an increasing number of new students in the officially bilingual province of Fryslân are acquiring up to three additional languages of schooling simultaneously. Currently, Frisian primary school teachers focus on developing proficiency in school languages via language-separation ideologies, which do not often consider the multilingual backgrounds of students. However, recent research has repeatedly shown the importance of actively drawing on students' plurilingual repertoires in the process of both language and subject learning (Cummins, 2008; Cenoz & Gorter, 2011; Wei, 2014; Conteh & Meier, 2014).

In this presentation we will show how the 3M-project: Meer kansen Met Meertaligheid (More opportunities With Multilingualism) works with 12 trilingual primary schools to improve school outcomes of multilingual pupils by implementing a school pedagogy based on using primary languages as a resource. We will show how wide collaboration between teacher training institutes, researchers and schools leads to innovative multilingual school practices. Accompanying evaluative research into the developing attitudes of teachers and pupils will map the effect on language attitudes in relation to socio-cultural and linguistic backgrounds for the duration of the project.

Effects of task complexity on L2 suggestions and refusals:
Trade-offs between accuracy and complexity

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The role of pragmatics in second language (L2) communication has led researchers to investigate the production of speech acts in various social and cultural contexts (Taguchi, 2015). In an attempt to understand these utterances, increased task complexity has been found to positively impact both L2 oral interaction between EFL learners (Gilabert, Barón, & Llanes, 2009) and the number of pragmatic moves in conversation (Gilabert & Barón, 2013). However, current literature has not yet explored to what extent the speech acts are accurate and complex when task complexity is manipulated. In order to bridge this gap, the present study brings Robinson's (2001a) Cognition Hypothesis and Skehan's (1998) Trade-off Hypothesis together to determine whether increased

task complexity along resource-directing factors [+/- few elements], social distance, and degree of imposition does indeed affect the number of speech acts generated by ELF learners in oral interaction, and whether accuracy or complexity is traded off. To this end, 34 Spanish EFL learners grouped into pairs undertook a simple and a complex version of an oral task aiming to elicit suggestions and refusals. Findings of previous studies are confirmed as more suggestions and refusals were produced by participants in the complex task. Although scores of accuracy and complexity of both speech acts as awarded by 8 native speakers of American English were higher in the complex task, no trade-offs between accuracy and complexity were found in the statistical analyses. Pedagogical and research-related implications in the fields of L2 pragmatics and task-based language teaching, as well as new avenues for further research in terms of L2 pragmatic instruction and assessment of speech acts, among others, are included in consonance with the discussion.

How do bilinguals switch between languages in different interactional contexts?

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The way bilinguals switch between their languages can depend on the context. In voluntary contexts bilinguals can freely use both languages and switch whenever they want. In contrast, in cued contexts they need to follow cues in order to know which language to use and when to switch. The amount and type of language control needed to maintain a successful conversation has been proposed to be different in different interactional contexts (Green & Abutalebi, 2013). Previous studies have tested language switching by using either only a cued or voluntary paradigm or by using the two paradigms in separate tasks, showing different results depending on which task is used. A typical finding observed in cued language switching is a mixing cost reflecting that using two languages is more costly than using one. In contrast, in a voluntary context, some bilinguals may actually be faster when using two languages compared to one, and this is known as a mixing benefit. In the current study we first tested 40 highly proficient Spanish-Basque bilinguals on a voluntary language switching task and replicated the mixing benefit found by de Bruin, Samuel, and Duñabeitia (2018) in a similar group of bilinguals. Next, we directly compared the cued and the voluntary language switching context within the same task. This allowed us to make them as similar as possible in terms of task demands and cue processing. The results indicate that cued switching is overall more demanding given that responses were slower in the cued than in the voluntary context. Moreover, the mixing effect, which reflects the burden of using two languages, was larger for the cued compared to the voluntary switching context. Finally, switching costs were larger in the cued context, but only when switching into the more active language. These results suggest that for highly proficient bilinguals living in a bilingual society it may be less demanding to have both languages ready to be used freely than to control the languages in contexts that require stricter language use.

Cognate facilitation in bilingual and trilingual speakers – The role of learning experience

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Cognates are words characterised by form and meaning overlap across languages, e.g. film – film (identical cognates) or tunnel – tunel (non-identical cognates) for Polish-English bilinguals. Cognates are typically recognised and produced faster than non-cognates which has been termed as the cognate facilitation effect (Dijkstra et al., 2010; Lemhöfer, Dijkstra, & Michel, 2004; Muscalu & Smiley, 2018). However, this facilitation is modulated by a number of factors such as the degree of cross-linguistic similarity, task demands or stimulus list composition (Comesaña et al., 2015; Dijkstra et al., 2010; Poort & Rodd, 2017). In the present project we tested the influence of yet another factor in cognate processing – learning experience. According to Balass, Nelson & Perfetti (2010), words are encoded with their episodic memory traces, hence how a bilingual speaker learns her L3 (via L1 or L2) might have consequences for later word processing. In the present study the influence of learning experience on cognate processing was tested in two tasks and with speakers with three types of language profiles. Polish-English-Dutch trilinguals performed an L3 LDT with L1-L3 non-identical cognates (e.g. smak-taste-smaak), L2-L3 non-identical cognates (masło-butter-boter) or non-cognates (sukienka-dress-jurk). In turn, Polish-German-English trilinguals and German-English bilinguals translated L1-L3 cognates (aktor-Schauspieler-actor), L2-L3 cognates (piwo-Bier-beer) and non-cognates from English into their L1 (bilinguals and trilinguals) and into their L2 (only trilinguals). The trilinguals learned their L3 via L1 or L2, whereas bilinguals used their L1 to learn L2. The results indicate that cognate facilitation is not only dependent on the degree of cross-language similarity but that it is also affected by task demands and (to some extent) learning experience.

Investigating the effectiveness of a social robot for supporting children's L2 learning

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Social robots are increasingly used in education, including second-language (L2) teaching. Robots have an advantage over other technologies such as tablets, as children interact with them in the physical instead of virtual environment. Robots can make use of gestures and physical objects in these interactions, which may benefit L2 learning. However, previous results on the effectiveness of social robots for L2 teaching are contradictory (cf. Kanero et al., 2018; van den Berghe et al., submitted).

The current study is part of the L2TOR (pronounced as "el tutor") project and assesses the effectiveness of a robot for L2 teaching. Monolingual Dutch kindergarteners (N=181, 49% girls) were taught English words in seven lessons. The lessons consisted of language games on a tablet, which children played: (1) by themselves; (2) with a Nao robot which pronounced the target words and used deictic gestures; (3) with a Nao robot which additionally used iconic gestures. Children

in a fourth (control) condition did not play language games, but danced with the robot. Learning gains were assessed during an immediate and delayed (two to three weeks after the last lesson) post-test, via a picture-selection task and translation tasks (from L2 to L1 and vice versa).

The results showed evidence of learning, as children performed above chance on the picture-selection and above zero on the translation tasks (ps < .001). A repeated-measures ANOVA showed a main effect of condition (F(9) = 2.09, p = .029, partial $\eta2$ = .04). Post-hoc tests using the Bonferroni correction showed that children in the experimental conditions outperformed control children on all tasks (ps < .05). There were no differences between the experimental conditions (ps > .10). Furthermore, children obtained higher scores during the delayed than the immediate post-test on all tasks, (F(3) = 5.55, p = .001, partial $\eta2$ = .09).

These findings show that children can learn L2 words using a tablet and assisted by a robot, but that they do not learn more words with a robot than when they learn with only a tablet. Furthermore, we did not find a benefit of the robot using iconic gestures. Finally, results are in line with research on the consolidation of newly learned L2 words. In our presentation, we will discuss possible explanations for our results, implications of our findings, and current limitations of using robots in L2 education contexts.

Language abilities in bilingual children's heritage and mainstream languages: A study on bilingual Turkish-Dutch children in Flanders

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Ghent University

Research in the field of early bilingual acquisition has often focused on the underachievement of children of migrant origin in terms of required language skills and proficiency in the mainstream language. Systematic failure of children and students with a Turkish background has repeatedly been shown in previous studies (D'Haeseleer et al., 2016), but few studies have taken into account children's language development in their heritage language (Akoglu & Yagmur, 2016). The present study aims to investigate the language abilities of Turkish-Dutch bilingual children in the minority language, Turkish, as well as in the majority language, Dutch.

In total, 35 children participated in the study, aged between 3;03 and 6;11. Seven of the children were raised in families in which one of the parents is a native speaker of Dutch and one a native speaker of Turkish ('One Parent-One Language' or OPOL families). The remaining 28 children were raised in families in which both parents are native speakers of Turkish. All children took the standardized Dutch proficiency test CELF-4 Preschool and the Turkish test TEDIL, an adaptation of TELD-3.

Results reveal that overall the bilingual children perform below the norm scores for monolingual Dutch and Turkish children. Both in Dutch and Turkish 29% of the children have a norm score below 70 ('very poor'), which for monolinguals would mean they are advised to start speech therapy. OPOL children significantly outperformed TUP children on CELF and the reverse pattern was observed for TEDIL. Language exposure to and use of Dutch and Turkish significantly correlated with language scores. In the analysis, we zoom in on individual children's results, comparing their Dutch to their Turkish scores, and taking into account the children's language profiles. The results are discussed in light of the use of monolingual assessment tools for bilingual

children, the importance of the quantity and quality of the input and the need for normative data for bilingual children.

Effects of word processing and language experience on eye movements in reading Russian as a foreign language

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National Chengchi University

The present study investigated the influence of lexical processing of the fixated word and the adjacent words on the eye movements of Chinese-speaking students in reading Russian stories. In natural reading, fixation times are affected not only by the properties of the current fixated word but also the properties of the past and next words in the sentence. The immediacy, lag, and successor effects of words suggest distributed processing in the reading span that is affected by processing efficiency of the foveal and parafoveal words. Analyzing the contribution of word properties in the reading span on fixation times could be used to show the individual differences of foreign language acquisition on processing words in natural reading.

In one experiment, forty Chinese-speaking undergraduate and graduate students participated in a reading task while the eye movements were recorded. All participants have learned Russian at least for two years approximately above the A2 level according to CEFR (Common European Framework of Reference for Languages). The language experience/proficiency of Russian were assessed by a self-report questionnaire and a short test of grammar and vocabulary from samples of TORFL (Test of Russian as a Foreign Language). The participants read four Russian short stories, two of which were easy while the other two were relatively difficult. The average number of words of each story was 608 words which the word frequency was acquired from Russian National Corpus, and the word length and part of speech were manually annotated.

The linear mixed models were performed for the effects of word length, word frequency, part of speech, and language experience on gaze duration and total viewing time of all words of the stories, treating the participants and items as random effects. The word length and word frequency of the adjacent words were also included in the models. The results showed that, for the oculomotor factors, total viewing time was larger when the fixated words with long launch distance and with the skipping of the previous word. For the lexical factors, both word length and word frequency showed reliable immediacy effects on the current fixation times, and the word length effect was much larger than that of word frequency. For part of speech, the gaze durations on verbs were longer than those on nouns. Moreover, the years of learning Russian showed an interaction with the extra time of processing adverbs comparing to processing nouns.

In conclusion, firstly, the significant immediacy effect of words suggests that processing difficulty of reading a foreign language results in a narrow reading span on the fixated word. Secondly, the significant effect of word length may reflect the cost of the orthographic difference of Chinese written script from alphabetic languages. Finally, the language proficiency and experience play a role in processing efficiency dealing with the complexity and uniqueness of grammatical and morphosyntactic features of Russian.

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