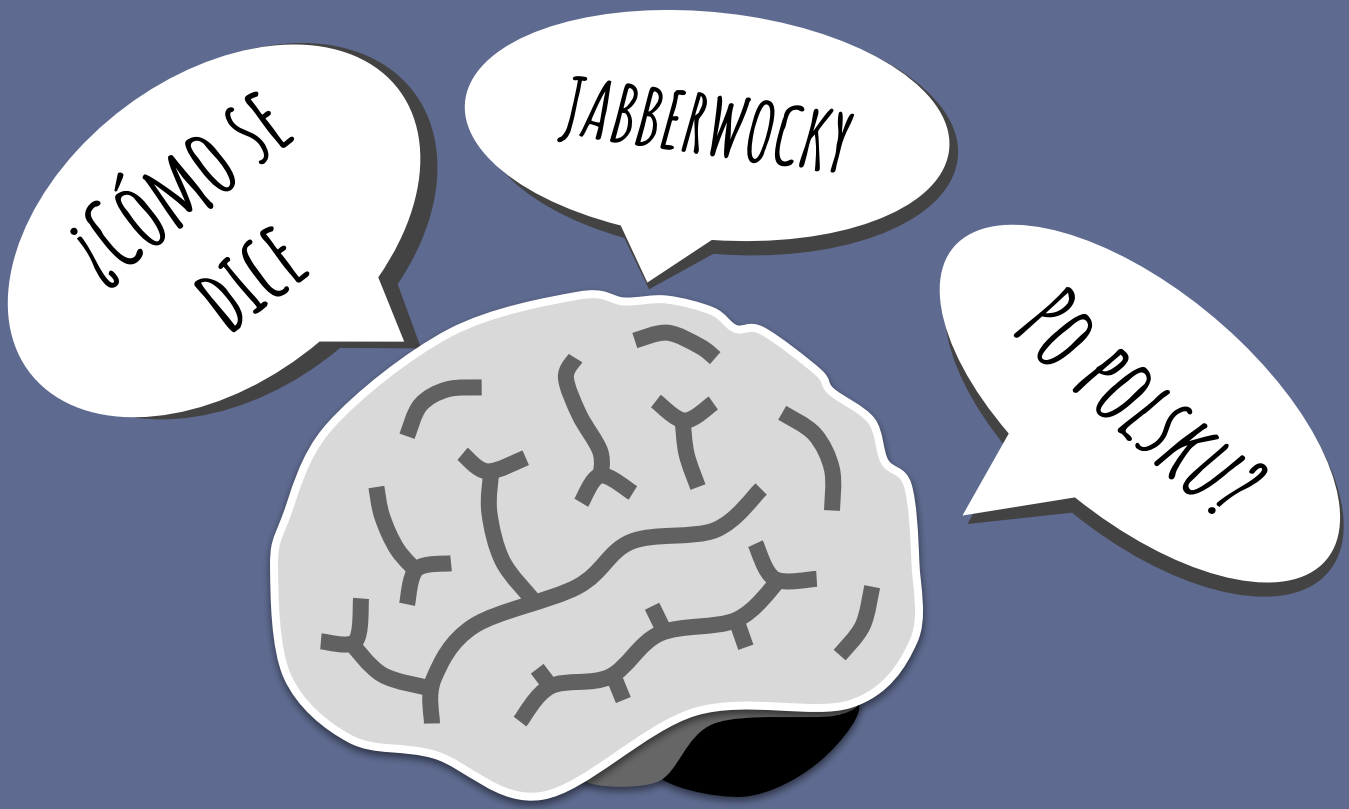
SYMPOSIUM

THE FLEXIBLE LANGUAGE IN THE FLEXIBLE MIND



BOOK OF ABSTRACTS

SEPTEMBER 29th 2018

INSTITUTE OF PSYCHOLOGY

JAGIELLONIAN UNIVERSITY in KRAKÓW

LANGUSTA Laboratorium Psychologii Języka i Dwujęzyczności
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UNIWERSYTET JAGIELLOŃSKI W KRAKOWIE

ABOUT THE CONFERENCE

The main goal of our symposium is to bring together scientists from different research centers in Poland and abroad, who investigate language from different perspectives. Our main broad topic is the dynamics in language and language processing. We aim to create an opportunity to display diversity of the research topics, share and discuss results of completed and on-going studies and establish new collaborations, especially linking people at different stages of academic career.

ORGANIZING COMMITTEE

dr hab. Zofia Wodniecka
Joanna Durlik
Agata Wolna
Michał Remiszewski

LANG USTA Laboratorium Psychologii Języka i Dwujęzyczności
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GRANT NARODOWEGO CENTRUM NAUKI SONATA BIS 2015/18/E/HS6/00428

NARODOWE CENTRUM NAUKI

PROGRAM

10:00 - 11:00	**Keynote lecture:** The value of interdisciplinarity in multilingual research	**Antonella Sorace** University of Edinburgh
11:00 - 11:15	**Coffee break**	
11:15 - 11:45	Cross-linguistic Lexical Tasks (LITMUS - CLTs): new developments and new directions	**Ewa Haman** University of Warsaw
11:45 - 12:15	Prediction-inconsistent information leads to prediction updating – an ERP study on sentence comprehension	**Jakub Szewczyk** Jagiellonian University
12:15 - 12:45	Keep calm and carry on: Electrophysiological evidence for reduced emotional anticipation stress in the second language	**Rafał Jończyk** Adam Mickiewicz University in Poznań
12:45 - 14:45	**Lunch with poster session** (see below)	
14:45 - 15:15	An Ear for Language: sensitivity to changes in Amplitude Rise predicts learning new words	**Marta Marecka** Jagiellonian University
15:15 - 15:45	Learning cognate and non-cognate words in the classroom: Cross-linguistic awareness does not matter	**Agnieszka Otwinowska-Kasztelanic** University of Warsaw
15:45 - 16:00	**Coffee break**	
16:00 - 16:30	Cognates in translation tasks - the role of the concurrent use of languages during learning	**Agnieszka Lijewska** Adam Mickiewicz University in Poznań
16:30 - 17:00	How student interaction networks matter in second/third language acquisition	**Michał B. Paradowski** University of Warsaw

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   How do dogs react to the change of their language environment a longitudinal fMRI study.

2. **Katarzyna Bromberek-Dyzman** (Adam Mickiewicz University), **Johanna Kissler** (Bielefeld University):

   How mood affects processing of emotional adjectives in L1 and L2 – an ERP study

3. **Joanna Durlik** (Jagiellonian University), **M. Teresa Bajo** (University of Granada), **Zofia Wodniecka** (Jagiellonian University):

   Dynamic domination: consequences of immersion in L2.

4. **Joanna Filipczak**, **Anna Kuder** (University of Warsaw):

   A Preliminary Corpus-based Study of Phonological Variants in Polish Sign Language (PJM)

5. **Małgorzata Foryś-Nogala**, **Grzegorz Krajewski**, **Ewa Haman** (University of Warsaw):

   How can implicit and explicit instructional settings contribute to the development of declarative and procedural knowledge of L2 syntax?

6. **Sofia Gonzales Castro**, **P. Macizo** (University of Granada):

   Not so different: Priming effects between language and arithmetic

7. **Joanna Jakubowska**, **Marta Białecka-Pikul**, **Marta Szpak** (Jagiellonian University):

   How Do Parents Use Mental State Language during Narration to Their 2- and 4-year-old Children?

8. **Patrycja Kałamała** (Jagiellonian University):

   Tracing bilingual advantage in inhibition.

9. **Maksymilian Korczyk**, **Maria Zimmerman**, **Łukasz Bola**, **Marcin Szwed** (Jagiellonian University):

   The neural correlates of rhythm perception in musicians in visual and auditory modalities.

10. **Małgorzata Petlic** (Jagiellonian University):

    Learning a foreign language with e-learning. A comparative analysis of learning conditions and learners from two types of educational platforms.

11. **Katarzyna Rączy**, **Aleksandra Urbańczyk**, **Maksymilian Korczyk**, **Jakub Michał Szewczyk**, **Marcin Szwed** (Jagiellonian University), **Ewa Sumera** (Institute for the Blind and Partially Sighted Children):

    Orthographic priming in Braille reading as evidence for task-specific reorganization in the ventral visual cortex of the congenitally blind

12. **Breno B. Silva**, **Agnieszka Otwinowska-Kasztelanic** (University of Warsaw):

    VST as a reliable academic placement tool despite cognate inflation effects

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13. **Izabela Skoczeń** (Jagiellonian University):

    Scalar implicatures in legal contexts

14. **Agata Wolna**, **Jakub Szewczyk**, **Patrycja Kałamała**, **Jonas Walther**, **Zofia Wodniecka** (Jagiellonian University):

    The "production P2" effect primarily reflects training in picture naming

15. **Agata Wolna**, **Joanna Durlik**, **Jakub Szewczyk**, **Michał Remiszewski**, **Zofia Wodniecka** (Jagiellonian University):

    Null pronoun is always better than overt. Behavioral and eye-tracking evidence on anaphora resolution in Polish language.

16. **Adam Mickiewicz University team:**

    Research projects at Adam Mickiewicz University

ANTONELLA SORACE

University of Edinburgh and *Bilingualism Matters*

The value of interdisciplinarity in multilingualism research

Building 'bridges' among different research fields makes it possible to address specific research questions and explain specific phenomena more in depth than within the boundaries of particular disciplines. I will discuss some examples from research on bilingualism across the lifespan: decision-making in native vs. second languages; the selective convergence between L1 attrition and L2 acquisition; social attitudes and children's perception of bilingualism and language maintenance; the lack of consistent cognitive effects of bilingualism with regional minority languages. Interdisciplinarity, however, requires abandoning familiar conceptual and methodological dichotomies; it tends not to be facilitated within academic institutions; and it is often experienced by researchers as a path fraught with difficulties in terms of outcomes and careers. While we are beginning to see the impact of interdisciplinary efforts in multilingualism research, much more work is needed to benefit from open disciplinary boundaries.

EWA HAMAN, MAGDALENA ŁUNIEWSKA, JOANNA KOŁAK,
KAROLINA MIESZKOWSKA

Faculty of Psychology, University of Warsaw

Cross-linguistic Lexical Tasks (LITMUS-CLTs): new developments and new directions

The LITMUS Cross-linguistic Lexical Tasks (LITMUS-CLTs) are so far available in 28 languages. CLTs enable comparable assessment of vocabulary in both languages of bilingual children up to the age of 6 years (Haman, Łuniewska, & Pomiechowska, 2015; Hansen et al., 2017; http://psychologia.pl/clts/), but can be also used with monolinguals (e.g. Haman et al., 2017).

CLTs are picture choice (assessing word comprehension) and picture naming (assessing word production) tasks. Each language version of CLT was developed individually (i.e. taking into account language specific characteristics) but according to the common (i.e. language independent) criteria. However, language-specific indices employed in CLT design (the age of acquisition of words and a composite score of word form complexity) were obtained mostly for the majority varieties of the languages (e.g. Polish spoken by native speakers living in Poland). Only a few CLT versions were purposefully developed for minority languages (e.g. South African English; Southwood, 2012; Western Armenian in Lebanon; Gureghian, 2017). Likewise, some CLT versions were used in a linguistic context different from the original one (e.g. British English CLT was used with Maltese-English children in Malta; Gatt et al., 2017).

Given the interest in constructing new language versions, including sign languages and language varieties, and given the need for broadening the age range of child participants (van Wonderen & Unsworth, 2018), we will discuss potential changes in the methodology of CLT design that would: (1) optimize the workload needed to develop CLT for a specific language variety; (2) adjust the procedure to enable the testing in sign languages; (3) allow for culture-fair picture adjustments; (4) make it possible to add new items for children older than 6 years.

RAFAŁ JOŃCZYK[1,2], INGA KOROLCZUK[3],EVANGELIA BALATSOU[3]
AND GUILLAUME THIERRY[3]

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[2] Department of Psychology, Pennsylvania State University, USA;

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Keep calm and carry on: Electrophysiological evidence for reduced emotional anticipation stress in the second language

Recent investigations of the so-called 'foreign language effect' have shown that emotional experience is language-dependent in speakers of more than one language. Response to negative experiences, in particular, appears attenuated when bilinguals operate in their second language. However, the human brain is not only reactive to the environment, it also anticipates events to come building on current and past experiences. Here, we investigated affective anticipation in Polish-English bilinguals using a common paradigm in which a verbal cue of controlled affective valence allows making predictions about a subsequent picture target. As expected, anticipation of negative emotional content following native language words (Polish) with negative valence significantly increased the amplitude of event-related brain potentials prior to picture presentation, the so-called stimulus preceding negativity (SPN). SPN modulation was not significant, however, when verbal cues were in the second language (English). This effect was further supported by electrophysiological evidence obtained from a control group of monolingual English participants who displayed the SPN modulation to the same negative English items, demonstrating that these items do elicit an SPN effect. The relative decrease in SPN amplitude in the 300-ms time-window preceding the target picture in the bilingual group expands the foreign language effect to anticipation mechanisms. This result may have implications regarding language use when bilinguals have to deal with potentially disturbing contents and situations, given that the second language has the potential to strategically reduce related anxiety and stress.

MARTA MARECKA[1], TIM FOSKER[2], JAKUB SZEWCZYK[1], PATRYCJA KAŁAMAŁA[1] AND ZOFIA WODNIECKA[1]

[1] Institute of Psychology, Jagiellonian University, Poland;

[2] Queen's University, Belfast, UK;

An ear for language: basic auditory skills are linked to more efficient novel words learning

Amplitude rise times (ART) is the time in which a sound goes from silence to its peak amplitude. Previous studies show a relationship between sensitivity to this basic auditory cue and reading ability (Goswami, 2002). Research suggested that detecting ART helps segment speech and develop phonological representations, necessary for reading (Goswami et al., 2011). A recent paper suggested that the same mechanism might also be used to segment speech in a foreign language, facilitating foreign vocabulary learning (Marecka et al., 2018). Learning a novel word involves learning the word form - i.e. creating its phonological representation in long-term memory - and linking this representation to a concept. We hypothesised that higher sensitivity to ART leads to more efficient segmentation of foreign speech, resulting in better encoding of foreign word forms. This might in turn increase the efficiency of the whole word learning processes, including the efficiency of linking the new word form representation to the concept. To test these hypotheses, we asked 40 adult participants to perform a 3I-2AFC task testing sensitivity to ART and a paired associates word learning test. All participants were native speakers of Polish. None of them was an early bilingual, although all of them spoke at least one foreign language. In the auditory task, participants were presented with triads of tones, one of which had a different ART. Participants had to identify the odd-one-out. The task difficulty was adapted on the basis of responses and the discrimination threshold for each participant was established. In the word learning test, participants were first auditorily exposed to 12 bisyllabic nonwords paired with line drawings depicting common objects. Each nonword-picture pair was presented 36 times (432 trials altogether). All nonwords were pronounceable in the native language of the participants and were matched for the number of consonants and vowels, but varied in terms of phonotactic probability. Participants were then tested on the knowledge of the associations with a Match-Mismatch Word Identification Task. In the task, they heard each of the 12 nonwords, followed either a congruent or incongruent picture and they had to assess if the picture matched the nonword. For each nonword, there was 33 congruent and 33 incongruent trials (792 trials altogether). Behavioural responses as well as ERPs in response to the pictures were collected. In terms of ERP, we were looking for the N300 component, which typically appears in response to pictures in incongruent settings or following a semantically mismatching stimuli (Barret & Rugg, 1990). As such it was taken as an index of semantic processing of pictorial stimuli, similar to N400 for verbal stimuli. The results of mixed-effect linear regression analysis indicated that greater sensitivity to ART is related to greater accuracy rates and faster RTs on the Match-Mismatch Task. However, we found no effect of amplitude rise time detection on the N300 component measured on the pictures. These results suggest that sensitivity to amplitude rise time is connected to more efficient auditory learning of phonological word forms, but not necessarily to a better and more efficient semantic processing of the novel words in the brain.

AGNIESZKA OTWINOWSKA-KASZTELANIC[a], JAKUB SZEWCZYK[b], MAŁGORZATA FORYŚ-NOGALA[a]

[a.] University of Warsaw; [b.] Jagiellonian University

Learning cognate and non-cognate words in the classroom: Cross-linguistic awareness does not matter

Although some SLA studies show that cognates are easier to acquire than other words (Ellis and Beaton, 1993), most emphasize the role of awareness, assuming that learners benefit from cognateness only when they realize that L2 words are similar to L1 words (Otwinowska, 2015). We aimed to test whether Polish-English cognates and false-cognates differ in their learnability from non-cognate words, and whether raising learners' awareness of cross-linguistic similarity impacts learning such words in classroom conditions.

To that end, we conducted two longitudinal classroom quasi-experiments on Polish-speaking 14-year olds learning English at the lower-intermediate level (N = 135). We chose 90 English words (30 cognates, 30 false cognates and 30 non-cognate words), controlling for their L2 frequency (SUBTLEX-US, Brysbaert, New & Keuleers, 2012), concreteness (Brysbaert, Warriner & Kuperman, 2014) and formal overlap with L1 equivalents (Levenshtein Distance for cognates and false-cognates). Before each experiment, we manipulated experimental groups' awareness of cross-linguistic similarity by informing them about cognate inferencing strategies. In the second quasi-experiment the manipulation was more intensive. Participants practised the words with their teachers for 6 weeks in the form of exercises typical of ELT textbooks, but the teachers remained unaware about the group status (experimental vs. control).

The results of mixed-effects regression models revealed that L2 learners had a higher chance of knowing cognates than other types of words even before the study. However, cognates embedded in exercises were acquired at the same rate as other word types. Also, awareness raising, regardless of its intensity, had no effect on the acquisition of cognates and false cognates, indicating that awareness of cognateness does not boost the learning of cognates.

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Cognates in translation tasks - the role of the concurrent use of languages during learning

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 (Dijkstra, Miwa, Brummelhuis, Sappelli, & Baayen, 2010). Cognates are typically recognised and produced faster than non-cognates which has been termed as the cognate facilitation effect and which is modulated by a number of factors (Comesaña et al., 2015; Costa, Santesteban, & Caño, 2005; Dijkstra et al., 2010; Lemhöfer, Dijkstra, & Michel, 2004; Lotto & de Groot, 1998; Poort & Rodd, 2017; Poort, Warren, & Rodd, 2016; Szubko-Sitarek, 2014). In the present project we tested the influence of learning experience on cognate processing in word translation tasks. According to (Balass, Nelson, & Perfetti, 2010), words are encoded along 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 4 experiments and with speakers with 2 types of language profiles/learning experience. Polish-German-English trilinguals and German-English bilinguals (as a control group) translated L1-L3 cognates (MUSZTARDA-SENF-MUSTARD), L2-L3 cognates (TRAWA-GRAS-GRASS) and L1-L2-L3 cognates (BALON-BALLON-BALLOON) and non-cognates from English into their L1 (bilinguals and trilinguals) and into their L2 (trilinguals only). The trilinguals learned English via Polish, whereas bilinguals learnt English via German. The results indicate that cognate facilitation is not only dependent on the degree of cross-language similarity but it is also modulated by the concurrent use of languages during learning.

MICHAŁ B. PARADOWSKI[§,] ANDRZEJ JARYNOWSKI[*,†,‡], JEREMI OCHAB[†], CHIH-CHUN CHEN[||], AGNIESZKA CIERPICH[†]

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How student interaction networks matter in second/third language acquisition

Social networks have been found to play an important role in the behaviour and attainment of individuals. This study makes a case for the strong influence of social variables on L3 learning outcomes, and constitutes the first application of the innovative computational methodology of social network analysis (SNA) to investigating the phenomenon vis-à-vis unregulated conversational interaction. Using a computational multi-layered network perspective to study socially distributed learning among students acquiring a foreign language in an immersion context, we investigate the peer interaction dynamics and social graph topology with respect to measurable TLA outcomes. We find among others i) that the best predictor of TL performance among the students is reciprocal interactions between individuals in the language being acquired, ii) that outgoing interactions in the TL are a stronger predictor than incoming interactions, iii) a clear negative relationship between performance and interactions with same-L1 speakers, iv) a significantly underperforming English native-speaker dominated cluster, and v) that more intense interactions take place between students of different levels of proficiency, as well as several other significant findings. Analyses of the various standard centrality measures vis-à-vis performance in turn reveal that the best predictors of progress are closeness and degree centrality, while betweenness and PageRank fail to correlate. This tendency is observed in both objective and subjectively assessed progress in learning. This suggests that for language acquisition via social interaction, it is the structural properties of the network that matter more than processes such as information flow.

The study provides new insight into the link between social relations and language acquisition, showing how social network configuration and peer interaction dynamics are stronger predictors of L3 performance than individual factors such as attitude or motivation, and offers a novel methodology for investigating the phenomenon. The presentation will conclude with pedagogical implications and recommendations for language learners and instructors.

BRENO B. SILVA & AGNIESZKA OTWINOWSKA-KASZTELANIC

University of Warsaw

VST as a reliable academic placement tool despite cognate inflation effects

Knowledge of academic English words, essential in higher education, can be measured by the use Coxhead's (2000) Academic Word List, or field-specific lists. However, all lists include cognates, which may lead to an overestimation of students' results when running placement. Thus, it has been suggested that cognates should be removed altogether (Petrescu et al., 2017), or their number in tests should reflect their proportion in students' L1 (Laufer & Mclean, 2016). Since verifying the proportion is difficult, while excluding cognates may invalidate vocabulary size estimates, novel ways to estimate receptive vocabulary for placement purposes are needed, less sensitive to cognate inflation effects. To this end, we investigated whether a combination of results from recognition and recall tests could be used, despite the presence of cognates. We assessed the receptive vocabulary knowledge of 106 Polish English majors (B2/C1 level) via two tests: 1. Vocabulary Size Test (VST; Nation & Beglar, 2007), 2. a tailor-made Yes/No Academic Vocabulary Test (AVT), derived from a corpus of applied linguistics texts (167,634 tokens). The AVT comprised 600 items (300 noncognates, 105 Polish-English cognates, 195 nonwords) divided into three equivalent test versions.

The scores in the VST (M=9877 out of 14000) and AVT (M = 88.94%) were high. However, the comparison of scores for cognates to non-cognates in both tests (matched on length, frequency and concreteness) indicated that cognates were known significantly better, which is a sign of inflation. A regression analysis revealed that the VST predicted student's performance on the AVT (adjusted R2 = .385). Thus, in order to find the VST threshold that best predicted successful performance in the AVT, we conducted two cluster analyses combining both tests' scores. The results showed that 89.65% of learners who scored at or higher than the 9900 VST threshold also mastered receptive academic vocabulary (as defined by the AVT score of 88.89% or higher). We argue, therefore, that the VST can be reliably used to predict English academic vocabulary knowledge and hence is a useful tool for placement purposes in the Polish context.

IZABELA SKOCZEŃ

Jagiellońskie Centrum Badawcze Prawo-Język-Filozofia

Scalar implicatures in legal contexts

The sentence ‘some of the students passed the exam’ is understood as, not all of them passed, namely ‘only some of them passed’. Such reasoning is a scalar implicature. However, if the teacher did not check all of the exams yet and says ‘some of the students passed the exam’, then maybe all of them passed, namely, 'at least some passed'. Consequently, in contexts where the speaker has partial information concerning the objects relevant for communication, the scalar reasonings change and become closer to an understanding of ‘some’ from the quantifier calculus. The aim of the poster is to analize and compare these observations with observations from a different context: the courtroom. In such context the speaker has full knowledge but can be motivated to use the discrepancy between ‘at least some’ and ‘only some’ for strategic (non-cooperative) aims. I present an analysis of empirical results compared with the predictions of a probabilistic model.

AGATA WOLNA, JAKUB SZEWCZYK, PATRYCJA KAŁAMAŁA, JONAS WALTHER, ZOFIA WODNIECKA

Institute of Psychology, Jagiellonian University

THE "PRODUCTION P2" EFFECT PRIMARILY REFLECTS TRAINING IN PICTURE NAMING

Naming pictures in L1 is considerably slowed down when it is preceded by naming pictures in L2. This phenomenon is known as the L2 after-effect1. On the ERP level, it is accompanied by the N300 component (more negative ERPs for L1-after-L2 naming in the 250-350ms time-window2).

However, the mechanism underlying the L2 after-effect is unknown. On the one hand, it can be language-specific, i.e. reflecting cross-linguistic interference between lexical units activated in L2 and L1 blocks. On the other hand, the mechanism can be domain-general, reflecting a task change between L1 and L2 naming.

To adjudicate between these two possibilities, we designed an ERP study consisting of three pairs of blocks: L1 naming after L1 naming (L1-after-L1), L1 naming after L2 naming (L1-after-L2), and L1 naming after a non-linguistic task (L1-after-NLT). The order of the two last pairs of blocks was counter-balanced across participants. Overall, 33 participants named 250 unique pictures. The pictures were rotated across participants and across the 5 blocks of picture naming.

We hypothesized that if the after-effects are domain-general, then the NLT should affect subsequent L1 naming in the similar way as L2 naming, i.e. leading to longer naming latencies and more negative N300 component compared to the baseline condition (L1-after-L1). Conversely, if the after-effects are language-specific, we should observe the markers of hindered access to L1 lexical units in the L1-after-L2 condition only.

On the behavioural level, we observed longer naming latencies in the L1-after-L2, than in the two remaining blocks, indicating that the L2 after-effect is language-specific. The ERP data brought surprising effect: we observed a large fronto-central modulation in a time-window preceding the N300 (i.e. in the 150-250ms time-window), which resembled the "production P2" effect reported in the literature3,4. The strongest predictor of its amplitude was the number of trial: Initially the effect was strongly negative and it became more positive with each subsequent trial. We interpret this effect as the training in picture naming. This decrease in "production P2" amplitude did not occur in the L1-after-NLT block, suggesting that the change of task disrupted the training effect. Finally, the amplitude of the component was more negative in the L1-after-L2 block than in the remaining blocks (keeping other effects constant), implying that the "production P2" effect also has a lexical component. Overall, the unexpected findings suggest that: 1) the "production P2" effect reflects both lexical effects and training in picture naming; 2) the "production P2" effect is dissociable from naming latencies; 3) to reliably measure the P2 and the N300 effects, the order of all blocks must be fully counterbalanced.

AGATA WOLNA, JOANNA DURLIK, JAKUB SZEWCZYK, MICHAŁ REMISZEWSKI, ZOFIA WODNIECKA

Institute of Psychology, Jagiellonian University

NULL PRONOUN IS ALWAYS BETTER THAN OVERT. BEHAVIORAL AND EYE-TRACKING EVIDENCE ON ANAPHORA RESOLUTION IN POLISH LANGUAGE

Only recently has psycholinguistics started to investigate the question of how universal are the mechanisms of anaphora resolution and to what extent they are language-specific. For example, in case of the pronominal anaphora, a question arises to what extent the pro-drop languages differ in the interpretation of null and overt pronouns. According to the Accessibility Theory (Ariel, 1990), using (and interpreting) null pronouns as an alternative to overt pronouns may be modified by both contextual and language-specific conditions, but at least some principles are expected to have universal validity across languages. Still, majority of data showing how pronominal anaphora is resolved in pro-drop languages comes from studies on Spanish and Italian. Here, we aimed to verify whether pronominal anaphora resolution in Polish is similar to that observed for Roman languages in which the null pronoun subordinate clause is interpreted as referring to the subject antecedent of a main clause, while overt pronouns are typically linked to the object of the preceding clause (Chamorro, Sorace, Sturt, 2016). Based on previous research on Italian and Spanish as well as on existing linguistic literature on Polish, we hypothesized that Polish speakers would consider the null sentences as more natural than overt sentences and that they will interpret the object as the antecedent for the overt pronoun and the subject for the null pronoun. The preference would be observed both in off-line measures – rating of naturalness of the sentences – and in on-line eye-tracking measures indicating reading facilitation in more natural conditions.

Two studies were conducted with Polish native speakers. In Study 1 the participants (n = 70) read Polish sentences and decided if null or overt pronoun in subordinate clause referred to the subject or to the object of the main clause. In Study 2 (n = 27), we recorded participants' eye-movements while they read unambiguous sentences containing null or overt pronoun. The sentences in which pronouns matched either the subject or the object of the main clause, meeting or not the antecedent preferences in Polish. In both experiments, participants were asked to rate the naturalness of each sentence.

Study 1 showed that in ambiguous sentences Polish speakers tend to interpret the object as the antecedent of the overt pronoun and the subject as the antecedent of the null pronoun. However, the null pronoun sentences were rated as more natural, regardless of the antecedent match. The behavioral results of Study 2, showed that for unambiguous sentences with overt pronoun the object-match is considered more natural than a subject-match. The eye-tracking data demonstrated that in the subject-match condition the interpretation of the subordinate clause was hindered compared to the object-match condition, but no facilitation was observed comparing to the object-match null sentences

The results of Study 1 and Study 2 show that speakers of Polish clearly prefer to match null pronouns to subject antecedents and overt pronouns to object antecedents. Moreover, the results suggest that contextual disambiguation and linking the overt pronoun with the object antecedent does not facilitate processing subordinate clauses containing overt pronouns, compared to null pronoun sentences with object antecedent. Altogether the results suggest that pronominal anaphora in Polish may be resolved differently than in Roman languages.

JOANNA FILIPCZAK, ANNA KUDER

A Preliminary Corpus-based Study of Phonological Variants in Polish Sign Language (PJM)

There is an ongoing debate in sign language linguistics concerning the status of citation forms of signs. While there is no doubt that a given sign can be articulated correctly in more than one way (different articulations of a sign are called its phonological variants), it is not certain whether we can clearly determine if one articulation is somehow 'superior' to others and can stand as the prototypical form of this sign (or be regarded as its citation form). The main aim of the present study is to investigate whether there exists a formal method of distinguishing the citation form of any given sign.

This presentation will consist in two main parts. In the first part, we will give a brief overview of how the PJM Corpus (from which the linguistic data were drawn) is build and then annotated with a focus on sign language phonology.

In the second part, we will present our original study of phonological variants in PJM, which is, to our knowledge, the first corpus-based study of variants a sign language. For its purposes, we have analyzed lexical entries in the PJM Corpus with their variants and chosen a set of approximately 20 types, each divided into several subtypes (phonological variants). For our analysis, we have calculated and analyzed each sign's frequency, The Phonological Markedness Score (PMS[1]) and surrounding phonological context.

In the conclusion, while focusing on discussed in the literature correlation between the (phonological) markedness and the frequency of signs in the signed discourse, we want to give an answer to the question, whether there is a formal method of distinguishing the citation form of the sign.

[1] The Phonological Markedness Score (PMS) was proposed by Haga-Schoonhoven, Pfau and de Boer (2010) and is a model that assigns numeral values to signs based on their phonological features. The higher the value, the more marked a given sign is. PMS is based on Wendy Sandler's phonological "The Hand Tier model" (2006) for sign languages.

MICHAŁ B. PARADOWSKI, MARTA GAWINKOWSKA

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Bilinguals' decisions and moral judgments – beyond the emotional explanation

In an ideal world, reactions and answers to ethical problems should be consistent irrespective of the medium through which the question or situation is presented. Yet recent research (Costa et al. 2014; Geipel, Hadjichristidis & Surian 2015, 2016) has shown that the same dilemma may elicit different moral judgements depending on the language in which it has been described.

Using a covert 2×2×2 experiment where 61 bilinguals were asked to translate (L1⇔L2) a passage peppered with swearwords, we show that the picture is much more complex. While the results ostensibly corroborate the Emotion-Related Language Choice theory (according to which bilinguals find their L2 an easier medium of conveying content that evokes strong emotional reactivity; Kim & Starks 2008), the effect was only observed in the case of ethnophaulisms, that is expletives directed at social (out)groups. This indicates that the key factor modulating response strength is not so much the different emotional power associated with the respective languages, but social and cultural norms.

Long cultural learning and socialisation make expressions in L1 highly prone to normative influences, whereas using a foreign language exempts the speaker from these (whether our own or socially imposed) norms and limitations. It transpires that switching to a foreign language during decision-making may not only reduce emotionally-driven responses and political correctness biases, but also promote candid deliberative processes (e.g. rational cost-benefit considerations; in line with observations from the psychotherapy of bilingual patients, as well as models that perceive moral decision-making as the outcome of the interplay between intuitive emotionally driven processes and rational reflective processes; e.g. Greene & Haidt 2002; Haidt 2007).

The orthogonal influence of the language medium on decisions, judgments and reactions has far-bearing consequences in our multilingual and multicultural world (not limited to such high-stakes scenarios as legal contexts).

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Learning a foreign language with e-learning. A comparative analysis of learning conditions and learners from two types of educational platforms

In the last few decades, e-learning has become such an ubiquitous phenomenon that it is now called the third learning system. Research shows that e-learning is generally as effective as learning face-to-face. The aim of analysis presented in the first part of the paper was to compare two types of language online courses in terms of learning conditions provided by each course. The evaluation of Spanish course on Duolingo and Spanish MOOC course on edX revealed that Duolingo is more effective in providing learner automaticity, the anticipation of reward and self-confidence, whereas MOOC course has an advantage in meaningful learning, the language - culture connection, the native language effect and communicative competence. The quantitative analysis of learners' characteristics indicated significant between-group differences. Learners from Duolingo had higher language self-esteem than learners from MOOC courses. Significant differences in motivation also have been obtained. Age could have a mediating effect on the results due to the fact that MOOC group consisted mostly of elderly people.

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How mood affects processing of emotional adjectives in L1 and L2 – an ERP study

We investigate how positive or negative moods affect categorization of and ERPs elicited by positive, negative, or neutral adjectives presented either in one's native language (L1: German) or one's non-native language (L2: English). Participants viewed short, emotionally evocative movie-excerpts and were then visually presented with series of adjectives. EEG was recorded while participants performed a valence decision task on the words. Most words were categorized as positive and fewer as negative or neutral in L2, whereas in L1, words were categorized more often as positive or negative than as neutral, positive and negative not differing. The N400 ERP was larger in L1 than L2 and larger in negative than in positive mood. On the late positive potential (LPP) an interaction was found: In L1, particularly in positive mood, larger responses occurred for both positive and negative adjectives compared to neutral ones. In L2, by contrast, across moods largest LPPs were found for positive adjectives. This research specifies the effects of mood on the processing of emotion words in the native versus non-native language, extending previous word-level (e.g. Sereno et al. 2015) and sentence-level work (e.g. Vissers et al. 2013; Pinheiro et al. 2018). Results corroborate the idea of reduced processing of negative content in L2 (e.g. Wu and Thierry 2012; Jończyk et al. 2016), laying the groundwork for future cross-linguistic research into mood-content interactions.

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Dynamic domination: consequences of immersion in L2

Available evidence shows that being intensively exposed to L2 may change patterns of processing of both L2 and L1 (e.g. Linck, Kroll, & Sunderman, 2009; Martin, 2011, Baus et al., 2013). The main goal of the present study was to investigate how long-term immersion in L2 modulates bidirectional interference between bilinguals' languages. We tested two groups of adult late Polish (L1) - English (L2) bilinguals. The immersed group included Polish immigrants to UK; the non-immersed group consisted of highly proficient bilinguals living in Poland.
To measure the interference, we used a sematic relatedness task with interlingual homographs, in two language versions: an English version measuring L1 -> L2 interference, and a Polish one measuring L2 -> L1 interference (Macizo et al, 2010, Durlik et al., 2016). We also used picture naming and verbal fluency tasks to measure lexical access in production and LexTALE to measure general proficiency in both languages (Lemhofer & Broersma, 2012).
Having equal L1 and L2 proficiency measured with LexTALE, the two groups demonstrated different patterns of lexical access in production: the immersed group obtained comparable scores in L1 and L2; whereas the non-immersed group obtained higher results in L1 than in L2 tasks. This suggests that the immersed group had fairly balanced lexical access in both languages, which is caused by the immersion experience and not by the general language proficiency. Additionally, the immersed outperformed the non-immersed in L2 and underperformed in L1 tasks. Immersed bilinguals showed similar strength of interference in both directions (L1->L2 and L2->L1), whereas the non-immersed experience much stronger L1->L2 than L2->L1 interference. The between-group comparison also showed that the immersed group experienced stronger L2->L1 and weaker L1->L2 interference than the non-immersed one; which suggests that immersion leads to balanced activation across languages but limited L1 access when compared to speakers living in the native language surrounding.

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How can implicit and explicit instructional settings contribute to the development of declarative and procedural knowledge of L2 syntax?

A matter of considerable controversy is whether and to what extent adult L2 learners can grasp the syntax of a second language implicitly. Moreover, the interface issue within SLA studies generates important questions related to the role of explicit declarative knowledge in developing implicit procedural knowledge of L2 grammar. This paper reports the results of an experimental study, whereby intermediate L2 learners of English were learning English relative clauses in two exposure conditions (implicit and explicit). In both groups, the target structure was embedded within an engaging training procedure focused on learning 30 Tagalog words. The words were presented through English sentences containing the key grammatical features. As opposed to the implicit condition, the explicit group received supplementary metalinguistic information on the target structure. Changes in offline and online processing of the relative clauses were measured via an untimed grammaticality judgment and a self-paced reading task, respectively. The results show that only the explicit group improved on the offline grammaticality judgment task. However, despite intensive high-frequency training, the analysis of the self-paced reading task showed no evidence of proceduralization of the target grammatical feature in either of the groups. Surprisingly, the explicit group outperformed the implicit group on learning Tagalog vocabulary, which might indicate that focus on form induced deeper processing of training sentences, which, nonetheless, did not contribute to proceduralization of the L2 grammar.

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Not so different: Priming effects between language and arithmetic

The aim of this study was to demonstrate the existence of universal principles of cognition, common to language and arithmetic. Specifically, we wanted to determine whether structural principles of increment/restriction of information applied to language comprehension and simple arithmetic operations. To that end, we developed a new paradigm composed of blocks of two trials in which the increase/restriction of information in language and arithmetic was implemented. In the first trial, incremental (*The square is red*) and restrictive (*The diamond is not yellow*) sentences were presented. Afterwards, two colored figures appeared and participants selected the correct one according to the sentence statement. In the second trial, additions (*7 + 4*) and subtractions (*6 - 3*) were presented and participants selected the correct result between two alternatives. The results showed that the resolution of subtractions was modulated by the increase/restriction of information in the previous sentence. This study shows that, at least for the case of subtraction operations, there are organizational principles common to language and arithmetic.

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Orthographic priming in Braille reading as evidence for task-specific reorganization in the ventral visual cortex of the congenitally blind

Introduction

Several recent experiments, both in sensory-deprived subjects and in subjects with their senses intact have suggested that sensory-independent task specialization is a comprehensive principle shaping brain (re)organization (Amedi et al., TICS, 2017). For example, when blind or sighted subjects read Braille, a tactile alphabet, they activate the same brain area as sighted readers reading visual words, the Visual Word Form Area in the ventral Occipitotemporal Cortex (vOT). The blinds' visual cortex, however, undergoes massive plasticity. Unlike the sighteds' cortex, it is massively activated by memory and spoken language tasks (e.g. Lane et al., JNS, 2015). Here we sought to determine whether the response pattern in the vOT of the blind is indeed deeply similar to the VWFA of the sighted, or alternatively, whether this similarity is superficial, and the blind's vOT is not a reading area, but a multimodal language area. A hallmark of the VWFA is its sensitivity to orthography: using fMRI orthographic priming (repetition suppression) Glezer et. al, (2001, 2012) have shown that the vOT contains neurons with selectivity to orthographical representation.

Method

We tested 15 right-handed congenitally blind adults with a repetition suppression paradigm. Subjects either read Braille prime-target pairs of 4-letter pseudowords in three experimental conditions (same, 1-letter different, different) or heard the same pseudowords in two experimental conditions (same, different) while undergoing an fMRI scans.

Results

Our results reveal a double dissociation: tactile orthographic priming in the vOT and auditory priming in general language areas. Reconciling our finding with other evidence, we propose that the vOT in the blind serves multiple functions, some of which overlap with its function in the sighted.

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The neural correlates of rhythm perception in musicians in visual and auditory modalities

The perception of temporal patterns depends on how the stimulus is presented and it is fundamental to normal communication(Grahn, 2012a). In most experiments, rhythms have been presented in auditory modality. The activation areas are similar for both music and speech tasks and were found in the auditory cortex in for example right superior temporal gyrus, left middle temporal gyrus (Geiser, Zachle, Jancke and Meyer, 2008; LeCroix, Diaz and Rogalsky, 2015). In new studies have used visual stimuli to explore the rhythm perception. Behavioural studies show that it is possible to discriminate rhythms relying only on visual presentation (Grahn, 2012b). However, the performance level was significantly lower compared to auditory presented stimuli and the group of participants consisted of people with different musical education what could influence the performance in this task. Moreover focusing on task-specific reorganization of the human brain, researchers noticed the visual task in deaf subjects to induce and increase functional connectivity between the auditory cortex and the dorsal visual cortex (Bola and all., 2017). Therefore, based on recent studies the aim of our study was to verify whether similar neuronal structures respond to visual and auditory beat perception and whether visual and auditory beat perception tasks are being performed at the same accuracy level. I would like to show the results of a behavioral experiment and a fMRI study based on discrimination of visual and auditory rhythms in a group of professional musicians. Our results shows that the level of performance in the auditory task is significantly higher than the visual task. However, both tasks were performed significantly above the level of significance. Moreover in the fMRI experiments we observed activations for visual and auditory rhythms in auditory cortex (right Middle Temporal Gyrus)in musicians. However, in auditory tasks our study showed activation in similar region in both parts of brain. Activation in this area are observed in perception of both speech rhythm and intonation (Coull and Nobre,2008) and processing complex acoustic features within musical pieces from various genres (Alluri et al., 2013).

How Do Parents Use Mental State Language during Narration to Their 2- and 4-year-old Children?

Parents influence the development of children's social understanding by using mental state terms that denote concepts which children are about to develop (Taumoepeau & Ruffman, 2006, 2008) or via the usage of contrastive and/or causal mental state talk (Peterson & Slaughter, 2003). The present longitudinal study examined parent-child dyads and assessed parental mental state talk (MST) during picture-book narration. Seventy-four parents told their children a story twice, when the children were 2 and 4 years old. The same wordless picture book was used to elicit the narration at each time point. Two criteria were used to classify MST: type of utterance (affective, perceptual, or cognitive) and complexity of utterance (simple or clarifying). Parental MST was more frequent in narrations to 4-year-olds than to 2-year-olds. Parents direct more complex MST to 4-year-old children than to 2-year-olds. Affective references were most common at both time points, while cognitive utterances hardly occurred. Nevertheless, growing trends were observed in all types of MST. The results suggest that parents match their MST to the children's level of social understanding development.