7th Novi Sad workshop on

Psycholinguistic, neurolinguistic and clinical linguistic research

Book of abstracts

Novi Sad
April 20, 2019

UNIVERSITY OF NOVI SAD
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9.30-10 Cecilia Devers (Leeds Beckett University), Silvia Martínez Ferreiro (University of Copenhagen) & Seçkin Arslan (University of Cote d'Azur): ***A critical meta-analysis of pronoun impairments in aphasia;***

10-10.30 Demetris Karayiannis (University of Cyprus), Anastasios M. Georgiou (Cyprus University of Technology), Kleanthes K. Grohmann (University of Cyprus) & Maria Kambanaros (Cyprus University of Technology): ***Linguistic Impairment Profiles in Four Post-Stroke Aphasia Case Studies: Exploring the Role of Dialectal Micro-Variation***

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16-16.30 Ksenija Mišić & Dušica Filipović Đurđević (University of Belgrade): ***The influence of experimental context on semantic ambiguity effects***

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17.30-18 Katerina Fragkopoulou (National and Kapodistrian University of Athens): ***Pronoun anaphora assignment in Greek people with Alzheimer's Disease in early and moderate stages***

18-18.30 Maja Blesić, Christina Manouilidou & Dejan Georgiev (University of Ljubljana): ***Prosody perception by Slovenian-speaking individuals diagnosed with Parkinson's disease***

18.30-19 Round-up

19 Dinner

PLENARY LECTURE

Precursors to language in infants with Down syndrome and cognitive intervention for school aged children with Down syndrome

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Children with Down syndrome (DS) typically have marked delays in language development relative to their general cognitive development, with particular difficulties in expressive compared to receptive language. Although early social communication skills, including gestures and joint attention, have been shown to be related to later language outcomes in DS, knowledge is limited as to whether these factors exclusively predict later language outcomes, or whether other factors, such as perceptual and non-verbal skills, are also involved and how important they may be. This study addressed this question by having a longitudinal design whereby data for a group of infants with DS (n=14) and a group of typically-developing (TD) infants (n=35) were collected on measures that have been shown to predict language in TD infants and/or those with developmental delays. These included: non-verbal mental ability, speech segmentation skills, and early social communication skills (initiating and responding to joint attention, initiating behavioural requests). The results of the linear regression analyses showed that non-verbal mental ability and responding to joint attention were the strongest predictors of later language for infants with DS. In a follow up study which included 30 infants with DS, it was non-verbal mental ability which emerged as the strongest predictor of later language outcomes. Given the importance of non-verbal mental ability for later language outcomes, we ran a pilot study which focused on enhancing the cognitive abilities of primary school aged children with DS. The intervention specifically targeted mental rotation skills and emotion recognition. Sixteen children with Down syndrome took part in the intervention. Preliminary results showed that language comprehension and production did not improve significantly with the intervention however the targeted specific skills did. The implications of the results will be discussed with reference to both theoretical and practical implications.

WORKSHOP TALKS

Prosody perception by Slovenian-speaking individuals diagnosed with Parkinson's disease

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Introduction: The aim of the current study is to investigate the perceptive ability of prosodic cues in Slovenian-speaking individuals affected by Parkinson's disease (PD). Prosodic information, encoded in acoustic features such as intensity, vocal pitch, and rate of utterance, is essential for the distinction between sentence modalities and for the recognition of the emotional tone of the utterances. Our research focuses on two prosodic functions: linguistic and emotional. Based on evidence from previous studies (Blonder, Gur & Gur, 1989; Pell, 1996), we expected to observe impaired categorical perception of prosody in individuals affected by PD.

Methods: For both experimental conditions a prosody recognition paradigm, consisting of a combination of one identification task followed by a corresponding discrimination task, was administered in order to assess PD individuals' linguistic and emotional prosody. In the identification task, participants are asked to identify stimuli belonging to distinct categories. In the discrimination task, participants are presented with pairs of stimuli and are asked to judge whether they are the same or different. In the linguistic condition, we assessed interrogative and declarative modality of sentences. In the emotional condition, we tested for 5 different emotional tones: fear, joy, disgust, sadness, and surprise.

Participants: Ten non-demented individuals affected by PD and ten healthy controls matched for age, gender, and years of education. All participants are native speakers of Slovene.

Materials: Participants' ability to perceive prosodic cues was assessed based on prosody only. In order to achieve masking of content, nonsensical sentences were used (Bänziger, Mortillaro & Scherer, 2012). In the linguistic prosody identification task, we used twenty sentences, ten of which were questions and ten statements. The same stimuli were presented in pairs of different or same sentences for the linguistic discrimination tasks. In the emotional prosody identification task, twenty-five sentences expressed in five different emotional tones were presented. For the

emotional discrimination task, we used twenty pairs of sentences, whose prosody would convey different or same emotional tones.

Discussion: Data collection and analysis is still in process. The results obtained in the course of this study are projected to elucidate the ability to perceive linguistic and emotional prosodic cues in Slovenian-speaking participants affected by Parkinson's disease. Given the essential role of accurate comprehension of prosodic cues for communication, social interactions, and well-being, it is important to investigate how this capability might be impaired in individuals affected by Parkinson's disease.

References

Bänziger, T., Mortillaro, M. & Scherer, K. R. (2012).Introducing the Geneva Multimodal expression corpus for experimental research on emotion perception. *Emotion*, *12*(5), 1161.

Blonder, L. X., Gur, R. E. & Gur, R. C. (1989).The effects of right and left hemiparkinsonism on prosody. *Brain and language*, *36*(2), 193-207.

Pell, M. D. (1996). On the receptive prosodic loss in Parkinson's disease. *Cortex*, *32*(4), 693-704.

Pell, M. D. & Monetta, L. (2008). How Parkinson's disease affects non-verbal communication and language processing. *Language and Linguistics Compass*, *2*(5), 739-759.

A critical meta-analysis of pronoun impairments in aphasia

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People with aphasia (PWA) have often been shown to have problems processing pronouns (i.e. he/she) (Choy & Thompson, 2010; Vasić, Avrutin & Ruigendijk, 2006). There are a number of theoretical approaches that attempted to explain PWA's difficulty with pronouns, including the syntactic accounts that hold the representation of pronouns to be affected in aphasia and the processing accounts which propose pronoun processing is undermined by decline in general processing capacity in aphasia (e.g. Edwards & Varlokosta, 2007; Grodzinsky, Wexler, Chien, Marakovitz & Solomon, 1993; Love, Nicol, Swinney, Hickok & Zurif, 1998). In this study, we present a meta-analysis to investigate pronoun processing in PWA. Our meta-analysis data corpus included 52 papers that reported individual data from a total of 476 PWA speaking 21 different languages, including Cantonese, Catalan, Croatian, Czech, Danish, Dutch, English, French, Friulian, Galician, German, Greek, Hebrew, Italian, Russian, Scledense, Spanish, Swahili, Swedish, Turkish and Venetian. A machine learning approach was taken to unveil potential factors that best determine the pronoun difficulty in aphasia, and for this purpose we used the Support Vector Machines regression model (Scholkopf & Smola, 2001).

The findings showed that a number of linguistic factors including reflexives, relative pronouns, *wh*-movement, and passives were among the most important determiners of difficulty with pronouns in aphasia (See Figure 1). Furthermore, our analyses showed that reflexives were better retained in aphasia than non-reflexives, and that subject pronouns seemed to be less affected than object pronouns. Importantly, passive sentences impacted on PWA's ability to work out to whom a pronoun refers. We discuss that pronouns are affected across several languages and that complexity of linguistic structure (i.e. passives, relative clauses) seems to add onto PWA's difficulty in working out pronouns.

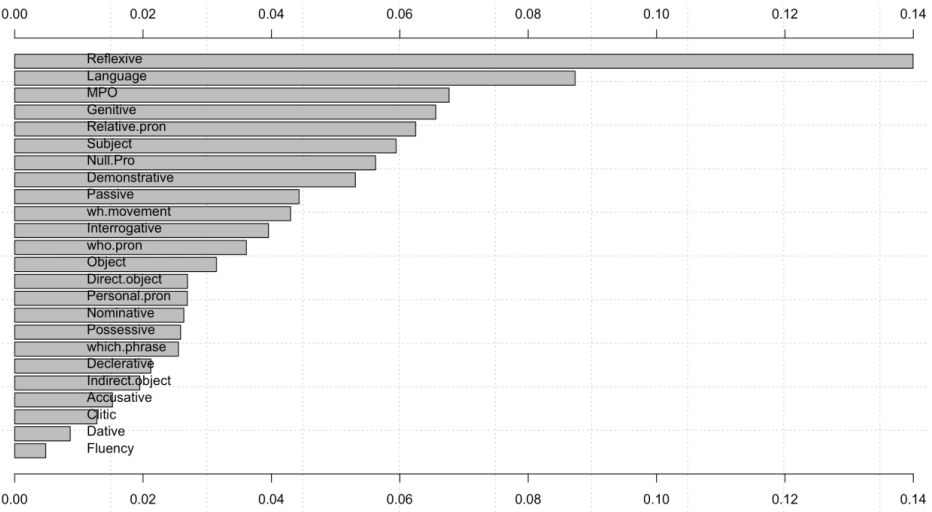

Figure 1.Variable importance showing potential factors that best determine pronoun difficulty in aphasia.

References

Choy, J., & Thompson, C. (2010). Binding in agrammatic aphasia: Processing to comprehension. *Aphasiology, 24*(5), 551-579.

Edwards, S., & Varlokosta, S. (2007). Pronominal and anaphoric reference in agrammatism. *Journal of Neurolinguistics, 20*, 423-444.

Grodzinsky, Y., Wexler, K., Chien, Y., Marakovitz, S., & Solomon, J. (1993). The breakdown of binding relations. *Brain and Language, 45*, 396-422.

Love, T., Nicol, J., Swinney, D., Hickok, G., & Zurif, E. (1998). The nature of aberrant understanding and processing of pro-forms by brain-damaged populations. *Brain and Language, 65*(1), 59-62.

Scholkopf, B., & Smola, A. J. (2001). *Learning with kernels: support vector machines, regularization, optimization, and beyond*. Cambridge, MA: MIT Press.

Vasić, N., Avrutin, S., & Ruigendijk, E. (2006). Interpretation of pronouns in VP-ellipsis constructions in Dutch Broca's and Wernicke's aphasia. *Brain and Language, 96*(2), 191-206.

Pronoun anaphora assignment in Greek people with Alzheimer's Disease in early and moderate stages

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Reference is a grammatical phenomenon, according to Hinzen (2016) who states that referential dependencies are formed in grammar. If referential dependencies have taken shape, reference resolution can be accomplished. *Reference resolution is a fundamental component of processing coherent language, because coherence critically depends on repeated reference to the same entities* (Brodbeck & Pylkännen 2007: 448). Pronoun anaphora assignment is a type of reference (resolution) that entails the use of two modalities; production and comprehension. Pronoun anaphora assignment is a complex process, which "straddles" all the levels of syntax, semantics and pragmatics (Hinzen 2017), as well as the cognitive functions of memory, attention and inhibition. In AD, there is attested an incoherent discourse with overuse of pronouns, bare of reference antecedents with either complete absence of reference (Arkin & Mahendra 2001) or presence of more than one antecedent for each pronoun (Chapman et al. 1995) in parallel with anomia. This "chaotic" discourse is probably associated with working and semantic memory deficits and an impairment in the production and comprehension of pronouns. According to Almor et al (1999) pronouns are overused because of a working memory impairment (*Information Load Hypothesis*, smaller working memory capacity in the brains of people with AD that probably leads to a) a loss of the semantic representation of each antecedent and b) the use of a less costly pronoun, in processing costs. In this work, pronoun anaphora assignment in Greek people with Alzheimer's Disease (hence AD) in early and moderate stages - compared to Normal Controls (NC) - is investigated. Pronoun production is examined in a) spontaneous speech extracted by autobiographical narratives, b) semi-structured speech during the description of the modern edition of the cookie-theft task (Berube et al. 2017) and c) a re-narration task with the use of a sequence of five pictures. Pronoun comprehension is investigated with a) a cross-modal comprehension task with auditory and visual linguistic stimuli and b) a binding task with selection of the correct picture among two. Pronoun production

is tested in order to answer the following questions: a) Do Greek people with AD overuse pronouns with unbound antecedents? b) What kinds of pronouns do they prefer to produce and why? and c) Is a word retrieval deficit associated with pronoun overuse or an impairment in either working or semantic memory answers the question of this unique discourse in AD? The modality of comprehension is examined in order to search if a) Greek people with AD have an impairment in comprehending the different kinds of personal pronouns (strong and clitic) as well as reflexives and their phi-features (hence a degradation of grammar) and if b) Greek language facilitates the process of pronouns comprehension with the use of clitics. Furthermore, is a comprehension deficit that is attested due to working memory impairment or a loss of one of the semantic representations of the phi-features and the pronouns as lexical entities that is linked to working memory impairment? To this end, results from computational and statistical analyses are provided.

References

Almor, A., Kempler, D., MacDonald, M. C., Andersen, E. S. and L. K. Tyler (1999). Why Do Alzheimer Patients Have Difficulty with Pronouns? Working Memory, Semantics, and Reference in Comprehension and Production in AD. *Brain and Language 67*: 202-227.

Arkin, S., and N., Mahendra (2001). Discourse analysis of Alzheimer's patients before and after intervention. Methodology and outcomes. *Aphasiology 15 (6)*: 533-569.

Berube, S., Nonnemacker, J., Demsky, C., Glenn, S. Saxena, S., Wright, A., Trippett, D., and A. Hillis (2017). *Stealing Cookies in the Twenty First Century: Measures of Spoken Narrative in Healthy Versus Aphasic Speakers*, 1-32

Brodbeck, C. and L. Pylkännen (2007). Language in context: Characterizing the comprehension of referential expressions with MEG. *Neuroimage 147*: 447-460.

Chapman, S.B., Ulatowska, H., King, K., Johnson, J. K., and D. D., McIntire (1995). Discourse in Early AD Versus Normal Advanced Aging. *American Journal of Speech Language-Pathology 4*: 124-129.

Hinzen, W. (2016).On the grammar of referential dependence. *Studies in Logic, Grammar and Rhetoric 46 (59), 11-33*, doi: 10.1515/slgr-2016-0031.

Hinzen, W. (2017). Reference Across Pathologies: A New Linguistic Lens on Disorders of Thought. *Theoretical Linguistics 43 (3-4)*: 169-232. De Gruyter Mouton.

The cognitive processing of process and result deverbal nominals in English and Serbian

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Previous theoretical research interested in the deverbal nominals suggests that they can be divided into process and result deverbals (Grimshaw, 1990). The most noticeable difference between these two types of deverbals is syntactic complexity: process deverbals take obligatory arguments and result deverbals do not. Furthermore, the morpho-semantics implies that these two types of deverbals originate from two different types of verbs: imperfective (process) and perfective verbs (result). Although there are many studies dealing with the theoretical examination of this phenomenon, to the best of our knowledge, the present study is the first one that gives an empirical perspective of the investigation of deverbal nominals. Two self-paced reading experiments were conducted, one with the native speakers of Serbian, and the other one with the native speakers of English. The experiments were designed to investigate the possible differences in the cognitive processing of process and result deverbal nominals. The data from both experiments were analyzed with the Generalized Additive Mixed Models -- GAMM (Wood, 2006; 2011), and in total four GAMMs were performed (two for the analysis of reading times on single deverbal nominals in English and Serbian, and two for the analysis of reading times of the entire sentence in both languages). The result from the first GAMM from the English experiment suggests that result deverbal nominals are processed faster than process deverbal nominals (β=-.06; SE_{β}=.02; t=-3.10; $Pr(>|t|)$=.00), and the second GAMM analysis from the same experiment revealed the same effect when the RTs of the entire sentences were analyzed (β=-.01; SE_{β}=.01; t=-9.32; $Pr(>|t|)$=.00). The results from the Serbian experiment partially support the one observed in the English experiment. The first GAMM analysis conducted on the reading times on deverbal nominals failed to reveal the statistically significant results (β=-.01; SE_{β}=.01; t=-0.69; $Pr(>|t|)$=.49), while the second GAMM analysis on entire sentences fully supports the findings in English, that the sentences with the result deverbal nominals are processed faster

than those with process deverbal nominals (β=-0.14; SE_{β}=.01; t=-7.57; $Pr(>|t|)$=.00). It is assumed that the differences in the structure of the final results are due to the cross-linguistic differences in the sentence structure in which these types of derived nouns appeared.

References

Grimshaw, J. (1990). *Argument Structure*. Cambridge: The MIT Press.

Wood, S. N. (2006). *Generalized Additive Models*. New York: Chapman & Hall/CRC.

Wood, S. N. (2011). Fast stable restricted maximum likelihood and marginal likelihood estimation of semiparametric generalized linear models. *Journal of Royal Statistical Society, 73,* 3-36.

The production of *se*-verbs in Serbian at different stages of language acquisition

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Nativist studies have shown that children are sensitive to syntactic differences between verbs from an early age (Snyder, Hyams & Crisma, 1995; Lorusso, Caprin & Guasti, 2005; Costa & Friedmann, 2012), but that the production of certain verb types causes more difficulty (Borer & Wexler, 1987; Brooks & Tomasello, 1999; Babyonyshev et al. 2001; Snyder and Hyams, 2008). On the other hand, psycholinguistic studies have demonstrated that the acquisition of verbs can be explained within the usage-based theory (Tomasello, 1992; Anđelković, 2012). Research into the production of *se*-verbs in Serbian is beneficial for our understanding of the acquisition of verbs, because it tests the order in which different kinds of se-verbs are acquired. In traditional Serbian grammars, the clitic *se* is taken as a sign of reflexivity, even though it appears in a multitude of syntactic conditions. However, there have been many attempts to prove that the clitic *se* is not an object clitic, but a morphological component of the verb which reduces case (Reinhart & Siloni, 2003; Marelj, 2004; Samardžić, 2006).

The aim of the present research was to test the production of *se*-verbs at different stages of language acquisition. The verbs which were tested were true reflexive, lexicalized reflexive, true reciprocal, lexicalized reciprocal and anti-causative verbs. None of the tested types is syntactically simple, because they do not involve a canonical linking of semantic roles and syntactic functions (agent-subject and patient-object). However, it was expected that real reflexive verbs would be acquired first, because they are syntactically the least complex (there are two theta roles which are mapped onto the subject). On the other hand, reciprocal verbs involve two arguments that are both agents and patients at the same time, whereas anti-causative verbs involve a complex syntactic process of derivation from a transitive verb (including elimination of the external +cause theta role).This prediction proved true in previous research into the acquisition of *se*-verbs in Croatian as L2 (second language) (Pavlinušić & Kelić, 2001).

A total of twenty-seven subjects belonging to three age groups (33-41, 45-57, 60-67 months-nine participants each) took part in the pilot research. The data

collection technique was a structured interview with a verb elicitation task. The children were asked to name the activities presented in the pictures. The number of tested verbs was the same for each verb type (six verbs per group). The independent variable was verb type with five levels (true reflexive, lexicalized reflexive, true reciprocal, lexicalized reciprocal and anti-causative verbs). The dependent variable was verb production (coded as target or non-target).The children were able to produce both true and lexicalized reflexive verbs accurately from the earliest age. The production of reciprocal verbs in the youngest group was somewhat lower, but it increased in the second group. However, the children had more difficulty with lexicalized reciprocal and anti-causative verbs, whose production only got better in the oldest tested group. Therefore, the results have indicated that children have more difficulty producing syntactically more complex verbs. It is expected that the results of a larger-scale study will confirm these tendencies.

References

Anđelković, D. (2012). *Glagoli i glagolske dopune u razvoju dečijeg govora.* Unpublished PhD dissertation, University of Belgrade.

Babyonyshev, M., Fein, R., Ganger, J., Pesetsky, D., & Wexler, K. (2001). The maturation of grammatical principles: Evidence from Russian unaccusatives*. Linguistic Inquiry* 32(1), 1-44.

Borer, H., & Wexler, K. (1987). The maturation of syntax. In T. Roeper & E. Williams (eds.), *Parameter Setting* (pp. 23-172). Dordrecht: Reidel.

Brooks, P., &Tomasello, M. (1999). How children constrain their argument structure constructions. *Language*, *75*, 720–738.

Costa, J., &Friedmann, N. (2012). Children acquire unaccusatives and A-movement very early. In M. Everaert, M. Marelj & T. Siloni (eds.), *The theta system: Argument structure at the interface*. Oxford Studies in Theoretical Linguistics 37 (pp. 354-378). Oxford, UK: Oxford University Press.

Lorusso, P., Caprin, C., & Guasti, M. T. (2005).Overt subject distribution in early Italian children.In *Boston University Conference on Language Development*. Boston: BUCLD. http://www.bu.edu/linguistics/APPLIED/BUCLD

Marelj, M. (2004). *Middles and argument structure across languages*. Utrecht: LOT.

Pavlinušić, E., & Kelić, M. (2011).Utjecaj poucavanja na ovladanost povratnim glagolima u hrvatskome kao inome jeziku*. LAHOR*, *11*, 5-22.

Reinhart, T. &Siloni, T. (2003). Thematic Arity Operations and Parametric Variations, *OTS working papers in linguistics*, TL-03-001, University of Utrecht.

Samardžić, T. (2006).Reč se u argumentskoj strukturi ditranzitivnih glagola. *Naučni sastanak slavista u Vukove dane 35*(1), 179–193.

Snyder, W., Hyams, N., & Crisma, P. (1995). Romance Auxiliary Selection with Reflexive Clitics: Evidence of early knowledge of Unaccusativity. *Proceedings of Child Language Research Forum 26*, Stanford CSLI.

Snyder, W. & Hyams, N. (2008). Children's passives: The role of discourse features. *UConn Psycholinguistics Brownbag*, 6 September 2008.

Tomasello, M. (1992).*First verbs.* Cambridge, MA: Cambridge University Press.

Linguistic Impairment Profiles in Four Post-Stroke Aphasia Case Studies: Exploring the Role of Dialectal Micro-Variation

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Four Cypriot Greek-speaking patients with chronic post-stroke aphasia (3 fluent and 1 non-fluent) were enrolled in a study investigating the efficacy of Transcranial Magnetic Stimulation (TMS) for chronic aphasia post-stroke. As part of the study, a linguistic analysis of connected speech samples was pursued. This analysis was conducted blind to the medical history of the participants and their performance in other verbal and non-verbal tests.

Four extended narrative samples (two prior treatment, one post treatment, one follow-up) were elicited from each participant using the Baby Goats stimulus from the Multilingual Assessment Instrument for Narratives (MAIN) (Gagarina et al., 2012). To analyse the narratives collected, the Quantitative Production Analysis (QPA) protocol (Saffran, Berndt, & Schwartz, 1989), as adopted for Modern Greek by Varkanitsa (2012), was employed. The QPA yielded measures of morphosyntactic complexity and overall sentence elaboration, as well as descriptive information about the proportion of words by grammatical category. An error type analysis was also pursued following Varkanitsa (2012).

The protocol revealed two patterns of performance. The first group (patients A and X) produced more elaborate sentences compared to the second group (patients I and M) as shown by their sentence elaboration and sentence embedding scores. A and X produced on average more narrative words than I and M, leading to higher MLUs. The first group also produced a higher number of lexical nouns pre-treatment than the second group, while the second group produced more pronouns at the expense of lexical nouns. The error type analysis did not yield as strong predictions as the QPA did, but when approached qualitatively, the second group showed more semantic infelicitousness than the first group. On aggregate, verbal morphology appeared relatively less affected than nominal morphology in the productions of all participants. This was a surprising result vis-a-

vis verbal domain impairments reported for Modern Standard Greek-speaking people with aphasia. Cypriot Greek-speakers' performance in this study differs from Standard Modern Greek-speakers' performance both as regards the different levels of impairment in the nominal domain vs the verbal domain, and the dissociation of performance of Agreement vs Tense vs Aspect within the verbal domain (Fyndanis, Arcara, Christidou & Caplan, 2018; Fyndanis, Varlokosta & Tsapkini, 2012; Nanousi, Masterson, Druks & Atkinson, 2006; Tsapkini, Jarema & Kehayia, 2001).

The results indicate some predictive power for the QPA protocol, but they also raise some concerns about its suitability for languages with the typological characteristics of (Cypriot) Greek (possible relevant factors: being a null subject language; consistent Aspect marking in verbal morphology). More careful adaptation of QPA could benefit practitioners and help with screening for aphasia syndromes.

Moreover, the study provides new data for aphasic speech in a linguistic variety that has not been as extensively studied as Greece's Standard Modern Greek. Diverging impairment patterns could provide insights in the role of structural micro-variation in the verbal domain between the two varieties.

References

Fyndanis, V., Arcara, G., Christidou, P., &Caplan, D. (2018).Morphosyntactic Production and Verbal Working Memory: Evidence From Greek Aphasia and Healthy Aging. *Journal of Speech, Language, and Hearing Research*, *61*(5), 1171–1187. doi:10.1044/2018_JSLHR-L-17-0103

Fyndanis, V., Varlokosta, S., &Tsapkini, K. (2012).Agrammatic production: Interpretable features and selective impairment in verb inflection. *Lingua*, *122*(10), 1134–1147. doi:10.1016/j.lingua.2012.05.004

Gagarina, N., Klop, D., Kunnari, S., Tantele, K., Välimaa, T., Balciuniene, I. & Walters, J. (2012). Multilingual Assessment Instrument for Narratives. *ZAS Papers in Linguistics*, *56*, 1–139.

Nanousi, V., Masterson, J., Druks, J. & Atkinson, M. (2006). Interpretable vs. uninterpretable features: Evidence from six Greek-speaking agrammatic patients. *Journal of Neurolinguistics*, *19*(3), 209–238. doi:10.1016/j.jneuroling.2005.11.003

Saffran, E. M., Berndt, R. S. & Schwartz, M. F. (1989). The quantitative analysis of agrammatic production: Procedure and data. *Brain and Language*, *37*(3), 440–479. doi:10.1016/0093-934X(89)90030-8

Tsapkini, K., Jarema, G., &Kehayia, E. (2001). Manifestations of morphological impairments in Greek aphasia: A case study. *Journal of Neurolinguistics*, *14*(2–4), 281–296. doi:10.1016/S0911-6044(01)00018-5

Varkanitsa, M. (2012). Quantitative and error analysis of connected speech: Evidence from Greek-speaking patients with aphasia and normal speakers. *Current Trends in Greek Linguistics.*, 313–338.

Reflexive anaphora resolution in Italian during native and non-native online processing

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The retrieval of pronoun antecedents constitutes a central aspect of language processing, and one of its core parts is the interpretation of reflexive pronouns. In theoretical linguistics, the rules governing the interpretation of reflexives have been captured by Chomsky's (1981) Binding Theory, and specifically its Condition A, stating that reflexive anaphors must be bound within their binding domain. This means that reflexive pronouns must be linked to a local c-commanding noun phrase that matches the reflexive in gender, person and number; locality can be determined differently depending on the language (Wexler & Manzini, 1987).

In second language (L2) acquisition studies, a lot of attention has been dedicated to establishing whether non-native speakers can acquire the locality and c-command requirements for L2 reflexive binding. While offline tasks mostly reveal native-like responses, pointing to complete acquisition, online tasks have detected differences between native and non-native speakers. Specifically, despite being target-like in the final interpretation of reflexives, non-native speakers initially also take into account candidate antecedents that are not allowed by Condition A, but have a prominent structural and discourse role; this has in particular been shown in eye-tracking studies on L2 English (Felser, Sato, & Bertenshaw, 2009, and Felser & Cunnings, 2012).

To test these findings on an additional language, we looked at reflexive anaphora resolution in Italian during L2 processing. A control group of96 native speakers and an experimental group of 96 L1 Croatian/Bosnian/Serbian highly proficient non-native speakers of Italian took part in a self-paced reading task implemented in Linger (https://tedlab.mit.edu/~dr/Linger/). The participants read 36 test sentences, distributed across four experimental conditions (see example 1) in a Latin square design. All sentences included two candidate antecedents for the reflexive pronoun *se stesso/stessa* 'himself/herself', but the second antecedent

was in all cases the only one allowed by the Condition A of the Binding Theory. The four conditions were intersections between two variables, (1) gender (mis)match between the inaccessible antecedent and the reflexive pronoun, and (2) the syntactic structure (c-command vs. no c-command between the inaccessible antecedent and the reflexive pronoun). The sentences were presented region-by-region (see example 1). All sentences were followed by a comprehension question that targeted the pronoun antecedent (see example 2). Additional 84 sentences were included in the task in the role of fillers.

When it comes to the (ongoing) data analysis, the percentages of correct responses to the comprehension questions and the reading times for the regions of interest are being compared across conditions using mixed models in R (https://www.r-project.org). The key regions of interest are region 5 (reflexive) and region 6 (post-reflexive), as this is where we expect non-native speakers to be slower than native speakers. As for the pronoun interpretation, we do not expect non-native speakers to differ from native speakers.

References

Chomsky, N. (1981). *Lectures on government and binding*. Dordrecht: Foris.

Felser, C., & Cunnings, I. (2012). Processing reflexives in English as a second language: the role of structural and discourse-level constraints. *Applied Psycholinguistics,33*, 571-603.

Felser, C., Sato, M., & Bertenshaw, N. (2009). The on-line application of binding Condition A in English as a second language. *Bilingualism: Language and Cognition,12*, 485-502.

Wexler, K. & Manzini, M. R. (1987). Parameters and learnability inBinding Theory. In: T. Roeper, & E. Williams (Eds),*Parameter Setting*(pp. 41-76). Dodrecht: Reidel.

Example 1

(a) C-command Inaccessible Match ('Barbara guessed that Mirella had described herself in the novel on midlife crisis.')

Region 1	Region 2	Region 3	Region 4	Region 5 (Reflexive)	Region 6 (Post-reflexive)	Region 7 (Final)
Barbara	ha intuito che	Mirella	aveva descritto	se stessa	nel romanzo	sulla crisi di mezza età.

(b) C-command Inaccessible Mismatch ('Valerio guessed that Mirella had described herself in the novel on midlife crisis.')

Region 1	Region 2	Region 3	Region 4	Region 5 (Reflexive)	Region 6 (Post-reflexive)	Region 7 (Final)
Valerio	ha intuito che	Mirella	aveva descritto	se stessa	nel romanzo	sulla crisi di mezza età.

(c) No C-command Inaccessible Match ('It was clear to Barbara that Mirella had described herself in the novel on midlife crisis.')

Region 1	Region 2	Region 3	Region 4	Region 5 (Reflexive)	Region 6 (Post-reflexive)	Region 7 (Final)
A Barbara	era chiaro che	Mirella	aveva descritto	se stessa	nel romanzo	sulla crisi di mezza età.

(d) No C-command Inaccessible Mismatch ('It was clear to Valerio that Mirella had described herself in the novel on midlife crisis.')

Region 1	Region 2	Region 3	Region 4	Region 5 (Reflexive)	Region 6 (Post-reflexive)	Region 7 (Final)
A Valerio	era chiaro che	Mirella	aveva descritto	se stessa	nel romanzo	sulla crisi di mezza età.

Example 2

Chi aveva descritto se stesso nel romanzo sulla crisi di mezza età? ('Who had described herself in the novel on midlife crisis?')

a. Barbara b. Mirella

The acquisition of Hungarian recursive PP-s

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In the current study it is claimed that Hungarian children can interpret recursive PPs from the age of 4, while they start to produce them around the age of seven.

Chomsky-Hauser-Fitch (2002) state that recursion is the core property of the narrow faculty of language (FLN) that can differentiate human communication from the communicational methods of animals. If so, recursion should be part of the language competence of young children as well. International studies shed light on how the acquisition of recursive structures goes on. Roeper (2011) and Hollebrandse & Roeper (2014) say that children start with a conjunctive interpretation of embedded structures, such as sentence (1). They found that young children tend to give conjunctive interpretation to recursive sentences, but later this interpretation turns into a correct, embedded one, like sentence (2).

Ten 4-year-olds, ten 5-year-olds, ten 6-year-olds, eighteen 7-year-olds and fourteen 8-year-olds participated in the experiment. The experiment had two parts; a comprehension part and a production part, each of them with 8 test sentences. In the experiment we applied a double decker where the participants had to place the figures of animals according to the sentences of the experimenter (see Figures 1 and 2 below).

In the case of the production part there were some animals already sitting on the bus, but there were also others which had to be taken there. Their places were marked by the foods they usually eat. The participants had to feed the animals and also make them occupy their places on the bus according to the foods they eat. Then the experimenter asked the participants to tell her where they put the given animal.

As for the results we found that the 64% of 4-year-olds, 71% of 5-year-olds, 74% of 6-year-olds, 87% of 7-year-olds and 96% of 8-year-olds interpreted recursive PPs correctly. As for the production part, below 7 years there were a little sign of recursive descriptions (only 2% of 4-year-olds, 5% of 5-year-olds, and no 6-year-olds produced recursive PPs), but the 43% of 7-year-olds and 62% of 8-year

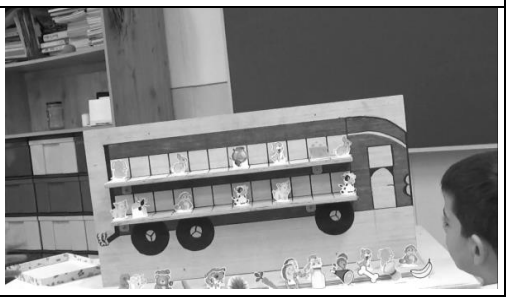
olds (p<0,05*) responded with recursive PPs. We found that in the case of the production part of the 7-year-olds 65% of them gave recursive answers when we started with the comprehension part, so they heard recursive sentences before the production part, but only 19% of them gave recursive answers when we started with the production part. 8-year-old children gave more recursive answers when we started with the comprehension part as well, but the difference is not significant.

We claim that young children (even 4-year-olds) can also interpret recursive PPs correctly, but the production of the first recursive structures happens only after 7 years. We have not found any evidence of the conjunctive interpretation of recursive PPs at an early age.

There is a zebra next to the elephant (and) above the bear.
The zebra is next to the elephant that is above the bear.

Tedd	*a*	*bocit*	*az*	*egér*	*fölötti*	*cica*	*elé!*
put	the	cow	the	mouse	above	cat	before

'Put the cow before the cat above the mouse.'

Figure 1: comprehension part	Figure 2: production part
	

References

Hauser, M., Chomsky, N. & Fitch, T. 2002. The faculty of language: What is it, Who has it, and How did it evolve? *Science,* 298: 1569-1579.

Hollebrandse, B. & Roeper, T. 2014. Empirical Results and Formal Approaches to Recursion in Acquisition. In T. Roeper & M. Spears (eds.), *Recursion: Complexity in Cognition*. Springer. Berlin. 179-220.

Roeper, T. 2011. The Acquisition of Recursion: How Formalism Articulates the Child's Path. *Biolinguistics,* 5(1–2): 57–86.

Linguistic variables in spontaneous speech analysis

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Background: Spontaneous speech analysis has undoubtedly contributed to the characterization of language alterations in several clinical populations. However, a tool with the potential to gather exhaustive information about speech output has to be short, easy to administer, and the analysis should be done in an acceptably short space of time. Different methods for data collection and quantification have been used over the years. However, these methods are still very time consuming and no agreed upon hierarchy of relevant variables is available.

Aim & Method: Given how informative spontaneous speech is and to revitalize its use in the clinical practice, we aimed at evaluating different linguistic variables and establishing a prioritization that could facilitate the selection of the indices to be quantified. A total of 27 variables at the word and at the sentence level were analyzed in the semi-spontaneous 300-word speech samples of 9 Spanish-speaking individuals with aphasia.

Results: The results show that the patients' performance was more homogeneous regarding sentence level phenomena. Significant differences were found between non-fluent informants and controls for MLU, grammaticality, finiteness, embeddings and between fluent informants and controls for MLU and grammaticality. Variation was higher at the word level. For instance, no differences were found as for the number of verbs, nor for the number of pronouns and the same holds for type/token ratios. However, differences were found for unaccusative verbs and prepositions.

Discussion & Conclusion: For a first screening, sentence level variables were found to be more informative than word level indices and should be present in any analysis. Word level variables show more variation and could be minimally included by default. However, since any test should ideally be useful for the clinical practice and beyond, for experimental purposes with minimal manipulations, other variables can be added post-hoc for specific purposes.

The influence of experimental context on semantic ambiguity effects

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Previous research conducted primarily in English demonstrated that polysemous words (multiple related senses) are processed faster than unambiguous words, while homonymous words (multiple unrelated meanings) are processed slower(Rodd, Gaskell, & Marslen-Wilson, 2002). Research in Serbian replicated those effects, although in separate studies (for polysemes: Filipović Đurđević, 2007; for homonyms: Filipović Đurđević, 2015). The aim of this study was to replicate those previous findings in Serbian, in the same design as in studies in English, i.e. to test whether the effects remain if the two ambiguity types are presented in the same experimental list. The first study tested the effect of ambiguity type (homonymous – H, polysemous – P, and unambiguous – U) on reaction times and no effect was found. Considering that the main difference was that all three groups were presented in the same experimental list, we decided to investigate whether experimental context was the factor that modulated the effect. In order to test this hypothesis, we employed a different design and explicitly manipulated the presentation of different ambiguity types. Instead of randomised stimulus presentation, we presented blocks of just one group of words at the time. The design was modified to control for the order blocks consisting only of homonyms (H-block) and polysemes (P-block), and whether the block consisting of unambiguous words (U-block) was before the other two or after them. The second study showed that there is an interaction between the order of H and P blocks order and ambiguity type. Namely, in HP order, the usual homonym disadvantage was present, while there were no processing time differences between U and P blocks, whereas in the PH order, we observed only the polysemy advantage. Position of the U-block was not a significant factor. These results were surprising, so a third study was conducted. Its goal was to replicate this interaction and add another two experimental situations, with U-block between the other two blocks. The interaction from the second study was only partially replicated. Results revealed only a polysemy advantage in PH order, with no influence of U-block position. Overall, all three studies go in line with the conclusions drawn in literature

review by Eddington & Tokowicz (2015). This paper states that the ambiguity effects are inconsistent, depending on factors other than ambiguity type. Our results also show that there is at least one additional criterion for ambiguity effects to appear. Other research (Armstrong & Plaut, 2016) suggested that another factor influencing the appearance of semantic ambiguity effects is semantic dynamics. These and many other findings show that number and relatedness of senses/meaning is not sufficient enough information to precisely describe mechanisms of ambiguity processing and sense/meaning representation.

References

Armstrong, B. C. & Plaut, D. C. (2016). Disparate semantic ambiguity effects from semantic processing dynamics rather than qualitative task differences. *Language, Cognition and Neuroscience*, *31*(7), 940–966. http://doi.org/10.1080/23273798.2016.1171366

Eddington, C. M. & Tokowicz, N. (2015). How meaning similarity influences ambiguous word processing: the current state of the literature. *Psychonomic Bulletin & Reviev*, *22*, 13–37. http://doi.org/10.3758/s13423-014-0665-7

Filipović Đurđević, D. (2007). *Efekat višeznačnosti na obradu izolovanih reči u srpskom jeziku*. Univerzitet u Beogradu.

Filipović Đurđević, D. (2015). Obrada homonima u srpskom jeziku i efekat redundanse. In *XXI naučni skup Empirijska istraživanja u psihologiji* (pp. 52–53). Beograd.

Rodd, J., Gaskell, G. & Marslen-Wilson, W. (2002). Making Sense of Semantic Ambiguity: Semantic Competition in Lexical Access. *Journal of Memory and Language*, *46*(2), 245–266. http://doi.org/10.1006/jmla.2001.2810

Possible Words and Clinical Linguistics: Limiting the Scope of Sensori-motor Explanation by a Restrictive, Atkinson-type Model of Developmental Incompetence

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The delineation of speech defects relates to Jackendoff's (2002) and Progovac's (2015) notion of levels in linguistic evolution. Necessarily, this involved features, segments, clusters, syllables, and metricality. This prehistory has effects on speech development today, but in a way not easily explicable by the notion of Childhood Apraxia of Speech. Insufficient attention is paid to phonological advances. Beyond the scope of this paper these include underspecification from Archangeli (1984) and Kiparsky (1995), association and projection from Goldsmith (1976) and Kahn (1976), active articulators from Ladefoged and Halle (1988), default coronality from Paradis and Prunet (1991), metricality from Halle and Idsardi (1995), and maximal binarity.

My evidence is from common defects and co-morbidities. Against most Minimalist thinking, as by Berwick and Chomsky (2016), from Chomsky and Halle (1968), I assume a syntactic / phonological parallelism, with SPELL OUT (effectively association) in both. Derivational steps after SPELL OUT remain covert, and are not phonetically realised. But these covert steps define the phonemic inventory. So metalinguistics is often disordered along with speech.

One case of frequently lifelong pathology involves stridency, continuance, anterior articulation, voicelessness, and coronality (in the Clements 1985 sense) in /s/. If stridency serves to sharpen fricative contrasts, the learnability challenge is to work out when it is spelt out. If the issue here was sensory-motor, the symptomatology would be random. But it is not. For English learners, there are just two common substitutions, (labio)-dental with stridency just under-represented and lateral with stridency replaced by laterality. In both cases, the building of stridency is incorrectly delayed. The speaker may 'know' that /s/ and /ɵ/ are distinct, but not adequately differentiate them. Treatment consists in 'bringing forward' the building of stridency to a point at which it is phonetically realised.

There is systematic variation in problems with /s/ and with /ɵ/ loans in /ɵ/-less languages/dialects. This is not easily explained if /s/ issues are mainly sensori-motor.

Turning to normal development, there is an obvious learnability challenge from allophones – how to resolve these in favour of single underlying segments, as in the case of English /t/ and /d/. As shown by Nunes (2002), English coronality has complex, seemingly contradictory developmental effects. Initially there is the apparent paradox, noted by Cruttenden (1978), of 'fronting' in *key* as [ti:], and assimilation in the opposite direction – in *doggy* as [gɒgɪ]. But later, in *cardigan, calculator, hippopotamus* and *archeopterix*, the prevalent assimilation favours coronality, with *hippopotamus*, for example, as [hɪtəpɒtəməs].

The same phenomenon of premature SPELL OUT has various effects in development – dissimilation in *little* as [lɪkʊ] and *digital* as [dɪdʒɪkʊ], metathesis in *hospital* as [hɒstɪpʊ], migration in *spaghetti* as [bəskɛtɪ] or [pskɛtɪ], and at seven or eight assimilation in *hippopotamus* as [hɪtəpɒtəməs].

Generative thinking first emerged in the work of early 'practitioner linguists', including William Holder in 1669 and Alexander Melville Bell from the 1840s onwards. Both Holder and Bell built much of their practice around the notion of possible words. This notion has practical application in the modern clinic.

References

Archangeli, D. (1984). *Underspecification in Yawelmani Phonology and Morphology*. PhD Dissertation, MIT.

Atkinson, M. (1982). *Explanations in the Study of Child Language*. Cambridge University Press

Bell, A. M. (1849). A New Elucidation of the Principles of Speech and Elocution, with numerous practical exercises for the correction of imperfect, or the relief of impeded utterance, etc. Edinburgh.

Berwick, R. C. and Chomsky, N. (2016). *Why Only Us: Language and Evolution*. MIT Press.

Chomsky, N. & Halle, M. (1968). *The Sound Pattern of English*, Harper Row.

Clements, G. N. (1985). The Geometry of Phonological Features. Phonology Yearbook 2.

Cruttenden, A. (1978) Assimilation in Child Language and Elsewhere. *Journal of Child Language* 5.

Holder, W. (1669). *Elements of Speech*. London

Goldsmith, J. (1976). *Autosegmental and Metrical Phonology.* Oxford: Blackwell.

Goldsmith, J. (Ed.) (1995). *The Handbook of Phonological Theory*. Blackwell.

Halle, M. & Idsardi, W. (1995). General properties of Stress and Metrical Structure. In J. Goldsmith (ed), *The Handbook of Phonological Theory*. Blackwell.

Jackendoff, R. (2002). *Foundations of Language*. Oxford University Press.

Kahn, D. (1976). *Syllable-based generalisations in English Phonology*. PhD Dissertation, MIT.

Kiparsky, P. (1995) The phonological basis of sound change. In J. Goldsmith (ed), *The Handbook of Phonological Theory*. Blackwell.

Ladefoged, P. & Halle, M. (1988) Some Major Features of the International Phonetic Alphabet. *Language* 64(3).

Lenneberg, E. (1967). *Biological foundations of language*. Wiley

Nunes, A. (2002). *The Price of a Perfect System: Learnability and the distribution of Errors in the Speech of Children Learning English as a First Language*. PhD Dissertation, University of Durham.

Paradis, C. & Prunet, J.-F. (1991). Introduction: Asymmetry and Visibility in Consonant Articulations. In C. Paradis & J.-F. Prunet (eds), *Phonetics and Phonology Vol 2, The Special Status of Coronals: Internal and External Evidence*. Academic Press. 1-28.

Progovac, Lj. (2015). *Evolutionary Syntax*. Oxford University Press.

Processing of countability in English: An ERP study

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All nouns in English can be classified into count or non-count nouns. This lexico-syntactic property plays a role on both the morphosyntactic and semantic/conceptual level. At the morphosyntactic level, for example, non-count nouns can only be morphologically singular, but cannot take the indefinite article *a/an*. Conceptually, count nouns (e.g., peas) can be individuated or counted, unlike non-count nouns (e.g., water, evidence) which can only be measured (Fieder, Nickels & Biedermann, 2014). However, classifying nouns into count and non-count based only on semantics is not always straightforward and cannot always be teased apart from the noun's morphosyntactic properties (Middleton, Wisniewski, Trindel, & Imai, 2004). Therefore, the goal of the current study is to look into whether the processing of countability relies on morphosyntax, semantics, or both, by using Event-Related Potentials (ERPs).

Different ERP responses have been observed in relation to the processing of syntax and semantics, with syntax usually indexed by the P600 component and semantics by the N400 (Kaan, 2007). Previous ERP research on countability has been inconclusive, as studies have reported both syntactic (e.g., Steinhauer, Pancheva, Newman, Gennari & Ullman, 2001) and combined syntactic and semantic effects (Chiarelli,, El Yagoubi, Mondini, Bisiacchi & Semenza, 2011). The novelty of the current study is the application of the so-called violation paradigm in sentence context. More precisely, we compared brain responses to a violated target word (e.g., *John saw*an <u>evidence</u>…*) to the correctly used one (*John saw <u>evidence</u>…*).

We tested 21 native speakers of English by presenting stimuli visually and word-by-word. Each participant saw 80 experimental sentences and 40 fillers. One half of all experimental items contained a violation (indefinite article + non-count noun), and the other half were grammatical sentences. Also, since it is theoretically possible to save the violation on the word following the target noun (e.g., *John saw an evidence bag*…), we included a condition that did just that in order to decrease

the chance of anticipating the violation as much as possible. Data were pre-processed using standard parameters for the sentence processing field and analyzed using repeated measures ANOVA.

Our results show a clear positive effect (P600), which we interpret as an index of syntactic processing. The processing of countability, when measured with ERPs and in a violation paradigm, seems to rely entirely on syntax, which is in line with Steinhauer et al. (2001). Interestingly, the P600 effect was always elicited on the word following the target noun. Participants realized during the experiment that a local violation (**an evidence*) was not always ungrammatical (*an evidence bag*), which was reflected in the late onset of the P600. This finding suggests that the P600 can be modulated by participants' strategy, highlighting the susceptibility of the component's characteristics (e.g., onset time) to methodological manipulations.

References

Chiarelli, V., El Yagoubi, R., Mondini, S., Bisiacchi, P. & Semenza, C. (2011). The syntactic andsemantic processing of mass and count nouns: An ERP study. *PLoS ONE*, *6*, 1-15.

Nickels, L., Biedermann, B., Fieder, N. & Schiller, N. O. (2015).The lexical-syntactic representation of number. *Language, Cognition and Neuroscience*, *30*, 287-304.

Kaan, E. (2007). Event-related potentials and language processing: A brief overview. *Language and Linguistics Compass*, *1*, 571-591.

Middleton, E. L., Wisniewski, E. J., Trindel, K. A. & Imai, M. (2004). Separating the chaff from the oats: evidence for a conceptual distinction between count noun and mass noun aggregates. *J. Mem. Lang.*,*50*, 371–394.

Steinhauer, K., Pancheva, R., Newman, A. J., Gennari, S. & Ullman, M. T. (2001). How the mass counts: An electrophysiological approach to the processing of lexical features. *NeuroReport*, *12*, 999-1005.

Investigating regular and irregular forms: evidence from Parkinson's and Alzheimer's disease Slovene-speaking individuals

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We investigated the ability of Slovene-speaking individuals diagnosed with Parkinson's (PD) and Alzheimer's disease (AD) to produce regular and irregular forms of verbs and nouns.Regular and irregular forms have occupied the literature of clinical linguistics for quite some time. However, there is no evidence from Slavic languageswhere the issue of irregularity is manifested in multiple domains. Ullman et al. (1997) suggest that procedural memory is responsible for processing grammatical rules and producing regular forms, while declarative memory is connected with the process of lexical information and production of irregular forms. Ullman et al. (1997) found irregular forms of past tense (*I taught*) to be impaired in AD individuals, but better preserved in PD. In contrast, regular forms (*I played*) were better preserved in AD individuals compared to PD. The same findings are reported for AD and PD participants in Cameli et al. (2005). Degeneration of declarative memory in AD and impaired procedural memory in PD might explain these results (Ullman et al., 1997; Cameli et al. 2005). Our study aims to further investigate the production of regular and irregular as manifested in the formation of *tense*, *aspect* and *number*. In Slovene, the regular forms of tense, plural and aspect are formed either by suffixation or by prefixation (Greenberg, 2006; Herrity, 2015). Concerning tense, the first person of the present from the infinitive is formed by removing the suffix *–ti* and adding the grammatical ending *–m* (e.g. dela**ti**$_{\text{infinitive}}$ – dela**m**$_{\text{first person present}}$ "to work – I work"). Regular plurals are formed by suffixation (e.g. miz-a – miz-e "table – tables"). Regarding aspect, the corresponding perfective form of an imperfective infinitive is usually formed by prefixation (e.g. risati$_{\text{imperfective}}$ – **na**risati$_{\text{perfective}}$ "to draw – to finish drawing"). However, one also finds irregular/unpredictable cases of forming tense, plural and aspect, such as asiti$_{\text{infinitive}}$ – grem$_{\text{first person present}}$ "to go – I go", miz-a – miz-e "table – tables" and metati$_{\text{imperfective}}$ – vreči$_{\text{perfective}}$ "to throw – to finish throwing" respectively. In these cases we observe suppletion, where one form is morphologically and phonologically unrelated to the one that corresponds to.

Method: A sentence-completion task will be conducted.

Materials: 20 regular verbs and nouns, 20 irregular verbs and nouns, 40 pairs of sentences. **P*atients:*** 5 PD, 5 AD and 5 healthy as controls.

Expected results: PD group is expected to have a preserved performance in the production of irregular forms and to be impaired in the production of regular forms, since the latter requires application of grammatical rules that are based on procedural memory. In contrast, we expect the AD group to have no difficulties with regular forms but to perform worse in production of irregular forms, since the production of irregular words requires retrieval from declarative memory. This study is the first attempt to evaluate language performance of Slovene-speaking individuals diagnosed with PD and AD disease and the expected findings will reveal important evidence about the extent to which their language knowledge is impaired.

References

Cameli, L., Phillips, N. A., Kousaie, S. & Panisset, M. (2005). Memory and language in bilingual Alzheimer and Parkinson patients: Insights from verb inflection. In *ISB4: Proceedings of the 4th International Symposium on Bilingualism*. 452-476.

Greenberg, M. L. (2006). *A short reference grammar of standard Slovene*. SEELRC Reference Grammar Network.

Herrity, P. (2015). *Slovene: A comprehensive grammar*. Routledge.

Ullman, M. T., Corkin, S., Coppola, M., Hickok, G., Growdon, J. H., Koroshetz, W. J. & Pinker, S. (1997). A neural dissociation within language: Evidence that the mental dictionary is part of declarative memory, and that grammatical rules are processed by the procedural system. *Journal of cognitive neuroscience*, *9*(2), 266-276.

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