

SCIENTIFIC REPORT

The first meeting of the project

“The role of inflectional complexity in language processing”

(Short visit to Novi Sad)

The aim of the short visit was to design a psycholinguistic research project on the inflectional variability in nominal declension in Croatian/Serbian and compare it to German. We proposed two stages of project realisation involving two meetings: first meeting in Novi Sad (December 2012), and second meeting in Zagreb (February 2013). First meeting took place in Novi Sad when two researchers from Croatia (Associate Prof. Dražen Domijan from University of Rijeka and Assistant Prof. Maja Anđel from University of Zagreb) met with Associate Prof. Petar Milin. The meeting started on Wednesday, December 5 and ended on Saturday, December 8.

In order to achieve aim of the project, we planned three distinct research activities:

- 1) Evaluative review of previous empirical findings and theoretical models related to the role of inflectional variability in cognitive processing with particular emphasis on elucidating differences in language processing with different degree of morphological complexity.
- 2) Development of research designs and simulation studies that can address issues arising from the reviewed literature. In particular, we will investigate whether the inflectional variability is a gradual in nature and how it affects the cognitive processing of sentences.
- 3) Discussion of the joint impact of regularity and variability on inflectional morphology.

During the first meeting, we focused on the discussion and evaluation of existing findings, research frameworks and models that reveal processing differences in languages with different inflectional variability. We identified a set of research papers closely related to our research questions that we analysed prior to the start of the meeting. We concluded that the comparison between Croatian/Serbian and German language is lacking as most published studies compared English with Semitic languages.

After we completed the literature review, we started to work on research designs that can address questions raised during the evaluative review of existing literature. We decided that the best way to measure the psychological impact of morphological complexity is to employ one of the following measurements:

- 1) Forced choice design. Participants are exposed to a pair of sentences and the task is to choose one of the sentences that sound more correct. After completing large number of such pair wise comparisons it is possible to deduce choice preferences for particular sentences.
- 2) Self-paced reading. Words in a sentence are presented sequentially on the computer screen and the rate of presentation is controlled by participant. The time is measured to move from one word to the next. Reading time is related to syntactic processing and we expect to find differences in reading times for different cases.
- 3) Eye-tracking experiment. Saccadic eye movements are recorded while the participant read the sentence. The number and duration of fixations are measured as they reveal aspects of linguistic processing.

After we decided on research design, we started to prepare stimulus material, that is, items to be presented to participants. Due to the fact that we are interested in comparing the phenomenon in Croatian/Serbian and German (which differ in morphological complexity), we had to set the inclusion criteria for the nouns that will enter into stimulus set. We created fifty sentences that passed our inclusion criteria, such as:

Ispred njih stoji **jabuka** i mineralna voda. (In front of them there is an apple and mineral water.)

Ivana uvijek poslužuje **salatu** uz glavno jelo. (Ivana always serves salad along with the main course.) (Whole list is available upon request)

For all morphologically distinct cases in Croatian/Serbian, we created ten sentences containing a noun in a target case (nominative, accusative, dative/locative, genitive, and instrumental). All the nouns belong to the most simple, but diversified nominal paradigm in Croatian/Serbian (feminine ending in –a). As a counterpart, the masculine paradigm has been chosen in German. Therefore, we had to take care that every noun chosen belongs to the same paradigm in the source language (Croatian/Serbian) and that every one of them has its translation in the same nominal paradigm in German (masculine). The lexical environment of

every target noun was constrained in a way that allows the experiment to be conducted under similar circumstances in both Croatian/Serbian and German.

After completing the stimulus material, we discussed how to conduct proposed experiments. The experiments for Croatian/Serbian will be carried out at the Universities of Novi Sad, Rijeka and Zagreb. The experiment for German should be done by Prof. Petar Milin at the University of Tübingen. Also, we will create an on-line questionnaire in order to efficiently collect large amount of data required by the forced-choice procedure. We will conduct a pilot study in order to compare reliability of computer-aided and paper-and-pencil questionnaire. Responses from the on-line questionnaire can also serve as a building block for a database containing information on the morphological complexity of nominal declension. This database will be accessible to other researchers interested in morphology.

We envisage that the proposed project is only the starting point for a wider set of research studies, which will require even more intense collaboration between our universities. Therefore, we plan to strengthen the collaboration between our institutions by signing other kinds of cooperative agreements as well.

We expect to obtain novel results and conclusions that will be of interest to a wider community of researchers in psycholinguistics. Therefore, we plan to prepare a manuscript based on obtained results and submit it to a reputable scientific journal such as *Language and Cognitive Processes*. Results will be discussed during the next meeting.