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FINAL REPORT

Phonotactic effects on morphological structure – Psycho-computational studies on Italian, French, English and German

(co-granted Dr. B. Calderone, Ref. No 4742)

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§1. Purpose of the visit

The purpose of the 10-day visit was that of establishing a collaboration with the researchers in Vienna to further develop our PHACTS-based psycho-computational research on the phonotactics-morphology interface. In particular, two topics were selected before the visit as the most fruitful areas of joint research: (i) the phonotactic processing of German clusters (with an expected extension to English); (ii) German plurals in acquisition and processing. The visit was therefore aimed to (a) develop a psycho-computational experiment to test native speakers' processing of

different types of German clusters, and (b) discuss ways of collaboration on German plurals and evaluate the possibility of a cross-linguistic approach in the study of German and Italian plural processing.
In particular, concerning my own role in the group, I aimed to discuss frequency data on German clusters preliminarily collected from the Celex database, develop a psycholinguistic experiment with German native speakers, select the relevant data to be used as experimental materials, make pilot experiments and evaluate the feasibility of the experimental project.

§2. Description of the work carried out during the visit

During our 10-day visit, there were two plenary meetings (one at the beginning, the other two days before the end of the visit) and several partial meeting with the members of the group. During the first meeting, our psycho-computational project on the phonotactic-morphology interface was presented with particular reference to the Morphonotactic Hypothesis (Ritt, Dressler & Moosmüller 2012) and the ways of implementing a series of psycho-computational experiments on German morphonotactic and phonotactic clusters (see point (i) in §1 above). Shortly, morphonotactic clusters are those which result from morphological concatenation and contain a morphological boundary inside, while phonotactic clusters do not contain any morphological boundary (and they are therefore said to be 'lexical'). In German, there are consonant sequences that are exclusively morphonotactic (such as word-final /m#st/ or /x#st/, where # indicates a morphological boundary) as well as sequences that can be either morphonotactic or phonotactic (e.g., /p(#)st/).
During the first plenary meeting, two experimental designs to test native the speakers' processing of morphonotactic vs. phonotactic clusters were discussed, one based on the 'sequence monitoring' procedure, the other based on word games and non-word formation. It was decided to implement the latter type of experiment first, and to postpone the realization of the former to a later period. In the subsequent days, two variants of the word game experiment were elaborated, one comparing different items containing phonologically equivalent phonotactic or morphonotactic clusters (e.g., *Obst* /pst/ vs. *liebst* /p#st/), the other containing phonologically different clusters, either phonotactic-only or morphonotactic & phonotactic (e.g., items with /mst/ vs. items with /pst/). Briefly, the procedure implied a training phase followed by a test phase. In the training phase, the subjects sit in front of a computer screen wearing headphones, see a prompter on the screen, hear individual real-word stimuli containing a two-consonant cluster, and finally pronounce a non-word corresponding to the stimulus with the insertion of a /i/ vowel between the first and second consonant. In the test phase, the procedure is the same than in the test phase with the exception that some of the stimuli (the experimental stimuli) contain a three-consonant cluster. Thus the subjects have to split the cluster as either CiCC or CCiC to perform the task according to the instructions received. The test was supposed to be sensitive to effects of morphonotactic preference in the native subjects' processing of three-consonant clusters. The experimental procedure was also discussed with reference to previous, still unpublished work by Dressler, Freiberger, Korecki- Kröll (with the collaboration of Gary Libben, University of Alberta) on a similar subject, that made use of a different paradigm, say, visual sequence targeting (Freiberger et al. 2011; Reinisch 2005/2006). Experimental lists were created for both variants of the experiment, the first one comprising 72 stimulus items, the second one comprising 95 stimulus items. Different phonological, lexical and morpho-semantic restrictions were considered.
One offline pilot experiment with five native speakers was run. The results were discussed and some modifications were introduced; the experiment was finally implemented as an online experiment. The relevant materials were orally produced by a native speaker of Austrian German according to the standard urban variety and recorded at the Austrian Academy of Science.

Concerning the research line on German plurals (point (ii) in §1 above), the possibility of a collaboration with the Italian counterpart was discussed during the second plenary meeting. Italian loanword adaptation was individuated as a possible area for future collaboration.

§3. Description of the main results obtained

Concerning the psycholinguistic side of the project, the main results of this visit are to be seen in the realization of the experimental materials to be used in two experiments of non-word formation that are currently under implementation and that will be run, thanks to additional funding provided by the Laboratorio di Linguistica of Scuola Normale Superiore di Pisa, during the next weeks in Vienna.
Together with the unpublished work of Dressler and colleagues on the native speakers' processing of morphonotactic cluster, this research line, once achieved, will provide direct experimental support to the idea that adult speakers make use of morphological information in processing complex phonotactic patterns of their native language.

§4. Future collaboration with host institution

As already mentioned, the experiments that have been organized and realized during this short visit will be run during the next weeks in Vienna. The first experiment is currently implemented at the Laboratorio di Linguistica of Scuola Normale Superiore di Pisa with the help of the technical staff of that lab and with frequent dialogues with the Viennese group; the experiment will be run in Vienna with native speakers of Austrian German provided by the Viennese colleagues. Other collaborations include the realization of the second and third experiment on morphonotactic clusters. The second experiment will be based on the sequence monitoring procedure (Frauenfelder 1996); this procedure currently has a primary use in the domain of the syllable but, in our opinion, may be fruitfully exploited to test the perceptual salience of other linguistic structures involved in word recognition as well. The third experiment is expected to be a lexical decision with phonological priming, with primes showing different degree of phonological relatedness with the targets and containing either phonotactic or morphotactic consonant clusters.
Concerning possible collaborations on German plural formation, it is currently under evaluation the possibility of investigating the second language acquisition of German plurals by native speakers of Italian, and the patterns of plural generalization in loan adaptation.
Future collaboration also includes the participation at the thematic workshop "Theory and Evidence in the Study of Phonotactcs" organized by K. Dziubalska-Kołaczyk within the 43rd Poznań Linguistic Meeting, 8-10 Septeber 2012, Poznań, where a paper entitled *A computational approach to morphonotactic clusters: evidences from German* (by B. Calderone and C. Celata) has been accepted as oral presentation. Prof. K. Dziubalska-Kołaczyk is in fact one of the „external collaborators" in the present project, given the proximity of her research interests with those of the Viennese hosting group (e.g., Dressler & Dziubalska-Kołaczyk 2006). The associated workshop "Phonotactic grammar: theories and models" (http://linguistica.sns.it/phonotactics/home.html), organized by P.M. Bertinetto, B. Calderone, C. Celata, B. Laks and A. Tchobanov (Cortona, Italy, September 28-29, 2012) is also expected to include a prosecution of the present collaboration with the members of the Viennese research group; in fact two of them already confirmed their active participation to the workshop.

§5. Projected publications/articles resulting or to result from the grant

More than one collaborative articles are expected to result from this ESF grant; they will be submitted to peer-review conferences and journals.

References

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