ESF *Short visit* grant (NetWordS 4680) – Report

Visiting researcher

Dr. Sabine LAAHA, Department of Linguistics and Communication Research, Austrian Academy of Sciences

Researcher involved at the host institution

Prof. Steven GILLIS, Center for Computational Linguistics and Psycholinguistics (CLiPS), University of Antwerp

Date of visit

March 7-16, 2012 (10 days)

1. Purpose of the visit

This *short visit* was part of the umbrella theme "Variation and competition in plural formation" (Coordinator: Prof. Wolfgang U. DRESSLER, Department of Linguistics and Communication Research, Austrian Academy of Sciences) and concerned the topic of plural formation in typical vs. atypical acquisition (deaf children with a cochlear implant, CI). The purpose of the *short visit* at the Research Center for Computational Linguistics and Psycholinguistics (CLiPS) at the University of Antwerp (Belgium) was to elaborate a bilateral psycholinguistic project proposal on the acquisition of noun plurals by CI children, as compared to normally hearing peers.

2. Work carried out during the visit & main results obtained

During the *short visit*, research activities focussed on the elaboration of a comparable research methodology and approach for the planned project on the acquisition of noun plurals by Dutch- and German-speaking CI children. The Dutch data were collected as part of the project "Lexical and morphosyntactic development in young children with a cochlear implant" (sponsored by the Research Foundation – Flanders, FWO; project duration 01.01.2005 – 31.12.2010; project leader Prof. S. Gillis). The collection of the German data will be part of the planned project.

Participants

The project will focus on one single age cohort of 20 children (10 CI, 10 NH), in each of the two languages (Dutch and German), see Table 1.

Country	Language	Children tested	Age at time of testing (y;m)	Age at implantation (y;m)
Belgium	Dutch	10 CI, 10 NH	6;0 (+/- 2 m)	< 2;0
Austria	German	10 CI, 10 NH	6;0 (+/- 2 m)	< 2;0

Table 1. Participant information

In strict parallel to the Dutch CI project, the German-speaking children selected will range in chronological age from 5;10 to 6;2 (= y;m). They will be all monolingual speakers of German and will be recruited from integration schools for children with hearing impairment in Vienna (Austria); care will be taken to keep age at implantation of the group of CI children as constant as possible.

Language assessment procedures

The project will use a novel multi-task approach and will employ three different language assessment procedures, Conversation, Scripts, Experiment (Table 2). The types of settings vary with respect to the investigator's control on the child's linguistic output.

P no.	Procedure (P)	Type of setting	Description	Duration
1	Conversation	free	Standard assessment procedure with free content which is used very frequently in the testing of children with atypical language development (STAP method, Van den Dungen & Verbeek, 1999; Hammer, 2010).	30 min.
2	Scripts	semi-controlled	Novel procedure with more controlled content which has been shown to be a very appropriate method for eliciting natural speech about nouns and noun plurals (Ravid, 2008).	10 min.
3	Experiment	controlled	Experimental design which allows strict monitoring of the variables under investigation; picture-based elicitation of noun plurals (Gillis et al., submitted).	10 min.

Table 2. Language assessment procedures

Transcription and coding

Transcription and coding of the German data will be done using the standardized and internationally recognized transcription and coding tools of the Child Language Data Exchange System (CHILDES, http://childes.psy.cmu.edu/). In strict parallel to the Dutch CI project, the data will be transcribed both orthographically and phonetically, and transcriptions will be linked to the recorded audio files. For morphosyntactic analysis, a specific morphosyntactic coding layer (%mor) will be generated which allows lemmatization, part-of-speech tagging and morphological decomposition of the data.

Analyses

An analysis of cross-linguistic differences in morphosyntactic language skills of CI children will be performed and the impact of perceptual salience and/or distributional properties on children's productions will be examined, with special focus on noun plurals. For this purpose, a novel framework highlighting similarities and differences in stem and suffix structures between the two languages (viz. the method of "suffix predictability and stem transparency") will be further developed and implemented into data coding (Gillis et al., submitted). The advantage of this method is that morphological operations in languages are being analyzed in terms of quantifiable notions, which makes crosslinguistic comparisons quantitatively feasible (Ravid et al., 2008).

Statistical techniques

For the analysis of the data with free and semi-controlled content, a statistical bootstrapping technique ("Monte Carlo") involving extensive random sampling will be used (Van Geert et al., 2011). For the analysis of the controlled experimental data, the statistical technique of "multi-level-modelling" (MLM) will be used instead of traditional ANOVA, in order to integrate nested and random effects into the analysis (Baayen et al., 2008).

3. Future collaboration with host institution & projected publications

After her return to Vienna (Austria), the visiting researcher will start to collect the German data. There will be further collaboration with the host institution on analyzing and publishing the data in a crosslinguistic study comparing CI children and normally hearing peers.

References

Baayen, R. H., Davidson, D. J. & Bates, D. M. (2008). Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language,* 59, 390-412.

Gillis, S., Laaha, S., Levie, R., De Maeyer, S., Dressler, W.U. & Ravid, D. (submitted). Why are (some) noun plurals hard to acquire? An experimental study of Dutch, German, and Hebrew, submitted to *Journal of Child Language*.

Hammer, A. (2010). The acquisition of verbal morphology in cochlear-implanted and specific language impaired children. PhD Thesis, University of Leiden.

Ravid, D. (2008). Why are noun plurals hard to acquire - Methodology. 11th Int. Congress for the Study of Child Language, Edinburgh, July 2008.

Ravid, D., Dressler, W.U., Nir-Sagiv, B., Korecky-Kröll, K., Souman, A., Rehfeldt, K., Laaha, S., Bertl, J., Basbøll, H. & Gillis, S. (2008). Core morphology in child directed speech: crosslinguistic corpus analyses of noun plurals. In H. Behrens (ed.), *Corpora in language acquisition research: finding structure in data. (= TiLAR Series 6).* Amsterdam: Benjamins; 25-60.

Van den Dungen, L. & Verbeek, J. (1999). *STAP-handleiding*. Amsterdam: Universiteit van Amsterdam.

Van Geert, P., Steenbeek, H. & Kunnen, S. (2011). Monte Carlo techniques: statistical simulation for developmental data. In E. S. Kunnen (ed*.), A dynamic systems approach to adolescent development.* Psychology Press.