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## **Developing productivity with a new construction: Are there frequency effects in instructed second language acquisition (SLA)?**

### **Frequency effects in language**

Usage-based models of language have shown that for first languages, implicit learning - via mostly unconscious domain-general processes like entrenchment<sup>1</sup>, distributional tallying of form-function mappings, schematization and categorization - from the input is crucial for processing, storing and acquisition (Behrens 2009, Goldberg 2009, Tomasello 2003).

This assumption predicts significant effects for input features like frequency distributions on all aspects of processing, storage and acquisition (Bybee 2006, Diessel 2007, Ellis 2002). The development of productivity in first language acquisition and artificial language learning seems to be specifically dependent on input features such as type variability and skewed input<sup>2</sup> (Boyd/Goldberg 2009, Goldberg/Casenhiser 2008, Suttle/Goldberg to appear).

However, the question whether the development of productivity in instructed SLA is bound to the same mechanisms and frequency effects is only beginning to be seriously investigated (Ellis/Ferreira-Junior 2009, Year/Gordon 2009, McDonough/Kim 2009).

### **Frequency effects in second language productivity**

The research project contributes to clarifying the issue of frequency effects in developing productivity in instructed adult SLA by investigating the following main research questions:

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<sup>1</sup> The process of strengthening of the representations of frequently encountered items and sequences.

<sup>2</sup> With a sensibly higher token frequency for one specific type of the target construction than for the others.

- (i) How do second language learners attain productivity<sup>3</sup> with a new schematic construction<sup>4</sup>?
- (ii) Which effects do different input features, specifically frequency distributions, have on the development of (over-) productivity with new constructions in instructed SLA?
- (iii) How can developing productivity be detected, tracked, measured and quantified over time in a learner data set?

If statistically significant frequency effects on productivity can be demonstrated in instructed SLA settings under implicit *focus on form*<sup>5</sup> conditions, this will not only provide evidence for implicit learning mechanisms still working in SLA under certain conditions, but also open up new perspectives for instruction, namely for improved input structuring for optimal input processing (cf. Ellis 2009).

I expect different types of frequency effects in specific conditions of input enhancement<sup>6</sup> on the speed and depth of the development of productivity with a new schematic construction, namely effects of specifically manipulated (i) overall type frequencies<sup>7</sup> (high, mid, low); and (ii) type-token ratios<sup>8</sup> (balanced vs. skewed). At the same time, potentially negative (temporary or long-lasting) side effects in the domain of overgeneralizations/overproductivity are expected for certain conditions.

In order to corroborate these assumptions, training studies in adult second language classes are conducted. A first training study with academic learners of German as a second language (levels B.1/B.2) focuses on the acquisition of a specific participle construction, featuring five treatment conditions and a control group. The daily training sessions feature differently enhanced audio input without explicit grammar instruction over two weeks during regular class time.

The input texts are based on the analysis of the target construction in two native speaker corpora of German, focusing on (i) the availability and distinctiveness of the target construction with different verbs and (ii) natural co-and contexts of the target construction in native speaker discourse.

Qualitative data as a potential window on learning processes are gathered through daily tasks in the classroom and learner diaries/homework. Quantitatively exploitable data on learning outcomes (i.e. productivity, overproductivity) are gathered through a pretest, a posttest and two delayed posttests.

The poster presents first results from a pilot study focusing on the effects of overall type frequencies and discussing:

- (i) trends and inter-group differences in developing productivity and development of/retreat from overgeneralizations; and

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<sup>3</sup> Defined here as the increasingly accurate command of an increasing number of different types of the new construction in an increasing number of adequate contexts, be it through generalization/abstraction of higher-level schemas or through analogy to low-level patterns.

<sup>4</sup> „stored pairings of form and function, including morphemes, words, idioms, partially lexically filled and fully general linguistic patterns“ (Goldberg 2003:221).

<sup>5</sup> „focus on form [...] overtly draws students' attention to linguistic elements as they arise incidentally in lessons whose overriding focus is on meaning and communication“ Long (1991: 45f.).

<sup>6</sup> Defined here in a narrow sense as specific manipulations of type/token frequency distributions, e.g. input flood.

<sup>7</sup> i.e. the number of different verb lemmas instantiating the construction in the input.

<sup>8</sup> i.e. the number of instantiations/tokens per type.

(ii) methodological issues in identifying and quantifying productivity in second language learner data, namely theoretical problems influencing data elicitation and sampling and empirical issues impacting the interpretation of elicited data and theory building, e.g. how to operationalize the concepts of entrenchment, productivity and overproductivity when evaluating second language learner data; how to deal with individually highly variable amounts of self-priming during the training period, arising from quantitatively and qualitatively varying learner productions in the tasks and learner diaries.

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