Ana T. Pérez-Leroux, University of Toronto

Fair competitions: frequency effects, transfer and innate constraints in L1/L2 grammars

Morphosyntactic variability in adult second language learning is interpreted as evidence of a) lack of access to principles; b) inability to reset parameters or, more recently c) performance difficulties specific to formal features retrieval (Beck 1998). However, developmental variability is not unique to (presumably defective) adult learners but appears also in child learning, and thus, are a general problem for generative approaches (Abney 1996).

Within data-driven, connectionist approaches to language development (such as McDonald and Seidenfeld, 1996, Ellis 1996), the gradual/stochastic nature of developmental data is taken as argument against the role of innate formal constraints. These arguments provide an opportunity to reexamine the connection between the grammatical model and the growth model (Ruhland 1998), particularly with respect to the interesting but problematic notion of competition. Debate on the role of input in learning has led to the idea that grammatical constraints compete (in development as well as on real-time processing) against one another. Cue competition is the leading proposal from within the connectionist approaches (Bates & MacWhinney 1984, MacWhinney 1996). Although different in substantive content from the constraint competition approach in Optimality theory (see Hayes 1997), these two views of learning share assumptions about the interaction between input and grammar. Connectionist types competition models have certain interesting properties but fail to address two fundamental problems; the discontinuity problem between initial and endstate in development, and the poverty of stimulus problem (see Pullum & Scholz 1999, Fodor & Crowther 1999), as they fail to restrict unwanted generalizations across distributionally comparable elements (Pérez-Leroux & Glass 1999).

In this presentation, I argue that unlike standard parameter setting approaches, the minimalist program offers the possibility of building a learning model that can be integrated both with characterizations of gradual development and multiple acquisition paths. I argue that an acquisition model compatible with minimalism can be developed from the following two assumptions a) that the lexicon allows competition (i.e., syntagmatic associations have an effect at the point in which elements enter a numeration) but b) that syntactic operations themselves do not compete. The lexicon remains as a frequency-sensitive module, in which various possible combinations of formal features compete to enter a numeration, but the syntactic operations that participate in sentence generation remain deterministic and insensitive to frequency. This proposal is compatible with both gradual development and individual differences, and it can be grounded in theoretical work suggesting that a) learners are conservative in making parametric decisions, b) they rely solely on unambiguous triggers (Fodor 1998), and c) allow the existence of multiple grammars (Roeper 1999, Yang 2000).

A potential empirical test lies in the comparison of the fit of lexical item associations in developmental data to input frequencies. Restricted lexical competition predicts that relative frequencies across alternative non/target numeration are skewed in ways that reveal the operation of grammatical constraints. Data-driven models can claim to model frequencies reflected in the input's numerations, but make no real claim about frequency differences among target deviant combinations of lexical items and formal features.

These issues can be fruitfully explored within the study of language contact. This presentation examines the predictions of both approaches against the quantitative analysis of production data elicited from a study of determiner use in alienable and inalienable possession contexts by 55 L2 learners of Spanish. These data are compared with available production data from L1 and bilingual Spanish acquisition. Developmental data generally shows evolving patterns and individual differences in associations among the various functional elements involved in the production of possession constructions: the genitive preposition, dative clitics, possessive and definite determiners, and number features. We argue that, for L2 learners, intermediate forms can be described in terms of an evolving morphosyntactic lexicon, with shifting frequencies of association across items, resulting in different patterns of numerations formed. From a certain point onwards, all relevant lexical and functional items are available through the developmental process, but learners continue tochange their selectional preferences, influenced by changes in independent lexical frequency and syntagmatic priming effects as the result of the input. An adult learner's initial assumption is that frequency associations in the L1 equal those in the L2 (as in Schwartz and Sprouse's 1996 Absolute L1 Hypothesis), and disconfirmation of this prediction leads to grammar reorganization. In this sense, neither data on initial transfer nor data on ultimate attainment can provide a direct evaluation of data-driven learning vs. principle-based models: only the intermediate steps do. The possession study provides clear confirmation for developmental asymmetries in the formation of numerations, and thus, in favor of principle-based models.

References

Abney, Stephen. (1996). Statistical methods and linguistics. In Judith Klavans and Philip Resnik (Eds.), The balancing act (pp. 1-26). Cambridge: MIT Press.

Bates, E. y B. MacWhinney. 1987. "Competition, variation and language learning." in B. MacWhinney (ed.) Mechanisms for language acquisition. Hillsdale, N.J., Lawrence Erlbaum.

Beck, M.L. (ed) (1998) Morphology and its interfaces in sla. Philadelphia, John Benjamins.

Ellis, N. (1996). Sequencing in SLA: phonological memory, chunking, and points of order. Studies in second language acquisition, 18, 91-126.

Fodor, Janet Dean 1998. "Unambiguous triggers." Linguistic Inquiry 29(1): 1-36.

-----& Carrie Crowther. 1999. Understanding poverty of Stimulus arguments. Linguistic Review 19, 105-145.

Geoffrey, and Barbara Scholz. 1999. Empirical assessment of stimulus poverty arguments. Linguistic Review 19, 9-50.

Hayes, Bruce. 1997. Phonetically-driven phonology: the role of optimality theory and inductive grounding. Proceedings of the Milwakee Conference on Functionalism and Formalism in Linguistics.

MacWhinney, B. 1996: Language is learned. *Behavioral and Brain Sciences* 19, 735-736.

Pérez-Leroux, A. T., and W. R. Glass. 1999. Null anaphora in Spanish SLA. *Second Language Research* 15 (2), 220-249.

Roeper, T. 1999. Universal bilingualism. Bilingualism: language and cognition 2(3): 169-186.

Ruhland, Hendrick Georg, 1998. Going the distance: a non-linear approach to change in language development. Ph.D. dissertation, Groningen University.

Seidenberg, M. S. and M. C. MacDonald 1999. A probabilistic constraints approach to language acquisition and processing. Cognitive Science 23(4): 569-188.

Schwartz, Bonnie and Rex Sprouse. 1994. Word order and nominative case in non-native acquisition. In Teun Hoekstra and Bonnie Schwartz. Language acquisition studies in generative grammar. Amsterdam, John Benjamins.

Yang, Charles. 2000. Knowledge and learning in natural language. Ph.D. dissertation, MIT.