Competing motivations in grammars, performance and learning: Common principles and patterns in three areas of language

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This paper investigates the way in which different principles cooperate and compete in three areas of the language sciences: in cross-linguistic variation; in performance selections from competing structures in languages with choices; and in stages of (second) language learning. It is proposed that the rules of interaction between principles, as well as many of the basic principles themselves, are shared across these areas. Quantitative data are given to illustrate this, involving numbers of grammars in typological language samples, performance selections in corpora, and second language learning data from the Cambridge Learner Corpus of English (CLC). Three very general rules of interaction are proposed, supported by these quantitative data.

Rule One asserts that a principle P will apply to define and predict a set of outputs {P}, as opposed to a competing set {P'}, in proportion to the specified degree of preference that P defines for {P} over {P'}. This is illustrated with data involving degrees of syntactic complexity and weight that impact linear ordering in performance, and with quantities of grammars that have conventionalized certain ordering preferences. Both sets of data are claimed to follow from the Minimize Domains principle of Hawkins (2004). For second language learning, degrees of frequency in the input (as revealed by the British National Corpus) are shown to correlate precisely with order of acquisition for a wide range of grammatical constructions in the CLC, instantiating the Maximize Frequently Occurring Properties principle of Hawkins & Filipović (2010). These gradient principles predict larger sets of outputs {P} in proportion to the inherent strength of the preference that each defines for the relevant outputs.

Rule Two asserts that the more principles there are that cooperate to predict a common set of outputs {P}, as opposed to a proper subset or complement set {P'} motivated by fewer principles, the greater will be the preference for and size of {P}. Supporting performance data are given that involve the stronger preference in English for post-verbal prepositional phrases and particles adjacent to a verb when that adjacency is supported both by syntactic weight and by lexical-semantic dependencies with the verb, rather than by just one of these principles alone. Grammatical support comes from certain basic word order types that are supported by three versus two versus just one preference principle, with correlating quantities of grammars. And learning that is supported both by positive transfer from the L1 and by frequency in the input is earlier, more productive and more error-free than learning supported by one or the other alone.

Rule Three asserts that when there is competition between two principles P and P', where each predicts a (partially) different set of outputs {P} and {P'} respectively, then each will apply (i) in proportion to its degree of preference, as in Rule One. This is illustrated with grammatical data involving the degree of head finality in grammars: the more rigidly head-final they are, the more opposing principles that motivate non-head-final structures (like filler before gap relative clauses) are defeated (resulting in prenominal relative clauses). Further rules of resolution for competing principles include: (ii) the size of the total set of outputs predicted by P and P', which properly include {P} and {P'} respectively, will determine the relative strength of P and P' in competition

structures to which both apply. In other words, the greater the applicability of P versus P' in general, and the more structural instances to which each applies, the larger will be the set {P} or {P'} in actual competitions. This will be illustrated with weight-based orderings of prepositional phrases in the post-verbal domain in English in competition with lexical-semantic-based orderings. It will also be illustrated with learning data in which the more general preference for simpler structures in early learning outweighs positive transfer effects from the L1.

<u>References</u>

Hawkins, J.A. (2004) <u>Efficiency and Complexity in Grammars</u>, OUP, Oxford.
Hawkins, J.A. & L. Filipović (2010) <u>Criterial Features in the Learning of English</u>, CUP, Cambridge.