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The Discontinuity Model: Gemination and superposition of statistical and grammatical learning in second language acquisition

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The Discontinuity Model (DM, Rastelli 2014) concerns the dynamics of adult Second Language Acquisition (SLA). It proposes that adult learners acquire part of L2 morphosyntax twice, by relying on two different learning mechanisms having the same scope. The same item can be learned as the product of generation by a rule (Yang et al. 2017, Chomsky 2014) or as a modification of a template which is already stored in memory (Jackendoff & Audring 2016; Culicover et al. 2017). These learning modalities – which are often seen as opposed in language theory – in adult SLA integrate and superpose. Grammatically learned procedural phrase structure rules and statistically learned declarative templates can be resorted to during language processing under different circumstances. Ontogenetically, while in L1 acquisition the natural endowment for language constraints statistical learners capacity by narrowing the hypothesis space (Yang 2002), in adult SLA the opposite holds. Statistics can re-open the window of opportunity for grammar because chunks can drive adult learners derive part of L2 morphosyntax. In this paper, a computational and psycholinguistic model of how this might occur is described. According to this model, skewness between transition probabilities (TP) represents the triggering factor in both L1 and L2 acquisition. As peaks and dips among TP drive children to individuate the words that are hidden in the stream of sounds (Romberg & Saffran 2010), so the skewness between TP drive adult learners discover the grammatical features that are hidden into asymmetric chunks.

References

Chomsky, N. 2014. Some core contested concepts. *Journal of Psycholinguistic Research*, doi10.1007/s10936-014-9331-5.

Culicover, P.W., R. Jackendoff & J. Audring. 2017. Multiwords Constructions in the Grammar. *Topics in Cognitive Science* 9, 552–568.

Jackendoff, R. & J. Audring. 2016. Morphology in the parallel Architecture. In: J. Audring & F. Masini (eds.), *The Oxford Handbook of Morphological Theory*. Oxford: Oxford University Press, 413–451.

Rastelli, S. 2014. Discontinuity in Second Language Acquisition: The shift between statistical and grammatical learning, Bristol-Buffalo, Multilingual Matter.

Romberg A.R. & J. R. Saffran. 2010. Statistical Learning and Language Acquisition. *Review of Cognitive Science*, doi 10.1002/wcs.78

Yang, C. 2002. *Knowledge and Learning in a Natural Language*. Oxford, New York: Oxford University Press.

Yang, C., S. Crain, R.C. Berwick, N. Chomsky & J.J. Bolhuis. 2017. The growth of language: Universal Grammar, experience and principles of computation. *Neuroscience and Biobehavioral Reviews*, http://dx.doi.org/j.neubiorev.2016.12.023.