

## **Linguistic Comprehension: A formal model for explaining the interrelation between sound perception and word recognition in L1, L2, L3, and bilingual acquisition**

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In this talk, I will present the Linguistic Comprehension (LC) model, a new proposal for explaining the development of sound perception and word recognition in different groups of language learners. Importantly, this proposal is compatible with current psycholinguistic models and improves on the adequacy of phonetic and phonological models.

The LC model assumes that *perception* and *recognition grammars* represent the linguistic knowledge which underlies the perception of sounds and the identification or recognition of words respectively. Following Escudero & Boersma (2003), a perception grammar contains *cue constraints* which connect auditory input with phonological representations. Following Boersma (2001), a recognition grammar contains *lexical constraints* which ban the access of lexical representations, and *faithfulness constraints* which preserve the phonological form of the perceived word. In both types of grammars, the constraint rankings follow Stochastic Optimality Theory (Boersma 1998) and combine the phonetic/phonological properties of language input with their frequency distributions.

Regarding language acquisition, the model provides a formal account of the perceptual and lexical development of babies raised in monolingual and bilingual environments as well as that of adult L2/L3 learners. The perceptual component is based on a combination of *distributional* and *lexicon-driven learning*, while the lexical component is based on *perceptual frequency* and *message-driven learning*. It is proposed that these four learning mechanisms are instantiated by the Gradual Learning Algorithm (Boersma & Hayes 2001) at different stages of the acquisition process.

The proposed model will be exemplified with the acquisition of vowel perception and word recognition by monolingual (Dutch) and bilingual (Dutch-Portuguese) children, and by adult L2-learners/bilinguals acquiring an L3 (Dutch-English-Spanish, Portuguese/Spanish-English-Dutch). Thus, the comparative developmental path predicted by the model will be tested against the results of empirical studies and computer simulations.

Finally, I will discuss the various implications for L1 versus L2 acquisition as well as implicit versus explicit language learning and teaching.

**References:**

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