

Plenary Talk

Language as Skill

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Language acquisition is often viewed as a problem of inference, in which children—like “mini-linguists”—tries to piece together the abstract grammar of their native language from incomplete and noisy input. This “language-as-knowledge” viewpoint contrasts with a more recent alternative, in which the challenge of language acquisition is practical, not theoretical: by practicing across myriads of social interactions, children gradually learn to understand and produce language. In this talk, I explore some key implications of this “language-as-skill” framework, focusing on the need to deal with the immense challenge posed by the combined effects of rapid input, short-lived sensory memory, and severely limited sequence memory. I argue that, to deal with this *Now-or-Never bottleneck*, the brain must incrementally compress and recode the linguistic input as rapidly as possible before it is gone. Thus, incoming language is quickly recoded into chunks at increasingly more abstract levels of linguistic representation, from syllables to multiword sequences and beyond. This perspective has profound implications for the nature of language learning and use. To illustrate, I present results from a series of studies focusing on the key role of multiword chunks in explaining our language abilities, including computational modeling showing how language learning can be viewed as becoming increasingly better at using multiword sequences in comprehension and production; experiments illustrating how statistical learning can support the discovery of multiword chunks; analyses of large language models showing how they and humans have the same high level of multiword sequence use; psycholinguistic experimentation showing that early-acquired multiword chunks are processed faster similar to early-acquired words and are stored as a meaningful unit, and prompting a reappraisal of how grammatical regularities may be represented. I conclude that language acquisition and use may be best construed as learning and deploying a sophisticated linguistic skill, on a par with learning other complex human skills such as riding a bicycle or playing a musical instrument.

Background readings

- Chater, N. & Christiansen, M.H. (2018). Language acquisition as skill learning. *Current Opinion in Behavioural Sciences*, 21, 205-208.
- Christiansen, M.H. & Chater, N. (2016). The Now-or-Never bottleneck: A fundamental constraint on language. *Behavioral & Brain Sciences*, 39, e62.
- Contreras Kallens & Christiansen, M.H. (2022). Models of language and multiword expressions. *Frontiers in Artificial Intelligence*, 5:781962.
- Contreras Kallens, P., Kristensen-McLachlan, R.D. & Christiansen, M.H. (2023). Large Language Models demonstrate the potential of statistical learning in language. *Cognitive Science*, 47, e13256.
- McCauley, S.M. & Christiansen, M.H. (2019). Language learning as language use: A cross-linguistic model of child language development. *Psychological Review*, 126, 1-51.