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# Harnessing Linguistic Diversity for Theories of Language and Mind

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A comprehensive theory of human language requires a data set that is representative of the typological diversity present in the world's 7,000+ languages (Evans & Levinson, 2009). However, the treatment of linguistic diversity in cognitive science has been historically uneven. While many subfields of linguistics explicitly aim to describe and explain variation (e.g., linguistic typology, phonology), adjacent fields like psycholinguistics have suffered from an overreliance on English (Blasi et al., 2022; Christiansen et al., 2022a; Kidd & Garcia, 2022), mimicking cognitive science in general (Henrich et al., 2010). This large data skew prevents the field from fully explaining how humans acquire, represent, and process language, one of the core defining features of our species.

In this symposium we begin with the assumption that linguistic (and cultural) diversity is a key desideratum in explaining the human capacity for language, which is in turn essential for our broader understanding of human minds. Thus, crosslinguistic and cross-cultural comparison are central and essential components of the field. Four papers and a discussant will address human language through this crosslinguistic and comparative lens, covering major areas of psycholinguistics, from child language acquisition through to the neurobiology of language.

**Kidd** will present an analysis of language coverage in child language acquisition, identifying significant limitations in the current evidential base while identifying ways forward to correct the imbalance. **Christiansen** will present data from Danish and Norwegian to show that comparisons of understudied European languages can yield new insight into the acquisition and processing of language. **Majid** will discuss conceptual variation and illustrate how systematic cross-cultural study can inform us about universals. **Bornkessel-Schlesewsky & Schlewsky** will argue that a

cross-linguistic perspective offers crucial insights for understanding variability in the neurobiological underpinnings of language, including inter-individual differences. Discussant **Evans** draws upon four decades of experience in language description and typology to begin to identify pathways towards a more linguistically diverse cognitive science of language.

## **Kidd: Linguistic Diversity in Child Language Acquisition Research.**

Modern child language acquisition research has a strong tradition of crosslinguistic investigation, yet past estimates of language coverage in the field have suggested that total coverage is less than 2% of the world's languages. In this talk we begin by presenting an analysis of the four major child language journals, showing that the journals have published child language data on only around 103 languages, with a large overall skew favoring research on English (54% of all published work) and a handful of European languages. The finding is linked to a lack of researcher diversity in the field, with most research produced in the Global North (notably, North America and Western Europe). We then present a brief series of case studies, showing how work on typologically diverse languages ultimately falsified theoretical proposals based on data from English and closely related European languages. We end with a discussion of ways to redress the imbalance in the field, highlighting current initiatives to increase language and researcher diversity, which place cross-linguistic data as a key source of evidence in theory building.

## **Christiansen: Towards a Comparative Cognitive Science of Language.**

Understanding how children can acquire the full diversity of different languages is a key challenge for the cognitive

science of language—yet current acquisition research is dominated by studies of children learning one specific language: English. More research on the full diversity of human languages is urgently needed. In this talk, however, we argue that what the field needs is not just a wider cross-linguistic coverage but a systematic comparative approach to language acquisition. We outline three levels of cross-linguistic comparisons: coarse-grained comparisons between unrelated languages to confirm or refute broad theoretical claims; fine-grained comparisons between typologically related languages to assess the effect of specific factors on acquisition; and within-language comparisons to investigate how socio-communicative factors affect learning (Christiansen et al., 2022a). This three-pronged comparative approach to language acquisition promises to provide new insights into the mechanisms and processes by which children acquire their native tongue under such varied linguistic and socio-communicative conditions. Importantly, though, using data from Danish and Norwegian, we suggest that even garden-variety European languages still have much to contribute to our understanding of language acquisition when approached through systematic cross-linguistic comparisons (Christiansen et al., 2022b).

### **Majid: A Theory of Concepts that Takes Linguistic Diversity Seriously.**

Fodor (1998) declared that “the heart of a cognitive science is its theory of concepts” yet when theorizing about concepts cognitive scientists rely overwhelmingly on data from a constrained sample of humanity. English-speaking scientists study English-speaking participants, and the concepts that receive the most attention are the ones encoded in English lexical items. This has led to a skewed perspective about the sorts of entities cognitive scientists study and about our understanding of the units of thought that form the basis of cognitive computations. In this talk, I will illustrate how even basic experiences are categorized in very different ways across the languages of the world. Despite this variation, it is nevertheless possible to uncover universals of thought by applying systematic cross-cultural study. To do this, cognitive scientists need to grapple with cross-cultural sampling techniques. It is not enough to sample large numbers of cultures or languages, but communities need to be sampled from diverse stock so we can be most confident about the generalizations we make. Only by taking seriously cultural and linguistic diversity, can cognitive science make good on its theory of concepts.

### **Bornkessel-Schlesewsky & Schlewsky: Cross-Linguistic Diversity as a Model for Variability in the Neuroscience of Language.**

The neuroscience of language ultimately aims to understand how language is implemented by the human brain. Though substantial progress has been made towards this goal over the past decades, the profound conceptual gap between the complex cognitive mechanisms involved in language

processing and the level of neurobiological implementation continues to pose a challenge for theory building (Bornkessel-Schlesewsky & Schlewsky, 2006). We argue here that cross-linguistic diversity provides a unique window onto the neurobiological basis of language in several respects. Firstly, cross-linguistic distributions (i.e., which properties of language occur more frequently across the 7000+ languages of the world than others) are intrinsically informative with regard to processing biases. Secondly, by helping to map out the full strategy space involved in language processing, cross-linguistic variability delineates the requirements for neurobiological explanations. Building on this, we will show how cross-linguistic differences can help to advance our understanding of variability in the neurobiologically of language processing more generally, including age-related changes and inter-individual differences.

### **Evans: Discussant**

Over a decade since the publication of Evans and Levinson (2009), I will attempt to bring together the key themes of each talk to map the progress that has been made towards a greater appreciation of linguistic diversity in cognitive science in the last 15 years and to identify key future directions.

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