The production of formulae by Chinese children with Autism Spectrum Disorder

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Reference may be accomplished through proper names, nouns, and noun phrases ('marriage ring'), or through linguistic units associated with socio-cultural schemas ("'*I do*' ring"). Such kind of fixed linguistic units or unanalyzed chunks are typified as formulae. In adult language, these ritualized formulae are mostly used for humor (Pascual 2006, Pascual et al. 2013), but they show a wider occurrence and functionality in early child speech (Nelson 1973; Plunkett 1990; Hickey 1993), which has been supported as an alternative to develop language for young children. Children with Autism Spectrum Disorder (ASD) may also use socio-cultural emblems ('*Happy birthday!*') to refer to an entity associated with it (e.g., a birthday cake, Dobbinson et al. 2003; Pascual et al., 2017; Dornelas, 2018).

The main research question to address is: How do Chinese children with ASD manage to communicate with limited language resources, by using formulae functionally? To study the production of formulae by children with ASD, we designed a Naming-Reference task, involving 24 images: 12 professionals (a doctor) and 12 objects (a birthday cake), commonly associated with conventionalized meaningful fixed expressions. The questions posed were: 'What's/Who's this?' and 'What's it used for?'/'What does s/he do?'. The participants were 63 3-to-6-year-old Chinese children with ASD, dividing into high-verbal vs. low-verbal groups.

We explore the frequency and functions, as well as prevalence of formulae in children with ASD, to further understand the linguistic features of formulaic expressions produced by children with ASD. In addition, we investigate the relations between linguistic ability (i.e., expressive vocabulary size and sentence complexity assessed via standardized tests) and formula production by comparing the performance of high-verbal and low-verbal ASD children.

The results reveal that the majority of verbal formulae (~90%) produced by both high-verbal and low-verbal groups are ritualized linguistic units associated with the target images. It seems that children with ASD store whole social scenes related to the referents in the lexicon, with formulae forming a salient part of them. Additionally, a strong positive correlation was found between the production of formulae and general language ability (ps<.001), indicating that formulae may be a sign of language development in ASD, instead of a pathological default.

Keywords: Verbal formulae; Communicative strategy; Chinese children with Autism Spectrum Disorder; Elicitation; Reference

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