

“Quantifying” in a Young Sign Language

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All human languages have ways of expressing quantification. In sign languages, as visual languages, signers can also exploit the use of space, the use of classifiers, and the use of the body ([Nendauni, 2021](#)). For instance, some lexical quantifier signs are produced in the neutral signing space with the size of the sign determining whether the quantifier has the meaning of ‘some’ or ‘many’. In addition, signers can employ the use of classifiers to depict the relative quantity of an entity, e.g., by using a cupped handshape in phrases such as ‘most of the rice’. Do young sign languages exhibit all types of quantification from the outset of language emergence? Which strategies do signers exploit in the early stages of language emergence and which at the later stages? In a recent study, by [Kocab and colleagues \(2022\)](#), looking at Nicaraguan Sign Language, they found the use of quantification even in signers from the first generation, suggesting that quantifiers may represent a universal phenomenon present from the outset of language emergence. Studies show that some features in sign language appear at the earliest stages of language emergence such as lexical items ([Sandler, 2018](#)) and others such as classifiers and use of space appear later ([Aronoff et al., 2003](#), [Kocab et al., 2015](#)). In this study, we examine quantification in a young sign language, Israeli Sign language (ISL), which emerged with the formation of the deaf community in Israel, around 90 years ago. We follow a similar approach to Kocab et al.’s study but we test the possible effects of animacy and dynamicity. Thirteen signers of ISL (9 females, 4 males, 6 older, 7 younger) were recruited and completed a Quantifier Elicitation Task (see Figure 1). Four quantifiers were targeted: ‘none’, ‘some’, ‘many’, and ‘all’ in controlled conditions for static and active, countable and uncountable, animate and in animate.

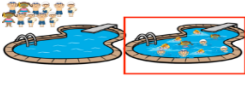



			
<p>(1a) Left: None of the children are in the pool (1b) Right: All the children are in the pool</p>	<p>(1c) Left: Some of the birds are flying (1d) Right: Many of the birds are in the pool</p>	<p>(2a) Left: Most of the sugar is in the bowl (2b) Right: Some of the sugar is in the bowl</p>	<p>(2c) Left: There is no water in the glass (2d) Right: Most of the glass is full</p>

Figure 1: Examples From The Quantifier Elicitation Task.

Preliminary results reveal that signers use a range of different strategies including 11 lexical forms and 20 classifier forms. Similar to [Kocab and colleagues \(2022\)](#), signers of all ages produced quantification using a range of expressions. The type of the linguistic expression has a direct relationship with the of quantifier – ‘none’ favoured lexical strategies while ‘many’ favoured classifier strategies, which might reflect inherent semantic properties of quantifiers, such as polarity (e.g., [Shikhare et al. 2015](#)) and vagueness ([Clothier 2019](#)). Non-manual features, such as tongue wiggle (for showing ‘many’), cheek puff and cheek tighten, contributed to the specification of the quantifier meaning and correlated with specific quantifiers. For example, tongue wiggle consistently co-occurs with the quantifier ‘many’.

Younger and older signers produced similar numbers of lexical quantifiers, yet younger signers use more classifiers for conveying quantification compared to older signers, suggesting that classifiers may take time to emerge as claimed by [Aronoff et al. \(2003\)](#). In addition, younger signers are more likely to use facial expressions with quantifiers than older signers, which points to a more grammaticalized status of the non-manual as the language matures.

Our further analysis will shed light on the interaction of specific semantic components – animacy, countability and dynamicity in the expression of quantifiers both within and across ISL age groups. Furthermore, the presentation will delve into on the mapping of semantic parameters on specific aspects of the quantifier form.

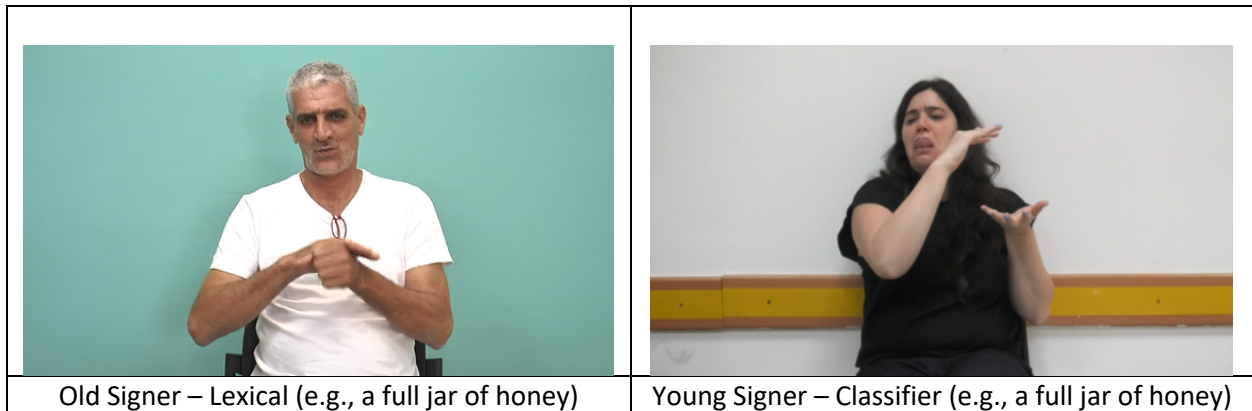


Figure 2: Comparing Lexical ‘all’ with Classifier ‘all’.

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