

**Emergence of subordinate construction in Israeli Sign Language:  
Intonation ploughs the field for morphosyntax**

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One central question in historical linguistics is how subordination emerges. It has been hypothesized that diachronically subordinate constructions start off with intonational signals, which precede morphosyntactic signals of subordination (Givón 2012, Mithun 2009 *inter alia*). Contemporary spoken languages cannot provide a testing ground for this hypothesis due to the fact that all of them have fully grammaticalized subordinate constructions. However, a young sign language, such as Israeli Sign Language (ISL), is perfectly suitable for this purpose (Meir and Sandler 2008). In ISL relative clauses are usually marked by squinted eyes and forward head positions, which have been shown to perform the functions of intonation (Sandler 1999; Dachkovsky, Healy & Sandler 2013), as well as by a demonstrative form appearing at the RC boundary.

Yet, the consistent marking of relative clauses in the language is characteristic of the younger signers' but not of the older signers' signing. This suggests that relative clause marking developed over time in the language and poses a question about its emergence and development. The present study tracks the emergence of the relative clause (RC) construction by investigating the changes of intonational marking and morphosyntactic signals across three generations of ISL signers. The study demonstrates that these signals begin as pragmatic or, more specifically, as information structuring devices, and are transformed by a grammaticalization process into relative construction markers. Furthermore, intonational cues in the newly emerging RCs pave the way to morphosyntactic ones.

Adopting Labov's (1963) apparent time hypothesis, which infers diachronic changes from synchronic data collected from different age groups, the ISL data were collected from three generations of signers through an interactive task designed to elicit relative clauses. In order to deduce and evaluate changes, the behavior of intonational signals and segmental elements was analyzed in accordance with the basic criteria of grammaticalization: the degree of obligatoriness, functional change and phonetic strength (e.g., Hopper & Traugott 1993).

The results show that the RC construction emerges through a gradual and consecutive transformation of two intonational components -- 'forward head movement' (FHM) and 'squint' -- from information structuring devices at the earliest stages (Ex. 1) to RC markers later on (Ex. 2). Specifically, FHM in the older group of signers functions as a topic marker, being usually aligned with the nominal only. But already starting with the second generation the scope of FHM includes both the nominal and the RC. This change demonstrates that FHM develops into the marker of clausal asymmetry, which lies in the heart of subordination. Similarly, squint, originally signaling Low Accessibility status of the referent (Ariel 1990) in the older signers' topics, in the youngest signers' responses becomes a grammatical marker of the RC construction by the virtue of the spread of its scope to the RC.

A third marker of RCs is a pointing sign that occurs at the clausal boundary. Although pointing signs appear in all groups, their form and function

change across the three groups of signers. Whereas they function as fully articulated exophoric or endophoric pronouns in the older group's responses, once the RC crystalizes prosodically in the youngest signers' group, the pointing signs move to the prosodic boundary between the clauses and become phonologically and functionally reduced. As a result, the more advanced stage of the RC construction formation is characterized by the clustering of the multiple intonational and morpho-syntactic signals at RC boundaries, which reinforces the internal cohesion of the whole construction.

In sum, the findings of the present study show that in the process of the gradual emergence of the RC construction its markers have been reanalyzed from more pragmatics- and information structure oriented to more construction-related and less pragmatic. In addition, this research has important implications for the discussion of the role of intonation in the emergence and development of subordination.

**Examples:**



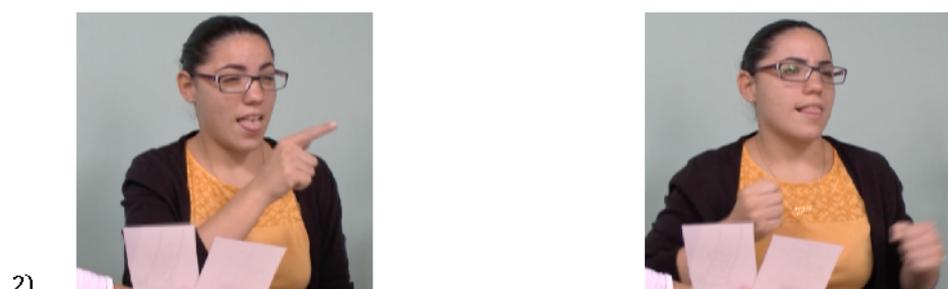
1)

FHM  
squint

- a) MAN                      b) LOOK                      c) COMB-HAIR

**Three chunks in the ISL older signer's response corresponding to the nominal (a), the first predication (b) and the second predication (c) in sentence**

***'The man who is watching TV is combing his hair'*. The intonational signals are co-temporal with the topic of the utterance**



2)

FHM  
squint

- a) GIRL EAT-ICECREAM INDEX                      b) SWING

**The nominal and the RC are marked by FHM and squint. A pointing sign appears at the boundary between the relative clause and the main clause in sentence *'The girl who is eating ice-cream is swinging'* produced by a younger ISL signer**

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