

Relative Clause Attachment in Hebrew: Free versus Construct State Nominals

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1 BACKGROUND

- Hebrew complex nominals take either of two forms with identical meaning “the N1 of the N2”.

(FS) Free State	ha-N1 šel ha-N2
(CS) Construct State	N1 ha-N2

In CS, N1 is not marked for definiteness, but inherits it from the definiteness marker *ha* on N2. CS also lacks element *šel* (of).

- How is an ambiguously attached relative clause (RC) resolved for each of these complex nominal types, when the modifier is short (RC1) and when it is long (RC3)? Example:

(ha-)me'amen (šel) ha-mit'agref še-paraš (le'axar ha-taxarut)
(the-)coach (of) the-wrestler who-retired (after the-fight)

Data bear on the Implicit Prosody Hypothesis (Fodor, 2002), which proposes that ambiguity resolution in silent reading can be influenced by projected prosody.

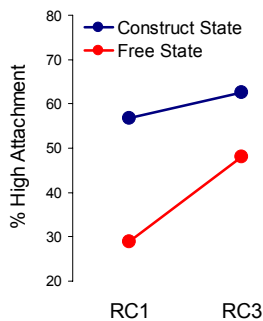
- For the processor, does Hebrew's contrast of FS vs. CS have consequences like Croatian's +Prep vs. -Prep (Lovrić, 2003)?

A priori, that outcome is unlikely. The complex nominal is a single prosodic word in Hebrew CS, but two words in FS. Croatian's nominal variants have identical prosodic weight.

2 ATTACHMENT STUDY

Attachment preference data were gathered in a standard offline questionnaire study factorially manipulating nominal type (Free vs. Construct State) and RC length (RC1 vs. RC3).

Subjects: 60 native Hebrew speakers, students at Tel Aviv University
Materials: 24 x 4 targets, complex nominal in direct object position
72 fillers, identical across versions



In Hebrew, an effect of nominal type interacts with an effect of RC length:

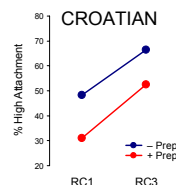
Interaction $F_1(1,56) = 11.97, p < .01$
 $F_2(1,20) = 5.43, p < .05$

Attachment is lower with FS than CS, but the magnitude of that effect with RC1 is twice that with RC3:

RC1, $\Delta 28.1$ $F_1(1,56) = 52.08, p < .001$
 $F_2(1,20) = 53.86, p < .001$
RC3, $\Delta 14.4$ $F_1(1,56) = 17.10, p < .001$
 $F_2(1,20) = 15.54, p < .001$

Lovrić's (2003) data for Croatian pattern differently. Nominal type (+Prep, -Prep) and RC length show additivity rather than interaction.

What drives the difference between data patterns for Hebrew and Croatian?



IMPLICIT PROSODY HYPOTHESIS

If attachment preferences are influenced by the prosodies that are characteristically projected for different sentence types,

- how does prosody vary over the nominal type x RC length design?
- and how central is it that the CS nominal is one prosodic word?

3 PROSODY STUDY

- Utterance elicitation used the “Post-to-Times” protocol (Bradley et al., 2003). RCs presented as restrictive modifiers were uniformly disambiguated for low attachment.

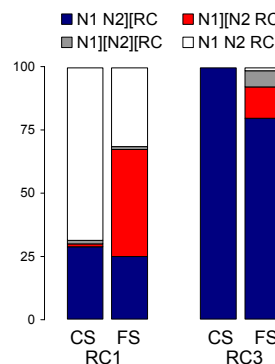
S1 ha-'ohadim he'ericu 'et (ha-)me'amen (šel) ha-mit'agref.
the-fans admired ACC (the-)coach (of) the-wrestler
eize' mit'agref?
which wrestler

S2 ha-mit'agref še-paraš (le'axar ha-taxarut).
the-wrestler who-retired (after the fight)

TARGET ha-'ohadim he'ericu 'et (ha-)me'amen (šel) ha-mit'agref še-paraš (...).

Subjects: 10 native Hebrew speakers, students at Tel Aviv University
Materials: 8 x 4 sentences (subset of attachment study's targets)

- Perceived Phrasings



Since N1][N2 RC is ungrammatical for the CS nominal, other phrasings must increase in likelihood:

- CS-RC1 uses N1 N2 RC more
- CS-RC3 uses N1 N2][RC more

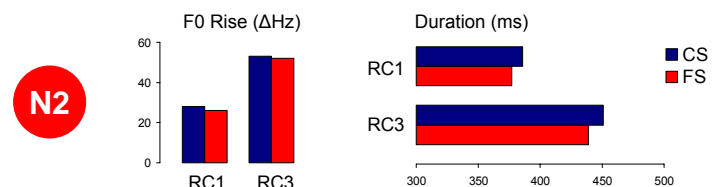
The distribution of phrasings predicts the Hebrew attachment data, granted assumptions that high attachment is:

- effectively ruled out by N1][N2 RC
- modestly increased by N1 N2][RC
- a chance matter given N1 N2 RC

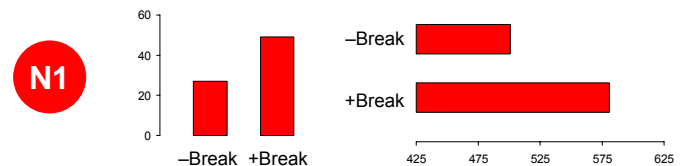
Lovrić (2003) affirms A–B for Croatian. C is untested as yet.

- Hebrew typically marks sentence-medial phrasing breaks with a rising boundary tone, and pre-boundary lengthening plus optional pausing. Perceived phrasings should thus have correlates in valley-to-peak F0 data (Δ Hz), and in duration data (ms).

One approach to analysis averages all available data within the sentence types defined by the materials design. In N2-region data, do acoustic measures reflect the markedly fewer N2][RC breaks perceived for RC1 sentences than for RC3 sentences?



An alternative approach categorizes data as \pm Break (Perceived) within one sentence type, e.g., within FS-RC1. In N1-region data, are acoustic correlates evident with this categorical assessment?



Note that word-level stress drives an F0 rise of ~25 Hz, absent a phrasing break.

CONCLUSION

- RC attachment preferences in Hebrew seem to be predicted by the prosodies characteristic of different sentence types, under *a priori* plausible assumptions about the interpretation of prosody.
- Our next study will test those assumptions.