

Does prosody compensate for lack of word order marking? Disambiguating negated narrow focus sentences in Udmurt

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Background: Udmurt (Uralic; Russia), a language that is currently undergoing an SOV > SVO change in its basic word order (Asztalos 2021), shows considerable word order flexibility. Word order variation is conditioned by information structure, however, many permutations of major sentence constituents can be associated with more than one information structure. Focus does not have a dedicated structural position: it can precede the verb – immediately or not – and can also occur sentence-finally (Asztalos 2020), with choices characterised by a degree of interspeaker variation.

The puzzle: Negated sentences with a focus present an interesting puzzle: the interaction of the two scope-taking operators, negation and focus, may give rise to scope ambiguity. Udmurt makes use of inflected negative verbs for the purposes of negation, which combine with the so-called connegative stem of the lexical verb (1)–(2). One possible interpretation of negated sentences containing a narrow focus is the ‘constituent negation’ reading, in which negation scopes over the focus (Neg > Foc). Sentences with both focus and negation, however, may also have a reading in which focus takes wide scope over negation (Foc > Neg), cf. Asztalos (2023). Whether negation takes wide scope over focus or the other way round is not disambiguated by word order, it is determined by the context:

- (1) ‘Whom did Oliver cheat, is it Yana?’ / ‘Who is the one whom Oliver didn’t cheat?’

Oliver JANA-JEZ e-z alda.

Oliver Yana-ACC NEG.PST-3 cheat.CNG.SG

‘It’s not Yana whom O. cheated.’ (Neg > Foc) / ‘It’s Yana whom O. didn’t cheat.’ (Foc > Neg)

- (2) ‘Who cheated Yana, is it Oliver?’ / ‘Who is the one who didn’t cheat Yana?’

Jana-jez OLIVER e-z alda.

Yana-ACC Oliver NEG.PST-3 cheat.CNG.SG

‘It’s not Oliver who cheated Y.’ (Neg > Foc) / ‘It’s Oliver who didn’t cheat Y.’ (Foc > Neg)

Our main objective was to find out whether prosody compensates for the lack of disambiguation by word order, and if so, how. Another question we addressed was whether and how word order interacts with scope interpretation. We investigated these questions experimentally.

The experiment: In our talk, we present preliminary results of a prosodic production experiment, preceded by an acceptability judgement test (both carried out in-person), in which we investigated $S_{O_{Foc} Neg V}$ (1a) and $O_{S_{Foc} Neg V}$ (1b) sentences in two conditions:

- i) negation taking scope over the focus (Neg > Foc, “constituent negation”; inverse scope for the two examined linearizations), and
- ii) focus scoping over negation (Foc > Neg, linear scope for the examined linearizations).

Each condition was tested with four lexicalisations that were mixed with items from another experiment, which functioned as fillers. Four native speakers of Udmurt residing in Budapest participated in the experiment (all female; age range: 22–40; more participants planned). The acceptability test included dialogues with a *wh*-question eliciting either a Neg > Foc or a Foc > Neg reading in the answer sentence. Participants had to rate the acceptability of the answers on a 7-point Likert scale and to suggest a well-formed alternative order whenever they didn’t find a sentence fully acceptable. In the prosodic experiment, for which speakers were recorded in a soundproof booth, each speaker had to read aloud as naturally as possible all the dialogues that she scored with a mean of ≥ 4 . Items were presented twice, in randomised order.

Results: The results of the acceptability judgement task

- i) point to considerable interspeaker variation,
- ii) indicate that all tested linearizations are relatively acceptable (they all received an overall average rating above 4), and

- iii) word order and scope interpretation preferences weakly interact: $S O_{Foc} Neg V$ order is more likely to be associated with linear scope reading, while the inverse scope ($Neg > Foc$) reading is preferred in the $O S_{Foc} Neg V$ order.

The prosodic production experiment indicates that (i) the focused element is always produced with a higher prominence and that (ii) there is a prosodic difference between inverse and linear scope constructions. In inverse scope ($Neg > Foc$) constructions, the negative verb and the lexical verb are produced significantly higher pitched and louder than in linear scope ($Foc > Neg$) constructions, independently of word order. A closer investigation of the inter- and intra-speaker variation support these overall results: inverse scope is usually produced with additional prosodic prominence on the negation, while linear scope is produced with a single prominence on the immediately preceding focused constituent. For both readings we found two main prosodic patterns that were used in the majority of the data:

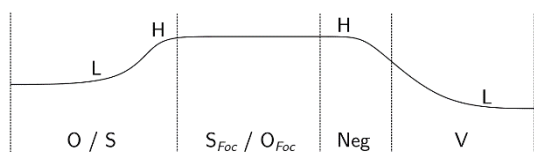


Figure 3: *Inverse scope, pattern₁: Hat pattern*

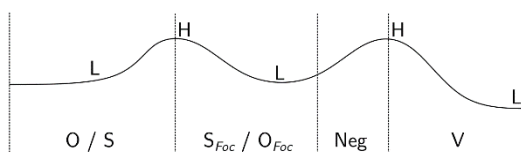


Figure 4: *Inverse scope, pattern₂: "Two prominences"*

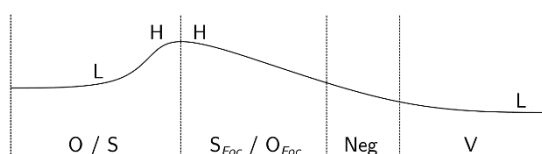


Figure 5: *Linear scope, pattern₁: "One fall"*

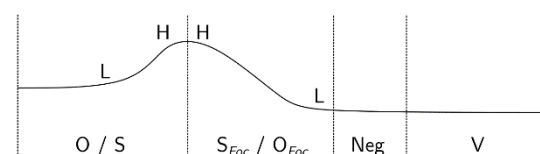


Figure 6: *Linear scope, pattern₂: "Strong fall"*

Discussion: Our results suggest that, while there is prosodic variation within each scope reading, the linear and inverse scope interpretations are indeed distinguished from each other in their intonation pattern in both word orders. Overall, the key prosodic cue disambiguating scope appears to be the prosodic prominence of negation. It appears to be nonprominent on the $Foc > Neg$ interpretation, without evidence of any tonal target (negated verbs contain a H tone on negation, while content words normally contain final stress, often associated with a H pitch accent with the peak typically reached on the posttonic syllable, Borise & Georgieva 2024). This is expected in that the negated verb forms part of the background of the preceding focus. By contrast, negation is prosodically prominent on the $Neg > Foc$ reading, when it takes the preceding focus in its background. The fact that focus does not lose its prominence in this second scenario is analogous to cases of second occurrence focus (SOF) that linearly precede the main, first occurrence focus (FOF). Such SOFs, unlike SOFs that follow the FOF, retain their pitch accent in German (Féry & Ishihara 2009). If negation can be interpreted as the main focus of those sentences that had $Neg > Foc$ scope (cf. Goodhue 2022), then the preverbal focused constituent, as an SOF, retains its prominence for the same reason (see, e.g. Büring 2013). Assuming that on a $Foc > Neg$ interpretation negation can be interpreted as a SOF, the apparent absence of a tonal target associated with it falls in line with the prosodic behaviour of SOFs that linearly follow the main focus (such SOFs may lose their accent in terms of pitch movement; Beaver et al. 2007, Féry & Ishihara 2009).

Conclusions: We conclude that, at least in production, prosody serves to compensate for the absence of word-order cues to the relative scope of narrow focus in negated sentences in Udmurt. The main patterns of prosodic marking can be accounted for by treating clausal negation as a possible semantic focus.

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