

Postverbal elements in Udmurt and Estonian are derived by verb movement

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Claim: We argue that postverbal elements (PVE) in Udmurt and Estonian are the result of leftward verb movement from an underlying verb-final structure as schematised in (1). This analysis captures the syntactic and information-structural properties of PVE in these languages, which were established based on original data. This analysis implies that Udmurt and Estonian cannot *base-generate* a head-initial VP. That derives the contrasts of PVE in these underlying OV languages to PVE in underlying VO languages such as Finnish and Russian.

(1) [ZP [V [XP [<V> [YP <V>]]]] ↔ ZP V XP YP

Background: The properties of PVE in Udmurt have been extensively studied (Asztalos 2018, 2021) but an analysis of their syntactic structure is missing. Estonian PVE have not received attention yet because the verb-finality of Estonian is masked by the V2 property (Ehala 2006), therefore necessitating the use of non-finite verb forms. Currently, there is neither a descriptive nor a structural typology of PVE in verb-final languages. We contribute towards these typologies by establishing descriptive and structural diagnostics. Base-generated PVE can be distinguished from PVE stranded by verb movement by testing for *mirror-image effects* (cf. Neeleman 2017): When the order of PVE is the mirror image of the same elements in preverbal position (*ceteris paribus*), the structure is base-generated. When the order of PVE is the *same* as in the preverbal position (*ceteris paribus*), the structure is derived by verb movement.

Data and analysis: We show that varieties of Udmurt and Estonian exhibit free variation in verb placement, i.e., verb-final and verb-medial orders are fully felicitous in broad and narrow focus contexts. Verb movement accounts for this since head movement is semantically vacuous. Next, both languages lack mirror-image effects: The Estonian example in (2) shows that the adverbs only appear in high-to-low order regardless of verb position. The Udmurt example in (3) illustrates that the sentence is only neutral when the directional adverbial comes last regardless of verb position. In contrast, a scopally lower adverbial can neutrally precede a higher adverbial in the postverbal domain of a VO language such as Finnish (4). That shows that the mirror-image diagnostic can successfully distinguish base-generated PVE, such as those of a VO language, from PVE created by verb movement.

(2) Standard Estonian (colloquial; elicited, 2016–2023)¹

- a. Ilmselt oli kass (**nurrunud**) eile tihti valjusti (**nurrunud**).
probably COP.PST.3SG cat miaow:PTCP yesterday often loudly miaow:PTCP
'The cat probably often meowed yesterday.'
- b. *Ilmselt oli kass (**nurrunud**) valjusti tihti eile (**nurrunud**).
probably COP.PST.3SG cat miaow:PTCP loudly often yesterday miaow:PTCP

(3) Standard Udmurt (colloquial; elicited; Svetlana Edygarova, p.c.)

- a. Mon (**vetli**) Mašajen arñapumjñ ñuleskj (**vetli**).
1SG[NOM] go:PST[1SG] Masha:INS weekend:IN forest:ILL go:PST[1SG]
'I went into the forest with Masha on the weekend.'
- b. #Mon (**vetli**) ñuleskj Mašajen arñapumjñ (**vetli**).
1SG[NOM] go:PST[1SG] forest:ILL Masha:INS weekend:IN go:PST[1SG]
'I went into the forest with Masha ON THE WEEKEND.'

¹Additional abbreviations: ADE – adessive; ESS – essive; ILL – illative; IN – inessive; PAR – partitive

- (4) Standard Finnish (elicited; 2017; based on Manninen 2003)
 Sirkku **ampui** Pulmun taitavasti rannalla keskiviikkona.
 Sirkku shoot:PST.3SG Pulmu:ACC skillfull:ADV beach:ADE Wednesday:ESS
 ‘Sirkku shot Pulmu skillfully at the beach on Wednesday.’

The Udmurt example (3) also illustrates another indication of verb movement: The information-structural status of the preverbal elements is preserved behind the verb. Since Udmurt and Estonian exhibit directly preverbal focus, the clause-final focus reported for both languages (Asztalos 2020, Erelt et al. 1993) is best analysed as stranded preverbal focus.

Finally, we discuss how language-specific diagnostics allow further insights into the verb-raising structure. Estonian has grammaticalised verb particles (Erelt 2007) that can never be separated from the verb to the left but which occur in any postverbal position (5). That distribution indicates the possibility of pied-piping. Likewise, Udmurt hints at the possibility of pied-piping since it allows for a hitherto undocumented PVE construction with a clause-medial, directly preverbal focus (6).

- (5) Standard Estonian (colloquial; elicited, 2016–2023)
 Ema on (üle) **vaadanud** (üle) need paberid (üle) varem (üle).
 mother COP.PRS.3SG PRT look:PTCP PRT those paper:PART.PL PRT earlier PRT
 ‘Mother has reviewed these papers earlier.’

- (6) Standard Udmurt (colloquial; Svetlana Edygarova, p.c.)
 Anaje NUNJIDE **poniz** kekije.
 mother:1SG baby:ACC.2SG put:PST.3SG crib:ILL
 ‘My mother put YOUR CHILD into the crib.’

In sum, we advance the understanding of PVE in verb-final languages by a thorough analysis of PVE in Udmurt and Estonian. Both languages allow for actual free variation in verb placement, but we corroborate that underlying word order is necessary to understand what differentiates PVE in verb-final and verb-medial languages.

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