## Forming Verb Clusters Postsyntactically: Evidence from Udmurt and Mari

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**Claim:** We investigate the properties of negated verb clusters in Udmurt and Mari and defend the following claims: ① The verb cluster is not formed via syntactic head-movement but via the postsyntactic lowering operation. Evidence against a head-movement account and for a postsyntactic account comes from (a) the interaction of cluster formation and cliticization in Udmurt and (b) cases of constituent negation in Mari. ② The operation of verb cluster formation is triggered by the requirement of negation to appear in a local relation with the verb.

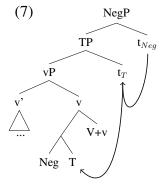
**Background:** Negation in Mari and Udmurt is expressed by a negative verb that governs a special form of dependent auxiliaries or verbs, referred to as the connegative stem (glossed: CN), cf. (1) (Edygarova 2015, Saarinen 2015). Moreover,  $NEG^0$  always scopes over the auxiliaries and lexical verbs it governs. This suggests that  $NEG^0$  is the highest verbal head in the verb cluster (2).

(1) 
$$V_{nonfinite} AUX_{connegative} NEG$$
 (2)  $[NegP [AuxP [VP V] Aux] Neg]$ 

In clusters consisting only of a lexical verb and an auxiliary, the dependent VP can precede or follow the Aux, cf. (3). Remarkably though, negation can never be the final element in a verb cluster. It must precede the lexical verb in 2-verb-clusters (4). In 3-verb clusters with  $V_{nonfinite}$ , AUX and NEG, we find only two orders:  $[V_{nonfinite}-NEG-AUX]$  or  $[NEG-AUX-V_{nonfinite}]$  (5). Neg further differs from Aux in that it has to be adjacent to the verb in the connegative form (modulo clitics, see below), cf. (6), while there can be non-verbal material between Aux and V:

(3) a.	Môj ôšt-en	paša-m	kert-am.	(4)	a.	Tud-ôm	o-m	už.	[	[12]
	1SG do-GEF	R work-AC	C can-1SG			3sg-acc	C NEG-	-1SG see.	CN	
b.	Mâj kert-an	n paša-m	ôšt-en.		b.	*Tud-ôm	už	o-m.	*	[21]
	1SG can-1SG work-ACC do-GER					3SG-ACC see.CN NEG-1SG				
	'I can do the	e work.'	Ì	Mari		'I don't s	ee her	/him.'		Mari
(5) Tud-â	m <už-ân></už-ân>	o-m l	kert <už-< td=""><td>ôn≻.</td><td>(6) *â</td><td>št-en o-m</td><td></td><td>paša-m</td><td>kert.</td><td></td></už-<>	ôn≻.	(6) *â	št-en o-m		paša-m	kert.	
3SG-ACC see-INF NEG-1SG can.CN see-INF						do-GER NEG-1SG work-ACC can.CN				
'I can	not see her/hi	m.'			ʻI	cannot do	the wo	ork.'		Mari

**Analysis:** ① We argue that verb clusters in the two languages are not formed by means of syntactic head-movement. First, we think that this should be the null hypothesis since (a) the morpheme order in Mari and Udmurt does not reflect their semantic scope and (b) syntactic processes, including head-movement (Lechner 2007), can at least potentially affect interpretation. Second, a strong argument against a head-movement account comes from the interaction of adverbial enclitics with cluster formation. Crucially, while the clitics can occur in between verbal elements, they never affect the relative order of verbal elements per se. We will show that a head-mvt approach cannot derive the possible orders discussed below. ② We propose that the position of the negation in the cluster comes about by means of Lowering (Embick & Noyer 2001).



**Derivation:** Based on syntactic and semantic evidence, we argue that negation is the highest head in the clause (cf. (7)). The cluster formation process is due to a requirement of negation to be in a local relationship with the verb: This triggers lowering of the negation to v. Further, we assume that a complex head containing negation is linearized to the left of the head it is adjoined to. This leads to the non-finality requirement of negation and since lowering proceeds cyclically top-down, it also explains other inflectional categories such as tense, agreement and mood are also linearized to the left of the verb in the presence of negation.

A strong argument for the derivation we propose comes from the flexibility of VP-related clitics in the verb cluster (Arkhangelskiy 2014). These clitics preferably occur after the AUX in clusters consisting of V+AUX, i.e. undergo encliticization to AUX, cf. (8a). We therefore assume that clitics are (initially) linearized between AUX and NEG: [V AUX CL NEG]. Crucially, clitics can but do not have to precede the AUX and the lexical verb in the presence of negation (8c), (9b–d):

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(8)	2-v	erb clusters:	(9)	3-v	erb clusters:	(10)	ö-d=n'i	vetl-e
	a.	V-AUX-CL		a.	V-NEG-AUX	-CL	NEG.PAST-2=A	ANYMORE go-PL
	b.	NEG-V-CL		b.	V-NEG-CL-A	AUX	'you (pl) didn'	e
	c.	NEG-CL-V		c.	NEG-AUX-C	L-V		Udmurt
				d.	NEG-CL-AU	x-V		

We propose that the placement options for clitics are due to a structural ambiguity of the clitics: They are functional heads that can be not not have to project their own syntactic phrase. As a result, they are either picked up by successive-cyclic lowering of negation or they are not. The former leads to a cluster-internal position of the clitics (as the clitic forms a constituent with negation), the latter leads to a cluster-final position since the clitic is skipped and, at a later level, leans onto the predicate in search for a phonological host.

Thus, the clitics can only precede AUX in the presence of negation, which follows from the fact that it is the negation that moves. The clitics move along with the negation but do not move themselves. Under a syntactic head-mvt account, it would be impossible to derive the orders [V-Neg-Cl-Aux] and [V-Neg-Aux-Cl] if the direction of adjunction is kept constant: Right-adjunction only results in [Neg-Cl-Aux], [Neg-Aux-Cl] requires left- *and* right-adjunction. But under flexible direction of adjunction, one can no longer derive the second-to-last position of negation.

**Outlook:** The necessity of a postsyntactic treatment of verb cluster formation is further demonstrated by cases of constituent negation in Mari, where the negative head is adjoined to the respective constituent. Interestingly, the adjoined negation is accompanied by a copula which can be shown to be completely void of syntactic or semantic features.

(11) Tôj šaxmat dene o-g-ôl, a šaške dene mod-ôč
2SG chess with NEG-PRES.(3SG)-BE, but checkers with play-PAST.2SG
'You played not (with) chess but (with) checkers.'

We claim that this copula is inserted on PF as a repair to remedy Neg's requirement to be in a local relation with a verb in cases where lowering is impossible. Further, we explore the interactions of lowering with ellipsis in fragement answers and the interaction of split  $\phi$ -probes (cf Sigurðsson & Holmberg 2008) with the postsyntactic module to account for the distribution of  $\phi$ -features on various heads in negated verb clusters. In Mari,  $\phi$ -features are all on the negation, whereas in Udmurt person features attach to Neg and number attaches to the connegative verb. Finally, we show the necessity for the verb cluster forming operation to be independent of the headedness of the language: While Mari is fairly strictly OV, Udmurt allows for much more word order variation and has been claimed to undergo a change to VO (Asztalos 2018). Against the background of the argument made above, we explore several possible analyses of postverbal elements (base generation, syntactic or postsyntactic extraposition).

Selected References: • Arkhangelskiy. 2014. Clitics in the Beserman Dialect of Udmurt. • Asztalos. 2018. Szórendi típusváltás az udmurt nyelvben. Budapest: Eötvös Loránd University PhD Thesis • Arregi & Nevins. 2012. Morphotactics. Dordrecht • Edygarova. 2015. Negation in Udmurt. In Negation in Uralic Languages. JB. • Embick, & Noyer. 2001. Movement Operations after Syntax. LI • Lechner. 2007. Interpretive Effects of Head Movement. lingbuzz/000178. • Mitchell. 2006. The morpho-syntax of negation and the positions of NegP in the Finno-Ugric languages. Lingua. • Saarinen. 2015. Negation in Mari. In Negation in Uralic Languages. JB. • Sigurðsson & Holmberg. 2008. Icelandic dative intervention. Agreement restrictions. Mouton.