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Event structure of Hill Mari denominal verbs

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The paper deals with the event structure of denominal verbs in Hill Mari, a Finno-Ugric language. In Hill Mari, denominal (as well as some deadjectival) verbs are derived using the same suffix giving rise to several different structural types of predicates. The paper focuses on the properties of denominal predicates that are of interest to the theory and typology of the phenomenon and that are not predicted by the existing theories of denominal derivation. Some influential theories assume that there is one-to-one correspondence between the semantic properties of the base stems and those of their denominal/deadjectival counterparts. Namely, quantized nouns and closed-scale adjectives should give rise to telic verbs, whereas cumulative nouns and open-scaled adjectives should derive atelic ones. However, in many cases, this prediction is not confirmed by the Hill Mari data. Namely, I present the data showing that the semantic properties of base adjectives are not transferred to the derived predicate and consider some other cases of denominal derivation challenging the existing theories. I also suggest that these facts can be accounted for if one assumes that the derivational suffix encodes the process component (equivalent to DO or BECOME operator in various theories of predicate decomposition) determining distributional properties of the predicate. I present the language-specific tests sensitive to the event structure of the predicate that allow us to confirm this hypothesis. Finally, I show how the Hill Mari data contribute to our understanding of the phenomenon under study and present a tentative typology of denominal derivational affixes.

Keywords: Hill Mari, denominal verbs, deadjectival verbs, degree modification, event structure, unergativity

СОБЫТИЙНАЯ СТРУКТУРА ОТЫМЕННЫХ ГЛАГОЛОВ В ГОРНОМАРИЙСКОМ ЯЗЫКЕ

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В статье рассматривается событийная структура отыменных глаголов в горномарийском языке. В горномарийском языке отыменные (а также некоторые деадъективные) глаголы разных структурных типов образуются с использованием одного и того же суффикса. Основное внимание уделяется свойствам отыменных глаголов, которые представляют интерес для теории и типологии явления и не предсказываются существующими теориями отыменной деривации. Некоторые влиятельные теории предполагают, что существует взаимно-однозначное соответствие между семантическими свойствами исходной основы и свойствами глаголов, деривированных от нее. В частности, квантованные существительные и прилагательные с закрытой шкалой образуют предельные глаголы, тогда как кумулятивные существительные и прилагательные с открытой шкалой образуют непредельные глаголы. Данные горномарийского языка не всегда подтверждают это предположение. В статье рассматриваются данные, показывающие, что семантические свойства исходных прилагательных не передаются производным глаголам, а также другие данные, проблематичные для существующих теорий. Предполагается, что их можно объяснить, если предположить, что деривационный суффикс кодирует процессуальный компонент (эквивалентный оператору DO или BECOME в различных теориях предикатной декомпозиции), определяющий дистрибутивные свойства предиката. Это доказывается с помощью применения конкретно-языковых тестов, чувствительных к событийной структуре предиката. В статье обсуждается также вклад данных горномарийского языка в типологию изучаемого явления и предлагается типология деривационных отыменных аффиксов.

Ключевые слова: горномарийский язык, отыменные глаголы, деадъективные глаголы, степенная модификация, событийная структура, неэргативность

Исследование поддержано грантом РНФ № 22-18-00285. Автор выражает благодарность всем своим консультантам — носителям горномарийского языка, без которых данная работа была бы невозможна, в особенности Ольге Сильвестровне Микряковой и Ларисе Михайловне Изициной, оказавшим автору неоценимую помощь в проверке и уточнении материалов при подготовке статьи. Автор также благодарит анонимных рецензентов статьи, которые указали на неточности и дали много ценных комментариев, позволивших улучшить окончательный текст.

1. Introduction

From a typological and theoretical perspective, denominal verbs are of great interest to linguistic theory due to non-trivial semantic relations between the base stem and the derived verb. These effects were investigated in detail in a bunch of works, cf. [Hale, Keyser 2002; Harley 2005; Haugen 2009; Tatevosov 2017; Bleotu 2019], among many others. At the same time, it is obvious that the languages of the world differ in what types of nominal derivation they allow. In English, denominal derivation is productive and a large number of semantic types has been attested, see [Hale, Keyser 2002]. Some examples are given below.

(1) *John **enveloped** the letter.*
(2) *John **shelved** the books.*
(3) *John **saddled** a horse.*
(4) *Sue **hammered** the metal.*

However, in many other languages denominal verb derivation is not as productive as in English or is represented by a limited number of structural types. A complete understanding of the mechanisms regulating denomial derivation and the parameters of typological variation has not yet been achieved. This paper contributes to our understanding of the phenomenon bringing to light the data from Hill Mari (< Finno-Ugric). In this language, denominal verbs are derived using several suffixes, cf. [Savatkova 2002: 216–221]. Among them, the suffixes *-lan* (and its front-voweled counterpart *-län*) and *-l* are productive[1], being Turkic loans [Galkin 1966: 84, 131–132]; see also [Lytkin et al. 1974: 367] on the proto-Finno-Ugric *l*-suffix.

The properties and structural types of Mari denominal verbs were described in detail in [Pengitov et al. 1961; Galkin 1966], see also [Laakso 1997: 283–286] for overview. [Galkin 1966] provides a detailed classification of structural types of these verbs. According to him, the *l*-suffix derives verbs from nouns, adjectives, some adverbs and ideophones as well as from some verbs [ibid.: 129–130]. He also notes that the suffix is widespread in Meadow Mari and can be even used to verbalize Russian loanwords. However, a detailed semantic analysis of these verbs is not provided in this work, and only four general meanings of denominal verbs are distinguished[2]. A more detailed classification is given in [Pengitov et al. 1961: 229–231], where seven different meanings of the *l*-suffix are highlighted: (1) ‘produce X’, (2) ‘provide with X’, (3) ‘transform into X’, (4) ‘produce with X’, (5) ‘deprive from X’, (6) ‘do something repeatedly so that it is associated with X’, (7) ‘perform activity associated with X’. However, as I will show, this classification can be enlarged by additional meanings associated with the suffix. The *lan*-suffix was described as the affix with translative (‘become X’), reflexive and essive meanings [Pengitov et al. 1961: 233–234; Galkin 1966: 83]. It is obvious that the meanings of both affixes vary depending on the semantics of the stem, so revealing the core semantic component of all their uses is not an easy task.

This paper explores in detail the problems of: 1) how the existing theories of denominal derivation can(not) be applied to the Hill Mari data; 2) to what extent the semantic properties of the nominal base determine the semantic properties of the derived verbs. So far, these problems were not discussed elsewhere. Although a full account for these data cannot be provided within a single paper, I will highlight the most important issues and show how Hill Mari contributes to the theory of the phenomenon under study.

The data discussed in this paper are based on two sources. First, the list of denominal verbs used in my investigation was extracted from [Savatkova 2008]. Second, the acceptability judgments were obtained during my fieldwork in 2018–2019 with the native speakers. The variety discussed here is the dialect spoken in the village of Kuznetsovo and neighboring villages, Mari El Republic. In some cases, the judgments were verified using the corpus of Hill Mari representing the same variety[3]; the corpus examples are marked throughout the paper. The paper is organized as follows. In section 2, I provide the basic information on the Hill Mari denominal affixes.

[1] The suffix *-ešt* was reported to be “relatively productive” as well but is not considered in the present paper. Many items containing this suffix were not recognized by my consultants.

[2] «По значению корневого слова распределяются и значения глаголов: 1) производить то, что обозначает корневое слово, например: *кышыллаш* “сгрудить” от *кышыл* “груда”, *ослаш* “разрезать на доли” от *ос* “доля”; 2) снабдить тем, что обозначает корневое слово, например: *саварлаш* “загородить” от *савар* “изгородь из досок”, *кӱварлаш* “мостить” от *кӱвар* “мост”; 3) действовать тем, что обозначает корневое слово, например: *пудалаш* “вбить гвоздь” от *пуда* “гвоздь”, *эмлаш* “лечить” от *эм* “лекарство” ⟨…⟩; 4) становиться таким, что обозначает корневое слово, например: *игылаш* “куститься” от *иге* “детеныш”, *йӱштылаш* “купаться” от *йӱштӧ* “холод, холодный”, *вӱрлаш* “упасть в обморок” от *вӱр* “кровь”» [Galkin 1966: 130].

[3] The corpus was collected and transcribed by the team of the Hill Mari project (Moscow State University) and is available at: http://hillmari-exp.tilda.ws/corpus.

In section 3, I discuss the most influential theories aimed to account for the correlation between the semantic properties of the nominal base and the derived verb. Section 4 explores the syntax and the event structure of some verbs presenting challenges for the existing theories. In section 5, I discuss the implications of the Hill Mari data for the typology of the phenomenon. Section 6 concludes the paper.

2. Denominal derivation in Hill Mari

2.1. *l*-suffix

For the purposes of the present study, all the denominal verbs with the suffixes *-l* and *-lan* mentioned in [Savatkova 2008] were used. However, not all of these items were recognized by my consultants, and some denominal verbs underwent semantic shift, that is, their meaning was different from the one cited by Savatkova. Thus, the final sample comprised 47 items. Below, I will present a tentative semantic classification of these verbs.

Verbs containing the *l*-suffix can be subdivided into several classes depending on the semantic relationship between the original stem and the derived verb. Each of the meanings distinguished below has two components, which I call lexical and structural. One can say that each semantic type of denominal verbs has the same structural component, and verbs of the same semantic type differ in lexical components. For instance, the meaning 'create an entity denoted by N' is common for the lexemes as 'gather (hay) in a pile' and 'bring cubs'. This component is the structural one. In its turn, the lexical component is introduced by the roots *ara* 'heap' and *igə* 'baby', respectively.

Below are examples of verbs belonging to different semantic classes, derived from both adjectives and nouns. The list is not exhaustive and may be enlarged by other lexemes.

RESULT VERBS
'create an entity denoted by N'

(5)	*ara*	'pile (of hay)'	*ara-l-aš*	'pile hay'
	kävän	'stack'	*kävän-l-äš*	'make a (hay)stack'
	kapna	'mop'	*kapna-l-aš*	'make a mop'
	laštə̂k	'slice'	*laštə̂k-l-aš*	'cut in slices'
	igə	'cub'	*igə-l-äš*	'bring cubs'

INCHOATIVES
'become A'

(6)	*arə̂*	'sober'	*ar-l-aš*	'get sober'
	tə̂r	'quiet'	*tə̂r-l-aš*	'get quiet'

CAUSATIVE
'cause a state denoted by A'

(7)	*jämdə*	'ready'	*jämdə-l-äš*	'cook, prepare'
	tör	'plain, flat'	*tör-l-äš*	'align, make smth. plain'

MANNER VERBS
'perform an action in a manner associated with A/N'

(8)	*akšak*	'lame'	*akšak-l-aš*	'limp'
	lasko	'tender'	*lasko-l-aš*	'caress'

UNERGATIVE VERBS
'behave in a way associated with N'

(9)	*xə̂na*	'guest'	*xə̂na-l-aš*	'be on a visit'
	äpšät	'smith'	*äpšät-l-äš*	'do smith's job'
	äl'äk	'sneak'	*äl'äk-l-äš*	'sneak (*verb*)'

INSTRUMENTAL VERBS
'perform an action with N'

(10)	*vint*	'screw'	*vintə̂-l-aš*	'screw up'
	paškar	'bolt'	*paškar-l-aš*	'bolt (sth.)'
	pə̂da	'nail'	*pə̂da-l-aš*	'nail down'
	krük	'hook'	*krük-l-äš*	'hook up'
	rexen'	'moss'	*rexen'-l-äš*	'cover with moss'
	kərtni	'iron'	*kə̂rtn'i-l-äš*	'cover with iron'

	vərän	‘rope’	*vərän-l-äš*	‘tie, attach with a rope’
	kol’ca	‘ring’	*kol'ca-l-aš*	‘attach a ring’
	plombə̂	‘seal’	*plombə̂-l-aš*	‘put a seal’
	pə̂ro	‘drill’	*pə̂ro-l-aš*	‘drill (*verb*)’

UNCLASSIFIED

(11)	*mardež*	‘wind’	*mardež-l-äš*	‘be windy’
	päšä	‘work’	*päšä-l-äš*	‘work (*verb*)’
	sam	‘weed’	*sam-l-aš*	‘deprive from weeds’
	sük	‘trash’	*sük-l-äš*	‘litter, throw trash’

The division of denominal verbs into several classes is quite arbitrary. For instance, a common semantic component ‘enter the state denoted by the original stem’ can be found, for example, for classes (5) and (7). Despite the fact that the model is represented by a large number of verbs, its productivity is quite limited. I am not aware of any new Hill Mari verbs which are derived using the *l*-suffix. (However, the suffix was claimed to be quite productive in [Pengitov 1961: 229–231; Galkin 1966: 129–133], where the data of both Hill Mari and Meadow Mari were considered.) Nevertheless, I assume that the set of verbs derived with the *l*-suffix is quite representative, since, in general, the relations between the nominal base and its verbal counterpart are regular and transparent. In other words, if, for instance, a verb is derived from the name of the tool, one would expect that this verb would mean ‘do V with a tool’ and not ‘produce a tool’. Taking this into consideration, I claim that the semantic and syntactic relations between the verb and its base can be analyzed as reflecting general tendencies of denominal derivation.

2.2. *lan*-suffix

Verbs containing the *lan*-suffix can also be divided into several semantic classes which are listed below.

INCHOATIVES

‘become A’

(12)	*jažo*	‘good, nice’	*jažo-lan-aš*	‘become nice’
	toša	‘thin’	*toša-lan-aš*	‘get thin’
	svezä	‘fresh’	*svezä-län-äš*	‘become fresh’

BEHAVIOR-RELATED VERBS

‘behave in X way’

(13)	*vujstə̂k*	‘conversely’	*vujstə̂k-lan-aš*	‘behave in an inappropriate way’
	joj	‘cunning’	*joj-lan-aš*	‘be cunning’
	äptän	‘rooster’	*äptän-län-äš*	‘fuss, behave like a rooster’

ACTIVITY VERBS

‘undergo process, associated with X’

(14)	*jasə̂*	‘ill, illness’	*jasə̂-lan-aš*	‘be ill’
	mokmə̂r	‘hangover’	*mokmə̂r-lan-aš*	‘suffer from hangover’
	šek	‘incommodity’	*šek-län-äš*	‘be shy’

EMISSION VERBS

(15)	*juk*	‘sound, noise’	*juk-lan-aš*	‘make noise’
	ala	‘motley’	*ala-lan-aš*	‘change colour, become varicoloured’

As can be seen in (12)–(15), it is quite difficult to single out a semantic invariant for the *lan*-suffix. At the same time, not all these meanings are widely represented in the variety of Hill Mari under study. Inchoative verbs with *-lan* include several items, whereas the model presented in (13) is more productive. Native speakers could interpret verbs with the *lan*-suffix in a very specific way. Sentence (16) is interpreted as denoting some property attributed to the individual, which is designated by the base stem ‘Yeltsin [an ex-president of Russia]’:

(16) *vas'a jel'cin-län-ä.*
V. Yeltsin-MAN-NPST.3SG
‘Vasya looks like Yeltsin / pretends to be Yeltsin / drinks like Yeltsin’.

In the dialects under study, different suffixes can be attached to the same stem. Some verbs with the *l*-suffix listed in [Savatkova 2008] were attested in my data with the *lan*-suffix, and vice versa. These include the verbs

masak-l(an)-aš ‘to joke’ (< *masak* ‘joke’) and *mardež-l(än)-äš* ‘to be windy (about the weather)’ (< *mardež* ‘wind’). However, some verbs with the *l*-suffix which are transitive have intransitive counterparts with the *lan*-suffix: *tör-l-äš* ‘make smth. plain’ — *tör-län-äš* ‘get well’.

(17) *pogodə̑ mardež-län-ä* / *mardež-l-ä.*
weather wind-MAN-NPST.3SG wind-DENOM-NPST.3SG
‘It is windy’.

(18) *masak-lan-aš* / *masak-l-aš* *cac-a.*
joke-MAN-INF joke-DENOM-INF try-NPST.3SG
‘(Somebody) is trying to joke’.

3. Theories of denominal derivation: an overview

In this section, I will consider the most influential theories which are aimed to account for the properties of denominal verbs. Then, in the following sections, I will describe the challenges that the Hill Mari data present for these theories.

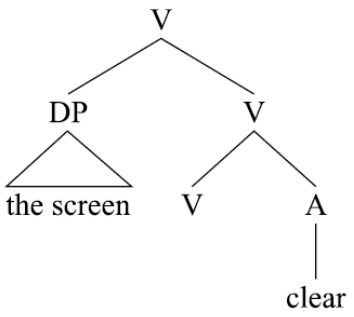
One of the most influential theories formalizing the properties of denominal verbs is the one presented in [Hale, Keyser 2002]. To this theory, crucial is the question of how the properties of the derivational base determine the syntactic distribution of the derived verb. In English, there is a significant contrast between deadjectival (19) and denominal (20) verbs. Only the former, but not the latter, can appear both in transitive and intransitive configurations. In contrast, denominal verbs can be only intransitive.

(19) *The screen is clear.*
The screen cleared.
John cleared the screen.

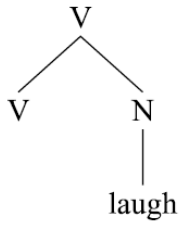
(20) *The children laughed.*
**The clown laughed the children.*

According to Hale and Keyser, such asymmetry arises from significant differences in the syntactic structure between nouns and adjectives. They assume that the base syntactic structure of deadjectival verbs can be represented as follows in (21a). The structure includes the V head, its complement (adjective) and the specifier (denoting the holder of the property encoded by the adjective). In its turn, the syntactic structure of denominal verbs lacks a specifier (21b).

(21) a.



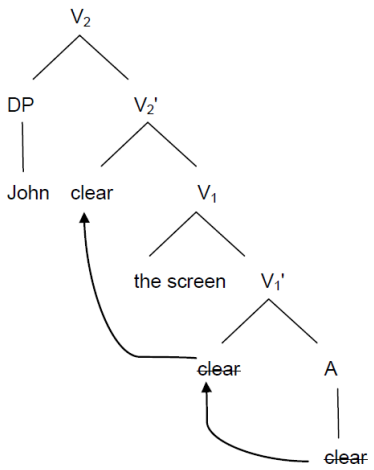
b.



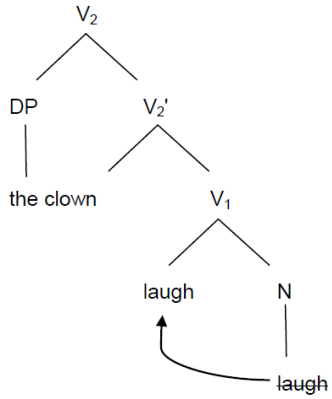
The first step of the derivation that forms a deadjectival or a denominal verb is the movement of the complement to the V head. Hale and Keyser assume that, in such cases, the V head is somehow defective — for instance, one can assume that it is expressed by a null affix. In order to be spelled-out in an appropriate way, such a null head requires its complement to be conflated with it. (Here, I omit the details of how such a process is implemented formally, which is not relevant for the further discussion.) Thus, the first step of the derivation forms intransitive verbs *clear* and *laugh*, respectively.

The second step of the derivation produces a transitive verb. This is carried out by adding the lower VP as a complement to a higher VP, as schematized in (22a). At this step of derivation, the asymmetry between the structures depicted in (21a) and (21b) is manifested. The intransitive verb (= V_1) is moved to the V_2 head. In such a configuration, the specifier (= ‘the screen’), which needs to be assigned a case, can receive it from the higher V_2 head, which also needs to assign case to a c-commanded NP. This results in a transitive configuration. However, if a denominal verb is transitivized, the initial structure does not have a specifier, so in a transitive structure there is no NP to which the transitive verb can assign a case. This is schematized in (22b).

(22) a.



b.



The postulated differences in the two structures lead to a non-trivial consequence — verbs like *laugh* cannot be labile, but verbs like *clear* can.

Important observations on how the semantics of nominal and adjectival stems and the semantics of verbs derived from them are related were made in [Harley 2005]. She notes that in constructions with resultative semantics ('become A'), not all adjectives behave in the same way. The difference between various types boils down to the difference between the scales associated with the adjectival base. According to [Kennedy, McNally 2005], adjectives can have 1) open scales, if the properties associated with them do not have minimal and maximal values (*long*, *short*, *beautiful*), 2) closed scales, if the properties associated with them have a minimal or a maximal value (or both; *full*, *bent*). Harley notes that closed-scale adjectives (*clean*) derive telic verbs (23), which can be proven by the fact that it combines with *in*-adverbials and not *for*-adverbials. At the same time, a verb derived from the open scale adjective (*long*) can be combined with a *for*-adverbial (24), suggesting that it is telic.

(23) *Jill cleaned the dish in / *for five minutes.*
= (35c) in [Harley 2005: 56].

(24) *Bill lengthened the rope for five minutes.*
= (33a) in [ibid.: 55].

The same tests show that, in English, different denominal verbs exhibit different telic properties. Some denominal verbs are telic (25), and some are atelic (26)–(27).

(25) *The mare foaled in 2 hours / *for 2 hours.*
= (9a) in [Harley 2005: 46].

(26) *The baby drooled for 2 hours / *in 2 hours.*
= (13a) in [ibid.: 47].

(27) *The athlete sweated for 2 hours / *in 2 minutes.*
= (13b) in [ibid.].

According to [Harley 2005], the account for these differences is attributed to the core semantic properties of the base nouns. Those may denote either countable (25) or uncountable, (26)–(27), entities. This concept is isomorphic to the concept of cumulative and quantized predicates, see [Krifka 1992; 1998], which formalizes the observed differences as follows: if any part of X is X, then the predicate is cumulative, otherwise it is quantized. Returning to examples (25)–(27), one can say that any part of 'sweat' is sweat, but it is not true that any part of a 'foal' is a foal.

In order to formalize the observed contrasts, Harley uses the notion of (un)boundedness. Roots like *foal* and closed-scale adjectives are labeled as [+bounded], and roots like *sweat* as well as open-scale adjectives are labeled as [–bounded]. [+bounded] roots give rise to telic verbs. Namely, the upper value of the property denoted by the adjective (like the absolute degree of being 'clean' in (23)) provides the telos of the corresponding deadjectival verb. In contrast, [–bounded] roots do not provide such a telos. Thus, a uniform explanation is given for the semantic properties of the two types of verbs.

Serious counterarguments to the theories considered in this section were provided by some researchers, see [Kiparsky 1997; Bleotu 2019], focusing both on theory-internal and empirical challenges they face. In the following sections, I will discuss the semantics and syntax of denominal verbs and show that, indeed, the predictions of the theories in question are not fully supported by the Hill Mari data.

4. Denominal derivation in Hill Mari

4.1. Denominal derivation is a regular process

In this section, I will refer to the question of whether denominal derivation in Hill Mari is a regular process and can be modeled in terms of conflation [Hale, Keyser 2002]. We have already seen that conflating the base stem results (in English) in a transitive structure: *The clown laughed* (**a laugh*), where the noun presumably leaves a trace. Thus, transitive structures are of special interest to my investigation, since Hale and Keyser's model predicts that if some initial structure is postulated, one would expect that there are some restrictions with respect to (in)transitivity of the derived structure[4]. Denominal verbs, primarily those that were arbitrarily labeled as "result verbs" (*aralaš* 'make a heap', *laštə̑klaš* 'cut into pieces'), can have direct objects. In such cases, using the verb with its cognate direct object is recognized as a tautology (28). However, cognate objects are much more acceptable, when used with modifiers (29).

(28) **vas'a ara-m ara-l-en.*
V. heap-ACC heap-DENOM-PRET
Int.: 'Vasya made a heap'.

(29) *vas'a kok ara-m ara-l-en.*
V. two heap-ACC heap-DENOM-PRET
'Vasya made two heaps'.

However, there are cases where the direct object and the denominal verb do not have the same stem, as in (30). Moreover, if the base noun is repeated not in the direct object but, for example, in adjuncts, this is judged as a perfectly acceptable combination.

(30) *vas'a šudə̑-m* (*ara-škə̑*) *ara-l-en.*
V. hay-ACC heap-ILL heap-DENOM-PRET
'Vasya gathered hay (in a heap)'.

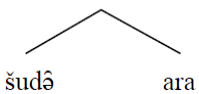
Some other verbs can be used either with a direct object or without it. In (31), the verb *igəläš* 'bring cubs' can take a direct object if the number of kittens which were born is clarified. In (32), the direct object is not required.

(31) *kot'i šəm kot'i igə-m igə-l-en.*
cat seven cat cub-ACC cub-DENOM-PRET
'The cat brought seven kittens'.

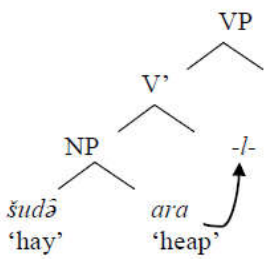
(32) *kot'i-em oš kot'i dono igə-l-en.*
cat-POSS.1SG white cat with cub-DENOM-PRET
'My cat brought [kittens] from the white [male] cat'.

The acceptability of direct objects receives a straightforward explanation in some theories. For instance, [Haugen 2009] proposes that the head noun in structures giving rise to denominal verbs can be spelled-out two times in some (pragmatically conditioned) contexts. Another possible solution is phrasal derivation proposed in [Tatevosov 2017] for Mishar Tatar. Under his approach, the initial structure from which denominal verbs emerge is a construction in which the noun and its possessor are juxtaposed to each other (33). In such a construction, the head is conflated with the verbal head, which does not violate any syntactic principles and does not require any additional assumptions. An abstract derivation of the denominal verb in such constructions is depicted in (33)–(34), which corresponds to the example (30).

(33) *šudə̑ ara*
hay heap
'a heap of hay'



(34)



[4] Hale and Keyser note that, in some cases, the restrictions are violated, because conflated nouns can go along with hyponym objects (*John danced a jig*). This fact will be discussed below.

However, it is not difficult to see that the approach introduced in [Hale, Keyser 2002] cannot be used to describe the full range of Hill Mari data. In fact, this approach is invoked to account for the lability of deadjectival verbs and its absence with denominal ones. In Hill Mari, both deadjectival and denominal verbs can be transitive as well as intransitive, cf. (35)–(36), and (37)–(39), respectively.

(35) *vas'a ar-l-en*
V. sober-DENOM-PRET
'Vasya got sober'.

(36) *pətäri=ok jämdə-l-en šənd-ät tâvârtâš-âm*
in.the.beginning=EMPH cooked-DENOM-CVB seat-NPST.3PL cottage.cheese-ACC
'In the beginning, they cook the cottage cheese'. (corpus)

(37) *jâl väl-nä šäre-n=ok mardež-l-ä*
Volga top-IN2 frequent-ADV=EMPH wind-DENOM-NPST.3SG
'It is often windy on the Volga river'.

(38) *tə toma ogol-eš kogo kužâ kris pač-an-âm pâda-l-en šəndə-š-nä*
that house corner-LAT big long rat tail-PROP-ACC nail-DENOM-CVB seat-AOR-1PL
'We nailed it to the corner of the house with [the nail] similar to a rat tail'. (corpus)

(39) *tuatkal-âm lastâk-l-aš*
cheese.cake-ACC slice-DENOM-INF
'to cut the cheese cake into slices'

Thus, I conclude that the notion of conflation can be applied to the Hill Mari data. It predicts that the noun (which is presumably conflated or incorporated into the verbal suffix) does not appear as the direct object of the verb, unless this is conditioned by additional (pragmatic) factors. At the same time, the crucial difference between nouns and adjectives postulated by Hale and Keyser cannot account for the full range of Hill Mari data, since both categories may give rise to both transitive and intransitive verbs.

4.2. Event structure of some denominal verbs

In this section, I will explore the event structure of denominal and deadjectival verbs containing the *l*-suffix. First, I will describe the tests that can reveal the event structure in Hill Mari in section 4.2.1. In section 4.2.2, I will consider some simple cases of denominal derivation. Then, in sections 4.2.3 and 4.2.4, I will describe successively the event structure of deadjectival predicates and instrumental verbs that are of particular interest to the theories of denominal derivation discussed in section 3.

4.2.1. Degree modification

Various theories of event structure are aimed at explaining the regularities that appear across the verbal lexicon. It has been noted since [Dowty 1979] that the semantic structure of all the predicates in a human language can be reduced to a set of recurrent templates. Dowty distinguishes several semantic primitives (CAUSE, BECOME, STATE, DO) which, used in various combinations, form all the possible classes of predicates. Subsequently, this idea was developed in various linguistic frameworks, of which the most influential are the theory of lexical templates [Levin, Rappaport Hovav 1998] and the theory of first-phase syntax [Ramchand 2008]. Although these theories vary in details, they converge on what the crucial components of verbal meanings are. [Ramchand 2008] assumes that the maximal structure of a predicate comprises the initial phase (init), process phase (proc), and result state (enter-into-state; res). However, in other theories the process phase may correspond to the BECOME component (in case of change-of-state verbs like 'redden') or to the DO component (in case of unergatives like 'run'). For more details, see the works cited. Some examples for different classes of predicates are given in (40), both in terms of Levin and Rappaport Hovav's templates and Ramchandian structures.

(40) DO <init, proc> activities ('run')
BECOME [STATE] <proc, res> non-agentive achievements ('melt')
CAUSE [BECOME [STATE]] <init, proc, res>agentive achievements ('break (sth.)')

The templates used in these theories are in fact combinations of semantic primitives reflecting the differences in components distinguishing the predicates of different semantic and structural types. For instance,

it is a well-established fact that activities are atelic verbs disallowing the use of in-adverbials (**He ran in ten minutes*). In terms of event structure, such verbs lack the STATE component (or "result state"). In contrast, achievements can be telic and are assumed to have the STATE component in their representation (*The ice melted in ten minutes*). In its turn, such predicates do not have the CAUSE component in their structure, that is, they do not encode the agent and its actions, which differentiates them from agentive achievements (*He broke the vase*).

Semantic resemblances unifying activities and agentive achievements gave rise to various observations that were formalized in [Ramchand 2008]. According to her, [init, proc, res] is the maximal possible event structure of a predicate. In this theory, the [res] component is equal to the STATE primitive. [proc] is the element describing the process phase of an event. In some cases, it is specified — for instance, verbs like 'run' lexically specify the process of running and not, say, the result of this process. Achievements (such as 'break') also have a [proc] component in their representation, but in this case, this component denotes a process of transition into a state — in other words, one can say that [proc] encodes the momentaneous process phase. The [init] component is responsible for introducing the agent activity into the semantic structure of the predicate. It can be detected in activities ('run') as well as in other agentive predicates ('break').

Although a detailed description of all the nuances of the event structure theories cannot be provided within a single paper, I emphasize that the main question justifying the use of these theories is what semantic component (if any) is introduced into the structure of the predicate by the affix. Above, I showed that the existing theories of nominal derivation assume by default that the crucial semantic contribution is provided by the base stem. Below, I will show that Hill Mari denominal and deadjectival verbs under study exhibit striking homogeneity and attribute this fact to the semantic contribution of the derivational affix.

To study the event structure of Hill Mari verbs, I will use the test with the attenuative marker that is sensitive to the event structure. The attenuative marker has several allomorphs, of which the most regular one is *-al*; other allomorphs are *-alal* and *-ândal* (along with front-voweled allomoprhs *-äl*, *-äläl*, *-ändäl*, respectively). For the morphology and semantics of the attenuative marker, see [Savatkova 2002: 212; Makarchuk 2019; Dyachkov, Strygina 2020]. Depending on the event structure of a verb, the marker can be interpreted as a degree modifier denoting short duration (41), a short-term result state (42), or reaching a low-degree on the scale of the property associated with a verb (43).

(41) *vas'a amal-al-ân.*
V. sleep-ATT-PRET
'Vasya slept a little'.

(42) *čüč-ändäl-dä kn'igä-vlä-m.*
shut-ATT-IMP.2PL book-PL-ACC
'Shut the books for a while!'

(43) *olma olmavu-štâ jakšar-g-al-ân.*
apple apple.tree-IN red-DETR-ATT-PRET
'The apple on the apple tree reddened a little'.

The question of how the semantics of the attenuative marker interacts with the event structure of a verb was addressed in detail in [Dyachkov, Strygina 2020; Dyachkov (ms.)]. It was shown that the marker can be used as a diagnostics of the event structure of the predicate, and the interpretation of the suffix depends entirely on its aktionsart properties. In a nutshell, atelic verbs, like 'sleep' in (41), only allow the delimitative interpretation. In other words, when modified by the *al*-suffix, such verbs can only denote an action whose duration is considered to be below the (contextually determined) standard. If a verb lexicalizes the enter-into-state interpretation, like 'shut' in (42), then the short enter-into-state interpretation arises. Thus, it is not the process component itself that is modified but the result state component.

[Dyachkov (ms.)] shows that in both cases, the semantics of the *al*-suffix can be reduced to a single invariant. Namely, one can label the affix as "delimitative", which implies that it modifies the temporal (and not any other) dimension of the predicate. Whether this temporal modification affects the process or the enter-into-state component, depends on the aktionsart. If a verb (in its Perfective form) has only atelic interpretations, then the only possible scale associated with this verb is the temporal scale ('do V for a little'), cf. (44). If a verb has only telic interpretation, then a short-term enter-into-state interpretation arises (45).

(44) *vas'a šänz-äläl-än.*
V. sit-ATT-PRET
'Vasya sat for a while'.

(45) *vas'a mən' do-k-em tol-ândal-ân.*
V. 1SG at-ILL2-POSS.1SG come-CAUS-ATT-PRET
'Vasya came to my place for a short time'[5].

Another possible interpretation that is different from the delimitative one is the low degree interpretation. This is so in case of many change-of-state predicates and incremental verbs. In case of these verbs, the interpretation created by the *al*-suffix is 'do V to a degree below the (contextually determined) standard'; short-term result state readings are ruled out. Change-of-state verbs are exemplified in (43); an example of incremental predicate is given in (46). Let us note that the latter may not have enter-into-state interpretations.

(46) *mən' sir-mäš-əm sir-äläl'-∅-əm.*
1SG write-NMLZ-ACC писать-ATT-AOR-1SG
'I wrote the letter for a little / *I wrote down the letter [so that it became written] for a short time'.

Let us note that incremental predicates and change-of-state verbs do not pattern with telic achievements such as 'shut', because, unlike the latter, they do not have short enter-into-state interpretations. This is is predicted by some formal models of the argument structure, see [Ramchand 2008].

To sum up, I claim that the *al*-suffix can be used as a reliable diagnostics of the event structure of the verb. The list of possible interpretations of the suffix is given below in (47).

(47) activities DO	'do V for a little, for a short time'	(example (41))
achievements BECOME + STATE	'enter-into-state for a little'	(example (42))
incremental verbs DO + Theme (INCR)	'do V for a little, to degree d < standard'	(example (46))
change-of-state verbs DO + *d*	'do V to degree d < standard'	(example (43))

In what follows, I will explore the event structure of several types of deadjectival verbs using the attenuative test. Along with some other tests, it will be applied to reveal the properties which are relevant for the present discussion. Namely, if non-bound nouns give rise to atelic verbs as is predicted by the existing models, one would expect that those would behave like any atelic predicates. On the contrary, verbs derived from bound nouns, in principle, can pattern either with atelic predicates (with respect to the attenuative test), or with telic achievements. These options are explored below.

4.2.2. Some simple cases

In this section, I will show some simple cases that confirm the generalizations made in [Harley 2005]. Harley predicts that quantized nouns derive telic verbs, and this prediction is borne out in some cases. For instance, in (48), the verb is derived from the quantized noun *kapna* 'mop' is telic, which can be diagnosed by compatibility with the *in*-adverbial.

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[5] An anonymous reviewer points out that the list of possible interpretations given here is not exhaustive. For instance, in the following cases the meanings of the verb modified by the attenuative marker cannot be reduced to those mentioned in this section:

(i) *üpšə-m jamd-alal-ân*
hair-ACC lose-ATT-PRET
'He lost his hair partially'.

(ii) *veremä-m jamd-alal-ân*
time-ACC lose-ATT-PRET
'He lost a part of his time'.

I completely agree with the reviewer. However, it is also noteworthy that in all the cases that were mentioned by them the nouns used as direct objects are cumulative, which may enlarge the range of possible interpretations. It seems quite plausible that partitive interpretations like those exemplified above arise due to the relation that is established between the predicate and the cumulative noun and are fully determined by the latter. I thank the reviewer for their useful comments on this issue.

(48) *vas'a kok cäš-əštə šudô-m kapna-l-en.*
V. two hour-IN hay-ACC mop-DENOM-PRET
'Vasya gathered hay in a mop in two hours'.

Given the incremental nature of predicates such as *kapnalaš* 'make a mop', one can predict that adding the *al*-suffix would result in the delimitative interpretation ('do V for a short time'). This is in fact confirmed by my data, which is shown below with the verbs *kapnalaš* 'make a mop' and *aralaš* 'make a pile'. In the latter case, the reading 'make a small heap' arises. I assume that this reading is due to the implicature — a short-term action of creating a heap results in a small, and not in a big, heap.

(49) *vas'a šudô-m kapna-l-al-ôn.*
V. hay-ACC mop-DENOM-ATT-PRET
'Vasya was making mop for a little / made a small mop'.

(50) *vas'a pu-m ara-l-al-ôn.*
V. firewood-ACC heap-DENOM-ATT-PRET
'Vasya stacked firewood for some time / made a small heap of firewood'.

These statements hold true of some verbs listed in (5) and labeled as "result verbs", if (and only if) the relation between the dynamic component (presumably expressed by the verbalizing suffix) and the conflated direct object is incremental. If this is not so, this might lead to infelicity. For instance, (51) was judged as unacceptable.

(51) **kot'i igə-l-äl-ən*
cat cub-DENOM-ATT-PRET
'*The cat gave birth to kittens for a while'.

Although the conflated direct object is a bound noun, combining it with the *l*-suffix does not create an incremental relation. As a consequence, the delimitative interpretation is ruled out, unlike with other "result verbs". Thus, a following generalization considering the "result verbs" can be made.

(52) ***Generalization 1***
If the conflated noun is bound and incremental, the denominal verb derived from it is telic. The denominal verb lexicalizes the DO component and has a delimitative interpretation, when combined with the attenuative

4.2.3. Deadjectival verbs

In this section, I will explore the event structure of deadjectival verbs containing the *l*-suffix. I will show that there is no one-to-one correspondence between the scalar properties of the base adjective and the telic properties of its deadjectival counterpart.

Deadjectival verbs with the *l*-suffix are not numerous but are represented by three structural types — unergatives, inchoatives and causatives. Below, I will explore the properties of all of them based on the available data.

It is noteworthy that in Hill Mari, deadjectival verbs are not necessarily verbs containing a BECOME component. In fact, only some predicates are inchoative and denote transition into state (53). Other verbs do not denote such a transition, as in (54), where the verb refers to a certain state of affairs ('Vasya is lime') and not to a transition into this state[6].

(53) *vas'a ar-l-en*
V. sober-DENOM-PRET
'Vasya got sober'.

(54) *vas'a akšak-l-a.*
V. lime-DENOM-NPST.3SG
'Vasya limps'.

[6] An anonymous reviewer points out that, although [Savatkova 2002] and [Galkin 1966] treat the verb *akšaklaš* as deadjectival, this might not be the case, since the word *akšak* can be used as a noun as well ('a lime man'). I should emplasize that the regular conversion of adjectives into nouns is typical of all Finno-Ugric languages, see [Shitz 2012] for an overview and references therein, and the problem of detecting the principles of this conversion is far from being solved, both descriptively and theoretically. Even though *akšak* may be initially a noun, I assume that it can denote a quality. Moreover, my assumption does not contradict the cross-linguistic observations on verbs with the same meaning, cf. Russian *xromat'* 'limp' which is definitely a deadjectival and not a denominal verb. I thank the reviewer for pointing me out at this.

Let us note that the question of what semantic component is introduced by the derivational affix is not discussed in detail in the models I have considered in section 3.1. Hale and Keyser do not discuss the semantic contribution of the verbalizing morphemes, since many deadjectival and denominal verbs in English are zero-derived. However, even in the cases where the affix is not null (as in *short-en*), it is assumed by default that its contribution is purely syntactic and that the affix does not have its own semantics. If one assumes that this is indeed the case in Hill Mari, then there are at least two possible ways to account for the contrast observed in (53) and (54). First, one can suggest that, in fact, there are two (and possibly even more) semantic variants of the same affix, namely the *l*-suffix denoting 'become A' and another *l*-suffix denoting 'behave in A manner'. Second, one may suppose that the *l*-suffix is always the same, and some semantic component encoded by the (adjectival) base is responsible for the (a)telicity of the deadjectival verb.

I assume that if the second suggestion is on the right track, then the difference between the inchoative and non-inchoative verbs boils down to the difference between the scalar properties of the adjectives involved. Below, I will explore the properties of the adjectives *akšak* 'lame', *jämdə* 'ready, prepared', and *arə̂* 'sober' that derive verbs with the *l*-suffix. The scalar properties of Hill Mari adjectives can be detected using the intensifying adverbial *piš* 'very, absolutely'. If it is combined with an open-scale adjective, the 'very' interpretation arises (55). With closed-scale adjectives, the adverbial can be used to express the maximal degree of the property (56).

(55) *vas'a piš šongə̂*
V. very old
'Vasya is very old'.

(56) *ti küer piš jərgeškä*
this stone very round
'This stone is absolutely round'.

Some adjectives in Hill Mari do not combine with *piš*. Under a universalist approach, adjectives like 'ready' and 'sober' are treated as scalar ones, which can be revealed by the compatibility tests such as the test with 'completely'-adverbials, see, e.g., [Kearns 2007] for discussion. This can be seen in (57), where a Russian example is given. Such tests allow us to claim that such adjectives encode a scale and, moreover, that this scale is a closed one. However, there is no evidence that the Hill Mari counterparts of such adjectives are associated with any scale at all. Second, if one assumes that an adjective is a closed-scale one, then the prediction is that maximal degree of the corresponding property can be expressed by adding *piš*, as in (56). This prediction is not borne out, cf. (58), illustrating the use of the adjective 'sober'. The same holds true of the adjective 'ready' (59).

(57) *on polnostju trezv.*
he completely sober-M.SG
'He is completely, absolutely sober'.

(58) **vas'a piš arə̂.*
V. very sober
'*Vasya is very sober'.

(59) **kačkə̂š piš jämdə.*
food very ready
'*The food is very cooked'.

Given the (presumably) intensifier nature of the adverbial *piš*, (58) is not surprising — if somebody is sober, that is, does not have a single drop of alcohol in their blood, then becoming even more sober is just impossible. However, in Russian, the adjective 'sober' exhibits the properties of gradable, closed-scale adjectives, whereas in Hill Mari, this might not be the case.[7] One can suggest that 'sober'-like adjectives either lexicalize the maximal degree of the scale or are not associated with any scale at all, the question I will leave for the future research. However, I claim that the standard scalarity tests do not allow us to conclude unequivocally that 'sober'-like adjectives are closed-scale items.

Nevertheless, there are strong asymmetries between the deadjectival verbs in question. The verb 'get sober' is a predicate containing the BECOME component in its structure, whereas the verb 'lame' is not. Let us consider the structure of these verbs in detail. The adjective *akšak* 'limp' is not an open-scale adjective and does not

[7] Strictly speaking, the facts that were discussed above clearly indicate that in Hill Mari, there are at least two types of adjectives that correspond to the class of closed-scale adjectives in European languages. A detailed formalized description of this phenomenon goes beyond the scope of this paper.

combine with the adverbial *piš* (60). However, there is another option to analyze this adjective with a lower closed scale. Verbs derived from such adjectives may denote reaching the minimal degree of the property (‘enter the state that counts as minimally A’). This option is ruled out in Hill Mari (61).

(60) **vas'a piš akšak.*
V. very lame
‘*Vasya is a little lame’.

(61) *vas'a akšak-l-en.*
V. lame-DENOM-PRET
‘Vasya limped’.
*‘Vasya became lame’.

A question arises what factor conditions the absence vs. presence of the inchoative interpretation of a verb. Given the fact that the same affix is used both in case of the verb ‘lame’ and the verb ‘get sober’, one would expect that the difference between the two boils down to the difference in scalar properties, as predicted by Harley’s model. I will return to this question below in section 4.2, where I will also consider the problem of different flavours of the *l*-suffix. So far, I have shown that there are no tests revealing the formal difference between the ‘sober’- and ‘lame’-like adjectives. Now let us turn to the question of the event structure of the verbs derived from the adjectives discussed. Applying the attenuative test described in section 3.4, one can see that different readings arise. In (62), the deadjectival verb denotes the low degree of being ‘lame’.

(62) *vas'a akšak-l-al-eš.*
V. lame-DENOM-ATT-NPST.3SG
‘Vasya limps a little’.

If a derived verb has an inchoative meaning, its modification by the attenuative suffix is also possible. In (63), the degree to which an individual reached the state ‘sober’ state is modified.

(63) *vas'a ar-l-alal-ən.*
V. sober-DENOM-ATT-PRET
‘Vasya got sober a little’. (degree < standard)

In (64), which is an example of transitive predication, adding the attenuative suffix gives rise to interpretations in which either the degree of quality of the process or the temporal dimension of this process is modified. The first reading is associated with the temporal dimension (‘do V for a short time’). I assume that the second reading arises as an implication — if somebody is cooking food for a short time, then the food should be prepared to a degree which is below the standard. I argue that the degree-of-readiness interpretation should be excluded due to the fact that the base adjective does not combine with degree modifiers. Both types of interpretations are typical of the activity verbs, as was shown before in section 4.2.2.

(64) *vas'a kačk-âš-âm jämdä-l-äl-ən.*
V. eat-NACT-ACC ready-DENOM-ATT-PRET
a. ‘Vasya cooked food a little [and ran away]’. (short enter-into-state)
b. ‘Vasya cooked food badly, in a hurry’[8]. (degree < standard)

One can suggest that all the verbs in question (*jämdäläš* ‘cook, prepare’, *arlaš* ‘get sober’, and *akšaklaš* ‘limp’), when modified by the attenuative, refer to a degree to which the property denoted by the adjective is reached. However, this interpretation is problematic, since these adjectives do not denote gradable properties in Hill Mari, as was shown before. Taking this into consideration, I claim that the degree modifier takes into its scope the combination of the base and the affix and not the base itself. A natural objection is that the attenuative suffix cannot modify adjectives, and this is the main reason why it does not take into its scope the adjectival stem itself. However, adding other degree modifiers does not lead to different results. As was shown in (60), the adjective *akšak* ‘lame’ does not combine with the degree modifier *iziš* ‘a little’, but its denominal counterpart does (65).

[8] In this case (as well as in some cases mentioned below) the interperation ‘badly’ denotes the degree which is evaluated as non-sufficient (in a given context). The question of whether this interpretation can be reduced to the one attested in more clear-cut cases where there is no component of evaluation, such as (43) or (63), is yet to be studied. It is quite plausible that the interpretation (64b) may be an implication of (64a), because cooking food badly may be the result of cooking food for a short time. However, I claim that short-term actions and short-term enter-into-states are conceptually different.

(65) *vas'a iziš akšak-l-a.*
Вася a.little lame-DENOM-NPST.3SG
'Vasya limps a little'.

Informally, the following generalization about unergative verbs like *akšaklaš*[9] can be formulated: such verbs do not encode the degree associated with the original adjective (which it is degree-less), but the degree to which the action is manifested. Thus, it is not the scalar properties of the initial stem that are inherited by the deadjectival verbs, because the stems do not encode degrees; however, the degree interpretation is provided by the suffix introducing the process component into the structure of the predicate.

4.2.4. Instrumental verbs

In this section, I will describe the semantic properties of verbs that are derived from the names of tools or instruments. Although these denominal verbs correspond to bound nouns ('nail', 'hoe' etc.), intuitively, one would not expect that they are obligatorily telic. They can be paraphrased as 'act with X', and since there is no incremental relationship between the process component and the noun incorporated, it is not clear how the boundedness of the noun would affect the semantics of the derived verb.

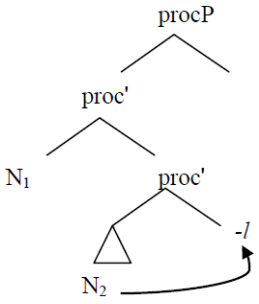
The attenuative test shows that instrumental verbs vary with respect to the set of their possible interpretations. Some examples are given below in (66) and (67).

(66) *vas'a xanga-m pə̂da-l-al-ə̂n.*
V. nail-ACC nail-DENOM-ATT-PRET
a.'Vasya nailed the plank for a short time [and went away]'. (short enter-into-state)
b. 'Vasya nailed the nail badly'. (degree < standard)

(67) *vas'a saraj-ə̂m paškar-l-al-ə̂n.*
V. barn-ACC bolt-DENOM-ATT-PRET
a. 'Vasya bolted the barn for a short time'. (short enter-into-state)
b. 'Vasya bolted the barn badly'. (degree < standard)[10]

Example (66) is similar to all the cases that I examined before. One of the interpretations of the verb is delimitative, and the other denotes a lower degree to which the action is performed. In (66), this is the degree to which the nail is planted. Example (67) shows that there is a result sub-event in the structure of the verb, since one of the possible interpretations is the short entry-into-state one. However, semantically, it is unlikely that the presence of this interpretation is determined by the boundedness of the stem *paškar* 'bolt'. In case of verbs like *kapnalaš* 'make a mop', the boundedness is determined by the presence of the culmination, that is, the point after which making a mop can no longer be performed. In case of *paškarlaš* 'bolt sth.', such a culmination point could be the point at which the shed is completely bolted. Meanwhile, it is not clear what initial syntactic structure could describe such a situation. An abstract scheme for instrumental verbs may look like (68), where N1 corresponds to the direct object of the verb (if it has one), and N2 to the noun merged with the suffix.

(68)



In such a structure, the name of the instrument is incorporated into the verbal suffix but does not affect the event structure of the predicate. At the same time, (67) shows that the predication 'bolt the barn' clearly has a

[9] An anonymous reviewer raises the question of what other verbs of this type can be. I am not aware of any cross-linguistical evidence of the existence of unergative verbs with similar semantic properties. So, it might really be the case that verbs derived from stems with the meaning 'lime' are unique to some extent.

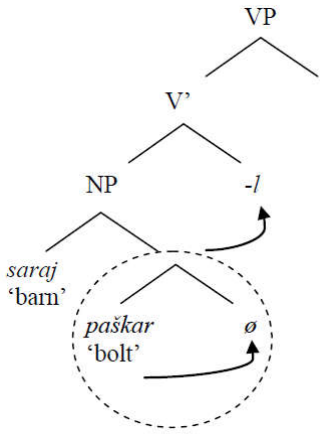
[10] In this case, the interperation 'badly' denotes the degree which is evaluated as non-sufficient (in a given context). The question of whether this interpretation can be reduced to the one attested in more clear-cut cases where there is no component of evaluation, such as (43) or (63), is yet to be studied.

result state in its semantic structure, thus giving rise to the interpretation ‘bolt (= lock) for a while’. But how does the result state appear in the structure of the verb? If the *l*-suffix encodes the STATE component, this contradicts my original assumption. (Recall that this assumption arises from the fact that some of the verbs with the *l*-suffix — namely, behavior-related verbs — cannot be telic.) However, the result state in (67) can also be due to the presence of the result state ‘barn is locked’. For instance, in Russian such a state of affairs can be expressed by the following sentence that includes a PP taking the noun ‘bolt’ as its complement.

(69) *saraj na zasov-e.*
barn on bolt-LOC
‘The barn is bolted (*lit.* on a bolt)’.

Hypothetically, one can assume that in Hill Mari, the nouns ‘barn’ and ‘bolt’ also form a syntactic structure describing the state of affairs ‘barn on a bolt’. In such a structure, the name *paškar* ‘bolt’ would conflate into some null head first, which, in turn, would merge with the procP head. Such a process can be formalized as in (70).

(70)



However, such a suggestion is not supported by the Hill Mari data. The main problem boils down to the question of what initial syntactic structure the result state component would correspond to. Let us assume that the notion ‘barn [on] a bolt’ is encoded by a certain syntactic structure. This idea can be expressed in Hill Mari as follows:

(71) *saraj paškar dono pitärä-mä*
barn barn with shut-PTCP.PASS
‘The barn is locked with a bolt’.

At the same time, in Hill Mari, unlike in Russian, it is impossible to build a structure without a full-fledged verb:

(72) **saraj paškar dono (âl-eš).*
barn barn with be-NPST.3SG
Int.: ‘The barn is bolted’.

If this were not the case, then one could assume that at the first stage of derivation, the noun *paškar* merges with the zero element expressing spatial semantics, and then the whole structure merges with the VP. However, we have seen that there is no reason to postulate such a structure. Thus, example (67) is problematic for the current syntactic theory, since there is no satisfactory explanation of where the interpretation of the resulting state comes from in this case. A possible explanation is that verbs like *paškarlaš* are interpreted as any verbs of shutting, and, as a consequence, have the same set of attenuative interpretations, compare (42) and (67). However, if this is so, then these verbs are non-compositional, or that the purely syntactic approach should be modified, which, however, does not compromise my other observations on the event structure of denominal verbs.

5. Discussion

5.1. *l*-suffix(-es): how many of them?

After having investigated the properties of denominal and deadjectival verbs, I can turn to the question of how the meaning of the derivational suffix interacts with the meaning of the stem. The key problem is the number of different semantic representations for the same affix. One can suggest that the *l*-suffix has different semantic flavours that cannot be reduced to a single invariant. For instance, it is possible to claim that instrumental

verbs (like ‘to bolt’ or ‘to nail’) contain the suffix *-l*$_1$ meaning ‘do with X’, and that inchoative verbs (like ‘get sober’) contain the suffix *-l*$_2$ ‘become X’. However, we have already seen that all the affixes in question show uniform behavior. First of all, the following generalization can be made.

(73) ***Generalization 2***
Denominal verbs with the *l*-suffix do not lexicalize the result state component but do lexicalize the process component. This can be revealed by the attenuative test showing that denominal verbs do not have short-term enter-into-state readings

In other words, adding the attenuative suffix shows that denominal verbs pattern with the verbs specifying the process component and not with those specifying the result state component. This is so because all the verbs we have explored exhibit the readings which are typical of the former but not the latter, the only difference being that deadjectival verbs refer to degrees of properties and denominal verbs to degrees of actions (‘be/become a little X’ vs. ‘do X for a little’). Under this approach, the instrumental verbs which are derived from bound (quantized) nouns and are easily paraphrasable as ‘do something with X’ also denote short-term activities, when combined with the attenuative. (However, see also some problematic cases which were discussed in section 4.2.4.) (74) is another example of a verb derived from a bound noun (‘guest’), and it also denotes a short-term activity.

(74) *mä do-n-na iziš xə̑na-l-al-Ø.*
we at-IN2-POSS.1PL a.little guest-DENOM-ATT-IMP
‘Stay with us [= be our guest] for a little’.

Taking into consideration Generalizations 1 and 2, it is easy to account for the properties of some nouns derived from bound nouns and adjectives which were already discussed in sections 4.2.2 and 4.2.3. As was mentioned before, some formal theories (e.g., [Ramchand 2008]) claim that the change-of-state verbs and incremental predicates do not lexicalize the result state component but do lexicalize the process component. Telicity of these verbs is provided by the degree variable associated with the adjectival scale or the incremental noun. The verbs like *arlaš* ‘get sober’ and *kapnalaš* ‘make a mop’ are telic but pattern with the verbs lexicalizing the process component.

Thus, all the uses of the *l*-suffix exhibit similar properties with respect to the event structure. Finally, I will address the issue of deadjectival verbs which are derived from adjectives of different semantic types. Assuming that both verbs like *akšaklaš* ‘limp’ and verbs like *arlaš* ‘get sober’ are derived with the same suffix, a question arises whether it contributes the same semantic component in both cases. I suppose that the answer is negative. The semantic templates for both types are given in (75).

(75) *ar-l-aš* ‘get sober’ BECOME + Adj
akšak-l-aš ‘limp’ DO + Adj

In order to describe exhaustively the semantics of the derivational affix, a detailed investigation of how the choice of the semantic primitive (DO vs. BECOME) depends on the semantic type of an adjective is needed. For some suggestions on this issue, see [Harley 1999], and [Bleotu 2019: 28–30] for criticism of the paraphrase-based approaches to denominal derivation. I hypothesize that in languages with systems which are similar to the one attested in Hill Mari, it is quite possible that human propensity adjectives like *akšak* ‘lame’ obligatorily give rise to activity (and not change-of-state) predicates. However, the exact semantic reason for this is yet to be studied, and the hypothesis should be confirmed by large-scale data from various languages.

To sum up, I propose that the *l*-suffix can receive a single structural representation. It encodes the DO or BECOME operator, or [proc] component (in terms of Ramchand’s structures). However, we have seen that adjectives may give rise to different structural types, which is presumably conditioned by their semantic classes (human propensity adjectives vs. other semantic types).

5.2. *lan*-suffix and its nature

In this section, I will briefly discuss the suffix *-lan* deriving behavior-related verbs. I have already noted that verbs with this suffix can have various meanings (see section 2.2). In addition, the suffixes *-lan* and *-l* are interchangeable in some cases.

The fact that the *lan*-suffix is used to derive both inchoatives and behavior-related verbs is not accidental. Cross-linguistically, there are two strategies of encoding behavior-related verbs — they pattern either with causatives or with inchoatives [Dyachkov 2018: 116–138]. For some case studies of the phenomenon, see [Megerdoomian 2001] on Persian, [Oltra-Massuet, Castroviejo 2013] on Spanish, and [Martin, Piñón 2020] on French.

Is this syncretism conditioned by some structural factors? [Galkin 1966: 84] assumes that the *lan*-suffix is a Chuvash loan. In the Turkic languages, the *lan*-suffix has a range of meanings similar to that of the Hill Mari *-lan*, and is often analyzed as the combination of the verbalizing affix *-l* and the reflexive voice marker, see, e.g., [Levitskaya 1976: 165–167] on Chuvash[11]. In the variety of Hill Mari under study, the suffix is often interchangeable with the *l*-suffix, see (17), repeated here as (76).

(76) *pogodə̑ mardež-län-ä / mardež-l-ä.*
weather wind-MAN-NPST.3SG wind-DENOM-NPST.3SG
'It is windy'.

Applying the attenuative test, one can see that *lan*-verbs exhibit a range of properties similar to that of *l*-verbs. (77) refers to short-term duration of the event, and (78) to the lowered degree of the state.

(77) *paškudə̑-vlä juk-lan-al-ə̑n-ə̑t dä cärn-en-ət.*
neighbour-PL noise-MAN-ATT-PRET-3PL and stop-PRET-3PL
'Neighbours were making noise [for a short time] and stopped'.

(78) *pet'a maša gəc šek-län-äl-eš.*
P. M. EL incommodity-MAN-ATT-NPST.3SG
'Petya is a little shy of Masha'.

It is quite natural to assume that the interchangeability of the two affixes is due to the fact that they are structurally equal. However, there is a significant distinction between them. As can be seen in (12)–(15), all the *lan*-verbs are intransitive[12], whereas many of *l*-verbs are not. In other words, the external argument of the *l*-verb should be added to the structure under certain conditions but cannot be added (or, in other words, should be co-indexed) in the case of *lan*-verbs. Thus, I hypothesize that the semantic representation of the *lan*-suffix should include the process component (which can be revealed by the attenuative test) and another component whose function is to co-index the undergoer of the process and its initiator. This is schematized in (79) in terms of Ramchand's model.

(79) [init $_x$ [proc $_x$]]

This proposal is consistent with all the facts that were considered in this paper. First of all, if it does go back to the hypothesized Chuvash combination of the verbalizing affix and the reflexive marker, then its co-indexing function is obvious. (However, the question of whether the suffix was loaned to Hill Mari with the same structural representation needs additional verification.) Second, the semantics of the behavior-related verbs should be paraphrased as follows. With these verbs, the *lan*-suffix signals that the initiator and the undergoer of the action are co-indexed, which is quite consistent with the semantics of these verbs. Third, in case of intransitive predicates, co-indexing is redundant as no additional arguments are added, and both affixes are logically equivalent.

5.3. Possible structural types of denominal verbs: implications for typology of the phenomenon

Taking into consideration the facts discussed above, it is possible to assume that different affixes deriving denominal verbs may lexicalize different levels of event structure. Indeed, this suggestion seems to be confirmed by the data from both Hill Mari and other languages. In Hill Mari, there is another derivational affix deriving deadjectival verbs, namely the *em*-suffix. Its distribution and semantic properties are described in [Dyachkov 2017]. Applying the attenuative test, one can reveal the presence of the result state component. This is shown in (80), where one of the possible readings of the verb is the short-term enter-into-state reading.

(80) *rok pingəd-em-äl-ən.*
soil solid-INCH-ATT-PRET
'The soil got solid a little / for a short time'.

Although a detailed investigation of the event structure is needed in this case, I hypothesize that the affix may introduce the result state component. Its meaning is 'become A', and it is quite natural to assume that this semantics encompasses both the BECOME and STATE components, unlike in the case of the *l*-suffix.

Moreover, there is evidence that in some languages, the affixes deriving deadjectival and denominal verbs encode other levels of the event structure. Based on these facts, I propose the following formal typology of de-

[11] For a similar analysis of the cognate Karaim suffix, see [Musaev 1964: 231–235].

[12] [Galkin 1966: 83] notes that the only transitive *lan*-verb in Mari is *šišlanaš* 'ferret out', but its derivational relation with the verb *šižaš* 'perceive' is not evident.

nominal affixes (stated in terms of Ramchandian structures and Levin and Rappoport Hovav's templates) representing all logically possible combinations of semantic components. The types are exemplified below.

(81)	[init, proc]	CAUSE + DO/BECOME	Hill Mari *-lan*
	[init]	CAUSE	Russian theme vowel *-i*
	[±init, proc]	DO/BECOME	Hill Mari *-l*
	[proc]	DO/BECOME	Russian theme vowel *-e*
	[proc, res]	DO/BECOME + STATE	Hill Mari *-em*

Within this typology, the *l*-suffix is [±init, proc], since it does not encode the information on the external argument. As a consequence, the verbs containing this suffix may be both agentive (that is, include [init] in their semantic structure) and non-agentive. On the contrary, cross-linguistically, derivational affixes that disallow one of these options were attested. For instance, in Russian, the theme vowel *e* derives only intransitive deadjectival and denominal verbs [Shvedova 1980: 344–345]: *belyj* 'white' — *bel-e-t′* 'become white'. No agentive verbs can be derived with this vowel, and thus, in terms of the typology proposed, the theme vowel is [proc]. At the same time, this affix does not encode obligatorily the result state, since it also gives rise to predicates lacking it. For instance, the same adjective *belyj* 'white' derives colour emission verbs (*bel-e-t′* 'whiten, show white').

It is also assumed that in Slavic languages, the *i*-theme vowel deriving causatives and unergatives is associated with both initial and process subevents [Shvedova 1980: 332–335; Jabłońska 2007; Dyachkov 2021]: *belyj* 'white' — *bel-it-t′* 'paint sth. white', *xitryj* 'cunning' — *xitr-i-t′* 'behave in a cunning way'. This, it specifies the [init, proc] sequence, implying that [init] encodes the presence of the agent and [proc] the process component. Another example of [init, proc] structure is the *lan*-suffix. It is different from the affixes encoding [proc] in that the former derives unergative verbs which are agentive and encode [init] by definition. I assume that the contribution of the suffix is to indicate that the agent and the undergoer of the process are the same entity, as was sketched in section 5.2. Hence, the affix is [init, proc]. However, I argue that the contribution of [init] is different in the case of the *i*-vowel and the *lan*-suffix. In the former case, the [init] component introduces the agent, and in the latter case, it co-indexes two participants. Thus, at least two different "flavours" of [init, proc] affixes can be distinguished:

(82)	[init_x, proc_y]	*i*-theme vowel
	[init_x, proc_x]	*lan*-suffix

At the same time, affixes introducing result states should be distinguished from those not doing so. As I showed in this paper, the Hill Mari *l*-suffix does not obligatorily introduces the result state into the structure of the predicate. Neither does the Russian *e*-theme vowel which derives verbs having BECOME component (*bel-e-t′* 'become white') but not the enter-into-state component. The latter is introduced by perfectivizing prefixes in Russian: *po-bel-e-t′* 'become white'. However, it is possible to hypothesize that affixes encoding [proc, res] exist in languages of the world.

The question of whether affixes encoding the sequence [init, proc, res] can be found remains open.

A detailed investigation of how the semantics of a stem interacts with the semantics of a derivational affix in different languages is a matter of future research. Some of the problems associated with these issues have already been discussed — for instance, the problem of human propensity adjectives that derive activity predicates but not achievements or accomplishments. Of course, all this goes beyond the scope of the present paper.

6. Conclusion

In this paper, I explored the properties of Hill Mari denominal and deadjectival verbs derived with the suffixes *-l* and *-lan*. The properties of some of these verbs depend on the semantic properties of the base stem, as predicted by the existing theories. Namely, quantized (bound) nouns often give rise to telic verbs, thus confirming the generalizations formulated for some European languages. However, it is not in all cases that these generalizations work. I showed that there is no one-to-one correspondence between the semantic properties of adjectival stems and semantic properties of the verbs derived from them. Although some adjectival stems are not gradable, their deadjectival counterparts are. I proposed that this fact is due to the process component that is introduced by the suffix. This suffix determines the range of interpretations accessible for a verb, and most denominal and deadjectival predicates exhibit the properties that are typical of other Hill Mari verbs with the specified process component. Many verbs that are derived from nouns of other semantic types (instruments, human roles, etc.) exhibit a similar range of properties. I also proposed that, cross-linguistically, there exist suffixes specifying other components of the event structure.

Abbreviations

1, 2, 3 — 1st, 2nd, 3rd person
ACC — accusative
ADV — adverbial
AOR — aorist
ATT — attenuative
CAUS — causative
CVB — converb
DENOM — denominal affix
DETR — detransitive
EL — elative
EMPH — emphatic particle
ILL — illative
IMP — imperative
IN — inessive
INCH — inchoative
INF — infinitive
LAT — lative
LOC — locative
M — masculine
NACT — non-active denominal
NPST — non-past
MAN — manner verb
NMLZ — nominalization
PASS — passive
PL — plural
POSS — possessive
PRET — past
PROP — proprietive
PTCP — participle

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