



# Deconstructing North Sámi sensitive verbs

MARIT JULIEN 

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## Abstract

North Sámi has a class of derived verbs called *sensitive verbs*. Descriptively, these verbs are formed by adding the suffix /j/ to an adjectival or nominal base, and the resulting verb means ‘find [object] (too) ADJECTIVE/NOUN’. In this paper it is argued that the sensitive verbs do not involve any psychological verb, and the suffix is not specified as “sensitive” in the lexicon. Rather, the suffix is specified as a realisation of a stative verbaliser in a transitive structure. The interpretation of the verb and the experiencer role of the subject follow from this specification in combination with the syntax of the verb phrase as a whole, which has a stative verbaliser and a Voice head on top of a minimal aP or nP. Other vocabulary items that could spell out the stative verbaliser are prevented from appearing in the sensitive verb phrase, since the conditions for inserting them are not met. The consequence is that the suffix /j/ is restricted to sensitive verbs.

CORRESPONDING AUTHOR:

**Marit Julien**

Lund university, SE

[Marit.Julien@nordlund.lu.se](mailto:Marit.Julien@nordlund.lu.se)

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North Sámi is known to have a rich inventory of derivational suffixes – suffixes that form verbs from nouns and adjectives or from other verbs, nouns from verbs, adjectives from nouns and verbs, to mention some main types. In this paper, I will take a closer look at one particular derivational suffix, the suffix /š/, spelled š, which forms verbs from adjectives or nouns. More precisely, the suffix attaches to an adjective or noun and returns a transitive verb meaning ‘[subject] find [object] (too) ADJECTIVE/NOUN’.<sup>1</sup> A few examples are given in (1). Note that the verbs are given in the infinitive, with the infinitival suffix *-it* following the derivational suffix.<sup>2</sup>

- (1) a. amas ‘strange’ > amašit ‘find [object] strange’  
 b. divrras ‘expensive’ > divrrašit ‘find [object] expensive’  
 c. headju ‘bad’ > hejošit ‘find [object] bad’  
 d. jalla ‘stupid’ > jallašit ‘find [object] stupid’  
 e. váivi ‘nuisance’ > váivvášit ‘find [object] a nuisance’

In the standard descriptive grammars of North Sámi, Nielsen (1926: 263–264) and Nickel (1990: 292–293), these verbs are labelled *sensive*. This is then also the term that I will use here.

At first sight, it seems that the suffix /š/ must be quite rich semantically, adding much meaning to the adjectival or nominal base. However, adopting a syntactic approach to morphologically complex words, as in Distributed Morphology (see, e.g., Halle and Marantz 1993; 1994; Halle 1997; Marantz 1997; Harley & Noyer 2000; Embick & Noyer 2007; Embick 2010), I will show that the meaning of the sensitive verbs arises as a consequence of the combination of elements that are semantically quite simple. In particular, there is no specifically “sensitive” suffix.

This paper is thus intended as a contribution to the long ongoing debate on the relation and the division of labour between the lexicon and the syntax. On one side in this debate there are approaches that are referred to as lexicalist, e.g. Levin & Rappaport Hovav (2005). What they have in common is the assumption that the lexicon contains grammatical information which to some degree determine the structures that the lexical items appear in. On the other side are approaches that might be called constructionist, e.g. Borer (2005a; 2005b; 2013) and Ramchand (2008), which all take the syntactic structure to be built first, in accordance with general principles, and the lexical items to be inserted later. The lexical items have to be compatible with the syntactic structure, but it does not have to be a structure that they routinely appear in. The present paper takes its position on the latter side.

More precisely, my analysis is formulated within the model known as Distributed Morphology. Distributed Morphology, or DM for short, is a syntax-based approach to word structure which has become quite influential over the years. It was introduced in Halle and Marantz (1993; 1994), and has later been further developed and refined in a number of works by several authors, such as e.g. McGinnis (1995); Halle (1997); Marantz (1997); Noyer (1998); Harley & Noyer (2000); Embick & Noyer (2007) and Embick (2010). Distributed Morphology takes syntactic structure to be built from abstract morphemes, consisting of morphosyntactic and semantic features only. These abstract morphemes are related to phonological features when the syntactic representation is handed over to spellout, where so-called *vocabulary items*, some corresponding to roots and others corresponding to (bundles of) functional features, are inserted in the syntactic terminal nodes.

The paper is organised as follows. In section 2 I present the main properties of North Sámi sensitive verbs. I show that these verbs are transitive and stative and that they take an experiencer subject. In section 3 I identify the syntactic elements that the sensitive verbs are built from: the root, the nominal or adjectival categorial head, the stative verbaliser and the Voice head. In section 4 I show how the semantic relations involved in the sensitive verbs follow from the stativity of the verbaliser and from the syntax of the VoiceP as a whole. In section 5 I address

1 The suffix has cognates in the other Sámi languages, and the Proto-Sámi form can be reconstructed as *\*-ššeʔ-*. Finnish also has a corresponding suffix, *-ksi-*, and there are indications that the Sámi suffix is borrowed from Finnish (Ánte Aikio, p.c.).

2 The alternation between *-dj-* in the adjective in (1c) and *-j-* in the derived verb, and between *-v-* in the noun in (1e) and *-vv-* in the derived verb, are examples of the so-called consonant gradation, which is a pervasive trait of the morphology of North Sámi. It affects consonants at the centre of a prosodic foot, i.e. the coda of the stressed syllable and the onset of the following syllable (see e.g. Sammallahti 1998; Baal, Odden & Rice 2012). In addition, we also see some regular vowel alternations.

the spelling out of the elements that make up the sensitive verb, and I show that the vocabulary item that will give the verbaliser present in sensitive verbs its phonological realisation as /ʃ/ is in fact less specified than one might think. It appears as the realisation of the verbaliser only in sensitive verbs because in other contexts more specified vocabulary items win out. Section 6 sums up the paper.

## 2 The main properties of sensitive verbs

I will start by presenting some sentences with sensitive verbs, in order to show the main syntactic properties of these verbs. The verb in (2) is based on the adjective *amas* ‘strange, unfamiliar’, while the verb in (3) is based on the adjective *headju* ‘bad’ and the verb in (4) on the adjective *jalla* ‘stupid’.<sup>3</sup>

(2) Álggos olbmo-t ama-š-edje su jurdaga.  
 at.first person-PL.NOM strange-SENS-PAST.3PL his/her thought.SG.ACC  
 ‘At first people found his/her idea strange.’

(3) Niillas hejo-š-ii stuorradigge-diedđáhusa.  
 Niillas.NOM bad-SENS-PAST.3SG parliament-report.SG.ACC  
 ‘Niillas found the parliamentary report no good.’

(4) Son jalla-š-a earáid go eai ádde.  
 s/he stupid-SENS-PRES.3SG other.PL.ACC as NEG.3PL understand  
 ‘S/he finds others stupid, since they do not understand.’

We see that the sensitive verbs are transitive, and that they take an experiencer subject. The object is involved in the stimulus, but it is arguably not identical to the stimulus. Rather, the stimulus is a state that holds of the object or a property that the object has.

It can also be shown that the sensitive verbs are stative. Magga (1986: 27) notices that in North Sámi, the progressive tense forces an evidential reading on stative verbs. We will first see how the progressive works with dynamic verbs. An example involving the verb *geahččat* ‘watch’ is given in (5). In (5a), the simple present tense is used, and the reading is generic. In (5b), by contrast, the same verb appears in the present progressive, and we get an episodic reading.<sup>4</sup>

(5) a. Dábálaš norga-laš geahččá sulli seamma  
 ordinary Norwegian-person.NOM watch.PRES.3SG approximately same  
 ollu TV go ovdal.  
 much TV as before  
 ‘The average Norwegian watches approximately as much TV as before.’  
 b. Elle lea geahčča-me TV-a.  
 Elle is watch-PROG TV-ACC  
 ‘Elle is watching TV.’

With stative verbs, things are different. In (6a) the stative verb *diehtit* ‘know’ appears in the simple present tense. This gives rise to a regular present tense reading, where the speech time is inside the interval in which the state holds. If the present progressive is used instead, as in (6b), the temporal relations do not change. Instead, evidential modality is added, as the translation indicates.<sup>5</sup>

3 The examples in (2), (3) and (4), as well as many other examples in this paper, are taken from the SIKOR, the Sámi corpus developed by UiT The Arctic University of Norway and the Norwegian Sámi Parliament. The corpus contains written North Sámi texts of various types, and the total size of the corpus is approximately 32 million words (August 2019). See [gtweb.uit.no/korp/](http://gtweb.uit.no/korp/).

4 The absence of overt accusative marking on the object *TV* in (5a) or its presence in (5b) is not significant.

5 This effect is quite surprising. A possible explanation could be formulated in Reichenbachian terms, for example along the lines of Demirdache & Uribe-Etxebarria (2007). On their analysis, the progressive locates the assertion time (the time for which a claim is made) inside the event time, whereas the present indicates that the speech time overlaps with the assertion time. Hence, in the (ordinary) present progressive, the speech time overlaps with the assertion time which is contained in the event time. For the present progressive of stative verbs in North Sámi, it seems that the assertion time is replaced by an inference time. However, at present this is just a speculation. What matters for the discussion here is that we can identify stative verbs in North Sámi based on the reading that the progressive gives rise to.

- (6) a. Elle dieht-á juoidá.  
 Elle know-PRES.3SG something.ACC  
 ‘Elle knows something.’
- b. Elle lea diehti-me juoidá.  
 Elle is know-PROG something.ACC  
 ‘Elle must know something.’

It turns out that a sensitive verb in the progressive also receives an evidential reading. An example is given in (7).<sup>6</sup>

- (7) Son lea jalla-š-eame dakkár olbmui-d.  
 s/he is stupid-SENS-PROG such person-PL.ACC  
 ‘S/he must find people like that stupid.’

We thus have evidence that North Sámi sensitive verbs are transitive stative verbs with experiencer subjects.

### 3 The building blocks of sensitive verbs

We will start by noting that no content words appear as bare roots in North Sámi. Verbs, nouns and adjectives involve at least a theme vowel in addition to the root. In (8), I show how the roots *barg-*, *čápp-*, *divr-* and *guhk-* are dressed up when they appear as words of different categories (the final *-t* in the verb in (8a) and (8c) is the infinitival marker).

- (8) a. bargat<sub>v</sub> ‘work’ – bargu<sub>n</sub> ‘work’  
 b. čáppis<sub>a</sub> ‘pretty’ – čáppat<sub>n</sub> ‘a pretty one’  
 c. divrras<sub>a</sub> ‘expensive’ – divrut<sub>v</sub> ‘become (more) expensive’  
 d. guhkki<sub>a</sub> ‘long<sub>a</sub>’ – guhku<sub>n</sub> ‘length’

We see that the first syllable, the root itself, is the same across categories (modulo some regular alternations, see fn. 1), but the second syllable varies depending on the category. More generally, words of different categories can share a root in North Sámi, but these words are never formally identical. They are always differentiated by elements following the root. Thus, North Sámi appears to provide direct evidence that the roots themselves do not have a syntactic category, and that the category is supplied by a functional head that combines with the root – a *v*, *n* or *a* head (see e.g. Marantz 1997; Embick & Marantz 2008; Harley 2009, and also Borer 2003 for a related view). In North Sámi, the categorising elements are arguably always phonologically realised (see Julien 2015 for more data and discussion).

In the sensitive verbs shown in (1) we see now that the whole adjective or noun is included in the verb, and not just the root. For example, in the sensitive verb *divrrašit* ‘find expensive’, shown in (1b), we find the adjective *divrras*, and not just the root *divr(r)-*. In other words, sensitive verbs are formed from roots that have already combined with categorising elements. More specifically, the morphology suggests that sensitive verbs are built on an adjectival (aP) or nominal (nP) base (with some phonological adjustment, e.g. in *headju* ‘bad’ > *hejošit* (1c) and *váivi* ‘nuisance’ > *váivvášit* (1e)).

The sensitive verbs can be compared to the so-called essive verbs, which are exemplified in (9). The verbs are shown together with corresponding adjectives or nouns, and the (realisations of) the verbalisers are boldfaced.

- (9) a. ruoksat ‘red’ – ruoks-**á**-t ‘appear red’  
 b. botnji ‘twist’ – bodnj-**á**-t ‘be twisted, bent’  
 c. ritni ‘rime’ – ridn-**á**-t ‘be covered with rime’  
 d. bahča ‘bitter’ – bahč-**ist**-it ‘smell or taste bad’  
 e. bahča ‘bitter’ – bahč-**iid**-it ‘smell or taste bad’  
 f. liekkas ‘warm’ – liekk-**ist**-it ‘feel warm’  
 g. liekkas ‘warm’ – likk-**iid**-it ‘feel warm (by direct contact)’

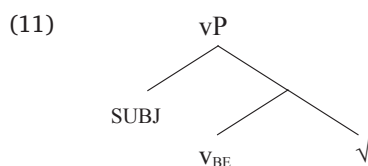
<sup>6</sup> I thank Britt Rajala for sharing her intuitions about (7).

The essive verbs shown in (9) are intransitive. They take only one argument, as in the example in (10), where *rievssatmuorjji lasttat* ‘bearberry leaves’<sup>7</sup> is the surface subject of *ruoksát* ‘appear red’.

- (10) Rievssatmuorjji lasttat ruoks-á-jit čavčča  
 bearberry.SG.GEN leaf.PL.NOM red-STAT-PRES.3PL autumn.SG.GEN  
 eana-ruškki-s.  
 ground-autumn.colour-LOC  
 ‘The bearberry leaves stand out red on the autumn coloured ground.’

Julien (2007) argued that in the essive verbs, the verbalisers attach directly to the (monosyllabic) roots, the same roots that are also found in the corresponding adjectives and nouns. The morphology indicates that this is the case, since no a or n seems to be represented in the verbs. The semantics of the essive verbs point in the same direction. Essive verbs corresponding to adjectives seem to predicate of their subject the property encoded in the adjective, but notably, essive verbs corresponding to nouns do not predicate of their subjects the corresponding noun. For example, whereas *ruoksát* in (9a) is compatible with the subject being red, *ridnát* in (9c) does not indicate that the subject is rime. Instead, it means that the subject is in a state which is characterised by what the root *ridn-* ‘rime’ means.

I conclude that essive verbs like those in (9) are not formed from adjectives and nouns, as the traditional grammar would have it. Instead, they are based on roots that are also found in adjectives and nouns. This means that the essive verbs involve a vP with the syntactic structure shown in (11). Here the root is combined with a stative verbaliser,  $v_{BE}$  (Folli & Harley 2007, Harley 2009), and the subject is introduced as the specifier of the verbaliser. In addition, I would argue that the root moves and adjoins to  $v_{BE}$ , so that a complex head is formed, but I leave this out in (11) in order to keep things simple.<sup>8</sup>

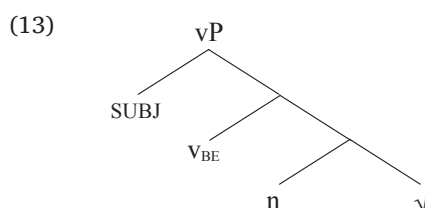


The meaning of the verbs follows from this structure. Although roots are assumed to have no syntactic category, they have conceptual content. This conceptual content becomes integrated in the meaning of the verb, so that the verb means ‘be in a state characterised by what the root means’. The fact that some roots also appear in adjectives while others appear in nouns is not relevant.

There are however a few essive verbs in North Sámi where a categorial marker is found inside verbaliser. Two examples are shown in (12):

- (12) a. bárti ‘trouble’ – barti-**d**-it ‘be in trouble’  
 b. durdi ‘dirt’ – durdi-**d**-it ‘be dirty’  
 c. gižžu ‘conflict’ – gižžu-**d**-it ‘be in a conflict’  
 d. seahki ‘confusion’ – seahki-**d**-it ‘be confused’

The verbs in (12) are arguably built from nouns, that is, from roots that have combined with a n head. Hence, they involve the vP-structure shown in (13):



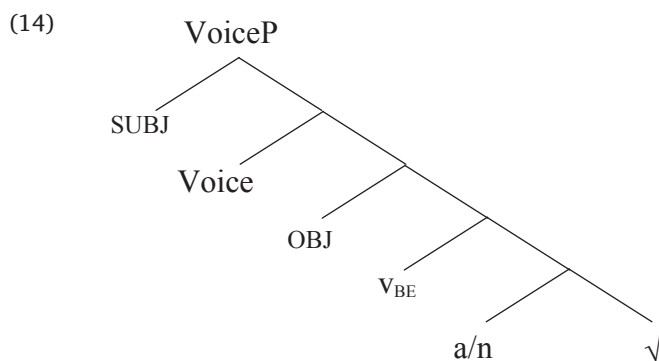
<sup>7</sup> The scientific name of this plant species is *Arctous alpina*.

<sup>8</sup> Nickel (1990) also includes some dynamic verbs in the category essive, such as *jallošit* ‘behave stupidly’, from *jalla* ‘stupid’, and *suddudit* ‘sin’, from *suddu<sub>n</sub>* ‘sin’. These verbs are based on an adjective or a noun, and they are intransitive, but I do not think they should be included in the same derivational category as the verbs in (9).

The presence of the categorial head *n* has morphological consequences – the noun can be identified inside the verb – and it also has semantic consequences. Marantz (1997) proposed that although roots can have special meanings in particular environments, the meaning becomes fixed when the categorial head is added. Arad (2003), developing the idea further, concluded that roots and words behave differently in word formation – where “word” is understood as a constituent that includes a category head. Whereas the environment may influence the interpretation of roots, a word “forces its semantic and phonological properties on any element derived from it” (Arad 2003: 737).<sup>9</sup> This contrast is arguably also seen in the verbs under discussion here: the roots in the essive verbs in (9) have some semantic leeway, while in the essive verbs in (12), the meaning of the noun is retained in the verb.

Sensive verbs are similar to the essive verbs in (12) in certain respects. Firstly, as we have seen, the phonological reflex of the element that forms a noun or adjective from the root appears to be present also in the corresponding sensitive verb, which means that these verbs contain predicates that are assigned a syntactic category. And again, the semantics corroborates what the morphology indicates. We see this most clearly in sensitive verbs based on nouns, such as *váivvášit* in (1e), which is based on the noun *váivi* ‘nuisance’. *Váivvášit* means ‘find [object] a nuisance’, and not, for example, ‘think that [object] is annoyed’. Instead of attributing to the object a property associated with the root in a more vague fashion, the sensitive verbs seem to involve adjectival or nominal predicates.

But unlike essive verbs, sensitive verbs are transitive. They take an experiencer subject argument in addition to the argument that is the structural subject of the lower predicate. On my analysis, they involve the structure shown in (14).



Here the root is combined with a categorising element, an *a* or *n*, and the *aP* or *nP* is the complement of a stative verbaliser,  $v_{BE}$ . The structural subject of the stative verbaliser is introduced in Spec, *vP*. I represent it as *OBJ*, since it will end up as the object of the construction as a whole.

One might ask, though, if the object of the sensitive verb could be an argument of the adjectival or nominal stem instead of being introduced by the verbaliser. This possibility cannot be completely excluded, as far as I can see, but on the other hand there are also arguments in favour of representing it as in (14). Firstly, the subject in (11) and (13) is introduced into the structure as the specifier of the stative verbaliser. If this is the case in essive verbs, it should be possible also in sensitive verbs. Secondly, in cases where adjectives appear to have their own arguments, as in the small clauses in (15), the adjective either appears in the essive case, as in (15a) and (15b), or else it agrees with its structural subject in number and case, as in (15c).<sup>10</sup>

<sup>9</sup> See also Anagnostopoulou & Samioti (2014) for further discussion.

<sup>10</sup> Attributive adjectives appear instead in an invariant attributive form, as in the following example:

- (i) Makkár jalla-s gažaldat die lea?  
 what.kind.of stupid-ATTR question.SG.NOM that is  
 ‘What kind of stupid question is that?’

Note, though, that although the attributive form of each individual adjective is invariant – it does not reflect the case or number of the noun – there is some variation between adjectives as to which suffix they carry in the attributive form.

- (15) a. Atnet min áibbas jalla-n.  
 consider.PRES.3SG 1PL.ACC completely stupid-ESS  
 ‘They consider us completely stupid.’
- b. Čáppa govat daga-še girjji somá-b-un.  
 beautiful picture.PL.NOM make-COND.3PL book.SG.ACC fun-COMP-ESS  
 ‘Beautiful pictures would make the book more fun.’
- c. Máhtte čuoapai soappi menddo oanehačča.  
 Máhtte.NOM cut.PAST.3SG stick.SG.ACC too short.SG.ACC  
 ‘Máhtte cut the stick too short.’

Adjectives inside sensitive verbs have no case, and they do not agree with their structural subjects. This is seen clearly in (7), where the structural subject of the adjective is plural, but the adjective nevertheless shows up in the base form, which also is nominative singular. This is consistent with the sensitive verbs containing an aP or nP but no other functional elements below the verbaliser, and it could also be taken as an indication that in the sensitive verbs, there is not enough functional structure below the verbaliser to host an argument.

The experiencer subject, on my analysis, is the specifier of a Voice head that is merged above vP. (Again, I leave out head movement, which applies from the bottom up, so that the verb ends up at least as high as the Tense head. Note, by the way, that the structure shown here is in accordance with the claim in Harley 2009; 2013 that the external argument introducing head Voice is distinct from the verbaliser.) The sensitive reading is, as we will see below, a consequence of adding an external argument to the stative structure. Above VoiceP there will be heads with inflectional features, such as tense and aspect, and also a CP-domain, but since these are the same in clauses with sensitive verbs as in all other North Sámi clauses, I will not discuss them here.

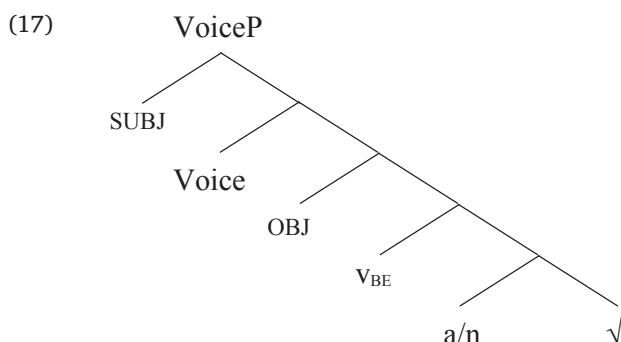
#### 4 The external argument, and the meaning of the whole thing

I will now turn to the question of how the meaning of the sensitive verbs arises. The meaning of the sensitive verb as a whole could be taken to suggest that a psychological verb is involved. We see this in the examples I have presented earlier, and also in the example in (16).

- (16) Dákkár sániid giella-geavaheaddjit eai láve ama-š-it.  
 such word.PL.ACC language-user.PL.NOM NEG.3PL tend.to strange-SENS-INF  
 ‘The language users usually don’t find words like that strange.’

If we were to assume that a psychological verb is one of the building blocks of the North Sámi sensitive verbs, we could plausibly analyse the suffix /š/ (spelled š) as the phonological realisation of a verb meaning ‘consider, think’. However, as I will show in the following, there is no need to assume that there is a psychological verb contained in the sensitive verbs. Instead, the “sensitive” interpretation follows from the syntax.

The syntactic structure that I propose for North Sámi sensitive verbs, which was shown in (14), is repeated in (17).





The claim that the surface subjects of sensitive verbs are specifiers of Voice is supported by the fact that the verbs can be passivized. An example is shown in (18).

- (18) Lea deatalaš ahte sámi kultuvra ii ama-š-uvvo.  
 is important that Sámi culture.SG.NOM NEG.3SG strange-SENS-PASS.PRES.3SG  
 ‘It is important that the Sámi culture is not seen as something strange.’

In this respect, the sensitive verbs are like other transitive subject experiencer verbs in North Sámi. They are stative, and they allow passivisation. In (19) we see that the subject experiencer verb *ráhkistit* ‘love’ passes the test for stativity – it gets an evidential reading in the progressive, and in (20) we see that it can be passivized.<sup>11</sup>

- (19) Elle lea ráhkist-eame dien olbmo (go nie láhtte).  
 Elle is love-PROG that.ACC person.SG.ACC when like.that behaves  
 ‘Elle must love that person (when she behaves like that).’

- (20) Dál dovdda-t ieža-t ráhkist-uvvo-n.  
 now feel-PRES.2SG self-2SG love-PASS-PTC  
 ‘Now you feel loved.’

Neither of these two properties comes as a surprise. As Rothmayr (2009) demonstrates in much detail, and as others have observed before (e.g. Hale & Keyser 1997; Tenny 2000), subject experiencer verbs in general are stative. A notable exception pointed out by Pylkkänen (2000) is inchoatives, but in North Sámi (as in Finnish), inchoatives are marked as such morphologically. For example, the inchoative counterpart of *ráhkistit* ‘love’ is *ráhkistuvvat* ‘fall in love’, which is shown in (21).

- (21) Marek ráhkist-uva-i badjel-oivviid.  
 Marek love-INCH-PAST.3SG above-head.PL.GEN  
 ‘Marek fell in love head over heels.’

An inchoative reading of (19) or (20) is out of the question, since the verbs do not have inchoative morphology, and consequently, only a stative reading is available.

The possibility of passivisation in its turn indicates that the experiencer subjects are truly external arguments. It is widely acknowledged that experiencer subjects can be external, also in the strictly syntactic sense that they are merged outside the minimal verb phrase. Kratzer (1996) suggested that the thematic role of the argument introduced by the Voice head depends on the properties of the predicate: if the predicate is dynamic, the external argument will be an agent, but if the predicate is stative, the external argument will be what Kratzer calls a “holder”, which must be taken to subsume experiencers. I conclude that experiencer subjects are specifiers of Voice (also) in North Sámi, and that the syntax of the sensitive verbs is as shown in (17).<sup>12</sup>

One might still ask, though, if the external argument in a structure like (17) has to be interpreted as an experiencer. Pylkkänen (2000) showed that the subject of a stative psychological predicate can be a cause, as in the Finnish example in (22) (Pylkkänen’s example (1b)).

- (22) Hyttyset inho-tta-vat Mikko-a.  
 mosquito.PL.NOM find.disgusting-CAUS-3PL Mikko-PART  
 ‘Mosquitos disgust Mikko.’

But note that the verb contains a causative element, which is why the external argument is interpreted as a causer.<sup>13</sup> Causatives formed from psychological predicates, with the causer as the external argument, are also found in North Sámi. The examples in (23) demonstrate

<sup>11</sup> Thanks to Berit Anne Bals Baal for providing this example.

<sup>12</sup> This does not mean that experiencer subjects are external arguments universally. Marantz (2013: 164) notes that while this analysis seems to be correct for some experiencer subjects, other experiencer arguments that appear as surface subjects are underlyingly possessors or introduced by applicatives.

<sup>13</sup> Pylkkänen (2002) argues that the external arguments of causative verbs are not introduced by the Caus head, but instead by a Voice head above Caus. In any case, these external arguments will be interpreted as causers.



this, with the subject experiencer verb *illudit* ‘be happy; look forward to’ in (23a) and the corresponding causative *illudahttit* ‘make [someone] happy’, with the causer as subject and the experiencer as object, in (23b).<sup>14</sup>

- (23) a. Biret illud-a go lea čovdos-a gávdna-n.  
 Biret be.happy-PRES.3SG as be.PRES.3SG solution-SG.ACC find-PTC  
 ‘Biret is happy since she has found a/the solution.’
- b. Doarjja man lean ožžo-n illud-ahtt-á  
 support.SG.NOM which.ACC be.PRES.1SG get-PTC be.happy-CAUS-PRES.3SG  
 mu.  
 me.ACC  
 ‘The support that I have received makes me happy.’

There are however also verb pairs in North Sámi with the same contrast in the alignment of the arguments, but where the structural relation between the two verbs is less transparent. One such pair is *ballat* ‘fear’ and *baldit* ‘scare’. These two verbs are shown in (24ab).

- (24) a. Káre ball-á seavdnjadas-as.  
 Káre fear-PRES.3SG darkness-SG.LOC  
 ‘Káre is afraid of the darkness.’
- b. Dát dáhpáhus baldd-ii máná-id.  
 this.NOM incident.SG.NOM scare-PAST.3SG child-PL.ACC  
 ‘This incident scared the children.’

We see here that *ballat* ‘fear’ takes an experiencer subject, while the stimulus appears in the locative case. *Baldit* ‘scare’, on the other hand, takes the stimulus/cause as subject and the experiencer as a direct object, but it is not overtly marked as causative. This is then evidence that in North Sámi, a psychological verb which is not morphologically causative can nevertheless take the cause as subject. But importantly, *baldit* ‘scare’ is specified in the lexicon as the realisation of a causative structure, corresponding to the non-causative *ballat* ‘fear’. This verb pair is exceptional in North Sámi, since in most cases where a non-causative verb has a causative counterpart, the causative verb is a morphological causative based on the non-causative verb (see e.g. Vinka 2002). Only a few verbs have causative counterparts that are not derived morphologically, but instead based on different roots. Another example is the causative *boaldit* ‘burn’, which corresponds to the intransitive *buollit* ‘burn’. But generally, if the base verb is not obligatorily causative, it can get a causative reading only if a causative marker is added. Thus, there are no labile verbs in North Sámi (Julien 2016). In the sensitive verbs there is nothing that encodes causation, and consequently, they do not get a causative reading. The suffix /j/ is not specified as causative, but instead as the realisation of a stative verbaliser. It follows that the external argument in (17) must be interpreted as an experiencer.

The interpretation of the sensitive verb follows from the specification of /j/ as the realisation of a stative verbaliser together with the structure of the verb phrase as a whole. In the lower part of the structure in (17), there is a state whose structural subject is the argument represented as OBJ. The state is thus clearly not predicated of the external argument. As we have already established, the external argument must be an experiencer. The subject matter or stimulus (there are many names for this thematic role) is then the embedded predicate, i.e. the state.<sup>15</sup> In other words, the syntactic structure shown in (17) gives an interpretation according to which the external argument experiences that the state denoted by the complement of the verbaliser holds of the internal argument. This interpretation follows even though there is no element present that corresponds to the psychological verbs that necessarily appears in translations of North Sámi sensitive verbs.<sup>16</sup>

<sup>14</sup> The object has accusative case in both examples. In North Sámi, accusative is the only structural case for objects. Some verbs do however take arguments with special cases. An example is seen in (24a).

<sup>15</sup> The sensitive verbs thus conform to the general pattern: external experiencers co-occur with cause/stimulus as internal argument and internal experiencers co-occur with cause as external argument, as noted e.g. by Pesetsky (1995) and Reinhart (2002).

<sup>16</sup> The sensitive reading would also follow if the verbaliser had a feature [+mental], as found in the theta role system proposed by Reinhart (2002). However, I think the sensitive reading also follows if the verbaliser is just specified as stative.

As for the ‘excessive’ reading which tends to be associated with the sensitive verbs, it should be noted that it is always optional – for example, *divrrašit* can be interpreted as ‘find expensive’ or ‘find too expensive’. The excessive reading arguably follows from a conversational implicature. After all, stating that something is expensive can readily be interpreted as a claim that it is *too* expensive. Hence, I do not think that the excessive element is actually encoded in the sensitive verbs. It is just a matter of pragmatics.

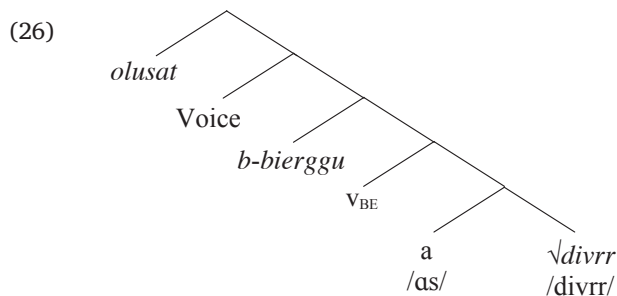
## 5 Spelling out: the phonological realisation

A key assumption of Distributed Morphology (DM) is that the terminal nodes of the syntactic structure are abstract morphemes, consisting of morphosyntactic and semantic features only. These nodes are matched with vocabulary items at spellout. The vocabulary items contribute nothing but phonological features, but they are sensitive to the feature content of the node where they are to be inserted. They can also be sensitive to features of other nodes in the context, and, since vocabulary insertion proceeds from the bottom up, even to phonological properties of more deeply embedded constituents (see e.g. Bobaljik 2000; Embick 2010; Arregi & Nevins 2013). Where more than one vocabulary item is a candidate for insertion in a given position, the item that matches the largest number of features at the insertion site will win. We will now see how this works in North Sámi sensitive verbs. We will first, in 5.1, address the realisation of the root and the lower categorial head (an *a* or *n* head) that I have claimed to be present in the sensitive verbs, whereas in 5.2 we look at the realisation of the verbaliser and the Voice head.

### 5.1 The root and the lower categorial head

For concreteness, let us consider one example of a North Sámi sensitive verb in some detail. The verb *divrrašit* ‘find [object] (too) expensive’ is shown in context in (25), and in (26) the syntactic structure of the VoiceP found in this verb is given.

- (25) Olus-at                      divrra-š-it                      dál    bohcco-bierggu.  
 many.people-PL.NOM expensive-SENS-PRES.3PL now reindeer-meat.SG.ACC  
 ‘Many people find reindeer meat (too) expensive nowadays.’



The spelling out of the structure shown in (26) will start with the root. Within DM there has been some discussion concerning the degree to which roots are individuated in the syntactic derivation. Marantz (1995) claimed that they are not, whereas Harley (2014) argued that the roots must be identified in the syntax.<sup>17</sup> This question need however not concern us here, since no matter how the pairing of root nodes with phonological material is determined, in this case the root gets the phonological realisation /divrr/.

The next step is then to spell out the little *a*. In North Sámi the realisation of the categorial heads is often conditioned by the root. For adjectives, this is illustrated in (27), where we see that different roots take different adjectival endings.<sup>18</sup>

- (27) a. garr-a ‘hard’  
 b. jall-a ‘stupid’

<sup>17</sup> There is more discussion of this topic in the other papers in *Theoretical Linguistics* 40.

<sup>18</sup> Strictly speaking, the forms shown in (27) are nominative singular forms. It can however be argued that the features nominative and singular are not overtly marked, so that the suffixes in (27) represent the adjectival categorial heads. Similarly, the nouns in (29) are also shown in the nominative singular, and the suffixes arguably represent the nominal categorial heads.

- c. am-as ‘strange’
- d. divrr-as ‘expensive’
- e. čáhpp-at ‘black’
- f. loss-at ‘heavy’
- g. čoaskk-is ‘cool’
- h. stuor-is ‘big’

The adjectival ending *-a* appears to be more general than the others. In particular, it appears in many recent loans, such as *digitála* ‘digital’, *konkrehta* ‘concrete’, *positiiva* ‘positive’, *relevánta* ‘relevant’, *proffa* ‘professional’, *tøffa* ‘cool’ (through Norwegian from English *tough*). I propose that North Sámi has the vocabulary entries given in (28).

- (28)
- a. a ↔ /a/
  - b. a ↔ /as/ /{√AM, √DIVRR, ... } \_
  - c. a ↔ /at/ /{√ČÁHPP, √LOSS, ... } \_
  - d. a ↔ /is/ /{√ČOASKK, √STUOR, ... } \_

We see that whereas /a/ is the default realisation of *a*, other realisations of *a* are specified to appear in the context of certain roots. In the context of a root spelled out as /divrr/, *a* will be realised as /as/.

The phonological realisation of the nominal category head is likewise often contingent on the root. I give some examples in (29), just to illustrate the point.

- (29)
- a. eart-a ‘pea’
  - b. giell-a ‘language’
  - c. viellj-a ‘brother’
  - d. eadn-i ‘mother’
  - e. monn-i ‘egg’
  - f. váiv-i ‘nuisance’
  - g. barg-u ‘work’
  - h. dáll-u ‘house, farm’
  - i. rivg-u ‘non-Sámi woman’
  - j. bálgg-is ‘path’
  - k. čohk-un ‘comb’
  - l. jug-us ‘drink’

There are many more nominalisers in the language than those shown here. At present it is not clear to me if any of them can be seen as a default realisation of *n*. It is clear, though, that the realisation of the nominaliser is in many cases dependent on the root.

## 5.2 The verbaliser and the Voice head

The next element to be spelled out is the verbaliser. We will start by noting that the stative verbaliser  $v_{BE}$  has a number of different realisations in North Sámi. If we go back to the verbs shown in (9), we see that the verbalisers *-ist-* and *-iid-* reflect an additional meaning element ‘appear to the senses’, apparently with the minor difference that *-iid-* but not *-ist-* indicates direct contact – compare (9f) and (9g). The verbaliser *-á-*, pronounced /a/, which is seen in (9a), (9b) and (9c), is more general and designates a state or appearance. It is found in many essive verbs with corresponding adjectives or nouns, and also in some verbs describing postures, such as *ceaggát* ‘stand upright’, *čohkkát* ‘sit’ and *veallát* ‘lie’, which do not have corresponding adjectives or nouns (see Nielsen 1926: 234).<sup>19</sup> Hence, it appears to be the default realisation of a  $v_{BE}$  head – or more precisely, of a  $v_{BE}$  head that is not embedded under a Voice head.

<sup>19</sup> To give an indication of the expressive power of verbs of this class, I list here those found under the letter *g* in Nielsen (1934): *gaggát* ‘lie stretched’, *garcát* ‘be stuck in a snare’, *gaškát* ‘lie stiff (of someone who is long)’, *gálvát* ‘sit thin and shrivelled’, *gárgát* ‘lie stretched out; stretch far (of town etc.)’, *gárgját* ‘stand or sit crooked’, *gávrát* ‘stand bent to one side, crooked’, *geaigát* ‘be in an extended position’, *giekcát* ‘be in an inverted position’, *gildát* ‘look fine’, *givrát* ‘stand or sit bent, huddled up’, *goalvát* ‘lie upside down (of a boat)’, *goanzát* ‘stand tall and ungainly’, *goarját* ‘lie curled up (of dog, fox etc.)’, *goavrát* ‘sit, lie or stand like a *goavri* (a large bent or crooked person or animal)’, *goajkát* ‘sit, stand or lie like a *goajki* (person who is bent forward)’, *gobmát* ‘lie with the rounded side up’, *guoggát* ‘stand very bent forward’, *guorbát* ‘stand or lie like a *guorbá* (draught animal whose hair is more or less worn away)’, *guvrát* ‘stand with a bent back’.

In the verbs in (12) we saw another realisation of the stative verbaliser, *-d-*. This realisation only appears when the next head down from the verbaliser is a nominal categorial head *n*, and I conclude that it must be conditioned by the presence of the *n* head. It is not conditioned by any particular realisation of the *n* head, since the *n* head can be realised in more than one way. The two vocabulary items that we have now identified are shown in (30):

- (30) a.  $v_{BE} \leftrightarrow /a/$   
 b.  $v_{BE} \leftrightarrow /d/ /n \_$

At this point it becomes crucial that DM assumes late insertion. This means that the structure, or at least a definable part of it, is built before spellout applies. Thus, if the verb involves a Voice head, this head will be present at the point where the verbaliser is spelled out, and hence able to influence the realisation of *v* (see e.g. Bobaljik 2000; Embick 2010). If there is a Voice head above the  $v_{BE}$  head, the latter can have a number of different realisations. We see this in the subject experiencer verbs in (31), which all are transitive, and moreover all can be passivised – a clear indication that they involve a Voice head.

- (31) a. dovdat ‘feel’  
 b. gullat ‘hear’  
 c. áddet ‘understand’  
 d. diehtit ‘know (about)’  
 e. jáhkkit ‘believe’  
 f. doaivut ‘hope’  
 g. liikot ‘like’  
 h. ráhkistit ‘love’

In these verbs, the realisation of the verbaliser, boldfaced in (31), is conditioned by the root. We can postulate that the following vocabulary entries are also found in North Sámi:

- (32) a.  $v_{BE} \leftrightarrow /a/ /{\sqrt{DOVD}, \sqrt{GULL}, \dots} \_ [Voice]$   
 b.  $v_{BE} \leftrightarrow /e/ /{\sqrt{ÁDD}, \dots} \_ [Voice]$   
 c.  $v_{BE} \leftrightarrow /i/ /{\sqrt{DIEHT}, \sqrt{JÁHKK}, \dots} \_ [Voice]$   
 d.  $v_{BE} \leftrightarrow /u/ /{\sqrt{DOAIV}, \dots} \_ [Voice]$   
 e.  $v_{BE} \leftrightarrow /o/ /{\sqrt{LIIK}, \dots} \_ [Voice]$   
 f.  $v_{BE} \leftrightarrow /ist/ /{\sqrt{RÁHK}, \dots} \_ [Voice]$

The least specified realisation of  $v_{BE}$  is */a/*, as stated in (30a). This realisation does not appear in transitive verbs. In transitive verbs, where a Voice head is present, the item in (30a) will lose out to the items that are specified to appear in the context of a Voice head. In transitive stative verbs, the root will determine which of the items in (32a–f) will be selected.

Now what about the */j/* that we find in sensitive verbs? The analysis of this element is dependent on the analysis of the passive. As we see in (33), in a passivised sensitive verb the passive marker follows the sensitive suffix (whereas present tense and 3 singular correspond to zero markers).

- (33) Bohcco-biergu            divrra-š-uvvo            dávja.  
 reindeer-meat.SG.NOM expensive-SENS-PASS.PRES.3SG often  
 ‘Reindeer meat is often found (too) expensive.’

If the passive marker is a realisation of the Voice head, as has been widely assumed since Kratzer’s (1996) postulation of the Voice head (see e.g. Pylkkänen 2002; Harley 2013), then */j/* must be the realisation of  $v_{BE}$ . Let us consider this possibility. If all other realisations of a  $v_{BE}$  head under a Voice head are conditioned by the respective roots, as the entries in (32) suggest, then */j/* only needs to be specified as the realisation of a  $v_{BE}$  head under a Voice head, as in (34).

- (34)  $v_{BE} \leftrightarrow /j/ /\_ [Voice]$

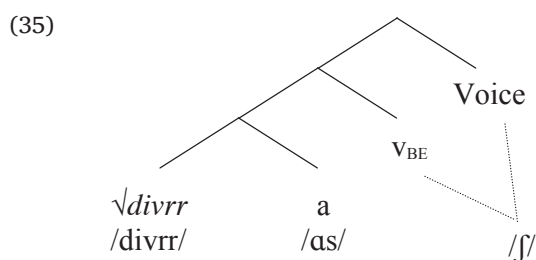
If Embick (2010) is right in assuming that a category-defining head cannot see a root across another category-defining head, this will ensure that */j/* will be inserted in the sensitive verbs. The items in (32a–f) cannot have their specifications met in sensitive verbs, since the root will not be visible at the point where  $v_{BE}$  is to be spelled out – the complement of  $v_{BE}$  is an nP or an

aP in these cases. Hence, in sensitive verbs the realisation of  $v_{BE}$  cannot be sensitive to the root. It follows that none of the vocabulary items given in (32) can be inserted in sensitive verbs. The item in (34), which is the least specified of all vocabulary items that can spell out a stative verbaliser in the context of Voice, is the only remaining candidate.

In the scenario that I have just described, where /ʃ/ only spells out the verbaliser, the Voice head is spelled out by the passive marker *-(j)uvvo-* if it is passive and has a zero realisation if it is active. However, it has also been proposed, first by Bruening (2012), that passive is not encoded in the Voice head, but instead in a head that takes VoiceP as its complement (a similar proposal, but using different terms, is found in Collins 2005). This approach to passive is also adopted by Alexiadou, Anagnostopoulou & Schäfer (2015: 123), who suggest that passives that are morphologically unique are also structurally unique. The background of this suggestion is the fact that in many languages passive morphology is found in verb forms that are not semantically passive, but instead e.g. anticausative or reflexive (see Haspelmath 1990). In these cases, Alexiadou, Anagnostopoulou & Schäfer take the relevant morphology to reside in the Voice head. But for languages where passive morphology does not show this kind of syncretism, they propose that the passive marking represents a Passive head which selects VoiceP.

In North Sámi, passive morphology only appears in verbs that are semantically passive. Hence, the passive is morphologically unique. On an analysis along the lines of Alexiadou, Anagnostopoulou & Schäfer (2015) it would therefore be seen as the spellout of a Pass head located above VoiceP. Then /ʃ/ could still represent  $v_{BE}$ , as in the scenario I have just described, or it could represent both  $v_{BE}$  and Voice. In the DM literature, two different mechanisms have been proposed that can result in one vocabulary item spelling out features originating in two terminal nodes. Halle & Marantz (1993: 116) introduced the concept of *fusion*, a process whereby two terminal nodes are fused into one, so that only one vocabulary item can be inserted in the resulting terminal node. An alternative to fusion is *spanning*, which means that two or more nodes are spelled out by one single vocabulary item, without any preceding fusion operation. Spanning, a term originally introduced in Williams (2003), is discussed in Son & Svenonius (2008), Svenonius (2012) and Merchant (2015). Since fusion implies that the syntax can tailor the syntactic structure to fit the contents of the vocabulary, a very problematic assumption, I will consider here the possibility that /ʃ/ can span the heads  $v_{BE}$  and Voice.

Svenonius (2012) proposes that spanning is possible if the involved heads belong to the same functional sequence and are in a complement relation with each other. That is, a head can be spelled out together with the head of its complement, but not together with a head located inside its specifier. Voice and  $v_{BE}$  clearly meet these conditions, and consequently, it is possible that /ʃ/ spells out both nodes in the sensitive verbs. If this is correct, the phonological realisation of the terminal nodes that are included in the complex head formed by cyclic head movement from the root upwards to Voice is as shown in (35) (with /as/ and /ʃ/ later merging into /aʃ/):



The vocabulary item spelling out  $v_{BE}$  and Voice can then be specified as in (36). According to this specification, /ʃ/ spells out a sequence made up of a Voice and a  $v_{BE}$  head.

(36)  $\langle \text{Voice}, v_{BE} \rangle \Leftrightarrow /ʃ/$

No further specification is necessary, even if we assume that the vocabulary items given in (32a–f) above likewise spell out  $v_{BE}$  and Voice. Also in this scenario, the vocabulary items that appear in stative transitive verbs other than the sensitive verbs will be dependent on the root. These vocabulary items are however not applicable in sensitive verbs, since in the sensitive verbs, the complement of the verbaliser is an aP or an nP, making the root inaccessible at the point where the verbaliser (and Voice) is to be spelled out.

I will not try to decide here whether the North Sámi passive suffix represents the Voice head (the traditional view on passive) or a head above Voice (as in some more recent proposals). Consequently, I also keep it open whether Voice is one of the nodes spelled out by the vocabulary item that characterises sensitive verbs, or whether the Voice head is specified to be a part of the context for this vocabulary item. In any case, the vocabulary item in question necessarily makes reference to Voice, since it does not appear in intransitive verbs. It must also, of course, be specified to spell out the stative verbaliser  $v_{BE}$ . With these two requirements in place – reference to Voice and to  $v_{BE}$  – the vocabulary item will, in the context of a sensitive verb, win the competition with vocabulary items that spell out the verbaliser in intransitive stative verbs, since these are not specified for Voice, and also the competition with vocabulary items that spell out the verbaliser in all other transitive stative verbs, since these are all specified for certain sets of roots. In other words, although the vocabulary item itself is not highly specified, it only appears in sensitive verbs, since in all other cases, it will lose out to more specified vocabulary items.

## 6 Summing up

In this paper, I have presented an analysis of a class of derived verbs found in North Sámi. These verbs, which are called *sensitive verbs* in the grammars of the language, are formed by adding the suffix /ʃ/, spelled *š*, to an adjectival or nominal base. The resulting verbs are transitive, and their meaning can be given schematically as '[subject] find [object] (too) ADJECTIVE/NOUN'. This might give the impression that the sensitive verbs contain an element meaning 'find, consider, judge', and that the suffix /ʃ/ is the phonological realisation of this element. In other words, the sensitive verbs could be seen as the combination of a noun or adjective with a psychological verb. On my analysis, however, there is no such verb present in the sensitive verbs.

My analysis starts with a syntactic deconstruction of the verb phrase contained in sensitive verbs. I show that from a syntactic point of view, the sensitive verbs consist of a root, an adjectival or nominal categorial head, a stative verbaliser, and a Voice head. The object is the specifier of the verbaliser whereas the subject is the specifier of Voice. I then argue that the semantic properties of the sensitive verbs follow from this structure. In the lower part of the structure, the object of the verb as a whole is the subject of the predicate made up of the stative verbaliser and the aP or nP. Adding a Voice head and an external argument to this structure forces the external argument to be interpreted as an experiencer. The stimulus must then be the state that holds of the internal argument.

Following the syntactic and semantic analysis I address the phonological realisations of the elements that make up the sensitive verbs. I note that the realisation of the adjectival or nominal categorial head is in many cases conditioned by the root. The realisation of the stative verbaliser which is present in the sensitive verbs can however not be conditioned by the root, since there is another categorial head intervening between the root and the verbaliser. As a consequence, the suffix /ʃ/, which is characteristic of the sensitive verbs, only needs to be specified as the realisation of a stative verbaliser in a transitive structure. This will ensure that the verbaliser in the sensitive verbs is spelled out as /ʃ/, as more specified vocabulary items will not have their specifications met.

The essence of my analysis is that the interpretation of sensitive verbs, '[subject] find [object] (too) ADJECTIVE/NOUN', arises from a syntactic structure made up of elements that have only grammatical features – category features, stativity, etc. The only element with rich semantic content is the root at the very bottom. Importantly, there is no psychological verb involved in building up the sensitive verbs. This demonstrates how meaning can be seen as a consequence of structure, a view which opposes the more traditional view according to which properties of the lexical elements themselves to a large degree determine the syntactic structures that they appear in.

## Abbreviations

ACC = accusative, ATTR = attributive, CAUS = causative, COMP = comparative, COND = conditional, ESS = essive, GEN = genitive, INCH = inchoative, INF = infinitive, LOC = locative, NEG = negation, NOM = nominative, OBJ = object, PART = partitive, PASS = passive, PL = plural, PRES = present, PROG = progressive, PTC = participle, SENS = sensitive, SG = singular, STAT = stative, SUBJ = subject.



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## Competing interests

The author has no competing interests to declare.

## Author affiliation

Marit Julien  [orcid.org/0000-0003-1761-1396](https://orcid.org/0000-0003-1761-1396)  
Lund university, SE

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