Finite sentences in Finnish: Word order, morphology, and information structure

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1 Introduction

Anders Holmberg and his colleagues came up with an analysis of the Finnish finite sentence in the early 1990s (Holmberg, Nikanne, Oraviita, Reime and Trosterud 1993). The analysis was based on the so-called incorporation theory in which finite verb morphology assumed to be a result of a head-to-head movement of the verb: the verb was raised from one functional head (e.g. tense, mood, subject agreement, etc.) to another, and the functional heads were attached to the verb. The finite verb morphology was therefore a mirror image of the syntactic structure (Pollock 1989, Baker 1988, Chomsky 1995, etc.). In the Minimalist Theory (Chomsky 1995), the basic idea has remained the same, but, instead of picking up affixes along its head-to-head movement upwards in the syntactic structure, the verb checks that the morphological features it is carrying are compatible with the features in the syntactic tree.

Traditionally, the word order of Finnish has been characterized as free. According to Vilkuna (1989), the word order in Finnish finite sentences is constraint by information structure. There are designated word order positions for the topic of the sentence and a phrase that carries a contrastive focus. Holmberg and Nikanne (1994, 2002, 2008) have shown that the word (verb or negation word) carrying the subject agreement suffixes has its own designated position in the finite sentence word order.

The theory presented by Anders Holmberg and his colleagues (Holmberg et al. 1993, Holmberg and Nikanne 2002, etc.) is so far the most advanced model of the finite sentence of Finnish. It is able to combine the Finnish finite sentence morphology and syntax in an elegant way. As linguists,

however, it is our duty always to seek for new ways to see language and try to come up with theories that can replace the old ones. That is the purpose of this article.

At first, I explain how the theory by Holmberg and his colleagues works. Then, I discuss how it can be improved. After that, I suggest improvements that are based on a "micro-modular" theory of language. The micro-modular theory, Tiernet, is a version of Conceptual Semantics (Jackendoff 1983, 1990, 2002, etc.) explained and motivated in detail in Nikanne (forthcoming).

2 Finnish finite sentence: the basic facts

The Finnish finite verb has the following morphological structure:

(1)

verb stem	**(+ passive)**	**+ tense/mood**	**+ subject agreement**	
istu ['sit']		+ *i*	+ *mme* [1PL SUBJ. AGR]	'we sat down'
istu ['sit']		+ *isi*	+ *mme* [1PL SUBJ. AGR]	'we would sit down
istu ['sit']	+ *tt* [PASSIVE]	+ *i* [PAST]	+ *in* [PASS SUBJ. AGR.]	'it was sat down'
istu ['sit']	+ *tta* [PASSIVE]	+ *isi* [CONDITIONAL]	+ *in* [PASS SUBJ. AGR.]	'it would have been sat down'

There are two things in the Finnish finite morphology that might be confusing: (i) the tense and mood markers are in a complementary distribution; and (ii) in addition to the passive marker *ttA* the passive form has an AgrS suffix -*Vn* when the negation word or the auxiliary are not present.

In addition to the predicate verb, there are two more words that may carry finite affixes. The auxiliary *ole*- 'be' in the perfect and pluperfect tenses and the negation word *e(i)*-'not' in negated sentences. In the perfect and pluperfect tenses, the predicate verb is in the perfect participle form. Here is an example of the paradigm (the finite morphemes are separated with a dash):

(2)

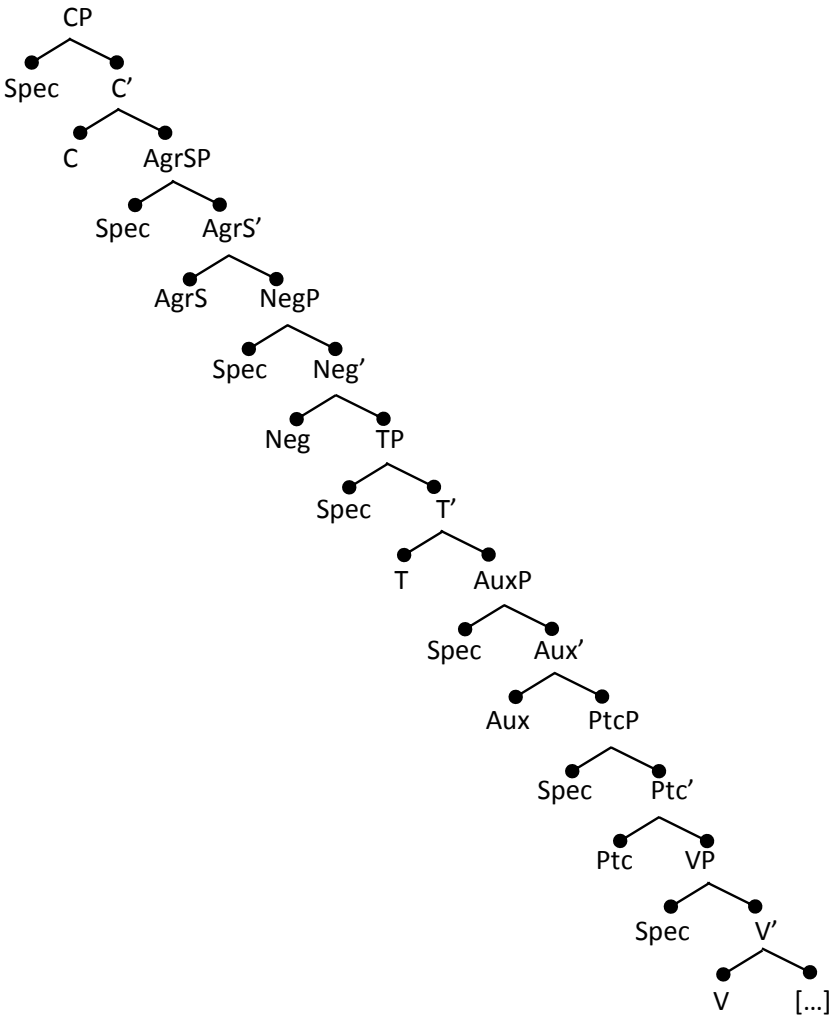
FORM	**ACTIVE (in the examples: 3rd person plural)**	**PASSIVE**
Present:	*Tytöt istu-vat tuolilla.* girls sit-3PL chair-ADE 'The girls sit on the chair.'	*Istu-ta-an tuolilla*. sit-PASS-PASS chair-ADE 'It is sat on the chair.' 'One sits on the chair.'
Simple past:	*Tytöt istu-i-vat tuolilla.* girls sit-3PL chair-ADE 'The girls sat on the chair.'	*Istu-tt-i-in tuolilla.* sit-PASS-PAST-PASS chair-ADE 'It was sat on the chair.' 'One sat on the chair.'
Conditional present:	*Tytöt istu-isi-vat tuolilla.* girls sit-COND-3PL chair-ADE 'The girls would sit on the chair'	*Istu-tta-isi-in tuolilla.* sit-PASS-COND-PASS chair-ADE 'One would sit on the chair.'
Perfect tense:	*Tytöt o-vat istu-nee-t tuolilla.* girls be-3PL sit-PTC-3PL chair-ADE 'The girls have sat on the chair.'	*On istu-tt-u tuolilla.* be-3SG sit-PASS-PTC chair-ADE 'It has been sat on the chair.' 'One has sat on the chair.'
Pluperfect tense:	*Tytöt ol-i-vat istu-nee-t tuolilla.* girls be-PAST-3PL sit-PTC-3PL chair-ADE 'The girls had sat on the chair.'	*Ol-i istu-tt-u tuolilla.* be-PAST-3SG sit-PASS-PTC chair-ADE 'It was sat on the chair.' 'One had sat on the chair.'
Negative past:	*Tytöt ei-vät istu-nee-t tuolilla.* girls not-3PL sit-PTC-PL chair-ADE 'The girls did not sit on the chair.	*Ei istu-tt-u tuolilla.* not-3SG sit-PASS-PTC chair-ADE 'It was not sat on the chair.'
Negative perfect tense:	*Tytöt ei-vät ole istu-neet tuolilla.* girls not-3PL be sit-PTC-PL chair-ADE 'The girls have not sat on the chair.'	*Ei ole istu-tt-u tuolilla.* not-3SG be sit-PASS-PTC chair-ADE 'It has not been sat on the chair.'
Negative pluperfect tense:	*Tytöt ei-vät ol-leet istu-neet tuolilla.* girls not-3PL be-PTC-PL sit-PTC-PL chair-ADE 'The girls had not sat on the chair.'	*Ei ol-lut istu-tt-u tuolilla.* not-3SG be-PTC sit-PASS-PTC chair-ADE 'It had not been sat on the chair.'

Abbreviations: ***ADE*** *= the adessive case 'on' / 'at',* ***COND*** *= the conditional mood 'would',* ***PASS*** *= passive,* ***PTC*** *= participle (here past participle as in English has <u>said</u>),* ***3PL*** *= 3rd person plural,* ***3SG*** *= 3rd person singular.*

3 Anders Holmberg's et al. theory of Finnish finite sentence

According to Holmberg and Nikanne (2002) (based on the analysis of Holmberg, Nikanne, Oraviita, Reime and Trosterud (1993)), the Finnish finite sentence in its fullest possible form is as in (3). The category F (= finite) in the analysis Holmberg and Nikanne 2002 is marked in (3) as AgrS in order to show the relation between the morphology and syntactic structure. (This is not a radical difference; see the discussion of the node F instead of AgrS in Holmberg and Nikanne 2002.)

(3) *The maximal structure of the Finnish finite sentence.*



C stands for complementizer, **AgrS** for subject agreement (i.e. person 1sg, 2sg, 3sg, 1pl, 2pl, 3p, and the passive agreement ending), **Neg** for negation, **T** for tempus (i.e. present, past) and in Finnish also modus (i.e. conditional, potential, imperative), **Aux** for auxiliary verb (olla 'be'), **Ptc** for participial (past, present), and **Spec** for specifier. NB! **Constituency** is marked according to the convention introduced by Petrova (2011): the "ball" at the end of the line indicates the end in which the dominated element (the daughter) is. The benefit of this convention is that it does not require that the mother phrase is above the daughter.

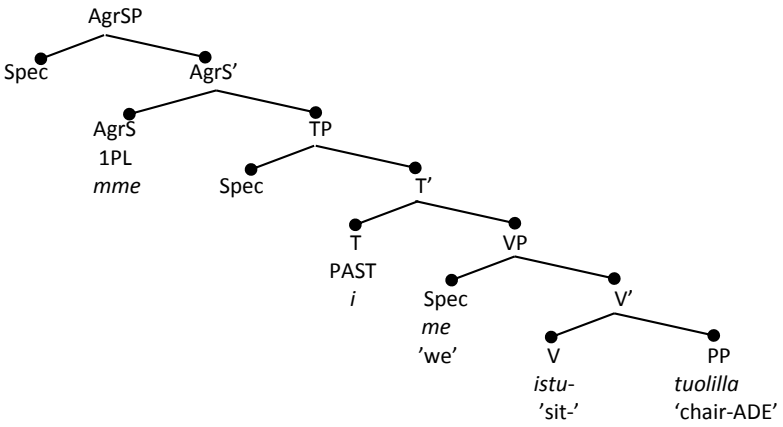
The passive marker *ttA* is base generated in the Spec(VP), the assumed original position for the subject. In standard Finnish, the passive voice is in a complementary distribution with an overt subject.

Only AgrS and T are obligatory. Those are the morphemes that are in an affirmative present or simple past tense forms (see the examples in the table 2 above).

The D-structure of the sentence *Istuimme tuolilla* [sit-PAST-1PL chair-ADESSIVE] 'We sat on the chair' is given in (4) The information on the finite sentence morphology is in the functional positions, and the subject NP is in the Spec(VP) position; note that then both arguments of the verb *istu-* 'sit' are in the maximal projection whose head the verb is.

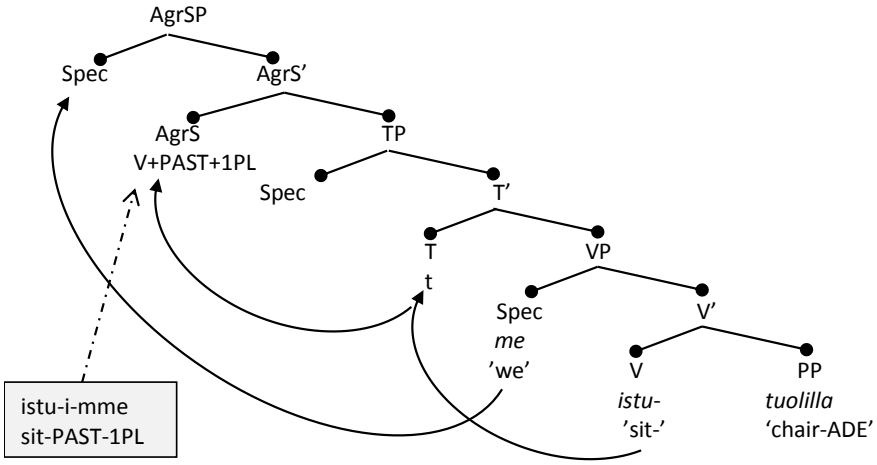
The derivation from D-structure to S-structure is illustrated in (4): The verb undergoes a head movement from the head of the VP position (V) via the head of the Tense/Mood phrase (T) to the head of the AgrSP position (AgrS). The morphological stucture is a mirror image of the head-to-head movement chain. The subject NP is assumed to be base generated in the Spec(VP) position. As the subject NP is in the nominative case and the AgrS feature (1PL) is compatible with the person and number of the subject NP, the sentence is grammatical. The verb and the subject NP leave behind traces in the positions in which they land on the way to their S-structure positions.

(4)



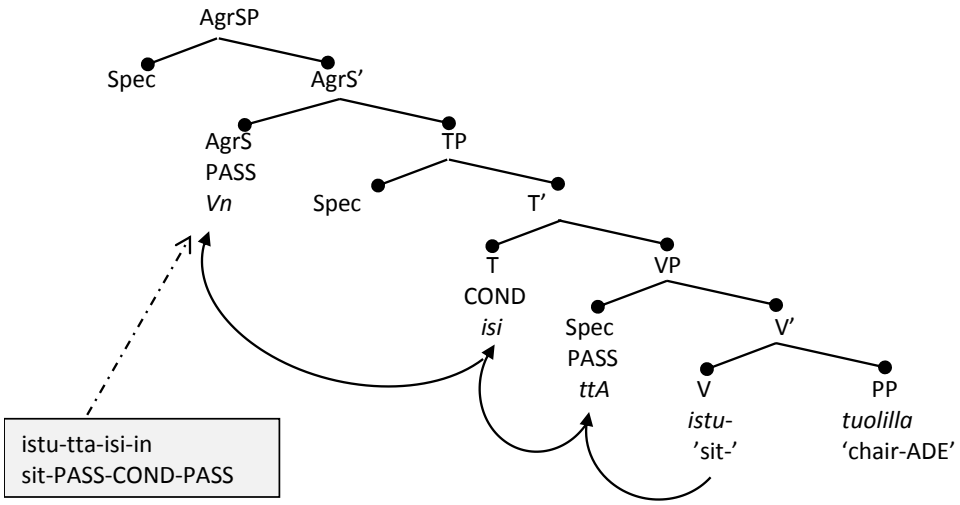
The S-structure is given in (4), with the solid arrows indicating the movements. The finite morphology, as it appears in the surface structure, is given the grey box, and the dashed arrow points to syntactic position of the inflected element. (In figures 6-8, in order to avoid too many arrows, only the movements of V and Aux are shown.)

(5)



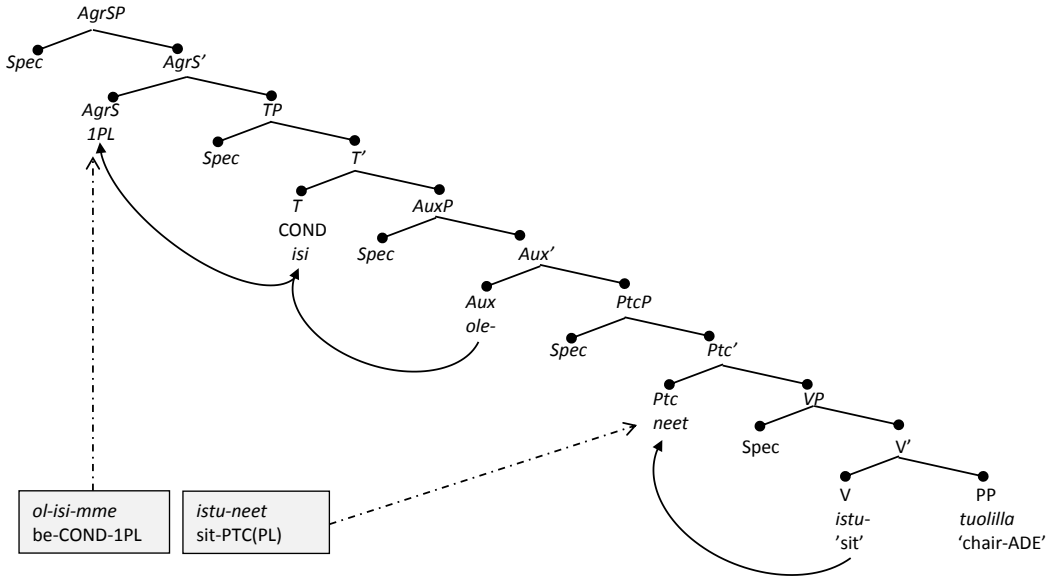
The passive marker is base generated in the specifier position of the VP. This is the position in which the subject argument is supposed to be base generated. The surface structure is derived as follows:

(6)



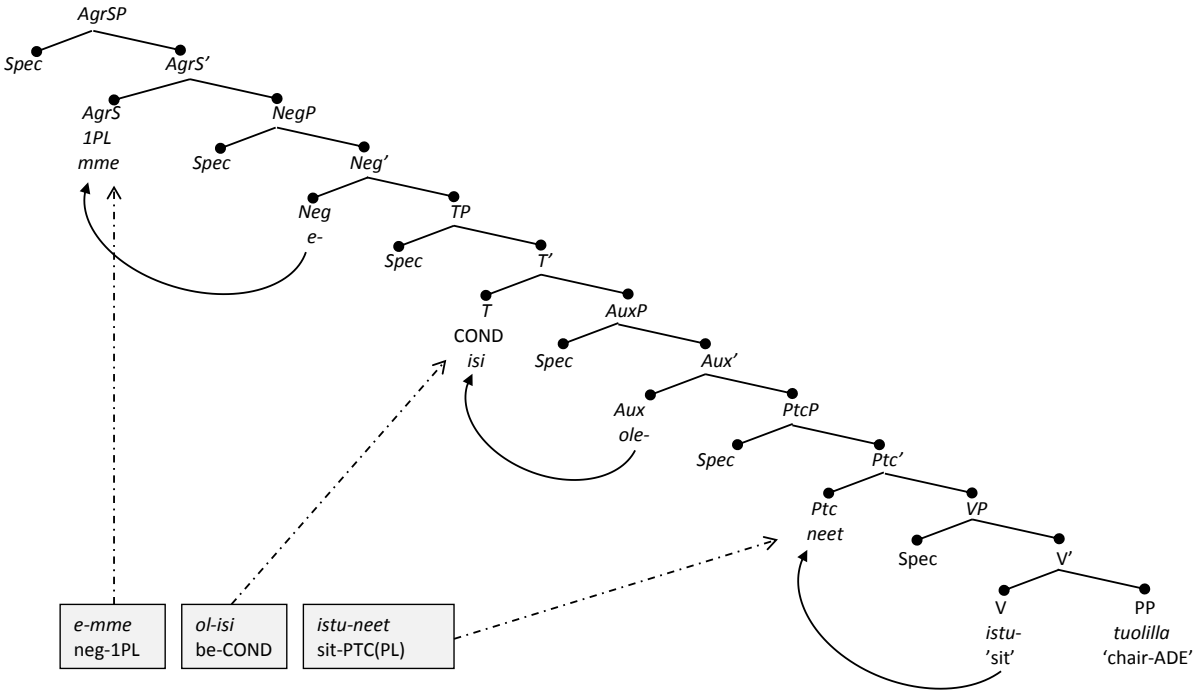
If the auxiliary *olla* 'be' is present, i.e. in the perfect or pluperfect tense, the Aux undergoes a head movement from the head of the auxiliary phrase position (Aux) to AgrS. Then, the verb moves from V to the head of the participial phrase position (Ptc).

(7)



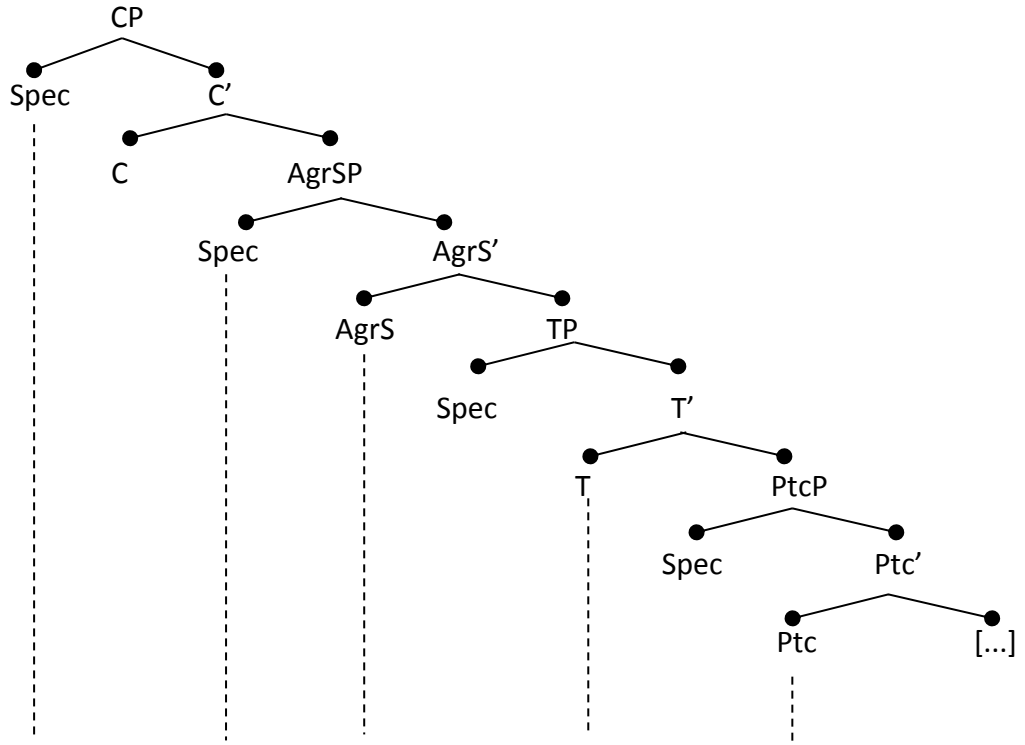
If the negation is present, the negation word *ei* undergoes a movement from the head of the negation phrase (Neg) to AgrS. Then, the auxiliary moves from Aux to T and the predicate verb from V to Ptc.

(8)



The complementizer phrase (CP) is understood traditionally as a projection of a complementizer word, such as a subordinating conjunction (9a), wh-word (b), or contrastively focused element (d, e). According to Maria Vilkuna (1989 etc.), the two initial positions of the Finnish finite sentence are reserved for a contrastively focused element (the first position) and the topic of the sentence (the second position). The topic of the sentence can be the first element if there is no contrastively focused element present. According to Holmberg and Nikanne (1994), the contrast position is Spec(CP) position and the topic position is Spec(AgrSP).

(9)



a. *millä$_i$* *tytöt* *eivät* *olisi* *istuneet* *t$_i$?'*
what-ADE girl-PL(NOM) not-3PL be-COND sit-PTC-PL
'What would the girls not have sat on?'
(WH-WORD AS ADVERBIAL; TOPIC 'girls')

Spec(CP) Spec(AgrSP) AgrS T Ptc
b. *ketkä$_i$* *t$_i$* *eivät* *olisi* *istuneet* *tuolilla?*
who-PL(NOM) *t* not-3PL be-COND sit-PTC-PL chair-ADE
'Who(PL) would not have sat on the chair?'
(WH-WORD AS SUBJECT; TOPIC 'who')

Spec(CP) Spec(AgrSP) AgrS T Ptc
c. *tuolilla$_i$* *tytöt* *eivät* *olisi* *istuneet* *t$_i$.*
chair-ADE girl-PL(NOM) not-3PL be-COND sit-PTC-PL *t*
'It is the chair that the girls would not have sat on.'
(CONTRASTIVE FOCUS ON 'on the chair'; TOPIC: 'girls')

Spec(CP) Spec(AgrSP) AgrS T Ptc
d. *eivät$_i$* *tytöt* *t$_i$* *olisi* *istuneet* *tuolilla.*
not-3PL girl-PL(NOM) *t* be-COND sit-PTC-PL chair-ADE
'It is not the case that the girls would have sat on the chair'
(FOCUS ON NEGATION; TOPIC: 'girls')

Similar models based on functional categories have been suggested for many other languages besides Finnish, e.g. French (starting Pollock 1989), Swedish (Holmberg & Platzack 1995, Italian (e.g. Cinque 1999), etc. The suggested sentence structures are very similar to that proposed for Finnish. The differences suggested for different languages have to do with the exact set and the mutual order of the categories.

4 What can be done better?

The model of finite sentence based on functional categories works well, and it has without any doubt been the most advanced model of the Finnish finite sentence so far. However, there is always room for progress. In the sections that follow, I will show that the benefits of the theory by Holmberg et al. can be developed into a simpler theory that even better shows the relationship between finite sentence syntax and morphology.

The two areas that need further development are the theory of constituents and keeping morphological and lexical categories apart from each other:

Constituents: Traditionally, constituent is defined as a unit that moves as a whole, is deleted as a whole, etc. In addition, in the X'-theory, a constituent is a projection of its head. This definition fits well with the good old-fashioned constituents like NP, PP, AP, and AdvP. The constituents headed by functional categories are much more abstract and they have been introduced to the theory mostly for theory internal reasons. The functional categories C and I and their respective projections CP and IP in Chomsky (1986) enabled the X'-theory cover the sentence structure in its entirety. Before that, the sentence (S) was the only constituent that did not have head and an X'-structure. These new "functional" constituents differ from the old-fashioned constituents, which are based on lexical categories. As the door was open for abstract functional constituents, they have been assumed to play a role even in non-finite categories, such as NPs (or DPs). The

development has led to a more and more abstract syntax, and at the same time, the idea of constituency has shifted further and further away from its original definition, particularly when it comes to the sentence level constituents headed by functional categories C, I, and the categories suggested to be parts of I (see the analysis of Finnish in 3 above). The theory of syntax should make a difference between the old fashioned constituents and functional categories as they are two different things, at least in the finite sentence.

Separating lexical and morphological categories: In Finnish, for instance, the categories Neg, Aux, and V must always be raised from their original positions, and they never appear without morphological suffices AgrS, T or Ptc. The categories AgrS, T or Ptc on the other hand cannot appear alone. The "mirror image" effect is explained but it is difficult to justify a complicated model of constituent structure in which the head nodes of the lexical categories must always be moved out of their projections (constituents which they are head words of) and at the same time there are constituents headed by heads that never appear alone without a lexical category.

The expansion of the number of functional categories may be a consequence of aiming at a universal description of grammar. A universal (or cross-linguistically relevant) description of the grammar requires that the overall systems of world's languages are described in a comparable manner, not that for instance each part of the grammar, e.g. finite sentences, must be assumed to have the same underlying structure in all languages. Thus, even if we can argue for a category, feature or element in one language, we do not need to generalize the same analysis to all languages. In mainstream generative grammar, syntactic constituent structure has been the most important part of grammar, and many phenomena have been analyzed as syntactic. That leads to, as it seems to me, unnecessarily, complicated syntactic constituent analyses of constituent structure. (For arguments against unnecessarily abstract syntax in mainstream generative grammar, see also Culicover and Jackendoff 2005.)

One motivation in generative grammar for analysing finite sentence as a constituent tree has been that the grammatical functions subject and object as well as assigning grammatical cases can be

defined as positions in the constituent tree. Two most important morpho-syntactic feature of the grammatical subject is that the finite predicate verb agrees with the nominative subject in person and number. In Finnish, the word order may vary because the information structure is marked in the word order (see Vilkuna 1989), and still the predicate verb of a finite sentence agrees with the (nominative) subject, no matter where the subject is located. For instance in (10), the verb *syödä* 'eat' agrees with the subject *pojat* [boy-PL-NOM] despite of the word order (S = subject, V = predicate verb, X = object or adverbial):

(10) SVX: *Tytöt istuivat tuolilla.*
girl-PL.NOM sit-PAST-3PL chair-ADE
'The girls sat on the chair.'

XVS: *Tuolilla istuivat tytöt.*
chair-ADE girl-PL-NOM sit-PAST-3PL

SXV: *Tytöt tuolilla istuivat.*
girl-PL.NOM chair-ADE sit-PAST-3PL

XSV: *Tuolilla tytöt istuivat.*
chair-ADE girl-PL-NOM sit-PAST-3PL

There is, thus, no obvious reason to assume that the subject of the sentence must have a particular syntactic position or that the grammatical cases for the subject (NOM) and the object (PAR or ACC) are assigned to particular positions in the constituent tree.

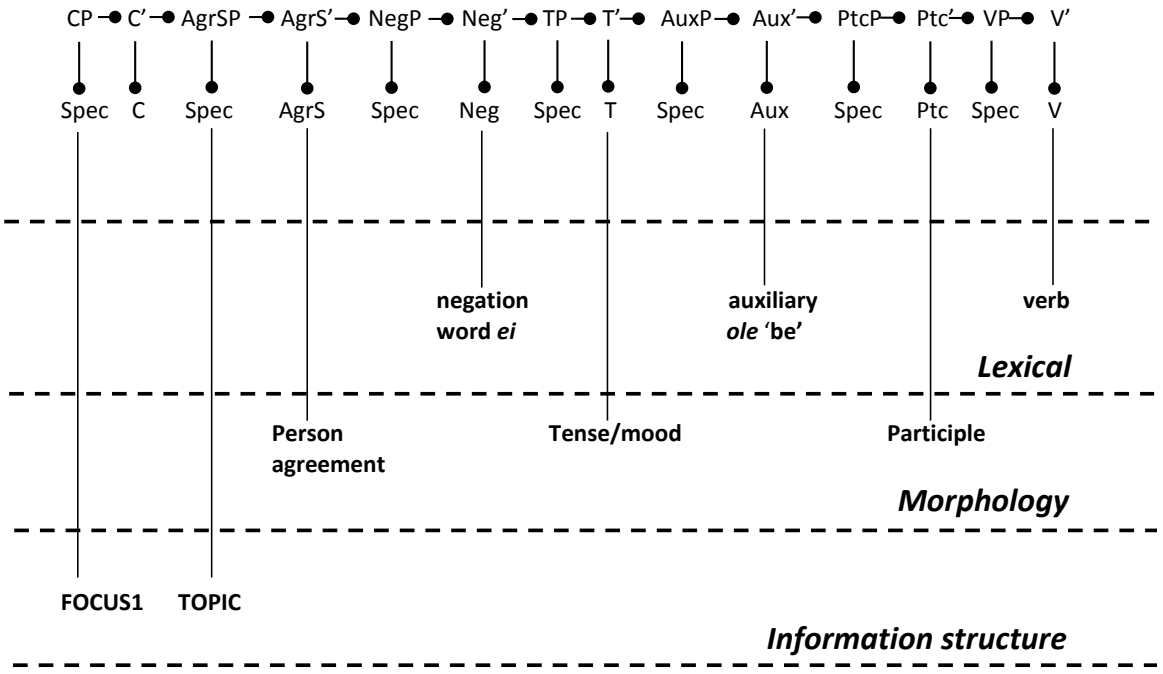
5 A new look at the finite sentence of Finnish

5.1 From constituents to tiers

In this section, I will suggest an alternative way to analyse the morpho-syntactic structure of the Finnish finite sentence. The analysis is based on Tiernet Theory (Nikanne, 1990, 2002, 2008, forthc.; Pörn 2005, Paulsen 2011, Petrova 2011), which is a generative theory of grammar and based on Jackendoff's (1972, 1983, 1987, 2002) Conceptual Semantics. The characteristic property of Tiernet is that the grammar is based on several very simple micro-modules and links between the micro-representations generated by these micro-modules. (See Nikanne forthc., for a detailed introduction to the theory.)

The binary constituent structure in figure 1 (based on Holmberg et al. 1993) can be presented in a horizontal position so that the maximal and middle nodes are at one level, and heads and specifiers on another level, as shown in (11). The head and specifier nodes are linked to other domains of the language system: information structure, (inflectional) morphology, and lexical categories. The sentence initial positions Spec(CP) and Spec(AgrSP) are reserved for information structure. The functional head positions AgrS, Neg, T, Aux, Ptc, and V are linked to morphological and lexical categories. It is worth pointing out that every second functional head, AgrS, T, and Ptc, are linked to morphological categories and every second functional head, Neg, Aux, and V, are linked to lexical categories. The category C is typically understood to be linked to conjunctions, but there are theories in which C is associated with abstract features of various kinds (having to do with questions, emphasis, etc.).

(11) *Information structure, morphology, and lexical categories in the Finnish finite sentence.*



In the analyses that follow, we abandon constituent structure as the universal architecture of syntax and functional nodes as syntactic categories. Information structure, morphology, and word order are treated as separate tiers. In this way, we are able to reach the goals set above: (i) to avoid unnecessarily abstract syntactic constituents, and (ii) to keep the lexical and morphological categories apart when it comes to finite sentence. In order to do this, we need to use a slightly different set of tools than before:

(i) Hierarchies and linking are applied instead of movements.

(ii) Lexical categories, morphological categories, and finite features are kept in separate tiers instead of putting them all in the same syntactic constituent structure.

5.2 Morphology

The **finite sentence morphological categories** (**fsm-categories**) of Finnish are AgrS, T, Ptc, and Pass. Instead of assuming a head movement, we analyse them as hierarchically organized. The hierarchy is the same as the linear order in Holmberg's et al. (1993) constituent structure:

Hierarchy of Fsm-Categories

AgrS > T > Ptc > Pass

The finite sentence morphological categories select the finite sentence lexical categories in a strict hierarchical order. The status of a morphological category in the hierarchy of fsm-categories determines its place in the picking order. The highest morphological category has the right to select the most desired lexical categories. The desirability of lexical categories is determined in another hierarchy.

In the Hierarchy of Fsm-Categories, there is one difference compared to Holmberg et al. (1993), namely passive a part of the hierarchy bu tit is not is not a functional head in the theory of Holmberg & al. As we have abandoned the functional constituent heads, we can – or should – treat passive in the same way as the rest of the finite sentence morphology. As pointed out already above, the Finnish passive has two parts: the passive marker (*ttA*)[1] next to the verb stem and the passive personal ending (*Vn*)[2] in the position of AgrS-endings:

(13) *istu-**tta**-**an*** [sit-**PASS**-**PASS**] 'it is sat'

*istu-**tt**-i-**in*** [sit-**PASS**-PAST-**PASS**] 'it was sat'

*istu-**tta**-isi-**in*** [sit-**PASS**-COND-**PASS**] 'it would be sat'

*istu-**tta**-ne-**en*** [sit-**PASS**-POT-**PASS**] 'it probably will be sat'

[1] The suffix *ttA* (in which A indicates *a* or *ä* depending on the vowel harmony) is sensitive to its morpho-phonological context and may appear as *tta*, *ttä*, *ta*, *tä*, *tt, t, la, lä, ra,* or *rä*. This alternation is, however, beyond the scope of this article.

[2] The V in the suffix *Vn* indicates vowel lengthening: V appears as the lengthening of the preceding vowel.

In the perfect and pluperfect tense, the passive marker is in the participial:

(12) *on istu-**tt**-u* [be-3SG sit-**PASS**-PASTPTC] 'it has been sat'

*oli istu-**tt**-u* [be-PAST-3SG sit-**PASS**-PASTPTC] 'it had been sat'

The person of the auxiliary *olla* 'be' is traditionally analysed as 3SG as 3SG is the neutral or default person in the Finnish grammar. In colloquial Finnish, the perfect and pluperfect tenses are not always following the pattern given above: it is common to double the passive morphology in the auxiliary: *ol-**la**-**an** istu-**tt**-u* [be-PASS-PASS sit-PASS-PASTPTC] 'it has been done' instead of *on istu-**tt**-u* [be-3SG sit-**PASS**-PASTPTC] 'it has been sat.'

As mentioned above, the lexical categories of the finite sentence form a hierarchy. I use the term sentence **finite sentence lexical categories** (**fsl-categories**) for the lexical categories that are characteristic for the finite sentence, i.e. Neg, Aux, and V. The hierarchy of these categories is as follows:

Hierarchy of Finite Sentence Lexical Categories

Neg > Aux > V

The higher the lexical category is in the hierarchy the more valuable it is from the point of view of morphological categories. Just as was the case with morphological categories, the hierarchy of lexical categories corresponds to their order in the syntactic tree in the constituent analysis by Holmberg et al (1993).

The morphological form follows from general principles.

Linking between Finite Sentene Morpohological and Lexical Categories

A. Each fsl-category must always be selected by at least one fsm-category.

B. Fsm-categories select a maximal number of morphological fs-morphological categories from left to right following the lexical and morphological hierarchies, with exceptions (i) and (ii).

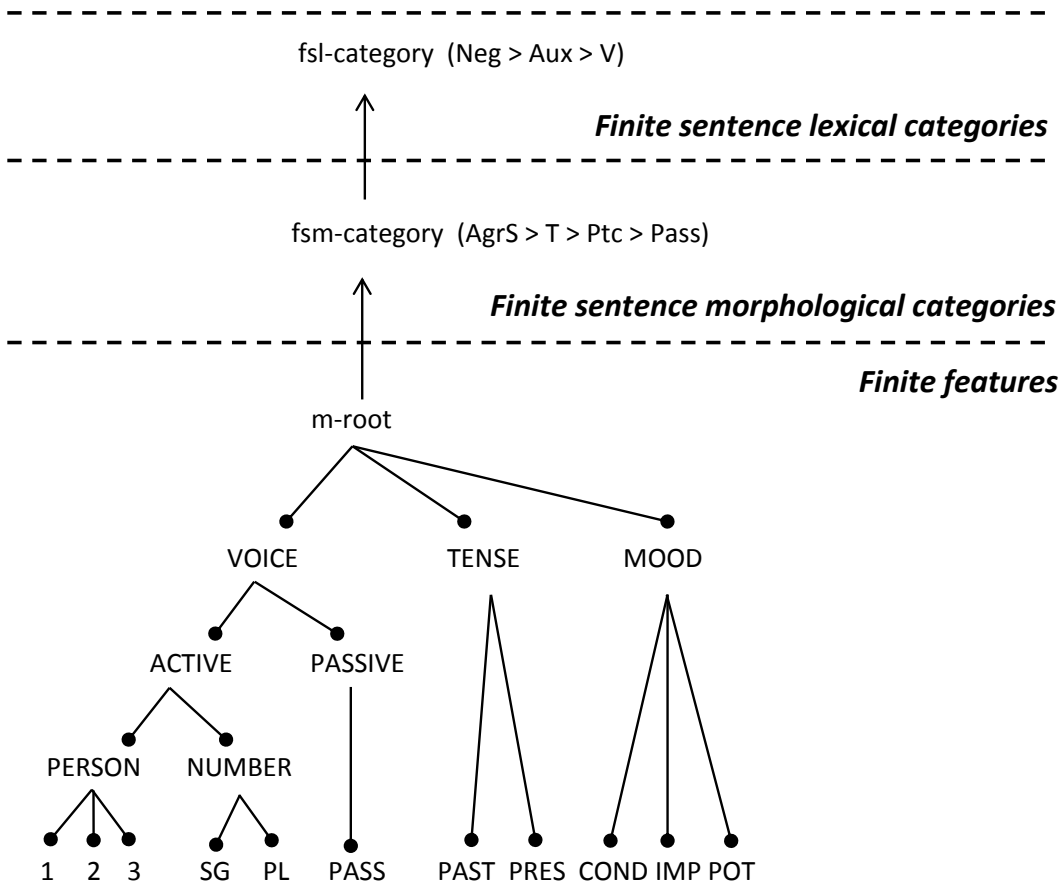
(i) Neg can only be selected by AgrS.

(ii) Ptc can only select V.

The principles of selection based on these hierarchies correspond to the head movement in Holmberg et al. (1993).

The morphological categories must have values. These values are called ϕ-features in generative grammar. I will call them **finite features**. Traditionally, the finite sentence morphology has been divided into such categories as voice, tense, mood, person and number. Thus, the morphological category T may carry such finite features as present tense, past tense, conditional mood, imperative mood, or potential mood. AgrS may carry person and a number features, or the feature passive.

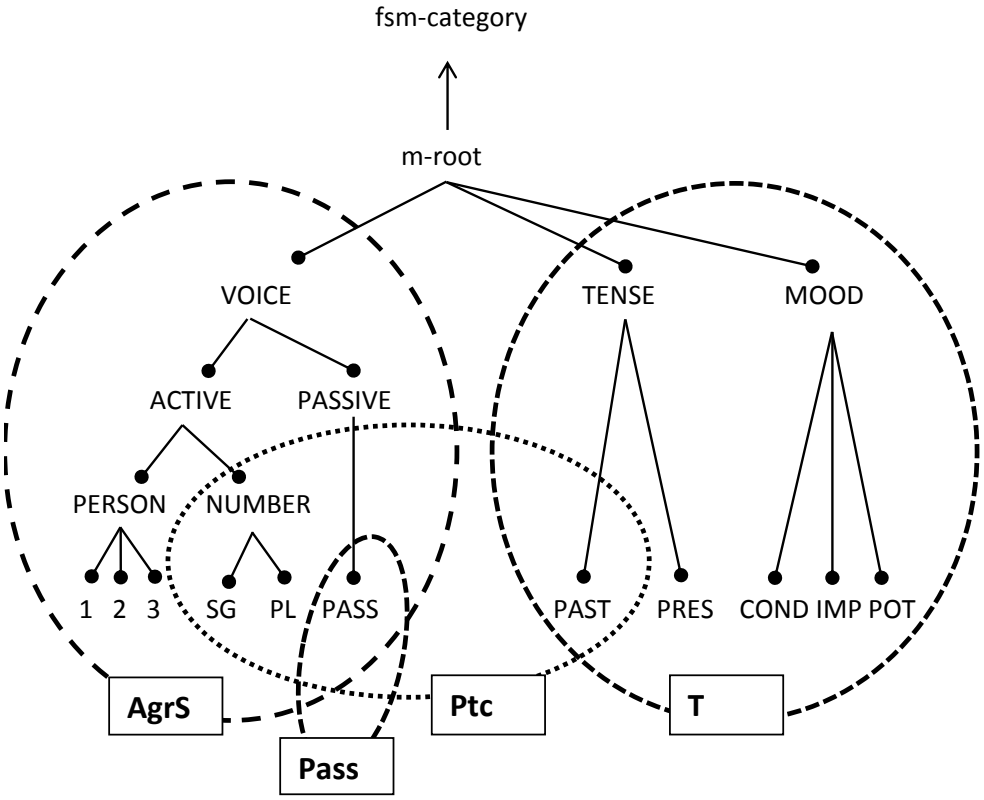
The finite features are organized in a constituent structure as in (13) (PASS = passive, PRES = present tense, COND = conditional mood, IMP = imperative mood, POT = potential mood). Arrow indicates selection, i.e. dependency relation):



All the finite features of a finite sentence are “collected” by constituency to the same m-root. The m-root represents the whole set of features, and it selects (arrow indicates selection) a finite sentence morphological category. The organization of the finite features is very much the same as in traditional grammars. The new idea is the linking between finite features and finite sentence morphology. The feature system above is based on the grammar of Finnish, but most parts of it are similar to other languages. The finite sentence morphemes (fsm-categories) and the linking between the morphological categories and the features is more language specific.

The fsm-categories can carry different finite features, i.e. they can carry a part of the constituent tree in Figure 3. The restrictions – and possibilities – for cateogries of AgrS, T, and Ptc to carry finite features are given in (14). The circles show the range of finite features each fsm-category may carry in Finnish:

(14) *The possible finite features of the fsm-categories AgrS, T, Ptc, and Pass in Finnish.*



The categories AgrS and T do not share any values but Ptc can carry a part of the values of AgrS, namely number and passive, as well as a part of the values of T, namely past or present. The person values can only be carried by AgrS and the mood values only by T. The main principle is that the branches in the fs-morphological constituent structure must be interpreted as "pick only one," with the excpetion that VOICE can co-occur wth TENSE and MOOD and PERSON can co-occur with NUMBER. We can formulate this into a principle of Finnish grammar:

Co-occurrence of finite features in Finnish

The sisters of the finite feature constituent structure cannot co-occur in the same finite sentence, except (i) and (ii).

(i) VOICE, TENSE, and MOOD can co-occur with each other.

(ii) PERSON can co-occur with NUMBER.

We should keep in mind that the finite sentence is a whole, and one finite sentence can only express one set of finite features (as represented in figure 3). There is only one set of fsm-categories per finite sentence, and therefore we can say that the finiteness of the finite sentence is based on the morphology. The only exception of this is TENSE, which we will discuss shortly. As a reminder of this, I mark the set of fsm-categories that belong to the same finite sentence with brackets and subscript index **fs** ("finite sentence").

The principle of the unity of the finite sentence can be formulated as follows:

Finite sentence as a unit (in Finnish)

In a finite sentence, there cannot be more than one instance of each finite feature. The only exception is TENSE of which there can be two instances.

The perfect and pluperfect tense can be described as having two instances of tense: one in auxiliary and another one in the participle. This is an exception to the main principle that each finite feature cannot be expressed more than once.

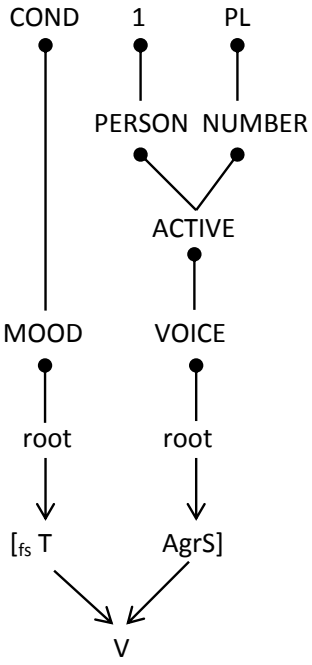
In theory by Holmberg & al. the functional heads AgrS and T were supposed to always be present in a finite sentence of Finnish. We must add this principle in the present system. In addition, the lexical category V is always present in a finite sentence. The principle is as follows:

Obligatory categories in Finnish finite sentence

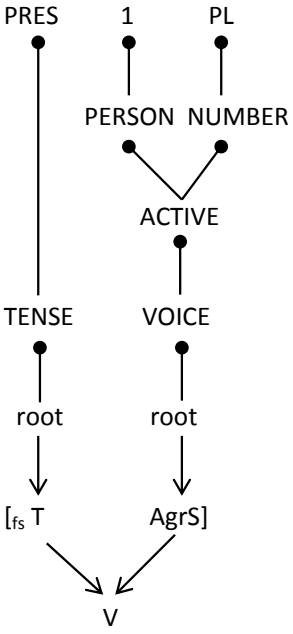
The fsm-categories AgrS and T as well as the fsl-category V are obligatory in a finite sentence.

Here is an example of the system. The example in (15) *istuisimme* [eat-COND-1PL] 'we would eat' can be analyzed as follows and *istumme* [eat-1PL] 'we sit':

(15) a. *istuisimme*
eat-COND-1PL
'we would eat'

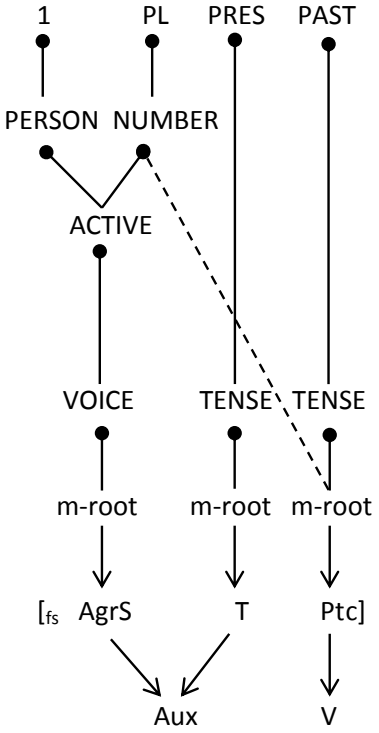


b. *istumme*
sit-1PL

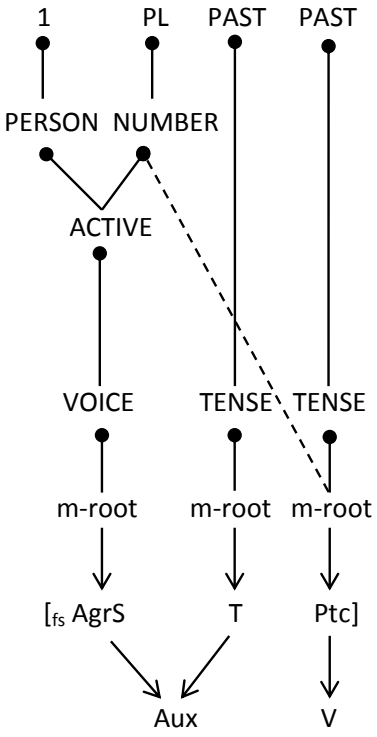


The perfect and pluperfect tenses can be analysed as follows:

(16) a. *olemme istuneet*
be-3PL sit -PASTPTC-PL



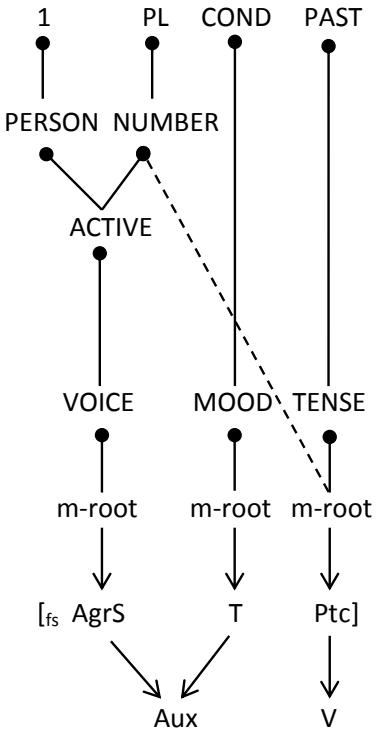
b. *olimme istuneet*
be-PAST-3PL sit-PASTPTC-PL



The participles used in the finite sentence are in the same number (SG or PL) as the whole finite sentence morphology. This agreement can be described as feature spreading. The feature spreading is marked by dashed constituent lines. The spreading lines are linked directly to the m-root: the participial forms are just agreeing with the number of the finite sentence. The primary expression of number is in the morphological form of the negation word.

As discussed earlier, the Finnish morpho-syntax is peculiar in the way that the finite features tense and mood cannot co-occur in the same finite verb: the fsm-category T expresses either mood or tense but not both. There is however, a solution: participle. If tense and mood co-occur, the mood is expressed by fsm-category T that selects Aux and tense by fsm-category Ptc that selects V, for instance in (17).

(17) *olisimme istuneet*
be-COND-1PL sit-PASTPTC-PL
'we would have sat'



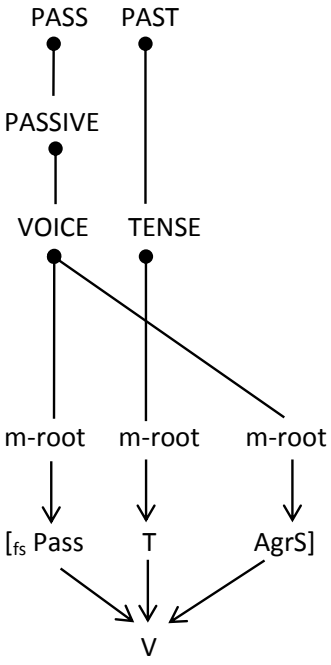
In this way, both tense and mood can be expressed in the same finite sentence even though they do not have room in the same verb form.

Another morphological peculiarity in Finnish is that passive is expressed by two endings: the passive marker and the passive personal suffix. For instance:

(18) *istu-tt-i-in*
sit-PASS-PAST-PASS
'it was sat'

I suggest the following solution:

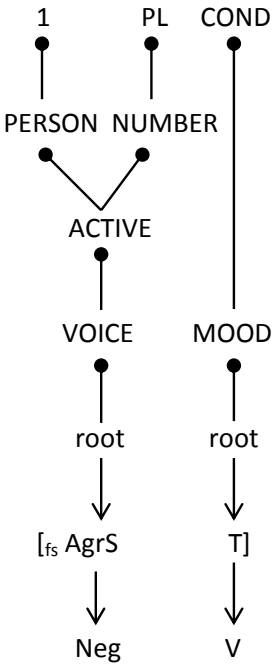
(19)



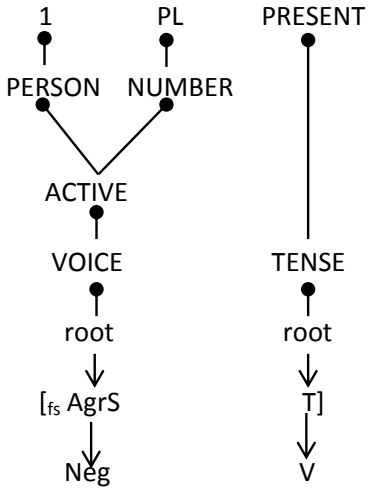
The solution in (20) is rather obvious in a “nonlinear” morphology as the present approach. The node VOICE is shared by the m-roots of the fsm-categories Pass and AgrS. Hakulinen and Karlsson (1979) suggest that passive is “the fourth person.” The motivation is that the passive form has a person suffix, i.e. AgrS. In the present approach, it is not necessary to assume a fourth person. The passive is just linked to the fsm-category AgrS, in addition to the fsm-category Pass, and the passive voice is expressed in two fsm-categories.

The negation word ei is selected by the fsm-category AgrS. The mood or the tense are then expressed by the verb:

(20) a. *emme istuisi*
not-1PL sit -COND
‘we would not eat’



b. emme istu
not-1PL sit
'we do not sit'



We need to stipulate an exception to the system. But this stipulation is something that any system – known so far – must do. There is a third peculiarity in Finnish: if the finite sentence has a negation word, the verb or the auxiliary appears in the participial form in the past tense. The auxiliary is in the participial form in the pluperfect as the pluperfect (normally) consists of an auxiliary in the past tense plus the verb in a past participial form:

(21) a. *Tyttö ei istunut tuolissa.*

Girl-NOM not-3SG sit-PASTPTC chair-INE

'The girl did not sit on the chair.'

(Negation and past tense: V in a participial form.)

b. *Tytöt eivät istuneet tuolissa.*

Girls-PL-NOM not-3PL sit-PASTPTC chair-INE

'The girls did not sit on the chair.'

(Negation and perfect tense: Aux appears in a participial form.)

c. *Tytöt eivät ole istuneet tuolissa.*

Boy-PL not-PL be eat-PASTPTC-PL fish-PAR

'The girl did have not sat on the chair.'

(Negation and pluperfect tense: Aux appears in a participial form.)

This exception can tentatively be formalized as follows (i.e. the past tense morphology of Aux or V is replaced by the participial form in the presence of Neg).

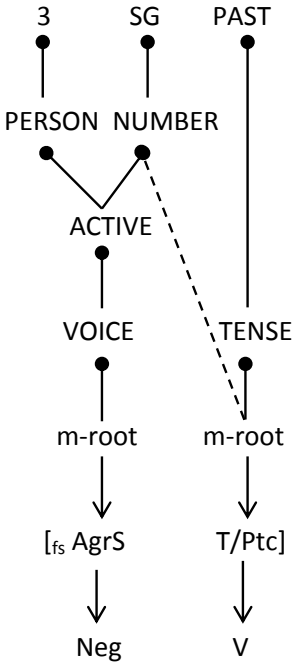
Past tense in the negative sentence in Finnish

If the fs-morphological category AgrS selects Neg, then the value PAST of the fs-morphological category T appears as past participle.

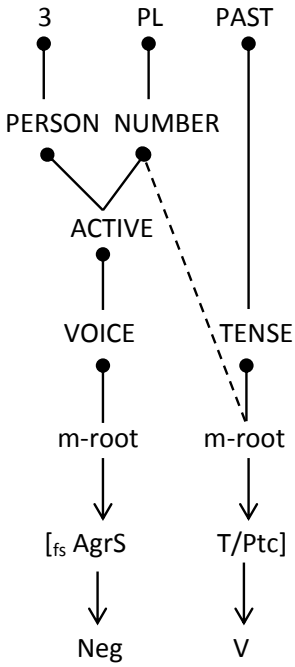
Thus, the fsm-category that selects verb in (21a) and the auxiliary in (21b, c) is functionally T but it appears as a participial. The participial form is able to express tense, and the Finnish grammar takes an advantage of this property in the perfect and the pluperfect tenses. Why the (simple) past tense is expressed using a participial form in negative sentence, seems to be just a strange detail of the Finnish grammar. What we know, however, that this is made possible by the facts (i) that a particple *can* be selected by tense and that (ii) the person and number select the negation word when it is possible.

For instance the finite forms in (21) can be described as in (22):

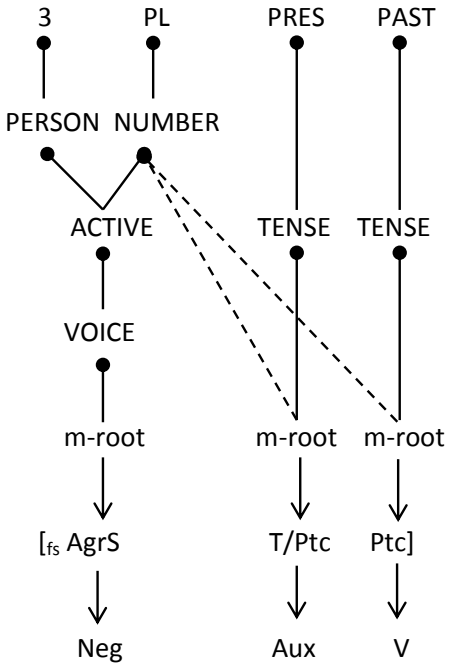
(22) a. *ei istunut*
not-3SG sit-PASTPTC
'(she/he/it) did not sit'



b. *eivät istuneet*
not-3PL sit-PASTPTC-PL
'(they) did not sit'

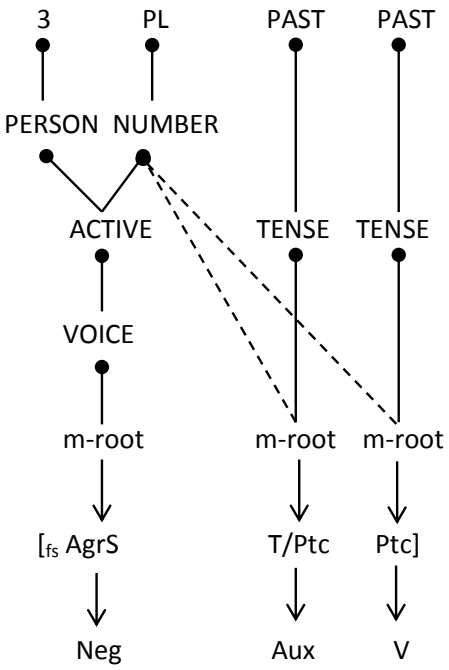


c. *eivät ole istuneet*
not-PL be sit-PASTPTC-PL
'(they) have not sat'



d. *eivät olleet istuneet*

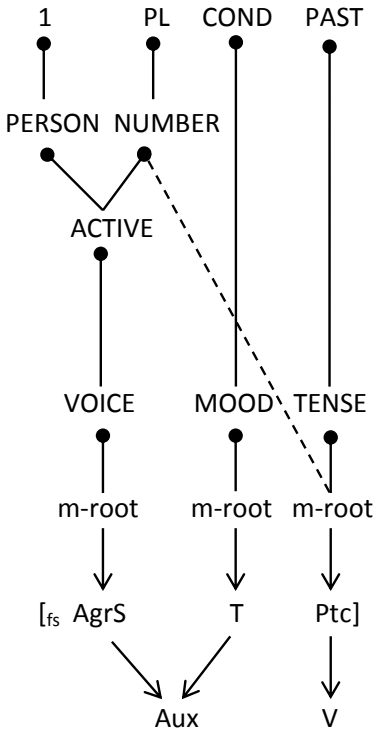
not-PL3 be-PASTPTC-PL sit-PASTPTC-PL
‘(they) had not sat’



The fact that tense is expressed by a participle in negative sentences is marked as T/Ptc, which should be understood like T that is replaced by Ptc.

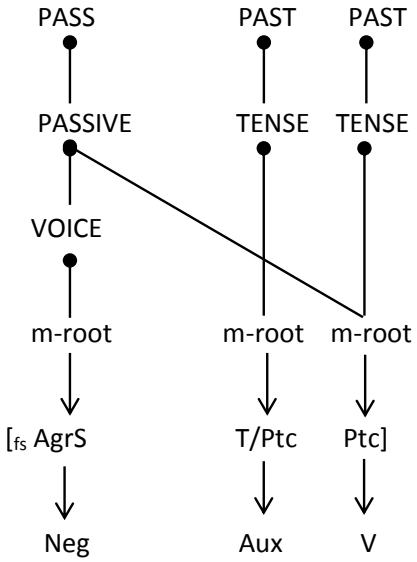
When it comes to the ability of the particple form to express tense, the Finnish grammar uses it also when the T is selected by MOOD. Here for instance is the past tense (or perfect tense, if you like) the the conditional mood (the example 18 is repeated here as 23):

(23) *olisimme istuneet*
be-COND-3PL sit-PASTPTC-3PL
‘we would have sat’



The pluperfect of negative sentences in Standard Finnish has passive marker only in the participial form of the V (26a). In colloquial Finnish, it is, however, very common to have the passive marker both in the participial form of the auxiliary and the participial form of the verb. (School teachers tend to have a hard time trying to make children use the Standard Finnish form, and even educated adult writers often use the colloquial form.)

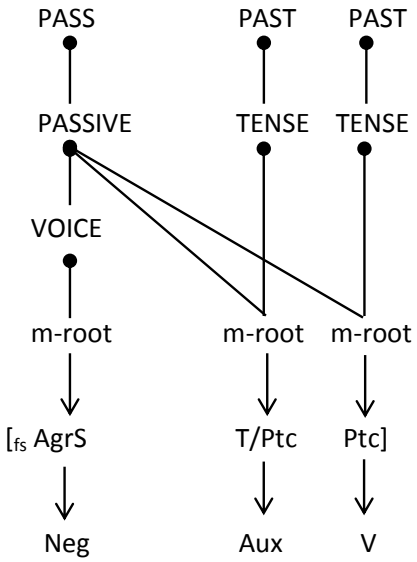
(24) a. *ei ollut istuttu*
not be-PASTPTC sit-PASS-PASTPTC
'it had not been sat'



b. *ei oltu istuttu* (colloquial)

not be-PASS-PASTPTC sit-PASS-PTC

'it had not been sat'



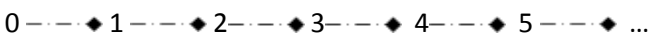
In the light of the present nonlinear micro-modular approach, it is easy to understand why the colloquial form (24b) is so appealing: the passive is spread across the whole finite sentence, just

like in the present the simple past tense. The Standard Finnish form must be learned separately as skipping the category T/Ptc is somewhat unnatural.

5.3 Word order and information structure in tiers

The system suggested above covers the finite features, as well as the finite sentence morphology. One thing that is not covered is word order. Word order is a linear system, and I suggest that the system, the word order tier, is simply a linear order of word order positions, and the lexical, morphological, syntactic, and other elements are linked to these positions. Here is a suggestion for the word order tier:

Word order tier



The notation X–·–◆Y indicates 'X immediately precedes Y in linear order.' Linear order is an asymmetric relation: if A precedes B, then B does not precede A. it has a direction: if A precedes B and B precedes C, then A precedes C. The notation indicates this asymmetry and direction.

The importance of the linear order in a modular model of grammar has lately been emphasized by Sadock (2012: 111-113). The technical difference between the word-order tier suggested above and Sadock's model is that Sadock suggests that linear order is a uniformly either left or right branching tree structure, which leads to an unambiguous linear order of the terminal nodes. The word-order tier above is one step simpler assumption, as the relation "preceed" simply states the linear order. We will see how far we can get with the null-hypothesis.

The information structure categories TOPIC and FOCUS1 (a.k.a. “contrastive focus”) have their designated positions Spec(CP) and Spec(AgrSP). According to Vilkuna (1989), the word order of Finnish is based on categories such as CONTRAST (our FOCUS1) and TOPIC, so in Finnish, the information structure must be linked to the word order tier. The word inflected in the AgrS-morphology sits in the AgrS-position. Compared to the functional constituent tree of Holmberg et al (1993): the word order position 0 corresponds Spec(CP), 1 corresponds to C, 2 to Spec(AgrSP), and 3 to AgrS.

The designated positions of the information structure categories and the AgrS can be found in the word order tier:

Fixed links between information structure and word-order in Finnish

FOCUS1 always selects word order position 0 and TOPIC always selects position 2.

The position of t the word inflected in the AgrS-morphology can be formulated as follows:

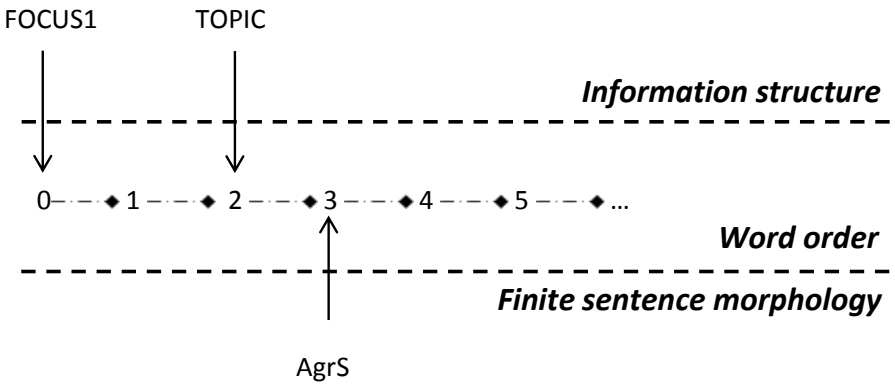
Fixed link between fsm-category AgrS and word-order in Finnish

AgrS always selects word order position 3.

The question words such as *mikä* ’what,’ *kuka* ’who,’ *miten* ’how,’ *millloin* ’when,’ etc. are linked to position 0. One interpretation is, naturally, that a question word has a contrastive focus as it represents the missing piece of information that is in the focus of the question sentence.

Position 1 is needed for an expletive in certain structures, when the the information structure must be made visible (Nikanne forthc.).

(25) *The fixed links between the word order tier, information structure, and finite sentence morphology in Finnish.*



The morphological category AgrS is fixed to position 3. The morphological categories have right to pick the higher position according to the morphological hierarchy. If Neg and Aux are not present, T and Agr appear as inflectional categories of V, and they are located in position 3 as in (26). Ptc has the right for position 4 if Neg is not present and T is in position 3 togehter with AgrS, as illustrated in (27). If all the fs-lexical categories (Neg, Aux and V) are present, T (here: conditional mood) is in position 4 and Ptc (here past participial plural) in position 5. The active voice sentences given in (2) are repeated below as (26). The word-order position is marked above each sentence, and the categories of other tiers fixed to that position (FOCUS1, TOPIC, and AgrS) are marked above the word order position:

(26)

FOCUS1	TOPIC	AgrS			
0	2	3	4	5	
millä$_i$	*tytöt*	*eivät*	*olisi*	*istuneet*	*t_i?’*
what-ADE	girl-PL(NOM)	not-3PL	be-COND	sit-PTC-PL	

‘What would the girls not have sat on?’
(WH-WORD AS ADVERBIAL; TOPIC ‘girls’)

FOCUS1	TOPIC	AgrS			
0	2	3	4	5	
ketkä$_i$	*t_i*	*eivät*	*olisi*	*istuneet*	*tuolilla?*
who-PL(NOM)	*t*	not-3PL	be-COND	sit-PTC-PL	chair-ADE

‘Who(PL) would not have sat on the chair?’
(WH-WORD AS SUBJECT; TOPIC ‘who’)

FOCUS1	TOPIC	AgrS			
0	2	3	4	5	
tuolilla$_i$	*tytöt*	*eivät*	*olisi*	*istuneet*	*t*$_i$.
chair-ADE	girl-PL(NOM)	not-3PL	be-COND	sit-PTC-PL	*t*

'It is the chair that the girls would not have sat on.'
(FOCUS ON 'on the chair', TOPIC: 'girls')

FOCUS1	TOPIC	AgrS			
0	2	3	4	5	
eivät$_i$	*tytöt*	*t*$_i$	*olisi*	*istuneet*	*tuolilla.*
not-3PL	girl-PL(NOM)	*t*	be-COND	sit-PTC-PL	chair-ADE

'It is not the case that the girls would have sat on the chair'
(FOCUS ON NEGATION; TOPIC: 'girls')

6 Conclusion

In this article, the finite sentence of Finnish is analysed as a unit that consists of three tiers: finite sentence features, finite sentence morphology, and finite sentence lexical categories. In addition, I have suggested that word order is based on a simple one dimensional tier that takes care of the linear order of different tiers. The suggested system allows us to give up abstract syntax when it comes to constituent structure with functional categories and head movement. The Tiernet-model of finite sentence resembles the traditional grammars:

(i) Morphological and lexical categories are kept apart.

(ii) Finite features are very close to those assumed traditionally.

Grammars of languages may differ at least in the following ways:

(i) The inventory of the finite features, lexical categories, and morphological categories may be different in different languages.

(ii) The links between the features and the morphological and lexical features may differ in different languages.

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