Fseq zones and Slavic L>T>N participles

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Abstract

We make a case for morphemes as zones of functional sequence ('fseq zones') in Nanosyntax. Under such an approach, morphemes which compete for insertion with each other form the same fseq zone, while morphemes which co-occur together form different fseq zones. We illustrate this on the basis of the participle zone that is projected on top of verb stems in Slavic languages. We argue that in Polish and Czech, this participle zone spells out as L, T, or N, depending on its size and internal constituent structure. The constituent structure of this zone provides a direct solution to the long-standing puzzle in Polish and Czech morphology, namely why only unaccusative verbs built adjectival L-passives while all types of verbs build active L-participles.

1 Introduction

The fact that adjectival passive L-participles are only formed from unaccusative verbs constitutes a long-standing puzzle in the syntax of Czech and Polish. We provide a structural solution to this puzzle based on the idea of morphemes understood as individual zones of functional sequence in syntax, or 'fseq zones' for short. Under this view, morphemes which form the same fseq zone compete for insertion with each other, while if two morphemes co-occur, we take it as a hallmark that they form two different fseq zones in a syntactic representation.[1] We illustrate this approach to morphemes on the basis of the participle zone that is projected on top of verb stems in Slavic languages and argue that this zone spells out as L, T, or N, depending on its size and internal constituent structure.

Consider (1), which is the format of the Slavic verb.

(1) (PREFIX) – ROOT – THEME – PARTICIPLE – AGR

a. u – děl – a – l – a (active: L-participle)
pref – do – AJ – L – F.SG
'(she) did' (Cz)

b. u – děl – á – n – o (passive: N/T-participle)
pref – do – AJ – N – N.SG
'(it was) done' (Cz)

There are 7 themes in both Polish and Czech: Ø, E, EJ, NU, AJ, OVA, and I. Together with the root they merge with they encode the verbal argument structure. For example, the theme E builds stative

[1] A reviewer ask whether co-occurrence of two morphemes can be a case of a single fseq zone which happens to be lexically split up into two or more morphemes. The crucial point is that the morphemes have to compete for insertion – and that, in turn, they can do only if they are part of the same fseq. In other words, if a particular sequence can be lexicalized by two morphemes, it means that there are two syntactic fseq zones. For example, if Tense is lexicalized as a fusional morpheme with phi-agreement features in a language, then temporal and phi features form a singleton fseq zone in that language.

stems (as in the Polish example in (2)), the theme I builds causative stems (as in (3)), and NU builds semelfactives (as in the Czech (4-a)) and degree achievements (as in (4-b)).

(2) My nie chcemy o tym słysz-**e**-ć. (Pol) *stative E*
we not want about it hear-E-INF
'We don't want to hear about it.'

(3) Jan po-sadz-**i**-ł-Ø dziecko na stole. (Pol) *causative I*
Jan *po*-sit-I-L-3.M.SG child on table
'Jan made the child sit on the table.'

(4) a. Petr kop-**nu**-l-Ø psa. (Cz) *semelfactive NU*
Petr kick-NU-L-M.SG dog-ACC
'Petr kicked the dog (once).'
b. Petr hloup-**nu**-l-Ø. *degree achievement NU*
Petr stupid-NU-L-M.SG
'Petr was getting more and more stupid'.

Despite the fact that L- (cf. (1-a)) and T-/N-suffixes (cf. (1-b)) form different types of participles, we discuss evidence indicating that the actual morphemes lexicalize parts of a single fseq zone since all three compete for insertion in the syntactic structure of participles. In particular, the superset of heads that make up this zone spell out as the active L-participle (as in (5)). The subsets that spell out as the adjectival L-passive as in (6) and T- or N-passives as in (7)-(8), lexicalize projections that make up eventive (verbal) and adjectival (stative) passives.

(5) *active (non-present) L-participle*

a. Wczoraj kop-a-**ł**-em piłkę z kolegami. (Pol)
yesterday kick-AJ-L-1.MSC.SG ball with friends
'Yesterday I played some soccer with friends.'
b. Karel hod-i-**l**-Ø boty do kouta. (Cz)
Karel throw-I-L-MSC.SG shoes into corner
'Karel threw the shoes into the corner.'

(6) *L-passive*

a. Król jest zmar-**ł**-y i nic tego nie zmieni. (Pol)
king-NOM is die-L-MSC.NOM and nothing this not change
'The king is dead and nothing will change that.'
b. Ta treska je z-mrz-**l**-á na kost. (Cz)
this codfish-F.SG is pref-freeze-L-F.SG to bone
'The codfish is frozen solid.'

(7) *T-passive*

a. Piłka zosta-**ł**-a kop-nię-**t**-a. (Pol)
ball become-L-F.SG kick-NU-T-F.SG
'The ball was kicked.'
b. Karel by-l kop-nu-**t**-Ø do břicha (Petrem). (Cz)
Karel be-L kick-NU-T-MSG.SG in stomach (Petr-INS)
'Karel was kicked in the stomach (by Petr).'

(8) *N-passive*

a. Ta dziura zosta-ł-a wczoraj wy-kop-a-**n**-a. (Pol)
this hole become-L-F.SG yesterday out-dig-AJ-N-F.SG
'This hole was dug out yesterday.'

b. Boty by-l-y hoze-**n**-y do kouta (Petrem). (Cz)
shoes be-L-MSC.PL throw-N-MSC.PL into corner Petr-INS
'The shoes were thrown into the corner (by Petr).'

We focus particularly on the long-standing puzzle in Polish and Czech morphosyntax (cf. Cetnarowska (2002) for Polish), namely the fact that only stems of unaccusative verbs build adjectival L-participles (while unergatives and transitives can only form N- or T-participles). For instance, unaccusative verbs like *vlhnout* 'get wet' (Cz) or *blednąć* 'become pale' (Pol) will form L-participles *z-vlh-l-ý* 'wet' or *po-blad-ł-y* 'pale', while unergative verbs like *dupnout* 'stamp' (Cz) or *ziewnąć* 'yawn (once)' (Pol) will not (**dup-l-ý, *ziew-ł-y*). We argue that this results from the fact that the lexical entry for L includes case peels left by the movement of the unaccusative NP argument of the verb stem. We also argue that, interestingly, case peeling also takes place in the derivation of unergative stems, but in these, the accusative case peels are spelled out as part of the theme vowel, that is a morpheme lexicalizes the fseq zone lower than the participle fseq.

2 Passive participles

2.1 Verbal and adjectival passives

Passive participles can be verbal (eventive) or adjectival (stative). In German, these two kinds of passives are morphosyntactically distinguished, with verbal passives occurring with *werden* 'get'/'become' and adjectival passives with *sein* 'be', as in (9) and (10), respectively (cf. Kratzer (2000), Maienborn (2007)).[2]

(9) Die Reifen werden aufgepumpt.
the tires get/become up-pumped
'The tires are being inflated.'

(10) Die Reifen sind aufgepumpt.
the tires are up-pumped
'The tires are inflated.'

Kratzer (2000) further distinguishes between two types of adjectival passives: Target States, which can be modified by a temporal adverbial *immer noch* in German or 'still' in English, as in (11), and Resultant States, which resist such a modification in German as well as in English, as in (12).

(11) Das Gebäude ist (immer noch) geräumt.
the building is (still) evacuated
'The building is (still) evacuated.'

[2]The labels "target state passive" and "resultant state passive" used by Kratzer (2000) are derived from Parsons' (1990) distinction between target state and resultant state perfects.

(12) Das Theorem ist (*immer noch) bewiesen.
the theorem is (*still) proven
'The theorem (*still) is proven.'

While the modification with 'still' remains a reliable diagnostic helping to differentiate between Resultant State and Target State passives, some languages distinguish them morphologically as well. In Swedish, for instance, Target State passives can come out as underived adjectives, as in the following examples from Lundquist (2008: 148).

(13) a. dörren är fortfarande öppen/??öppnad
door-DEF is still open-ADJ/??open-DE
'The door is still open.'
b. en redan öppnad/??öppen dörr
an already open-DE/??open-ADJ door
'an already opened/??open door'

(14) a. Dörren är fortfarande stängd.
door-DEF is still close-DE
'The door is still closed.'
b. en redan stängd dörr
an already close-DE door
'an already closed door'

The examples in (13-a) and (14-a) include Target State participles *öppen* and *stängd*, which is exhibited by 'still'-modification. The forms in (13-b) and (14-b) are Resultant State participles: the derived Resultant State form *öppnad* is incompatible with 'still' and, conversely, the underived Target State *öppen* is incompatible in a resultative context in (13-b).[3]

Several other diagnostics reported in the literature on the participles have been proposed, including modification with *by*-phrases.[4] Since verbal passives denote events initiated by agents, they can be modified by agentive *by*-phrases as in (15-a). Such a modification is ill-formed in the case of adjectival passives, as in (15-b),[5] as states do not have agentive implication.

[3]In (14), there is no morphological distinction between the Target State and Resultant State: the example provides a purely contextual (with *still*-modification) example for the validity of the Target State vs. Resultant State distinction in Swedish on top of the morphological distinction given in (13).

[4]Among other well-known modification tests that distinguish between eventive and stative passives is the compatibility with degree-modifying adverbials, which is impossible with eventive passives, as in (i), but possible with statives, as in (ii):

(i) a. ?*The cart is completely pushed.
b. ?*The bottle is half emptied.

(ii) a. The equipment is completely damaged.
b. The window is half opened.

There is a considerable body of work on both semantic and morphosyntactic contrasts between both verbal and adjectival as well as Target and Resultants State passives, which includes modification by *für*-PPs, availability of reflexive readings (Kratzer (2000), Alexiadou and Anagnostopoulou (2008), the presence of transitivizing morphology (Alexiadou et al. (2014)) in German, or the contrast in eventive vs. stative readings in Russian short and long forms of participles as in *pokrašen* vs. *pokrašennyj* 'painted' (Borik (2013)).

[5]The judgments for (15-b) is about British English; a reviewer reports that in her/his variety of English the form open is better in this example. More work, obviously, needs to be done on the acceptability of such forms

(15) a. The door was (recently) opened (by John).
b. The door is (recently) opened (*by John).

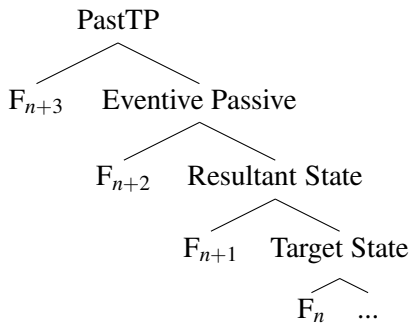
2.2 The English *-ed* suffix

English verbal and adjectival passives are all formed with the *-ed* suffix (and its allomorphs) on the root.[6] In other words, the *-ed* morpheme is not only an exponent of Past Tense (as in (16-a)), but also of eventive verbal passives (in (16-b)), Resultant-State passives (in (16-c)) and Target-State passives (in (16-d)):

(16) a. The gardener mow-ed the grass at 3pm yesterday.
b. The grass {gets, is being} mow-ed by the gardener.
c. The mailbox is (*still) empti-ed.
d. The building is (still) evacuat-ed.

In Starke's (2006) analysis of participles, this fact indicates that the *-ed* morpheme lexicalizes an fseq of projections which grammatically encode passive and Past Tense morphology. Using the 'the more you do the bigger you are' logic, he argues for the following hierarchy of projections that make up the participle zone:

(17) *-ed* ⇔



The fact that the Past Tense participles, the Eventive Passive, Resultant and Target States are all spelled out as the *-ed* morpheme follows from the Superset Principle, the major tenet of Nanosyntax, which regulates the insertion of the lexical-phonological material into syntactic nodes.[7]

(18) *The Superset Principle* (Starke (2009))
A phonological exponent is inserted into a syntactic node if its lexical entry has a (sub-)constituent which matches that node

where matching is defined as follows:

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and the source of the variation.

[6] Suffice it to say, the formation of different types of passives may require different categories of roots. We see this, for instance, in (16-c) and (16-d), where the Resultant State passive is based on an underived adjective *empty* and the Target State participle is based on an underived verb *evacuate*.

[7] The Superset Principle and Match have been successfully applied to the domain of case (Caha (2009)), directional adpositions (Pantcheva (2011)), Bantu class-markers (Taraldsen (2010b) and Taraldsen (this volume)), Slavic prefixes (Wiland (2012)), Czech numerals (Caha (2013)), as well as to an extended theory of feature lexicalization in paradigms (Taraldsen (2012)), among others. See also Baunaz and Lander (this volume) for the illustration of how the structural subset-superset relation works in the lexicalization patterns of strong, weak, and clitic pronouns in French in Cardinaletti and Starke's (1999) system of the tripartition of Romance pronouns.

(19) *Match* (Caha (2009: 67))
A lexical constituent matches a node in the syntactic representation if it is identical to that node (ignoring traces).

The Superset Principle determines that a phonological exponent of a Vocabulary Item can in principle lexicalize different syntactic representations. The representations that match the lexical entry in (17) are the following constituents, where (20-a) is the superset and (20-b)-(20-d) are the proper subsets of (20-a):

(20) a. *-ed* ⇔ [PastTP [Eventive Passive [Resultant State [Target State]]]]
b. *-ed* ⇔ [Eventive Passive [Resultant State [Target State]]]
c. *-ed* ⇔ [Resultant State [Target State]]
d. *-ed* ⇔ [Target State]

One more remark about the shape of a lexical entry and the Superset Principle is in order in the context of the participle fseq zone. Namely, if more than one Vocabulary Item observes the conditions on lexicalization, it is the item that contains fewer features unspecified in the representation that wins the competition for the lexical insertion. This basic principle in Nanosyntax (and quite an intuitive one, given the fact that smaller representations are built before the bigger ones) is often informally referred to as the 'the biggest wins' theorem.[8]

While we do not observe how lexical overriding works in the participle fseq in English as the entire zone in (17) (i.e. from the bottom Target State layer up to the top Past Tense layer) is lexically specified as *-ed*, in Polish and Czech the participle fseq zone is lexicalized by three different exponents: L, T, and N, as listed in the examples in (5)-(7).

3 Participle fseq in Polish and Czech

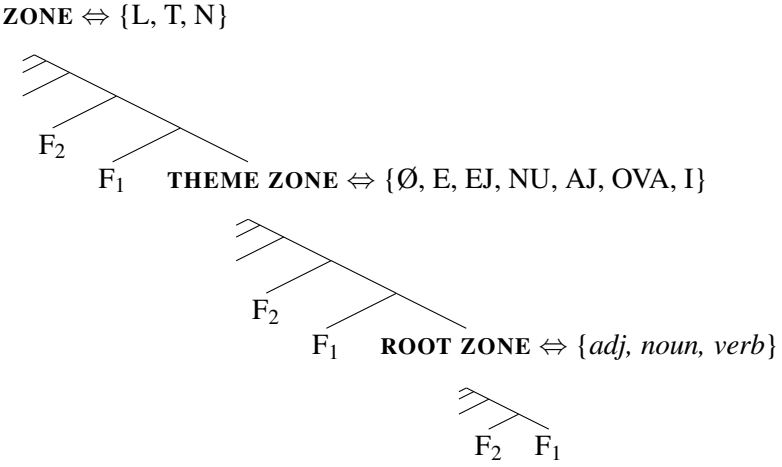
3.1 Fseq zones in Slavic

Given the format of a Slavic verb in (1) and the bottom-to-top derivation, L, T, and N spell out the participle fseq zone which is projected on top of a separate zone, namely the one which spells out as theme vowels. As briefly illustrated in (2)-(4) and discussed at length elsewhere (see Jabłońska (2007) for Polish, in particular), thematic morphemes spell out the fseq that is – when combined with a particular category of the root – responsible for the argument structure properties of the stem including the case of its NP argument. (Later in the paper, we refer to the bare verb stem, that is a constituent made of a root and a theme vowel, simply as VP).

The theme vowel zone is projected on top of a root zone and the positioning of the three fseq zones that make up the Slavic verb stem (excluding the agreement morphology) is given in (21).

[8] See also the illustration of how this principle works on the example of French pronouns *le*, *il* and *lui* in Baunaz and Lander (this volume), under the name of 'The Principle of Cyclic Override'.

(21) *Fseq zones in the Slavic verb*

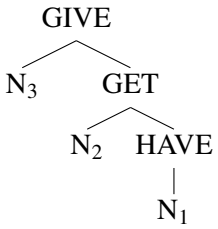


While it is descriptively clear that roots and themes form two separate morphemes in the structure of the verb stem in Polish and Czech (as well as in all Slavic), it is less clear whether roots are always morphologically simplex. There are at least two ways in which Polish and Czech roots look to be structurally complex.

3.1.1 Excursus on the root zone

First, we argue in Taraldsen Medová and Wiland (2015) that what has been traditionally referred to as a theme vowel NU (as in the forms in (4)) is made up of two separate morphemes N and U. According to that analysis, N has the structure as in (22) and spells out the light verb GIVE or GET, depending on the amount of syntactic structure it lexicalizes. (In (22), the N_1 - N_3 labels refer to the morpheme -N- of the N+U sequence).

(22)



Namely, N spells out the light verb GET in degree achievements, which explains their GET-readings, as for instance in (4-b), where the infinitive form *hloup-n-ou-t* literally means 'to get stupid' – or in (23) below.

(23) Petr slep-**n-u**-l-Ø. (Cz)
Petr blind-N-U-L-M.SG
'Petr was getting blind.'

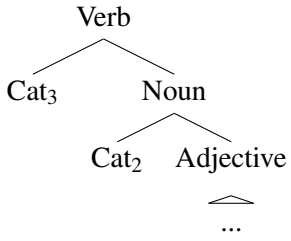
In semelfactives, N spells out the light verb GIVE, which is bigger than the light GET present in degree achievement stems, and defines their GIVE-readings, as in (4-a) repetead below, where the infinitive *kop-n-ou-t* literally means 'give a kick'.

(24) Petr kop-**n-u**-l-Ø psa. (Cz)
Petr kick-N-U-L-M.SG dog-ACC
'Petr kicked the dog (once).'

The separate morpheme U, which in Czech surfaces either as /-*u*-/ or as /-*ou*-/ due to a structurally defined phonological lengthening, is an actual thematic morpheme and contributes to the argument structure properties of the stem.

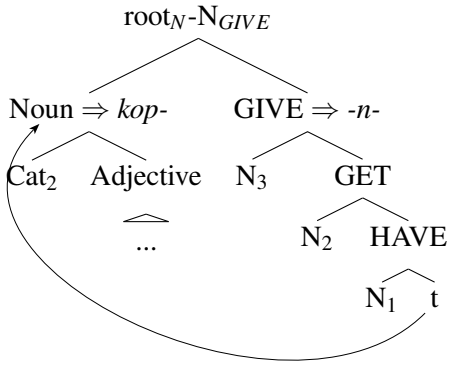
Second, ongoing work on lexical categories in Nanosyntax put forward in Starke (2009) and Lundquist (2008) tends to indicate that lexical categories are not primitive, but structurally complex. According to this view – sometimes referred to as the containment theory of lexical categories – adjectives are smaller than nouns which are, in turn, smaller than verbs, as shown below, slightly simplified.

(25)

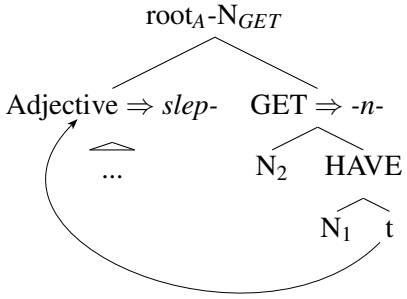


Since in Czech and Polish semelfactives are based on nominal roots, the root zone of semelfactive stems is made of a nominal root and the light N suffix with the GIVE-reading as in (26-a). In contrast, Czech and Polish degree achievements are based on adjectival roots, hence their root zones include an adjectival root and the light N suffix with the GET-reading, as in (26-b).

(26) a. *root zone of a semelfactive stem* kop-N- *'give a kick'*



b. *root zone of a degree achievement stem* slep-N- *'get blind'*



While no ingredient of our analysis in the present paper relies on the containment theory of lexical categories, for the reasons just listed we simply refer to a morphological root as an entire separate fseq zone in the representation in (21). Essentially, however, the entire root zone as in (26-a) or (26-b) is lower than the theme vowel zone and the participle zone.

3.2 T/N-passives

The fact that the participle fseq zone appears to be lexicalized by a singleton exponent in English and by three exponents – L, T, and N – in Polish and Czech, is by no means an unusual situation (for instance, the case fseq is lexicalized by a number of exponents depending on declension class within Slavic languages). However, we argue that a participle fseq zone in Polish and Czech includes a subconstituent made up of case peels; these are then a part of a lexical entry.

While in both Polish and Czech T and N morphemes form eventive and stative passives (cf. (7)-(8)), Czech distinguishes between them morphosyntactically. Eventive passives in Czech have a short form (SF) morphology and can be modified by an agentive *by*-phrase, which in Czech involves an agent

marked with an instrumental case, as in (27). In turn, adjectival passives in Czech have a long form (LF) morphology and resist the agentive modification, as in (28).[9]

(27) Ten článek je přelože-n do italštiny (Karlem).
this article-M.SG is translate-N-M.SG.SF into Italian Karel-INST
'This article is translated into Italian by Karel'.

(28) Ten článek je přelože-n-**ej** do italštiny (*Karlem).
this article-M.SG is translate-N-M.SG.LF into Italian Karel-INST
'This article is translated into Italian (*by Karel)'.

According to Medová and Taraldsen (2007), Czech additionally distinguishes between Resultant State and Target State passives in that only the former takes a locative PP, instead of an expected directional PP. Certain Czech verbs of induced motion require a directional PP, as in (29), which is a property of periphrastic verbal passives, as in (30).

(29) Jan hodil boty [do kouta]^{DIR} /*[v koutě].^{LOC}
Jan-NOM threw-3.SG boots-ACC into corner-GEN / in corner-LOC
'Jan threw boots into the corner.'

(30) Boty byly hoze-n-y [do kouta]^{DIR} /*[v koutě].^{LOC}.
boots-ACC were throw-N-SF.PL into corner-GEN / in corner-LOC
'The boots were thrown into the corner.'

An adjectival passive, which stands out as the one which uses the long form of the participle in (31), however, takes the locative instead of the directional PP.

(31) Boty byly hoze-n-ý [v koutě]^{LOC}/??[do kouta]^{DIR}
boots-NOM.PL were-3.PL throw-N-LF.PL in corner-LOC/ into corner-GEN
'The boots were thrown in the corner.'

Using diagnostics involving 'still'-modification, durative adverbials, and *have*-passives that distinguish between Resultant and Target States, Medová and Taraldsen (2007) argue that only adjectival passives with Target State reading will take locative PPs in contexts like (31).

For the present purposes, we omit any further discussion of the lowest part of the participle fseq that builds T- and N-passives and will simply assume that a lower part of the participle fseq zone that spells out verbal and (both kinds of) adjectival passives is lexicalized by T or N, depending on its internal

[9]Polish also exhibits sensitivity to agentive *by*-phrase modification with eventive and stative passives, as in (i) and (ii) respectively. Polish differs from Czech in that the agentive phrase is closer to its English equivalent in that it includes a preposition *przez* 'by' and an accusative agent.

(i) Piłka została kopnię-t-a (przez bramkarza).
ball-NOM became kick-T-F.SG (by goalkeeper-ACC)
'The ball was kicked by the goalkeeper.'

(ii) Maria jest przebra-n-a za klauna (*przez swoją mamę).
Maria-NOM is dress-N-F.SG for clown-GEN (*by her mom-ACC)
'Mary is dressed up as a clown (*by her mom).'

Polish does not distinguish morphologically between eventive and stative participles as Czech does.

make-up. For this reason, we will continue to refer to this lower part of the participle fseq simply as the passive "T/N" area. Instead, we focus on the higher part of the participle fseq outlined in (17) in the remainder of the paper.

3.3 L-syncretism and the unaccusativity puzzle

While all verb stems produce active non-present Tense L-participles, verb stems with different argument structure properties produce different types of T- and N-passives. For instance, transitive/accusative semelfactive stems formed with the NU theme produce T-passives in both Polish and Czech, as in (32), and transitive/accusative causative stems formed with the I theme produce N-passives, as in (33).[10,11]

(32) a. Maria ścis-**nę**-ł-a cytrynę. (Pol)
Maria-NOM squeeze-N+U-L$_{Tense}$-F.SG lemon-ACC
'Maria squeezed a lemon.'
b. Cytryna zosta-ł-a ścis-**nię**-t-a.
lemon-F.SG.NOM become-L$_{Tense}$-F.SG squeeze-NU-T-F.SG
'The lemon got squeezed.'
c. Marie si skříp-(**nu**)-l-a prst do dveří. (Cz)
Marie-F.SG SELF-DAT squeeze-(N+U)-L$_{Tense}$-F.SG finger-M.SG in door
'Marie pinched her finger in the door .'[12]
d. Prst byl skříp-**nu**-t-ej ve dveřích.
finger-M.SG.NOM be-L$_{Tense}$-M.SG squeeze-N+U-T-M.SG in door
'The finger got pinched in the door.'

(33) a. Mama kro-**i**-ł-a warzywa. (Pol)
mom cut-I-L$_{Tense}$-F.SG vegetables-ACC
'Mom was chopping the vegetables.'
b. Warzywa są już po-kro-jo-**n**-e.
vegetables are already PREF-cut-I-N-N.PL
'The vegetables are already chopped.'
c. Trenérka od-stran-**i**-l-a překážky. (Cz)
coach-F.SG PREF-side-I-L$_{Tense}$-F.SG hurdle-ACC.PL
'The coach put aside hurdles.'
d. Překážky už jsou od-stran-ě-**n**-é.
hurdles already are PREF-side-I-N-PL
'The hurdles are already put aside.'

By contrast, unaccusative verb stems produce adjectival L-passives (and do not produce either T- or N-

[10]There exists a degree of variation in the formation of T- and N-passives between Czech and Polish in that certain closely related stems which form T-passives in Czech, as for instance *hřát* ('warm up') – *vy-hřá-t-ý* ('warmed up'), will form N-passives in Polish, as *grzać* ('warm up') – *wy-grza-n-y* ('warmed up'). Also, we have found at least one reflexive verb in Polish, namely *bać się* ('to be afraid + SE-reflexive'), which does not produce any passive participle (**wy-ba-n-y, *wy-ba-t-y*), while it does in Czech, as in *bát se* – *?vy-bá-t-ý*. We do not explore the nature of this variation in this paper. What is essential, however, is that there is no variation between Polish and Czech with respect to formation of active L-participles only by unaccusative verb stems.

[11]The theme vowel I disappears in the participial forms both in Polish and Czech, compare the (a) and (b) and (c) and (d) examples in (33). We leave this variation aside, but see Medová (2012).

[12]Notice that we leave completely aside the fact that the N+U sequence is optional in some participial forms for some verbs; as far as we know, there is no satisfying explanation for this optionality in the literature.

passives). The fact that only unaccusatives, but not unergatives, can form adjectival L-participle has been used as a diagnostic to distinguish between these two verb classes in Polish and Czech (e.g. Cetnarowska (2000), Medová (2012)). This contrast is illustrated by the formation of the adjectival L-participle by the stem of an unaccusative verb *umrze-ć* 'to die' (used either prenominally as a participial resultative adjective (34-b) or with a copular *być* 'be' in (34-c)) and the lack of such forms based on an unergative stem of semelfactive *wark-nq-ć* 'to growl (once)' in (35-b) and (35-c).[13]

(34) a. Król zmar-ł-Ø.
king-NOM die-L$_{Tense}$-M.SG
'The king died.'

b. zmar-ł-y król
die-L-M.NOM king-NOM
'dead king'

c. Król jest zmar-ł-y.
king-NOM is die-L-M.NOM
'The king is dead.'

(35) a. Pies wark-ną-ł-Ø.
dog-NOM growl-NU-L$_{Tense}$-M.SG
'The dog growled.'

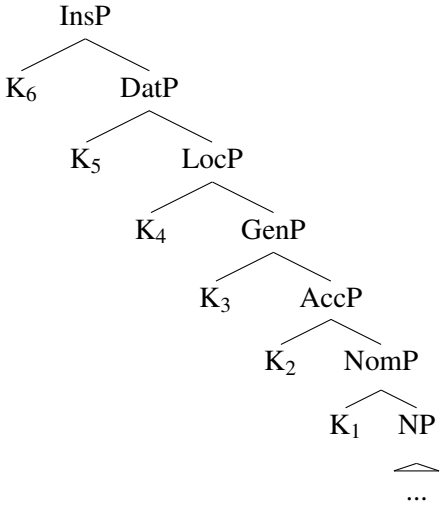
b. *wark-ł-y pies
growl-L-M.NOM dog-NOM
'*growled dog'

c. *Pies jest wark-ł-y.
dog-NOM is growl-L-M.NOM
'*The dog is growled.'

We thus have a picture in which adjectival L-participles are syncretic with active L-participles rather than T- or N-passives but, unlike, the latter, are only produced by unaccusative verb stems.

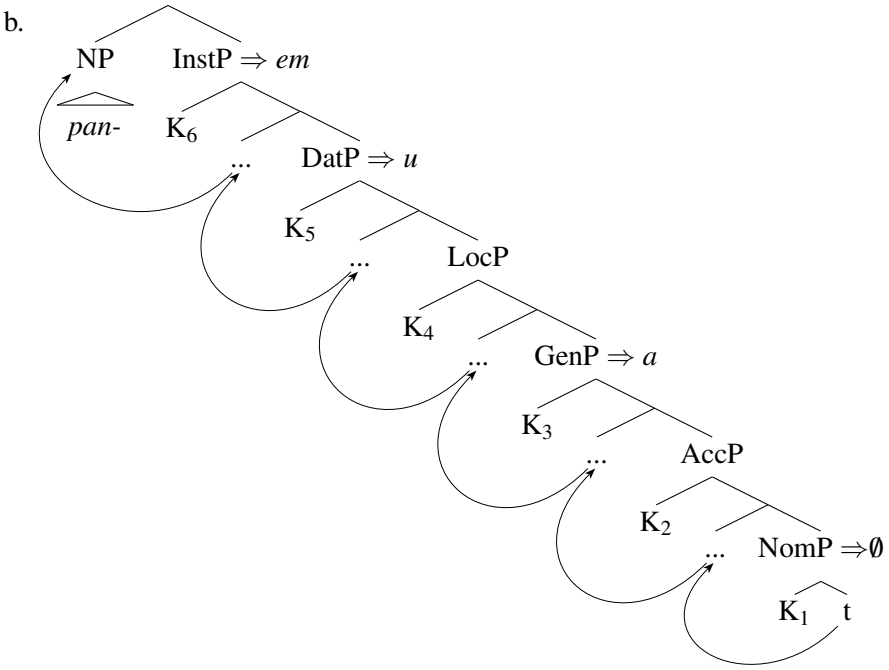
We can explain this puzzle, if we assume Caha's (2009) theory of case, whereby arguments of unaccusative verbs are selected as NPs with layered case projections on top and move to a higher subject position by upward movement which peels off the higher case layers. Given the case fseq as in (36-a), Caha (2009) argues that case peels stranded by the NP movement will be spelled out as part of a different lexical item. (36-b) shows the way this sequence is lexicalized in the paradigm of the Polish singular masculine noun *pan* 'man', which has syncretic exponents for accusative/nominative and dative/locative.

(36) a.



[13]Four theme vowels build unaccusative stems: non-specific with respect to a situation type (and unproductive in present day Czech or Polish) Ø, the stative E, degree achievement EJ, and degree achievement NU (as opposed to the semelfactive NU, see Taraldsen Medová and Wiland (2015) for details). In (34) and in some later examples, we use the Polish unaccusative verb *umrze-ć* 'to die' which is based on a stem with the obsolete Ø theme for an ease of exposition.

b.



The NP-movement in (36-b) is motivated by the shape of the lexical entries in the sense that the placement of the NP on top of NomP, AccP, GenP, etc. allows the spell out of its sister node as a constituent. The movement of the NP in the paradigm of the Polish *pan* 'man' spells out the following lexical entries:

(37) *Lexical entries for cases for* pan *'man, sir'* (MSC.SG)

a. /∅/ ⇔ [K_1]
b. /*a*/ ⇔ [K_3 [K_2 [K_1]]]
c. /*u*/ ⇔ [K_5 [K_4 [K_3 [K_2 [K_1]]]]]
d. /*em*/ ⇔ [K_6 [K_5 [K_4 [K_3 [K_2 [K_1]]]]]]

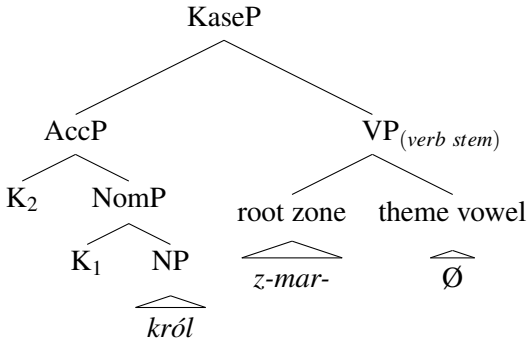
We argue below that it is precisely the accusative case peels left by the movement of the NP argument of unaccusatives that are a part of the lexical entry of the adjectival L-participle.

4 Case peels inside a passive participle

Consider the step-by-step derivation of L-passive participle based on the unaccusative verb stem, as in *zmarły król* 'dead king' of (34-b).

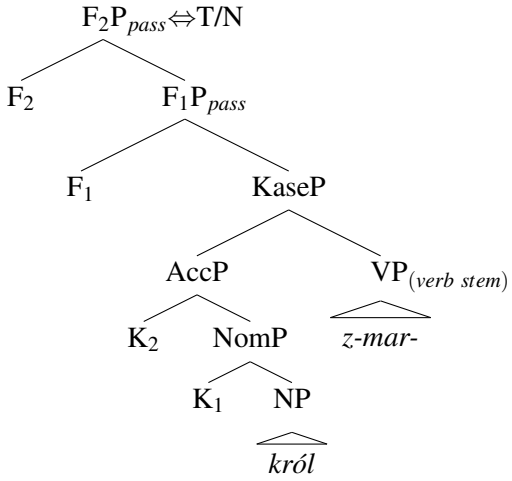
Under the case peeling approach, the verb stem made up of the root zone – which includes a verbal root and a prefix *z-*, and the Ø-theme, as outlined in (21), select an accusative NP. We label the node of the merger of the accusative NP and the verb stem (indicated as VP) simply as KaseP, without determining which of the sister nodes projects the head, as its label is largely irrelevant to the present discussion.

(38)



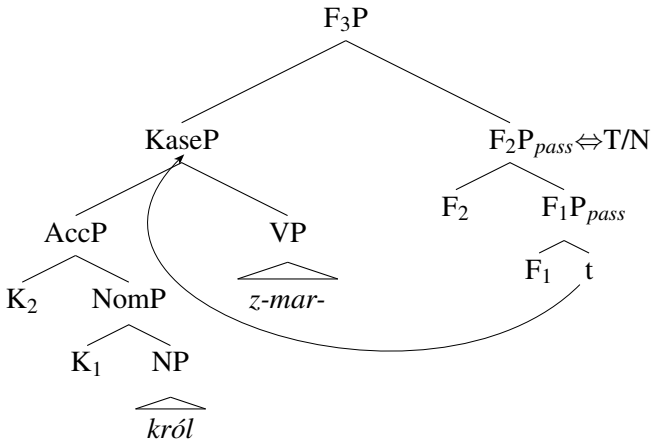
With the root and the theme vowel zone lexicalized, the layers of the higher participle fseq zone are merged. As discussed earlier, the lower layers of the participle fseq build the T/N-passives:

(39)



At this point, neither the participle fseq nor the case fseq can be lexicalized, as none of them form a constituent. In order to facilitate the spell out, the KaseP constituent raises to the top of the tree as in (40), cf. Caha (2011) and Baunaz and Lander (this volume) on spell out driven movement in Nanosyntax. The projection of the fseq derived by spell out driven movement is labelled simply as F_3P, the next layers of structure in the hierarchy.

(40)



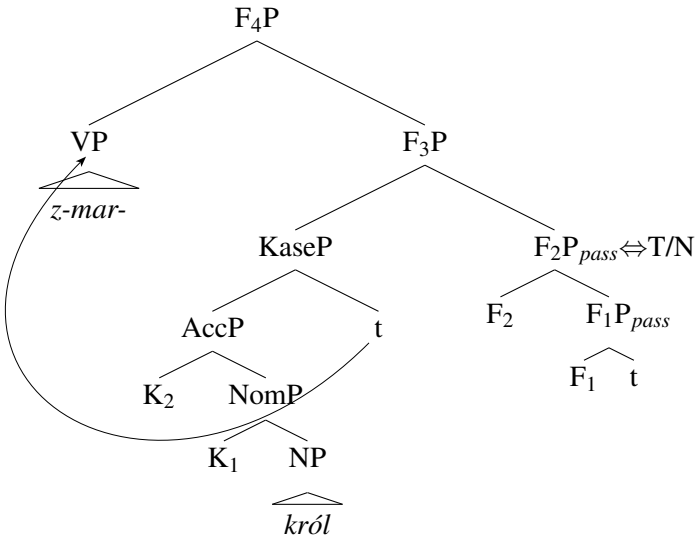
While the NP (except the case fseq, which does not form a constituent at this point), the VP, and the F_2P subconstituents of (40) can be spelled out at this point as they are identified by the lexical entries, the entire structure cannot. Given the hierarchy in (17), the Polish and Czech exponent L is bigger than T and N since it spells out the highest active L-participles. Since L also spells out smaller L-passives in

unaccusatives, its lexical entry must include a lower layer of structure – but exclude the verb stem and the nominative-marked NP. Thus, L-passives have the following shape of lexical entry:

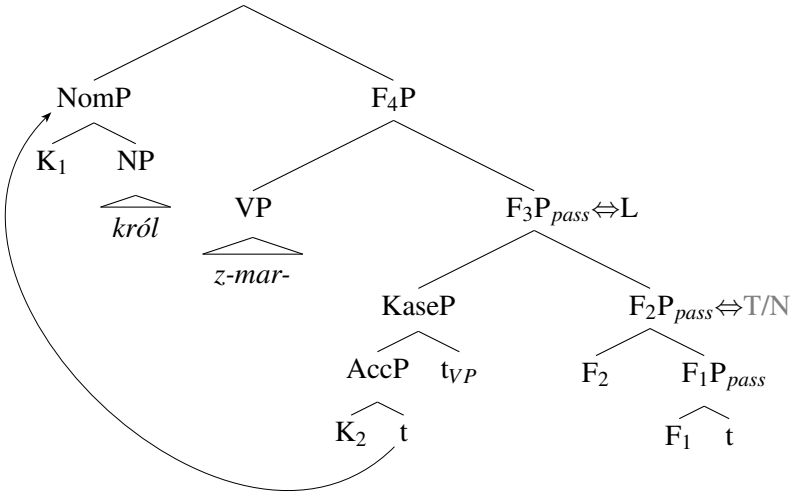
(41) L_{pass} /ł/ ⇔ [[K_2][F_2 [F_1]]]

In order to match the lexical entry, two evacuating movements must take place: the movement of the VP (as in (42)) followed by the movement of NomP containing the NP, which peels the AccP-layer (as in (43)).

(42)



(43)



The extraction of NomP derives a constituent that matches a lexical entry in (41), which overrides the insertion of T and N.[14]

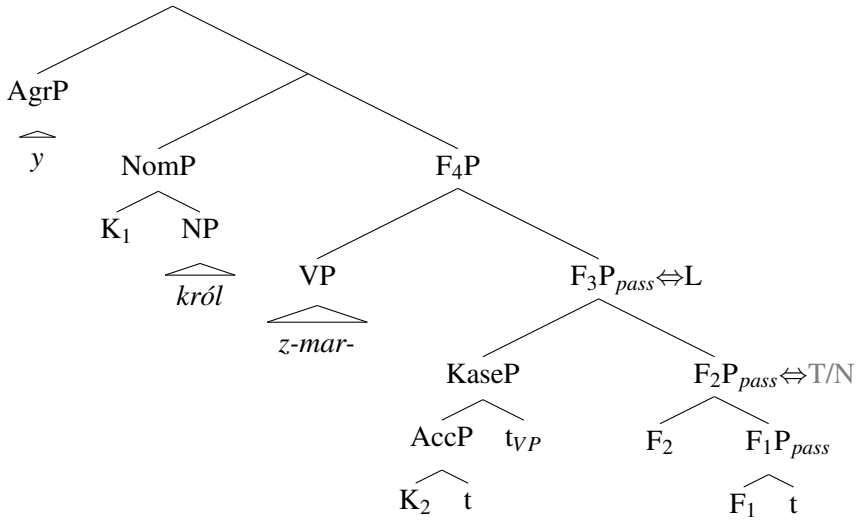
While the lexical entry for adjectival L-passives as in (41) coupled with the theory of participle fseq zone whereby L spells out bigger constituents than T and N already at this point explains the dependency between L-passives and unaccusative verb stems, there exists one more morpheme in the structure of the participles, namely the adjectival agreement.

Essentially, the agreement morpheme merged with the participle constituent shows the adjectival declension pattern and includes case as well as number and gender features. For the case at hand, i.e.,

[14]Note that once extracted, the NomP ends up as a nominative suffix on the NP, assuming Caha's (2009) approach to case derivation.

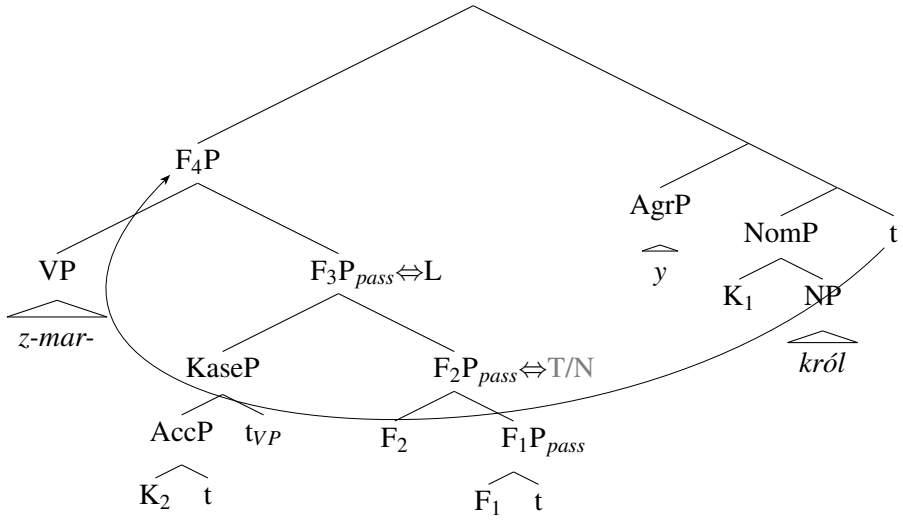
z-mar-ł-y król, the *-y* is an adjectival agreement marker of M.SG.[15]

(44)



As a result of the subsequent spell out driven movement of F_4P to the top of the tree, the agreement subtree surfaces as a suffix on the participle zone. Notice that the Agr *-y* will come out as a suffix no matter if the phi-features form a sequence of individual heads or a subconstituent triangle as indicated in (44) and elsewhere. In this way, the derivation below looks similar to the proposal in Leu (2015), where the participle moves as a remnant constituent in front of the agreement suffix.

(45)



The movement of the constituent comprising the verb stem (VP) and the subset of the participle zone $F_3P>\ldots>F_1P$ (without yet a higher layer of structure building active non-present L-participles, as predicted by the hierarchy in (17)) on top of the phrase marker also explains why even nominative NPs are obligatorily placed after participles (as long as there is no copular BE present in the sequence, as already indicated in (34)).[16]

[15]Active non-present L-participles show the nominal inflection pattern. This agreement morpheme, we take it, sits higher than the adjectival agreement discussed in the text – in accordance with the general picture in (25).

[16]Note that Polish allows for both pre- and post-nominal placement of adjectives, hence the L-participle > NP_{nom} order does not simply follow from a general constraint on adjective placement.

(46) a. zmar-Ł-y król
dead-L-NOM.3SG.MSC king-NOM
'(the) dead king'
b. *król zmar-Ł-y
king-NOM dead-L-NOM.3SG.MSC

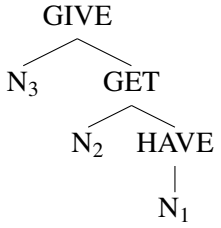
5 Why unergatives do not build L-passives

We have advanced in Taraldsen Medová and Wiland (2015) that both unaccusative verbs and unergative verbs select accusative objects, that is NPs with projected AccP>NomP sequences on top, which subsequently raise by case peeling movement.[17] The difference between Slavic unaccusatives and unergatives, as we argue there, is that unaccusatives are syntactically smaller than unergatives and merge the accusative NP on top of the theme vowel zone (thus, on top of the entire verb stem, like in (38) in the derivation just outlined). In contrast, the accusative NP is merged as a layer of structure inside the theme vowel zone which builds unergatives. While the arguments of both unaccusative and unergative verb stems end up as nominative-marked subjects as a result of case peeling movement which strands the AccP layer, the stranded AccP-peel is spelled out as part of the unergative semelfactive theme vowel NU or activity AJ. Since the accusative peel is part of a lexical entry of unergative stems, such stems do not produce L-passives, which include the accusative peel as part of their own lexical entry, as in (41).

Consider the derivation of an unergative stem *syknout* 'hiss' as in the Czech sentence below.

(47) Karel syk-nu-l-Ø. (Cz)
Karel-NOM hiss-NU-L-MSC.SG
'Karel hissed.'

One remark about the thematic suffix NU is in order before we illustrate the spell out of the accusative peels as part of unergative stems. As already pointed out in section 3.1.1, we have argued extensively in Taraldsen Medová and Wiland (2015) that the sequence NU, which builds both semelfactives (as in (4-a)) and degree achievements (as in (4-b)), is made of two separate morphemes: N and U. The N morpheme spells out the light verb GIVE in semelfactives or smaller GET in degree achievements. The lexical entry of the light N morpheme is given in (22)(repeated below for convenience):

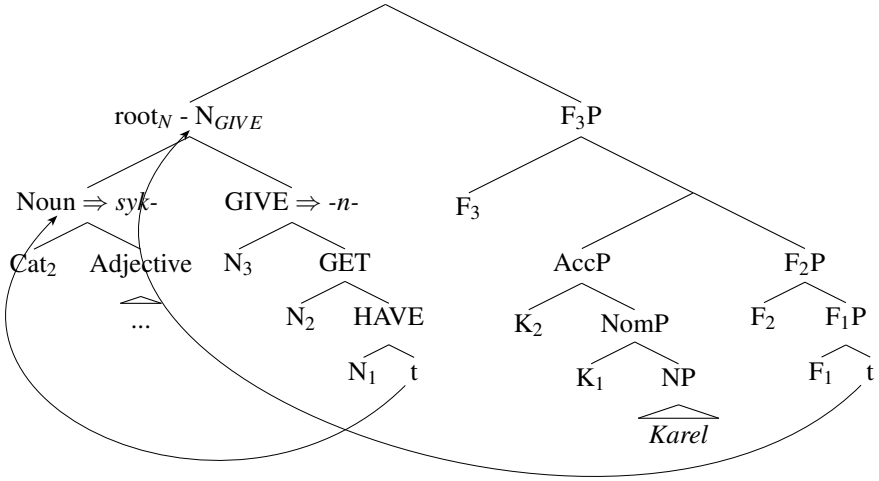
(48)


Following the established assumption about the hierarchical *unergative* > *transitive/accusative* > *unaccusative* argument structure, verb stems which spell out as unergatives form a bigger fseq zone than verb stems which spell out as unaccusatives. Thus, the size of a bigger unergative stem includes the structure of an unaccusative stem, which comprises the AccP argument as in (38). The root zone of an unergative semelfactive like in (47) includes a nominal root and the light N with the GIVE-reading as

[17] Such an analysis of Czech and Polish unergatives is in line with Taraldsen (2010a), who shows that Norwegian unergative participles have agentive *get*-passive readings. This leads Taraldsen to conclude that arguments of unergative verbs are introduced VP-internally, in particular, this VP-internal projection is identified as ProcessP in Ramchand's (2008) framework of an articulate eventive verbal structure.

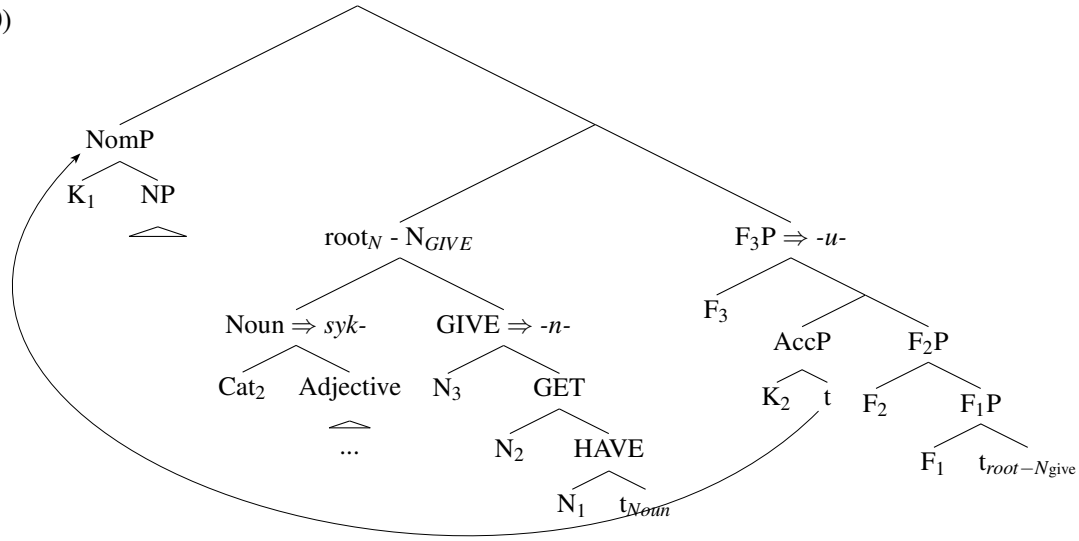
we saw in (26-a). The root zone merges with an unergative theme vowel U, which is bigger than (any) theme vowel which builds unaccusatives, as outlined in (49). Notice that F_n indicates the heads in the theme vowel zone; we used a similar notation for embedding in the participle zone above.

(49)



If an accusative argument (= AccP, i.e. *Karel* in (49)) is part of an unergative theme vowel, then in order to spell out the theme vowel zone to the exclusion of the NP argument, the latter must be evacuated. The NP raising takes place exactly as in the derivation of the unaccusatives in (43), in that the movement of the NP strands the AccP peel and surfaces as a nominative-marked subject, as in (50). The difference is that in unergative stems, the AccP peel is spelled out as a part of the theme vowel, the U-theme, in the case at hand:

(50)



Note that the theme U present in the light N+U sequence builds not only unergatives but also unaccusatives. In the latter case, as we argue in Taraldsen Medová and Wiland (2015), U is structurally smaller in that it spells out only a subset of projections of the unergative U to the exclusion of the AccP layer. This makes the correct prediction about the fact that not only unaccusative Ø-stems as in (34-b) but essentially also degree achievement unaccusative NU-stems build adjectival L-passives, as we see in (b) below:

(51) a. Moje koty z wiekiem będą głuch-ną-ć. (Pol)
my cats-NOM with age be/will deaf-NU-INF
'My cat will be getting deaf with age.'
b. Moje koty będą ogłuch-ł-e.
my cats-NOM be/will deaf-L$_{pass}$-AGR.
'My cats will be deaf.'

6 Conclusion

We have argued for the approach to morphemes as fseq zones in Nanosyntax in that each zone occupies its own position with respect to other zones and the boundary of one zone marks the beginning of another, higher zone. We have discussed two scenarios for the lexicalization of participle zones in Polish and Czech. The first one involved a case where a lexical entry of the participle zone includes accusative case peel left by the movement of the nominative NP argument of the verb stem, which is lexicalized as a separate morphological constituent. The second involved a situation in which the accusative case peels become spelled out as part of the verb stem, a constituent lower than the participle zone. This ultimately accounts for the contrast between unaccusative and other types of stems, in that only the first can build L-passives which include the accusative case peel left as part of their lexical entry.

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