

Syntax of perfectivity: Slavic and beyond

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1. The dilemma

- When do aspectual operators enter the syntactic and semantic derivation in Slavic and similar languages?
- The ancestors' wisdom: in such languages, **verbs are born in the lexicon as either perfective or imperfective**.
 - Dahl 1985: "Slavic-style aspect"
 - Slavic-style aspect outside Slavic family: Georgian (Dahl 1985), Margi (Chadic, Dahl 1985), Tundra Nenets, Ossetian, Tuba Altai
- Non-Slavic-style languages: **verbs are aspectless**, they only acquire aspect in the course of syntactic derivation, when the clausal functional structure is projected.
- The sharp asymmetry in how aspect is construed in natural language is a huge challenge for any theory that seeks to constrain cross-linguistics variation and to minimize ineliminable assumptions about linguistic diversity that have to be stipulated. The view that aspect in languages like Slavic emerges in the lexicon, while in other languages is built syntactically clearly requires precisely this type of assumptions.
- But what are the reasons to believe that ancestors' wisdom is true?

(1) The prototypical perfective sentence

Vasja **na-pisa-l** pis'm-o.
V. PRF-write-PST.M letter-ACC
'Vasja wrote a letter.'

(2) Ancestors' wisdom: aspect-low theory

[CP ... [_{Fi}+JP ... [_{FiP} ... [_{Fi}-JP ... [_{VP} ... [_v **PFV** *napisa-*]]]]]]

- Traditional Slavic Aspectology
- Krifka 1992, Filip 1993/1999, 2000, 2001, 2004, 2005a,b, 2008, Dimitrova-Vulchanova 1996, Verkuyl 1999, Piñon 2001, Ramchand 2004, Filip, Rothstein 2005, Pereltsvaig 2002, McDonald 2008, Mezhevich 2008

(3) An alternative: aspect-high theory

[CP ... [_{Fi}+JP ... [_{FiP} ... **PFV** [_{Fi}-JP ... [_{VP} ... [_v *napisa-*]]]]]]

- Paslawska, von Stechow 2003; Gronn, von Stechow 2009, Tatevosov 2011

- All we know for sure from examples like (1) is that verbs like *napisa-t'* 'write' end up perfective **in a clause**. (1) does not exclude the possibility that aspect is part of a functional domain of a clause, while the stem *napisa-* as such is lexically **aspectless**.

- **Conceptual argument for an aspect-low theory:** (3) opens a way of providing a unified account for the structure and interpretation of verbs and VPs in Slavic-style and other languages.

- (3) is to be preferred over (2) on purely empirical grounds.

➤ Predictions of aspect-low and aspect-high theories

- (2) and (3) make the same (correct) prediction that (1) is perfective.
- (3) predicts that there is a stage of syntactic derivation, call it α , where the stem *napisa-* is already there, but perfectivity is not.
- (2) predicts that there is no such a stage.

(4) The "perfective stem" is part of α , but perfectivity is not

[... [... [... **PFV** [... [α ... [_v *napisa-*]]]]]]]

➤ Testing the predictions

If we can find a configuration in which stems like *napisa-* do not show perfectivity effects, this would mean that aspect is not their built-in semantic characteristic, hence the aspect-low theory is incorrect.

- **Below:** Evidence from **argument supporting deverbal nominals** for Russian and from **causatives** for some other Slavic-style languages. Nominals/causatives do not exhibit perfectivity effects, hence aspect is not part of the structure they share with fully inflected clauses. Aspectual operators come into play at later stages of derivation, when the functional structure is built that nominals/causatives **do not share** with clauses.

2. Summary of perfectivity effects in Russian

(5) *Periphrastic Future

*Vasja bud-et **na-pisa-t'** pis'm-o.
V. AUX-3SG PRF-write-INF letter-ACC
'Vasja will write a letter.'

(6) *Complement of phasal verbs

*Vasja nača-l **na-pisa-t'** pis'm-o.
V. start-PST.M PRF-write-INF letter-ACC
'Vasja started writing a letter.'

(7) Reference time

Kogda ja priše-l, Vasja **na-pisa-l** pis'm-o.
when I come-PST V. PRF-write-PST letter-ACC
1. OK: $\tau(\text{coming}) \ll \tau(\text{writing})$. 'When I came, Vasja wrote a letter'
2. NOT OK: $\tau(\text{coming}) \subset \tau(\text{writing})$ 'When I came, Vasja was writing a letter'

(8) **Telicity: time-span adverbials**

- a. Vasja **na-pisa-l** pis'm-o za dva čas-a.
 V. PRF-write-PST.M letter-ACC in two.ACC hour-GEN
 'Vasja wrote a letter in two hours.'
- b. *Vasja **na-pisa-l** pis'm-o dva čas-a.
 V. PRF-write-PST.M letter-ACC two.ACC hour-GEN
 'Vasja wrote a letter for two hours.'

(9) **Telicity: Conjunction criterion**

- Vasja **na-pisa-l** pis'm-o v
 V. PRF-write-PST.M letter-ACC in
 dva čas-a i v tri čas-a.
 two hour-GEN and in two hour-GEN
 'Vasja wrote a letter at 2 p.m. and at 3 p.m.'
- OK: two distinct events
 - NOT OK: a single continuous event

(10) **Frequency expressions**

- *Vasja često **na-pisa-l** buk-v-u ě.
 V. frequently PRF-write-PST.M letter-ACC ě
 'V wrote the ě letter frequently.'

(11) **Aspectual composition**

- a. Vasja **na-pisa-l** pis'm-a...
 V. PRF-write-PST.M letter-ACC.PL
 1. 'Vasja wrote (all) the letters...'
 2. *'Vasja wrote letters.'
- b. ...*no osta-l-o-s' ešče neskol'ko.
 but remain-PST-N-REFL more a.few
 '... but there are a few more (letters to write).'

3. Slavic-style aspect outside Slavic

(12) Aspectual composition: Tundra Nenets

- a. pet'a s'id'a čas-xana p'is'mu pada.
 P. two hour-LOC letter.ACC.PL write.GFS.AOR
 #n'axar p'is'mo-da xaji.
 three letter-3SG leave.GFS.AOR
 'Peter wrote <THE> letters in two hours. #Three letters are still to be written.'
- b. *pet'a s'id'a čas p'is'mu pada.
 P. two hour letter.ACC.PL write.GFS.AOR
 'Peter wrote <Ø> letters for two hours.'

(13) Aspectual composition: Ossetian (Lyutikova, Tatevosov, to appear)

- a. alan iw minut-mæ ba-xor-d-ta baš.
 A. one minute-ALL PRF-eat-PST-TR.3SG soup
 'Alan ate <THE> soup in a minute.'

- b. *alan iw minut-ı ba-xor-d-ta baš.
 A. one minute-GEN PRF-eat-PST-TR.3SG soup
 'Alan ate <Ø> soup for a minute.'

(14) Aspectual composition: Tuba Altai

- a. vasja eki minut-xa aš-ti t'e-se-n.
 V. two minute-DAT soup-ACC eat-PFV-PST
 'Vasja ate <THE> soup in two minutes.'
- b. *vasja eki minut aš-ti t'e-se-n.
 V. two minute soup-ACC eat-PFV-PST
 'Vasja ate <Ø> soup for two minutes.'

4. Perfectivity without perfectivity

➤ **Generalization**

- In all the languages where perfectivity effects of the Slavic type are observed, there are configurations where
- the alleged perfective verb stem is present
 - but perfectivity effects cannot be detected

- (15) Russian: **nie-nominals**
 Tundra Nenets: **causatives**

4.1. Nie-nominals in Russian

- (16) Nie-nominals
 na-pisa-n-ij-e pis'm-a
 PRF-write-N/T-NOUN-NOM letter-GEN
 'writing (of) a letter'
- the verb stem *napisa-* (the same as in the clause in (1) and similar examples),
 - the *-n-* morpheme *nie-nominals* share with perfective past participles (e.g., *napisa-n* 'written', see Babby 1997),
 - the noun morpheme *-ij-* and noun inflection.

- All the tests that identify perfectivity effects in (5)-(11) come negative when applied to *nie-nominals*.

(17) *Complement of phasal verbs, cf. (6)

- Vasja nač-a-l **na-pisa-n-ij-e** pis'm-a.
 V. start-PST.3SG PRF-write-N/T-NOUN-ACC letter-GEN
 'Vasja started writing a letter.'

(18) Reference time, cf. (7)

- a. Ja priše-l vo vremja **na-pisa-n-ij-a** pis'm-a.
 I come.PFV-PST in time PRF-write-N/T-NOUN-GEN letter-GEN
 Lit. 'I came at the time of writing a/the letter.'

b. **na-pisa-n-ij-e** pis'm-a v moment moego prixada
 PRF-write-N/T-NOUN-GEN letter-GEN in moment.ACC my-GEN coming-GEN
 'writing of a/the letter at the moment of my coming.'

c. OK: $\tau(\text{coming}) \subset \tau(\text{writing})$

(19) **Telicity: conjunction criterion**, cf. (9)

na-pisa-n-ij-e pis'ma v dva čas-a i v tri čas-a.
 PRF-write-N/T-NOUN-NOM letter-GEN in two hour-GEN and in three hour-GEN
 'writing (the) letters at 2 p.m. and at 3 p.m.'

1. OK: two distinct events

2. OK: a single continuous event

- The test for telicity based on the in/for diagnostic is only half applicable: *for*-adverbials are out regardless of the telicity of the nominal, cf. ^{?)} *guljanie dva časa* 'waking for two hours'.

(20) **Frequency expressions**, cf. (10)

Jesli my idem na častoje **na-pisa-n-ij-e** "ě", to eto
 if we go-PRS.1PL on frequent-ACC PRF-write-N/T-NOUN-ACC ě then this
 dolžno byt' obosnovanno.
 must be-INF justified
 'If we allow a frequent writing of the ě letter, this must be justified.'

(21) **Aspectual composition**

na-pisa-n-ij-e pisem
 PRF-write-N/T-NOUN-NOM letter.GEN.PL
 1. 'writing (all) the letters'
 2. 'writing letters'

(22) **Aspectual composition** (cf. (11))

a. **Na-pisa-n-ij-e** pisem prodolža-l-o-s' ves' den' ...
 PRF-write-N/T-NOUN-NOM letter.GEN.PL last-PST-N-REFL whole day
 'Writing letters lasted for the whole day long...'

b. ...^{OK}no osta-l-o-s' ešče neskol'ko.
 but remain-PST-N-REFL more a.few
 'but there are a few more (letters to write).'

- Whatever diagnostics for perfectivity we take (morphosyntactic distribution, interval properties, telicity, aspectual composition), we see no perfectivity effects whatsoever in *nie*-nominals. Aspectual operators are thus not part of their semantic structure.

4.2. Causatives in Tundra Nenets

(23) Tundra Nenets: both telic and atelic descriptions of the caused event (cf. (12))

a. man' s'id'a čas-xana pet'a-n' p'is'mu pada-pte-ja-n.
 I two hour-LOC P.-DAT letter.ACC.PL write-CAUS-SFS-1SG

'I made Peter write <THE> letters in two hours.' <#And I will ask him to write some more tomorrow. >

b. man' s'id'a čas pet'a-n' p'is'mu pada-pte-ja-n.
 I two hour P.-DAT letter.ACC.PL write-CAUS-SFS-1SG
 'I made Peter write <∅> letters for two hours.' <^{OK}> And I will ask him to write some more tomorrow. >

- The event description embedded under the causative in (23) is the same as in (12): 'Peter write (the) letters'. But unlike in (12), in (23) the aspectual compositional effects of perfectivity are absent.

- **Interim summary:**

- Aspect-low and aspect-high theories: perfectivity is lexical vs. perfectivity appears in the course of syntactic derivation
- Perfectivity manifests itself in a variety of ways; the most prominent manifestation: aspectual composition
- Nominals and causatives: the perfective stem is there, but perfectivity effects are not

- What do *nie*-nominals in Russian and causatives in Nenets have in common?

- Below: both are **structurally deficient configurations** that we need to test predictions of the aspect-low theory and aspect-high theories.

(24) The "perfective stem" is part of α , but perfectivity is not

[... [... [... **PFV** [... [α ... [_v *napisa-*]]]]]]

5. Argument supporting nominals as a structurally deficient configuration

- The decisive evidence telling the two theories apart: a configuration where some of the clausal functional projections are absent. If we manage to get rid of (some of) the functional structure, as in (25)-(26) as compared to (2)-(3) (the "deleted" structure is shaded), and find out that perfectivity effects are gone, this can only be due to the fact that aspectual operators merge high enough – outside the residue, α .

(25) [CP ... [_{Fi}/IP ... [_{Fi}P ... [α ... [_v **PFV**-*napisa-*]]]]]

(26) [CP ... [_{Fi}/IP ... [_{Fi}P ... **PFV** [α ... [_v *napisa-*]]]]]

- For Russian, the configuration we are after is served by **event-denoting / argument supporting deverbal nominals** (ASNs).

- Abney 1987, Alexiadou 2001, 2007, 2009, 2010, Alexiadou *et al.* 2010, Fu *et al.* 2001, van Hout, Roeper 1998, Roeper 1987, 2004, Harley 2009

- ASNs share with fully inflected clauses the VP and possibly a restricted amount of functional structure dominating it, but crucially not the whole array of clausal functional projections:

(27) [CP ... [F_{NP} ... [F_{VP} ... [F_{IP} ... [vP ... [VP ... [V ... V ...]]]]]]

(28) [DP ... D [NP ... N ... [F_{IP} ... [vP ... [VP ... [V ... V ...]]]]]]

➤ **Predictions:**

- If the aspect-low theory is correct, and aspectual operators, including PFV, appear in the derivation as early as possible, perfectivity effects is what fully inflected clauses and corresponding nominals must share.
- If, in accordance with the aspect-high theory, PFV is a component of functional structure, and it is this structure that deverbal nominals are lacking (i.e., the structure above FIP in (27)), nominals will never show perfectivity effects.

(29) [CP ... [XP ... **PFV** ... [_α ... *napisa-* ...]]]]

(30) [DP ... D [NP ... [N ij] [NominalIP [Nominal D] ... [_α ... *napisa-* ...]]]]

- When a clause is build, at some point the projection of a functional category X that hosts the aspectual operator appears in the derivation, as in (29), and it is at this point where the perfectivity effects come in. But nominals involve a smaller fragment of structure: they merge with nominal heads before XP is projected, (30). At this stage, aspect is not yet there. This provides a principled explanation for why *nie*-nominals do not exhibit perfectivity effects.

- Whether evidence from *nie*-nominals support an aspect-high theory depends on the size of the constituent they share with fully inflected clauses.

➤ Nominalization in Russian and a few other Slavic languages

- **α=V:** Rappaport 2000, 2001 for Russian
- **α=VP:** Rappaport 2000, 2001 for Polish, Schoorlemmer 1995 for Russian
- **α=AspP:** Schoorlemmer 1995 for Polish, Prochazkova 2006 for Czech, Markova 2007 for Bulgarian

- Standard diagnostics for the internal make-up of nominalizations (e.g., Alexiadou 2001 and much subsequent work)

- temporal adverbials
- aspectual adverbials
- agent-oriented adverbials
- purpose adjuncts.

(31) **Temporal adverbials: evidence for VP**

jest' pokazani-ja dlja **okaza-n-ij-a** pomoshch-i *nemedlenno*.

exist.PRS indication-PL for render-NMN-N-GEN assistance-GEN immediately
'There are reasons for rendering assistance immediately.'

(32) **Agent-oriented adverbials: evidence for vP**

nanes-en-ij-e *umyshlenno* telesn-yx povrezhden-ij
inflict-N/T-NOUN-NOM deliberately bodily-GEN.PL injury-GEN.PL
'inflicting injuries deliberately'

(33) **Purpose adjuncts: evidence for vP**

otkry-va-n-ij-e okn-a, *čtoby vpusti-t' svež-ij vozdux*
open-IVA-N/T-NOUN-NOM winsow-GEN so.that let.in-INF fresh-ACC air.ACC
'opening the window to let the fresh air in'

- (32) and (33) indicate that *nie*-nominals are associated with an implicit agent, which licenses adverbials like 'deliberately' in (32) and infinitival purpose clauses like 'to let the fresh air in' in (33). To the extent that agents, even if implicit, are introduced by v, (32)-(33) and similar examples provide evidence for vP inside *nie*-nominals.

☞ Following Kratzer (1994a,b) and Chomsky (1995), and see also Harley (1995), Marantz (1997), Arad (1999), v.

- (i) is the locus of agentivity, i.e. it contains features relevant to the licensing and interpretation of external arguments.
- (ii) contains features related to eventivity.
- (iii) bears the Case features for the object.
- (iv) comes in two types: one that introduces an external argument, and one that does not.

Properties (i–ii) create the semantic content of little v. On the other hand, properties (iii–iv) are the transitivity property of little v (Burzio's generalization). The two sets of properties may be dissociated from each other: there are verbal heads that share the semantic content of v but not its transitivity property... Nominalizations, in spite of their similarity to verbal clauses, crucially differ from them in that no accusative case is assigned to their DP argument, and that no agent is syntactically projected in Spec, vP. If both these attributes are associated with v, then the conclusion is that nominalizations either lack such a head or only include the type of v found with unaccusative predicates. Since, however, the eventive readings of these nominals are linked with v, I will conclude that in such constructions, the type of v included is the deficient one, i.e. the one that does not assign an external argument, and does not check accusative case. (Alexiadou 2001)

- *Nie*-nominals minimally contain VP. At least some of them (e.g., 'opening' in (28)) also include vP.

(34) **Clause-level speaker-oriented modal adverbials**

a. *on nadeja-l-sja na okaza-n-ij-e pomoshch-i verojatno
he hope-PST-REFL for render-NMN-N-ACC assistance-GEN probably
'He hoped for rendering of assistance probably.'

b. on nadeja-l-sja na verojatnoe okaza-n-ij-e pomoshch-i
he hope-PST-REFL for probable render-NMN-N-ACC assistance-GEN
'He hoped for a probable rendering of assistance.'

➤ **Morphological evidence:** the upper limit is the projection of the “secondary imperfective”

(35) **A superlexical prefix outside the secondary imperfective**

- a. [[zabi]-va]-t' (gvozdi)
hammer-IVA-INF nail.ACC.PL
'hammer (the) nails'
- b. [na-[[zabi]-va]]-t' (gvozdej)
CUM-hammer-IVA-INF nail.GEN.PL
'hammer a quantity of nails'

(36) **A superlexical prefix outside the secondary imperfective**

- a. [[otkry]-va]-t' (banki)
open-IVA-INF can.ACC.PL
'open (the cans)'
- b. [pere-[[otkry]-va]]-t' (vse banki)
DISTR-open-IVA-INF all can.ACC.PL
'open (all the cans one by one)'

(37) **A superlexical prefix inside the secondary imperfective**

- a. [na-dari]-t' (kuč-u podark-ov)
CUM-give-INF heap-ACC gift-GEN.PL
'give (a lot of gifts)'
- b. [[na-dar]-iva]-t' (kuč-u podark-ov)
CUM-give-IVA-INF heap-ACC gift-GEN.PL
'give (a lot of gifts; regularly)'

(38) **A superlexical prefix inside the secondary imperfective**

- a. [pere-my]-t' (vsju posud-u)
DISTR-wash-INF all.ACC dishes-ACC
'wash all the dishes one by one'
- b. [[pere-my]-va]-t' (vsju posud-u)
DISTR-wash-IVA-INF all.ACC dishes-ACC
'wash all the dishes one by one (regularly)'

(39) **A superlexical prefix outside the secondary imperfective: *nominalizations**

- a. *[na-[zabi-va]]-n-ij-e
'hammering (a lot of things)'
- b. *[pere-[otkry-va]]-n-ij-e
'opening sth one by one'

(40) **A superlexical prefix inside the secondary imperfective: nominalizations OK**

- a. ^{OK}[[na-dar]-iva]-n-ij-e
'giving a lot of things'
- b. ^{OK}[[pere-my]-va]-n-ij-e
'washing sth. one by one'

➤ *Nie*-nominals maximally embed a projection of the “secondary imperfective” morpheme *-iva*.
*[_{NP} n-ij ... [_{XP} ... [_{ivaP} -iva-]]]]

➤ If this generalization is correct, and if *-iva-* merges outside *vP* (specifically, takes *vP* as its complement; see Svenonius 2004), we end up with the following maximal structure for Russian *nie*-nominals:

(41) [_{DP} ... D [_{NP} ... [_N ij] [_{NominalP} [_{Nominal} n] [_{ivaP} ...]]]]]

➤ If argument-supporting nominals can contains as much as *ivaP*, then **PFV, which does not show up in nominals, must merge outside *ivaP***.

➤ **Summary of the argument**

- Identify perfectivity effects through which the presence of aspectual operators is manifested. Unlike fully inflected clauses, deverbal *nie*-nominals do not show these effects, hence are aspectless.
- Fully inflected clauses and *nie*-nominals share structure, and this structure as large as the projection of the *-iva*-morpheme.

(42) [_{CP} ... [_{Fi+JP} ... [_{FiP} ... **PFV** [_{Fi-JP} ... [_{ivaP} ... [_{vP} ... [_{VP} ... [_v *napisa-*]]]]]]]]]

structure shared by fully inflected clauses and *nie*-nominals

- Hence aspectual operators must be located outside *ivaP*.
- Had PFV been merged low, as in (43), *nie*-nominals like *napisa-nie* ‘writing’ could not have escaped from being perfective, contrary to the fact.

(43) [_{CP} ... [_{Fi+JP} ... [_{FiP} ... [_{Fi-JP} ... [_{ivaP} ... [_{vP} ... [_{VP} ... [_v **PFV**-*napisa-*]]]]]]]]]

structure shared by fully inflected clauses and *nie*-nominals

- This necessarily makes a theory of Russian aspect (a variant of) of an aspect-high theory.

6. Causative as a structurally deficient configuration

(44) **Tundra Nenets**

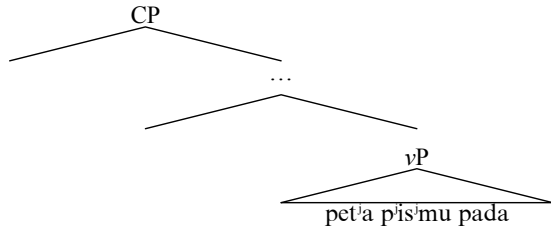
pet'a p'is'mu pada.
P. letter.ACC.PL write.GFS.AOR
'Peter wrote <THE || *∅> letters.'

(45) **Tundra Nenets**

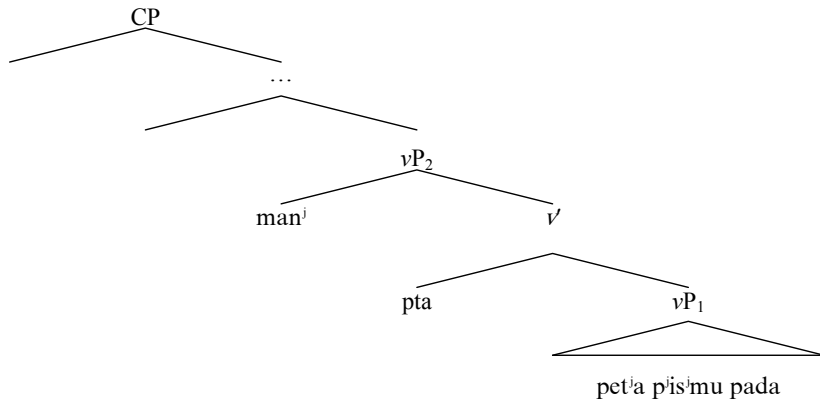
man¹ pet'a-n[̃] p'is'mu pada-pte-ja-n.
I P.-DAT letter.ACC.PL write-CAUS-SFS-1SG
I made Peter write <THE || ∅ > letters.

- Causatives of transitive verbs: a projection of the causative morpheme taking vP as its complement (Pykkanen 2002, Folli, Harley, 2007, Harley 2008, Tubino Blanco 2011, Miyagawa 2012 and much other work).

(46) Transitive



(47) Causative of transitive



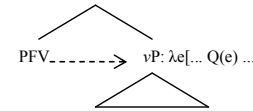
- The smaller vP_1 in (47) is identical to the single vP in (46). Unlike in (46), this vP_1 does not grow into a clause, since it is the larger vP_2 that does. Hence, the vP_1 is a structurally deficient configuration in the same sense as *ivaP* in Russian ASNs is.
- Had PFV been part of the verb *pada* 'write', characteristics of the vP_1 in (47) would have been the same as in (46). They are not, which means that *pada* is lexically aspectless. Moreover, this means that PFV appears outside vP , since (46) and (47) share the same vP but are aspectually different.

(48) [... [... PFV ... [vP_2 man' pta [vP_1 pet'a p'is'mu pada]]]]

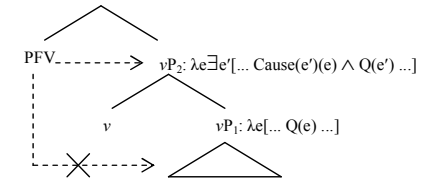
- Why does PFV in (48) not affect the lower vP_1 ? The full analysis is in Tatevosov, Ivanov 2009. Here is a brief outline of the idea.

- PFV can only have effects on events introduced by the closest v head. The larger vP_2 in (48) denotes a predicate of causing events introduced by the causative morpheme. The event variable ranging over caused events that are parts of the denotation of the smaller vP_1 gets existentially bound by the causative, an assumption independently found in the literature on causativization. It is for this reason that caused events are not 'visible' for PFV.

(49) a.



b.



- Constituents embedded under the causative morpheme in Tundra Nenets do not show perfectivity effects for the same reason as Russian nominalization do not: PFV is not part of their structure; it originates in the functional domain of the clause.

7. Conclusion

Perfectivity is never lexical. To the extent that the imperfective/progressive operator originates in the same position (which remains to be made sure), it cannot be lexical either.

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