



Polish prefix stacking redux

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Polish verbal **aspectual prefixes** (in (1)) can stack together (in (2)):

- (1) a. **na-** zrywać jabłek
CUMML pick.INF apples.GEN
'pick apples in bulk'
- b. **po-** zrywać jabłka
DIST pick.INF apples.ACC
'pick apples one by one'
- (2) **po- na-** zrywać jabłek
DIST CUMML pick.INF apples.ACC
'pick apples in bulk one by one'

Aims:

- ▶ formulate constraints on multiple prefixation in Polish verbs
- ▶ derive the attested prefix orders with a CLB formation mechanism

Aspectual prefixes

Perfective marking: with a suppletive root

- (3) a. bra-ć
take.IMP
- b. mów-i-ć
speak.IMP
- c. widzi-e-ć
see.IMP
- d. ogląd-a-ć
watch.IMP
- **wzią-ć**
take.PERF
- **powiedzi-e-ć**
speak.PERF
- **zobacz-y-ć**
see.PERF
- **obejrz-e-ć**
watch.PERF

Perfective marking: with a 'purely perfectivizing' prefix

- (4)
- | | | | |
|----|-----------|---|-----------------|
| a. | jeść | – | z- jeść |
| | eat.IMP | | eat.PERF |
| b. | pić | – | wy- pić |
| | drink.IMP | | drink.PERF |
| c. | kosić | – | s- kosić |
| | mow.IMP | | mow.PERF |
| d. | rwać | – | u- rwać |
| | tear.IMP | | tear.PERF |
| e. | gubić | – | z- gubić |
| | lose.IMP | | lose.PERF |

Perfective marking: with a specific aspectual prefix

DISTRIBUTIVE	po-	myć	'wash up (the dishes)'
DELIMITATIVE	po-	tańczyć	'dance a little'
SATURATIVE	na-	jeść się	'eat to the full'
CUMULATIVE	na-	gotować	'cook a lot of sth'
RESTITUTIVE	prze-	pisać	'rewrite'
EXCESSIVE	prze-	krzyczeć	'shout louder than sb'
PERDURATIVE	prze-	siedzieć	'sit beyond some period of time'
COMPLETIVE	do-	kończyć	'finish up'
ADDITIVE	do-	kroić	'cut more of sth'
TERMINATIVE	od-	śpiewać	'sing sth to its end'
INCEPTIVE	za-	kochać się	'fall in love'

Aspectual prefixes: 3 general properties

- ▶ perfectivizing function + provide specific meanings for the VP
- ▶ co-occurrence restrictions with the VP
- ▶ they can stack in a specific order

Co-occurrence restrictions with the VP (selected examples)

Distributive *po*

- ▶ distributive predicates – those that involve plural participants that are individually involved in the action
- ▶ a VP with a Dist *po* must be a plural domain

- plural NP object of transitives:

(5) Jan **po-** mył **naczynia** / ***naczynię**.
Jan DIST washed dishes dish
'Jan washed up the dishes.'

- an underlying object of unaccusatives:

(6) a. **Królowie po-** marli.
kings DIST die.PST.PL
'The kings have died (each in turn).'

b. ***Król po-** marł.
king DIST die.PST.SG

Distributive *po*

- ▶ distributive predicates – those that involve plural participants that are individually involved in the action
- ▶ a VP with a Dist *po* must be a plural domain
 - singular NP object that introduces a plural distribution for the event denoted by the predicate (Piñón 2000):

- (7) a. Ania **po-** dziurawiła piłkę.
Ania DIST punctured ball
'Ania made holes in (each part of) the ball.'
- b. Mur **po-** pękał.
wall DIST cracked
'(Each part of) the wall has cracked.'

Distributive *po*

- ▶ distributive predicates – those that involve plural participants that are individually involved in the action
- ▶ a VP with a Dist *po* must be a plural domain
- ▶ the event denoted by a Dist *po*-VP **takes place successively** (Piñón 2000):

(8) Królowie **po-** marli { **jeden po drugim** / ***naraz** }.
kings DIST die.PST.PL one after other at.once
'The kings have died one after the another.'

Distributive *po*

- ▶ distributive predicates – those that involve plural participants that are individually involved in the action
- ▶ a VP with a Dist *po* must be a plural domain
- ▶ the event denoted by a Dist *po*-VP takes place successively
- ▶ Dist *po*- does **not** attach to a **stative VP** (Piñón 2000):

(9) *Ania **po-** **słysz****ła** wszystkie dźwięki.

Ania DIST heard all sounds

'Ania heard all the sounds (each in turn).' – intended

Distributive *po*

- ▶ distributive predicates – those that involve plural participants that are individually involved in the action
- ▶ a VP with a Dist *po* must be a plural domain
- ▶ the event denoted by a Dist *po*-VP takes place successively
- ▶ Dist *po*- does not attach to a stative VP
- ▶ note: these restrictions do **not apply to ordinary perfectives**, e.g.

(10) Ania **u- słyszała** wszystkie dźwięki.
Ania PERF heard all sounds
'Ania heard all the sounds.'

Deliminative *po*

- ▶ adds a short measure reading to the event denoted by the VP
- ▶ with **unergatives**, it marks **temporal** delimitation (it describes events that last for a short time), e.g.

(11) Ania (trochę) **po-** { tańczyła / chodziła / malowała }.
Ania a.little DELIM danced walked painted
'Ania danced / walked / painted for a little time.'

Deliminative *po*

- ▶ adds a short measure reading to the event denoted by the VP
- ▶ with unergatives, it marks temporal delimitation (it describes events that last for a short time)
- ▶ with **transitives**, the delimitation applies to **a small measure of something else than time**, e.g. quantity of salt in:

(12) Muszę to (trochę) **po-** solić.
must.1SG it a.little DELIM salt.INF
'I must salt it a little bit.'

Deliminative *po*

- ▶ adds a short measure reading to the event denoted by the VP
- ▶ with unergatives, it marks temporal delimitation (it describes events that last for a short time)
- ▶ with transitives, the delimitation applies to a small measure of something else than time
- ▶ it does **not** attach to **unaccusatives** – the *po* with the unaccusatives only has a distributive reading, as in:

(13) Jabłka **po-**gniły.

apples DIST rot.PRT.PL

'The apples have rotten (each in turn).'

Deliminative *po*

- ▶ adds a short measure reading to the event denoted by the VP
- ▶ with unergatives, it marks temporal delimitation (it describes events that last for a short time)
- ▶ with transitives, the delimitation applies to a small measure of something else than time
- ▶ it does not attach to unaccusatives
- ▶ unlike Dist *po*, Delim *po* can attach to at least a subset of **durative stative verbs**, e.g.

(14) Jan **po-** **był** (trocheę) sam.
Jan DELIM be.PST a.little alone
'Jan stayed alone for a little while.'

Other aspectual prefixes

- ▶ *na, prze, do, od, pod, za* – sensitive to constraints on the VP type, too
- ▶ when there are no conflicting constraints on the type of the VP, the prefixes can be stacked

Multiple prefixes

Constraints on stacking

- ▶ up to 3 prefixes, e.g.

distributive > cumulative

(15) Ania **po-** **na-** krajała kiełbasy.

Aniaa DIST CUML cut sausage

'Ania has cut more sausage (in a large quantity).'

Constraints on stacking

- ▶ up to 3 prefixes, e.g.

saturative > excessive

- (16) Wychowawca **na-** **prze-** krzykiwał się swoich podopiecznych
tutor SAT EXC shouted REFL her pupils
'The tutor shouted over his pupils (to the limits).'

Constraints on stacking

- ▶ up to 3 prefixes, e.g.

distributive > saturative > restitutive

(17) Sekretarka **po-** **na-** **prze-** pisywała się listów.

secretary DIST SAT RES wrote REFL letters

'The secretary has been rewriting the letters to the limits (on different occasions).'

Constraints on stacking

- ▶ up to 3 prefixes
- ▶ syncretic prefixes do not stack with each other

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- ▶ syncretic prefixes do not stack with each other

- (18) a. *po-po-
b. *na-na-
c. *prze-prze-(prze-)
d. *do-do-

Constraints on stacking

- ▶ up to 3 prefixes
- ▶ syncretic prefixes do not stack with each other
- ▶ multiple prefixes must observe the order: *po* > *na* > *prze*

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Generalization – 1st approximation

(20) $\underbrace{\text{Dist, Delim}}_{po} > \underbrace{\text{Sat, Cuml}}_{na} > \underbrace{\text{Res, Exc, Perd}}_{prze}$

Prefixes that don't stack with each other

prze, od, do, and za, as in:

- (21) a. tańczyć
dance.INF
'dance'
- b. **prze-** tańczyć
PERD dance.INF
'dance for a measure of time'
- c. **od-** tańczyć
TERM dance.INF
'dance until the end (of a dance)'
- d. **do-** tańczyć
COMPL dance.INF
'dance until the end of a measure of time'
- e. **za-** tańczyć
INCP dance.INF
'start to dance'

Prefixes that don't stack with each other

prze, od, do, and za:

▶ do not stack with each other (in any order), e.g.

- (22) a. ***prze- od-** tańczyć 'dance'
b. ***prze- do-** tańczyć
c. ***od- do-** tańczyć
d. ***od- za-** tańczyć
e. etc.

Prefixes that don't stack with each other

prze, od, do, and za:

- ▶ do not stack with each other (in any order)
- ▶ but they stack with other prefixes – **as last in the sequence**, e.g.

(23) **po-** **do-** *śalać potrawy*

DIST/DELIM ADD salt dishes

'add a little salt to the dishes (each in turn)

(24) Siostry **po-** **za-** *kochiwały się w kolegach z klasy*

sisters DIST INCP love.PST REFL in classmates

'The sister have (each in turn) fell in love with their classmates.'

Prefixes that don't stack with each other

prze, od, do, and za:

- ▶ do not stack with each other (in any order)
- ▶ but they stack with other prefixes – as last in the sequence, e.g.

(25) Basia **po-** **na-** **do-** krajała kiełbasy.

Basia DIST CUMUL ADD cut.PST sausage

'Basia has cut more sausage in bulk.'

Generalization – 2nd approximation

(26) $\underbrace{\text{Dist, Delim}}_{po} > \underbrace{\text{Sat, Cuml}}_{na} > \underbrace{\text{Res, Exc, Perd, Term, Compl, Add, Incp}}_{\substack{prze \\ od \\ do \\ za}}$

No dependent aspectual prefixes

The aspectual prefixes can be added to the verb stem independently of each other, e.g.

- (27) a. Jan rozrabiał.
Jan brawled.
'Jan brawled.'
- b. Jan **na-** rozrabiał.
Jan CUMML brawled
'Jan brawled a lot.'
- c. Jan **po-** rozrabiał.
Jan DELIM brawled
'Jan brawled a little.'
- d. Jan **po- na-** rozrabiał.
Jan DELIM CUMML brawled
'Jan brawled a lot to an extent.'

No dependent aspectual prefixes

i.e. on the condition that we control for the selectional restrictions of aspectual prefixes, this can be described as:

- (28) Jan (**po-**) (**na-**) rozrabiał.
Jan DELIM CUMML brawled
'Jan brawled a lot to an extent.'

cf. with the English example like

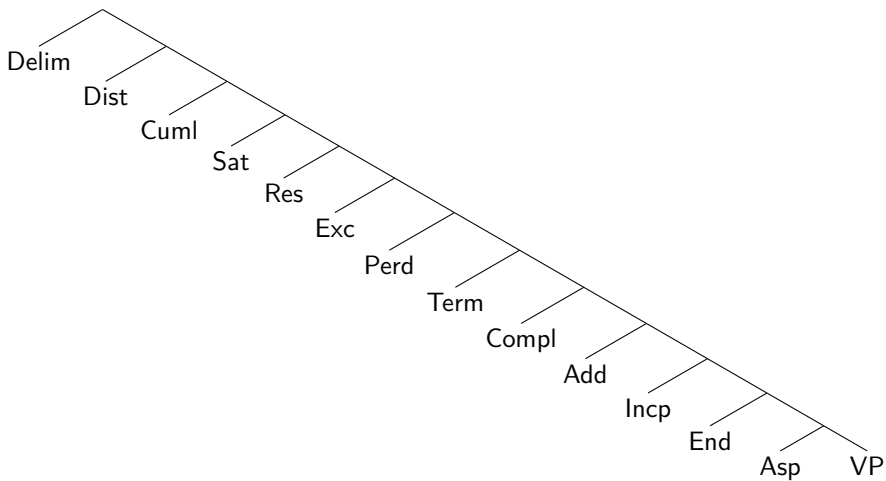
- (29) (anti)-(pseudo)-classicism

Generalization – 3rd/final approximation

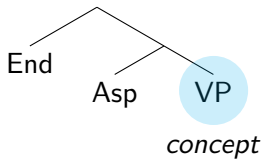
(30) $\underbrace{(\text{Dist, Delim})}_{po} > \underbrace{(\text{Sat, Cuml})}_{na} > \underbrace{(\text{Res, Exc, Perd, Term, Compl, Add, Incp})}_{\substack{prze \\ od \\ do \\ za}}$

Analysis

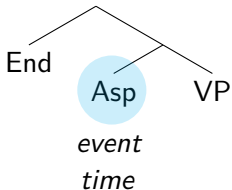
fseq



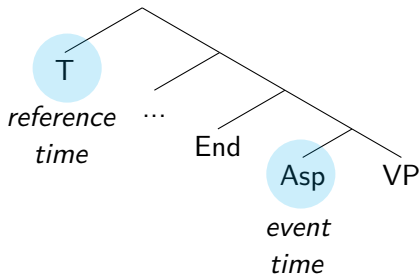
fseq: ingredients at the bottom



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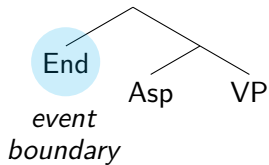


fseq: ingredients at the bottom

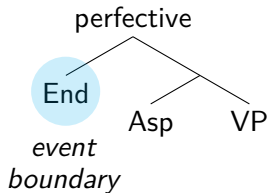


cf. Ramchand (2008) on T and Asp as time and the event in Russian

fseq: ingredients at the bottom

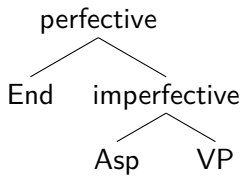


fseq: ingredients at the bottom



cf. Starke (2021) on construing perfectivity with the End feature

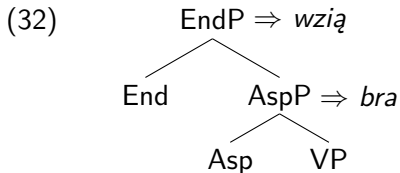
Perfective vs. imperfective



Perfective vs. imperfective verb roots

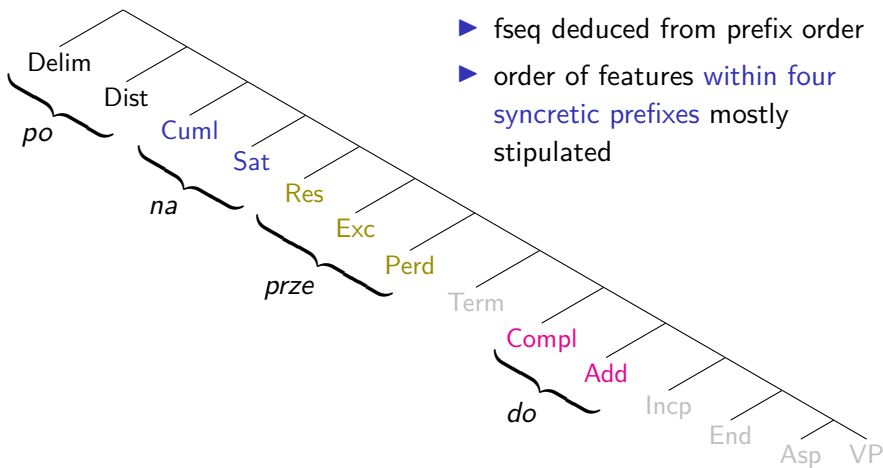
aspect-based verb suppletion:

- (31) *bra-ć* – *wzią-ć*
take.IMP-INF take.PERF-INF



Higher features: from Incp to Delim

- ▶ fseq deduced from prefix order
- ▶ order of features **within four syncretic prefixes** mostly stipulated



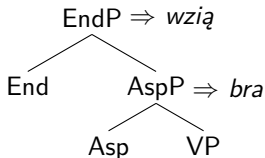
Internally non-stacking subclass:

za, do, od, prze

Suppletive vs. prefixed perfective verbs

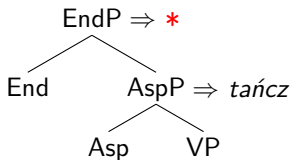
suppletive perfectives (a few verbs):

- (33) a. **bra-ć**
take.IMP-INF
b. **wzią-ć**
take.PERF-INF



prefixed perfectives (most verbs):

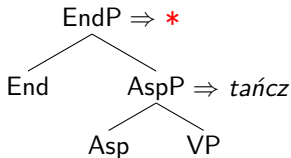
- (34) a. **tańcz-y-ć**
dance.IMP-TV-INF
b. **za-**
INCP/PERF
tańcz-y-ć
dance-TV-INF



Lexicalization Algorithm

1. 'stay' – merge F and lexicalize

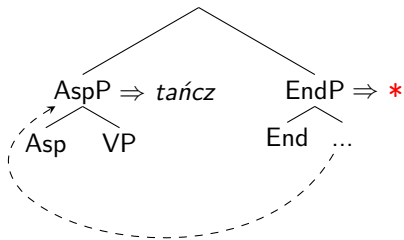
(34-b) **za-** **tańcz-y-ć**
INCP/PERF dance-TV-INF



Lexicalization Algorithm

2. 'move' – if fail, try (i) subextraction, (ii) spec-to-spec movement, (iii) complement movement and lexicalize

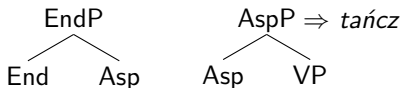
(34-b) **za-** **tańcz-y-ć**
INCP/PERF dance-TV-INF



Lexicalization Algorithm

3. 'subderive' – if fail, remove F and spawn the subderivation with F by providing the last lexicalized feature in the mainline derivation as the base for the binary merge

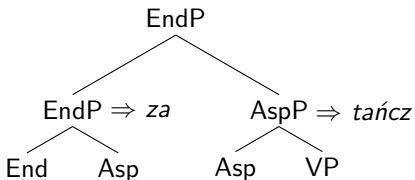
(34-b) **za-** **tańcz-y-ć**
INCP/PERF dance-TV-INF



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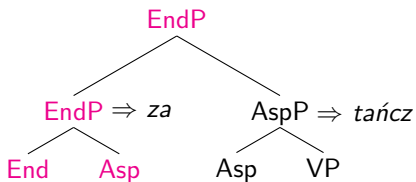
(34-b) **za-** **tańcz-y-ć**
INCP/PERF dance-TV-INF



Ambiguous *za*

However, this CLB captures only the 'purely perfective' reading of *za-*.

(34-b) **za-** **tańcz-y-ć**
INCP/**PERF** dance-TV-INF



Ambiguous *za*

(35) Oni (w końcu) **za-** **tańcz-y-l-i.**
they in end INCP/PERF dance-TV-PRT-AGR

- a. 'They (finally) started to dance.' (inceptive)
b. 'They (finally) danced.' (perfective)

Ambiguous *za* as INCP=PERF syncretism

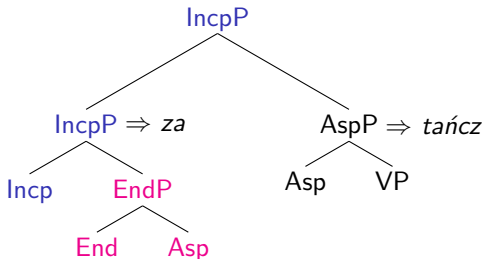
(36) Oni (w końcu) **za-** **tańcz-y-l-i.**
they in end INCP/PERF dance-TV-PRT-AGR

a. 'They (finally) started to dance.'

(inceptive)

b. 'They (finally) danced.'

(perfective)



za, do, od, prze

- ▶ reminder: all aspectual prefixes perfectivize the verb
- ▶ analysis: the lexical entries for all aspectual prefixes have the same foot that contains the perfectivizing End

na and *po*

- ▶ *na* and *po* stack with each other

distributive > saturative:

(37) Dzieci **po-** **na-** jadały się cukierków.

kids DIST SAT ate REFL candies

'The kids have (each) eaten candies to the limits.'

deliminative > cumulative:

(38) Jan **po-** **na-** zrywał (trochę) trawy.

Jan DELIM CUMPL pluck.PST a.little grass

'Jan has plucked (a little) grass.'

na and *po*

- ▶ *na* and *po* stack with each other
- ▶ and with the ‘internally non-stacking’ class (*za*, *do*, *od*, *prze*)
distributive > saturative > restitutive:

(39) Sekretarka **po-** **na-** **prze-** pisywała się listów.
secretary DIST SAT RES wrote REFL letters
‘The secretary has been rewriting the letters to the limits.’

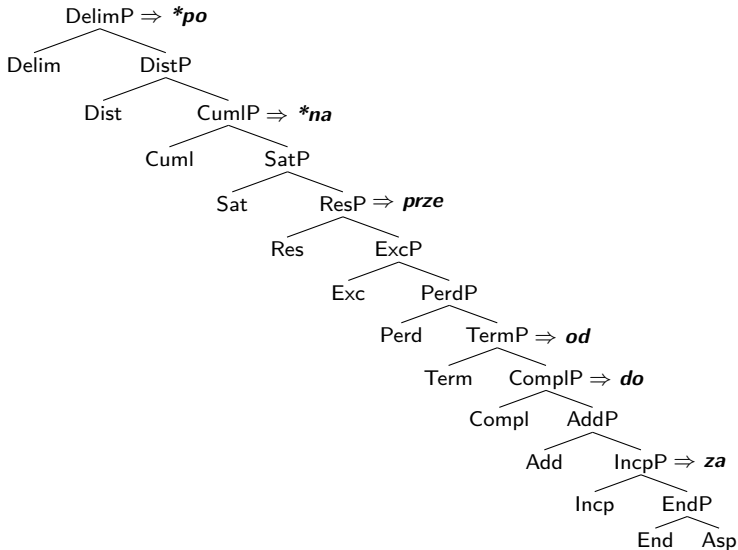
distributive > cumulative > additive:

(40) Basia **po-** **na-** **do-** krajała kiełbasy.
Basia DIST CUML ADD cut.PST sausage
‘Basia has cut more sausage in bulk.’

na and *po*

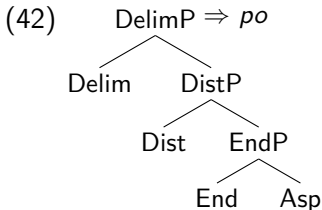
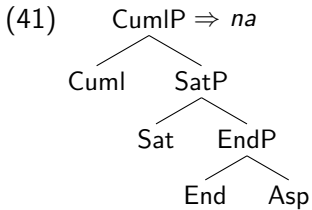
- ▶ *na* and *po* stack with each other
- ▶ and with the 'internally non-stacking' class (*za*, *do*, *od*, *prze*)
- ▶ this indicates that their lexical entries do not fully contain the lexical entries for other prefixes

na and *po*: how they don't look like



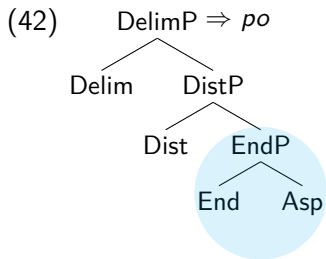
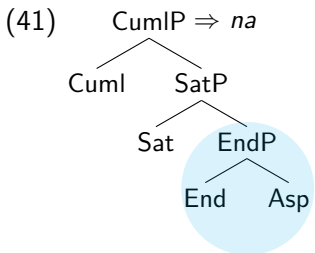
na and *po*: lexical entries

- ▶ instead, the stacking is captured by LI with gaps in the fseq



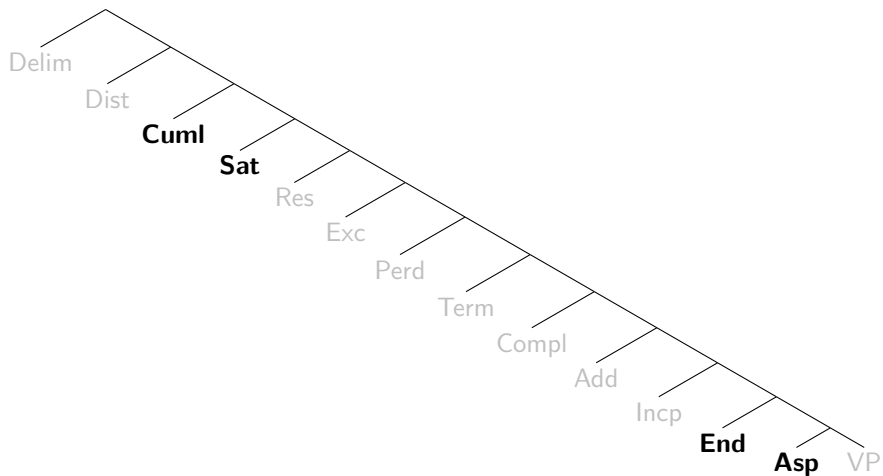
na and *po*: lexical entries

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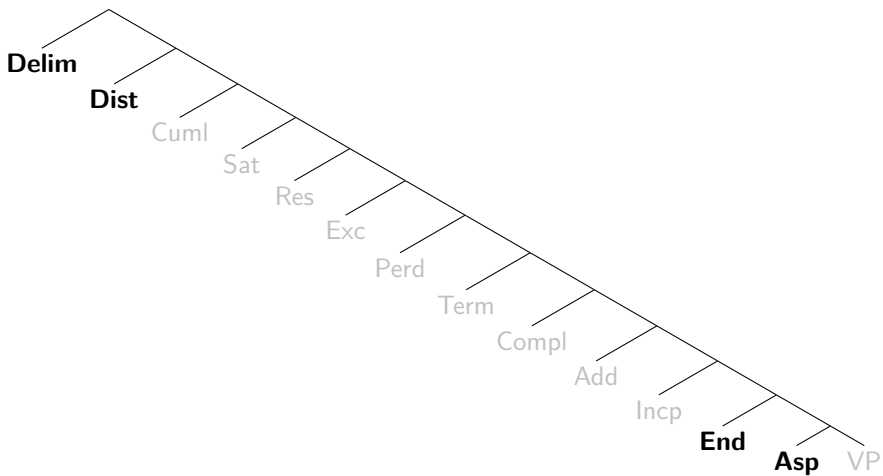


- ▶ both LIs have the perfectivizing End at the bottom (like other prefixes)
- ▶ different than 'internally non-stacking class' in that they contain gaps

na in the fseq



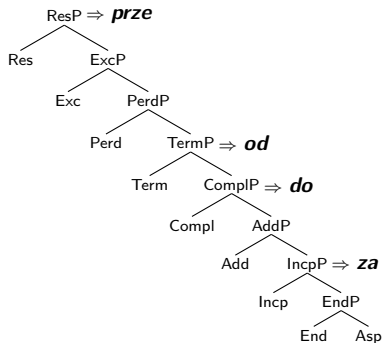
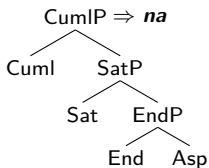
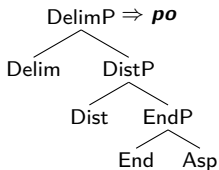
ρ_0 in the fseq



Explaining the stacking generalization

Generalization

(44) $\underbrace{(\text{Dist, Delim})} > \underbrace{(\text{Sat, Cuml})} > \underbrace{(\text{Res, Exc, Perd, Term, Compl, Add, Incp})}$



Deriving multiple prefixes

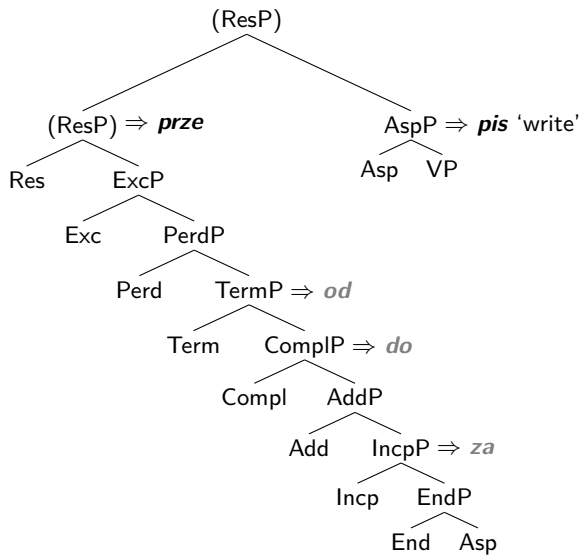
working example:

(45) (**po-**) (**na-**) (**prze-**) pis-
DIST SAT RES write

'(re-) write (PL # of something) (to the limits)'

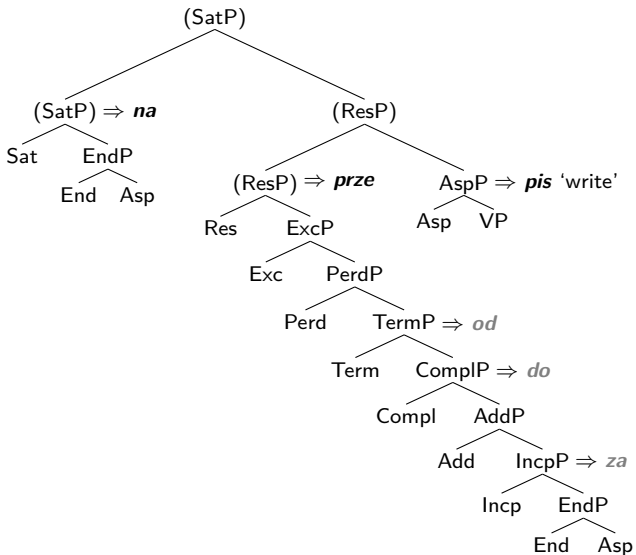
prze-

(46)



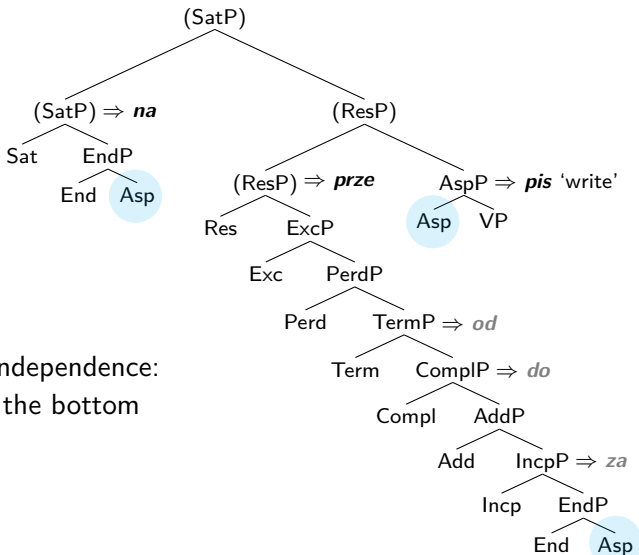
po-prze-

(47)



po-prze-

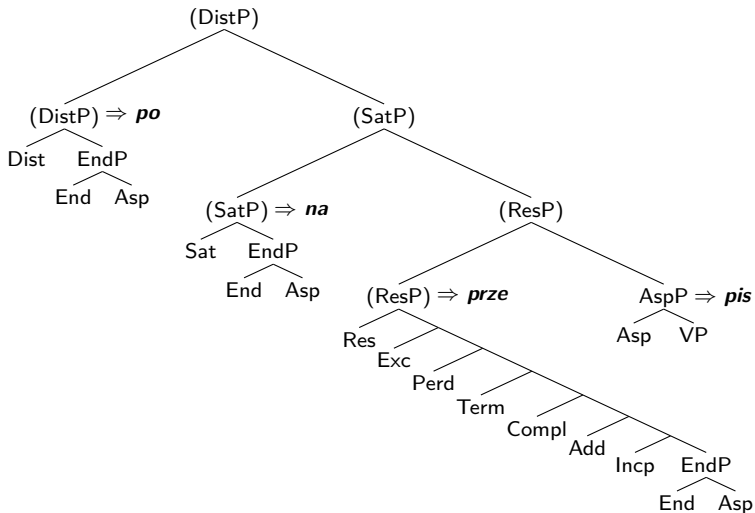
(47)



- ▶ prefix independence:
Asp at the bottom

po-na-prze-

(48)



summary & conclusion

- ▶ all aspectual prefixes perfectivize the verb in a tensed form
- ▶ stacked prefixes must conform to a specific order
- ▶ syncretic prefixes do not stack with each other
- ▶ there is a subclass of prefixes that do not stack with each other
- ▶ there are no dependent prefixes
- ▶ analysis: with certain assumptions about perfectivization and the fseq, we can capture the relevant facts with the Nanosyntactic prefix formation mechanism