Prefixes and T-Features
Petr Biskup
Universität Leipzig
www.uni-leipzig.de/~biskup/

Claim:
• Prefixes and prepositions are identical elements.
• A homophonous preposition and verbal prefix are two copies of one P element.
• Prefixes and prepositions bear a valued Tense-feature.
  Semantic effects of T-f depend on the syntactic position of P elements in a sentence.
• T-f of P elements links nominal reference to temporal reference.
• T-f of P elements is responsible for islandhood.
• All cases (not only structural) are unvalued T-f on N.

1. Prefix = preposition
1.1. Reasons
1) Prefixes and prepositions have the same source in Indo-European languages.
   See 14 randomly chosen prefixes in (1), (3); almost all prefixes have a prepositional counterpart
   (2), (4); see also Matushansky (2002) and Ashbury, Gehrke and Hegedűs (2006).

Russian:
(1) prefixes: do-, iz-, na-, nad-, ot-, pere-, po-, pod-, pri-, pro-, s-, v-, vy-, za-
(2) prepositions: do, iz, na, nad, ot, po, pod, pri, pro, s, v, za
to out.of on above away across along under by through from in out behind

Czech:
(3) prefixes: do-, z-, na-, nad-, od-, pře-, po-, pod-, při-, pro-, s-, v-, vy-, za-
(4) prepositions: do, z, na, nad, od, přes, po, pod, při, pro, s, v, za
to out.of on above away across along under by through from in out behind

2) Prepositions can (just like prefixes) be bound morphemes:
(5) a. z-dálky but also: b. z dálky (CZ)
    from-distance from distance
    ‘from far away’
c. na-č (= na co) d. od-kdy e. v-zadu
    ( on what)    from-when in-back
    ‘wherefore’     ‘from when’      ‘at the back’
(6) a. za-něj (= za něj) b. na-něj (CZ)
    behind him on him
    ‘behind him’ ‘onto him’
3) Lexicosemantic properties of prefixes and prepositions are very similar:

(7) a. v-bežat’
    ‘to get into a container by running’
   b. v komnate
    ‘to be in a container (room)’

(8) a. za-jít
    ‘to get behind x by going’
   b. za domem
    ‘to be behind the house’

4) Prefixes can be combined with a homophonous preposition:

(9) On nanes na čerdak mnogo sena.
    he CUM-carried on attic-acc a lot of hay
    ‘He brought a lot of hay onto the attic.’

(10) za-jít za dům
    behind-go behind house-acc
    ‘to go behind the house’

5) Prepositions can be copied in colloquial Russian:

(11) Vošel on v dom v tot v zakoldovannyj.
    entered he into house into that into haunted
    ‘He entered that haunted house.’

6) The PP that does not fit the prefix cannot intervene between the homophonous prefix and preposition; see also Arsenijević (2006, 205-206).

(12) a. Popugaj v-letel v komnatu.
    parrot in-flew in room-acc
    ‘The parrot flew into the room.’
   b. Popugaj v-letel na stol.
    parrot in-flew on table-acc
    ‘The parrot flew onto the table.’
   c. Popugaj v-letel v komnatu na stol.
    parrot in-flew in room-acc on table-acc
   d. * Popugaj v-letel na stol v komnatu.
    parrot in-flew on table-acc in room-acc

7) Semantic parallelism between prefixes and prepositions:
   • Localization
     Ps as prefixes:
     They make verbs perfective (7a), (8a), and localize reference time wrt. event time.
     (In Reichenbachian system, reference time includes event time.)
     Ps as prepositions:
     Prepositions are two-place predicates. The first argument is located wrt. the second argument (7b), (8b).
   • Definiteness
     Ps as prefixes:
Perfectivity as definiteness. Perfective verbs have a definite reference time, see Ramchand (2004, 22):

(13) \([\text{Asp}] = \lambda P \lambda t [(\text{there is a single unique moment } t_{\text{ref}} \text{ in the event that is salient}] \exists e: [P(e) \& t = t_{\text{ref}} \in \tau(e)]\)

Ps as prepositions:
They make arguments definite. There is a link between non-structural cases and definiteness (presuppositionality), see Starke (2001). PPs and arguments with a non-structural case are islands for extraction:

(14) a. Popugaj v-letel v komnatu. (R)
parrot-nom in-flew in room-acc
‘The parrot flew into the room.’
b. * Čto popugaj v-letel v t?
what parrot-nom in-flew in

(15) a. Popugaj v-letel v komnatu so stolom. (R)
parrot-nom in-flew in room-acc with table
‘The parrot flew into the room with the table.’
b. * S čem popugaj v-letel v komnatu t?
with what parrot-nom in-flew in room-acc

(16) a. On veril knigam s beloj polki. (R)
he believed books-dat from white shelf
‘He had a trust in books from the white shelf.’
b. * S kakoj polki on veril knigam t?
from which shelf he believed books-dat

Yadroff & Franks (2001): English to the women is fissioned (FP definite, goal, case) Russian ženšinam.

2. Analysis: Tense-features

• What is responsible for the parallel behavior of prefixes and prepositions?
• Since prefixes and prepositions are identical element (Ps), both bear a val T-f (value definite, bounded or quantized).
• T-f of Ps links nominal reference to temporal reference.
• T-f of Ps is responsible for islandhood.

2.1. Ps: val T-f and unval ϕ-fs

DPs: unval T-f and val ϕ-fs

• Selection of a DP by P as Agreement.
• Probes are unvalued fs in minimalism (e.g. Chomsky 2000) and Ns bear ϕ-fs, hence Ps bear unval ϕ-fs (There are languages with P Agreement: Irish, Welsh).
• Pesetsky and Torrego’s proposal (2004, 2006): Structural case is unvalued (uninterpretable) T-f on N (D) and is valued by T and T₀ (Asp).
  is extended : All cases (not only structural) are unvalued T-fs on N.
• Agree then values unval T-f on DP (→ case) and unval φ-fs on P (→ agreement morphology).
• Case (valued T-f) on DPs is indeed a reflection of the localization relation.
  Directional meaning: acc, locative meaning: loc, source: gen:

(17) a. v komnatu b. v komnate c. iz komnaty (R)
in room-acc in room-loc out.of room-gen
‘into the room’ ‘in the room’ ‘out of the room’

2.2. Asp head

2.2.1. Asp: unval T-f
• Prefixes make verbs perfective (only a few exceptions).
• Idea: T-f on Asp is unval and selects (probes) an element with val T-f.
  Prefixes are Ps and Ps have val T-f.

2.2.1.1. Derivation

(18) On v-exal v Moskvu (R)
  he in-drove in Moscow-acc
  ‘He drove to Moscow.’

• Since prepositions are two-place predicates, PPs are decomposed.
  Svenonius (2004): PPs may be decomposed into pP and PP, as vPs. p introduces the Figure argument and P the Ground argument:

(19) \[
\begin{array}{c}
\text{Figure} \\
pP \\
p' \\
p \\
pP \\
\text{PP} \\
p' \\
p \\
pP \\
\text{Ground}
\end{array}
\]

(20) ... AspP

Asp
\[
\begin{array}{c}
vP \\
\text{v-exa} \\
vP \\
\text{v-exa} \\
\text{on} \\
\text{on} \\
\text{v-exa} \\
\text{on} \\
\text{on} \\
\text{on} \\
\text{on} \\
\text{v} \\
\text{v} \\
\text{Moskvu}
\end{array}
\]

1. Merger of v (val T-f and unval φ-fs) with Moskva (unval T-f and val φ-fs)
2. Agree: φ-fs of v valued and T-f of Moskva valued (→acc)
3. Merger of p and Movement of v to p
4. Merger of on, on (Figure) is located wrt. Moskvu (Ground)
5. Merger of V and incorporation of \( v \): \( v \)-exa

6. \( v \)-exa incorporated into \( v \)

7. Movement of \( on \) to Spec, \( vP \)

8. \( Asp \) (unval T-f) selects \( vP \) and the incorporated P element \( v \) values T-f on Asp as perfective.

   Given (10) and the lexical properties of \( v \), the definite reference time corresponds to the result transition (\( On \) reached Moscow).

- Prefixes but not prepositions value T-f on Asp as perfective, see (18) and (21).
- Correlation between movement of P and perfectivity.
  The P element \( v \) does not move out of \( pP \) in (21) and T-f on Asp is valued as imperfective by the val T-f on the verb.
  Indefinite reference time. Imperfective paradox. Predicates (\( vP \) and \( pP \)) combine via event identification.

\[ (21) \quad \text{On exal } v \text{ Moskvy. (R)} \]
\[ \quad \text{he drove in Moscow-acc} \]
\[ \quad \text{‘He was driving to Moscow.’} \]

- Prefix may differ from the preposition (22).
- There are two different P elements.
  Pri- is merged as \( p \) and incorporated into the verb and values T-f on Asp as perfective.
  This gives the resultative definite reference time.

\[ (22) \quad \text{On pri-exal } v \text{ Moskvy. (R)} \]
\[ \quad \text{he by-drove in Moscow-acc} \]
\[ \quad \text{‘He came to Moscow.’} \]

2.2.2. \textbf{Asp: unval } \( \varphi \)-fs

- P values the unval T-f of Ground (\( \rightarrow \) case).
- Figure cannot get a case in \( pP \) because it is not c-commanded by a P element.
- It gets structural accusative:

\[ (23) \quad \text{On do-lil } vodu \text{ do sklenice. (CZ)} \]
\[ \quad \text{he to-poured water-acc to glass-gen} \]
\[ \quad \text{‘He topped up the glass with water.’} \]

- Structural accusative (unval T-f on DPs) is valued by Asp because:
  1) AspP is present in every sentence (every verb must be perfective or imperfective).
  2) And not valued by \( v \) because statives have no causer (\( vP \)) but accusative objects are possible:

\[ (24) \quad \text{milovat } Janu (CZ) \]
\[ \quad \text{love Janu-acc} \]
\[ \quad \text{‘to love Jana’} \]

3) There is a relation between prefixes and Asp, and case of the direct object may be affected by the added prefix:

\[ (25) \quad \text{a. nesti cvety} \quad \text{b. na-nesti cvetov} (R) \]
\[ \quad \text{carry flowers-acc} \quad \text{CUM-carry flowers-gen} \]
\[ \quad \text{‘to carry flowers’} \quad \text{‘to carry a lot of flowers’} \]
4) In Germanic languages, internal arguments can affect aspectual properties of the whole event.

5) In certain languages, there is a correlation between aspect and the form of the objective case (accusative-partitive alternation in Finnish).

- Given PIC (26), Figure moves to the edge of the vP phase to be accessible for Asp.

(26) Phase Impenetrability Condition (Chomsky 2000, 108)
   In phase \( \alpha \) with head H, the domain of H is not accessible to operations outside \( \alpha \);
   only H and its edge are accessible to such operations.

- Agree: unval \( \varphi \)-fs on Asp probe and are valued by Figure and T-f on Asp (valued by P(refix)
   incorporated into the verb) values T-f on Figure as structural accusative (23).

- Existence of Agree between Asp and Figure is supported by \( \varphi \)-fs on \( \text{přidělanou} \):

(27) Pavel má tu poličku přidělanou. (CZ)
    Pavel-nom has the shelf-fem.sg.acc by-made-fem.sg.acc
    ‘Pavel has fixed the shelf.’

- \( \text{přidělanou} \) is not just a modifier of \( \text{poličku} \) in (27); see (28):

(28) Pavel má tu přidělanou poličku. (CZ)
    Pavel-nom has the by-made-fem.sg.acc shelf-fem.sg.acc
    ‘Pavel owns the fixed shelf.’

- If AspP in every sentence, then structural Acc is too.
- Thus, a DP can get more cases (as in the case of theta roles); overt in Korean (see also Richards 2007).
  DP is spelled out with the last tense value (structurally, the highest case).
  In (29), T-f on \( \text{on} \) is valued by Asp and then by T:

(29) On v-exal v Moskvu (R)
    he-nom in-drove in Moscow-acc
    ‘He drove to Moscow.’

- In passives, T-f on Figure is also valued by Asp and then by T.

(30) Voda byla do-lita do hrnku. (CZ)
    water-nom was to-poured to cup-gen
    ‘The water was poured into the cup.’

- Only structural cases can be overwritten. Ground is trapped (spelled out) in \( pP \) phase:

    to cup-nom was-3.sg.m to-poured-3-sg.m
b.  Do hrnku bylo dolito.
    to cup-gen was-3.sg.n to-poured-3.sg.n
    ‘Something was poured into the cup.’
   Pavel-nom was-3.sg.m given book-acc
   b. Jirka dal Pavlovi knihu.
       Jirka-nom gave Pavel-dat book-acc
       ‘Jirka gave Pavel a/the book.’

2.2.3. Two T-fs and two structural accusatives
• Two types of T-f on Asp:
  1. perfective: valued by Ps (and pf. verbs)
  2. imperfective: valued by impf. Verbs
• Both can value T-f on DPs as structural accusative.
• The accusatives could in fact be different.
• They are different. (Non-)islandhood of accDPs is dependent on the value of T-f.
  T-f on DP valued by imperfective T-f on Asp (which is valued by verb) in (33a).
  T-f on DP valued by perfective T-f on Asp (which is valued by P(refix)) in (33b).

(33)

33a. O čem Pavel psal dopis t?  (CZ)
    about what Pavel-nom wrote letter-acc
    ‘About what was Pavel writing a/the letter?’

33b. ?? O čem Pavel dopsal dopis t?
    about what Pavel-nom to-wrote letter-acc
    ‘About what did Pavel write the letter?’

• The same contrast for mass nouns:

(34)

34a. Z jaké oblasti pil Pavel víno t?
    From which area drank Pavel-nom wine-acc
    ‘From which area was Pavel drinking wine?’

34b. ?? Z jaké oblasti vypil Pavel víno t?
    From which area out-drank Pavel-nom wine-acc
    ‘From which area did Pavel drink up the wine?’

• See Krifka (1992): Aspect marking affects the reference type of nouns in Slavic.

• Boundedness (definiteness) also with adverbs:

(35)

35a. kdy b. do-kdy
      when      to-when
    ‘when’ ‘till when’

• Islandhood due to val T-f on P:
  1. direct: PPs in (14)-(16)
  2. indirect: mediated by Asp in (33b), (34b)

2.3. Superlexical and lexical Ps
• SPs can be merged in the same position as LPs
• Reasons for the low merger of SPs:
1) They license arguments and case:

(36) a. *kričat’ ego shouted him-acc.
    b. pere-kričat’ ego EXC-shout him-acc.
    ‘to shout more loudly than him’

(37) a. zpívat (si) sing self-dat.
    b. po-zpívat *(si) DEL-sing self-dat.
    ‘to sing (to oneself)’ ‘to sing for a while (to oneself)’

2) They can change case (25).

3) They participate in idioms:

(38) po-byvat’ v čej’lobě škure DEL-be in someone’s skin.
    ‘to be in the same unpleasant position as someone else’

(39) při-hřát si polivčičku ATT-warm up self-dat soul-acc.
    ‘to have an axe to grind’

4) They can form secondary imperfectives and the (un)grammaticality of SI is only to some extent determined by the type of the prefix. Delimitative po- with byt’ form SI but delimitative po- with iskat’ (look for) do not:

(40) po-byvat’ DEL-be.
    ‘to stay for a while, visit’

5) Interpretation of a prefix (LP or SP) is dependent on properties of other elements. Thus, the merger of the prefix (low or high) would have to be sensitive to these properties.

    b. pere-kričat’ ego EXC-shout him-acc.
    ‘to read the book’ ‘to shout more loudly than him’
    c. pere-čitat’ knígy DISTR-read books-acc.
    d. pere-šagnut’ porog across-step doorstep-acc.
    ‘to read the books’ ‘to cross the doorstep’

6) The SP interpretation is also present in composed adverbs:

(42) po-zadu DEL-back.
    ‘a little behind’

7) SPs can also be combined with a homophonous preposition (9).

8) They also make the verb perfective (9).

9) SPs are a subset of LPs:
Russian:
(43) LP prefixes: do-, iz-, na-, nad-, ot-, pere-, po-, pod-, pri-, pro-, s-, v-, vy-, za-
(44) SP prefixes: do-, iz-, na-, ot-, pere-, po-, pod-, pri-, pro-, za-

Czech:
(45) LP prefixes: do-, z-, na-, nad-, od-, pře-, po-, pod-, při-, pro-, s-, v-, vy-, za-
(46) SP prefixes: do-, na-, od-, pře-, po-, při-, pro-, za-

• Derivation
Cumulative na- merges as P, then moves to p and incorporates into the verb and values T-f on Asp, hence the definite reference time with resulting localization.

(47) On nanes na čerdak mnogo sena.
he CUM-carry on attic-acc a lot of hay
‘He brought a lot of hay onto the attic.’

(48)

AspP

Asp

νP

ν’

VP

on na-nes

na-nes

mnogo sena

pP

p’

na

PP

na čerdak

3. Conclusion

Prefixes (LPs and SPs) and prepositions are identical elements. They bear a valued T-f. All cases are unvalued T-f on N. Only structural cases can be overwritten. T-f of P elements is responsible for the definite nominal reference and the definite temporal reference. T-f of P elements is responsible for islandhood.

References
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