Decomposing Prepositional Case

Petr Biskup
Universität Leipzig

GOAL:

Derivation of prepositional cases

Semantically, case is a reflection of semantic properties of the decomposed P

Syntactically, case is a result of Agree between the prepositional complement and T-head

Phonologically, case markers result from application of case rules

1. RUSSIAN AND CZECH DATA

• Some prepositions assign only one case:

(1) ot + gen  do + gen  iz + gen  u + gen  k + dat  čerez + acc  (R)
from to out at toward across

(2) od + gen  do + gen  z + gen  u + gen  k + dat  přes + acc  (Cz)
from to out at toward across

• Certain prepositions can assign more cases:

  o instrumental/accusative alternation

(3) a. pod / za  jaščik-ami  
    under behind box-inst.pl  (R)
   b. pod / za  jaščik-i
    under behind box-acc.pl

(4) a. nad / pod / před / za  bedn-ami  (Cz)
    above under in front of behind box-inst.pl
   b. nad / pod / před / za  bedn-y
    above under in front of behind box-acc.pl

  o locative/accusative alternation

(5) a. v / na / o  stol-e  
    in / on / about table-loc.sg  (R)
   b. v / na / o  stol
    in / on about table.acc.sg

(6) a. po / na / o  stol-e  
    along / on / about table-loc.sg  (Cz)
   b. po / na / o  stůl
    along / on about table.acc.sg
• Russian and Czech also have complex prepositions

(7) a. iz-za stol-a  b. iz-pod stol-a  (R)
out-behind table-gen.sg   out-under table-gen.sg
‘from behind the table’ ‘from under the table’

(8) a. ze-za stol-u  b. z-pod stol-u  (Cz)
out-behind table-gen.sg   out-under table-gen.sg
‘from behind the table’ ‘from under the table’

• Case can also appear in adverbial PPs

(9) a. v-perěd   b. s-pered-i   c. na-perěd  (R)
in-in.front.of-acc from-in.front.of-gen on-in.front.of-acc
‘forward’ ‘from the front’ ‘forward’

(10) a. ve-před-u  b. ku-před-u  (Cz)
in-in.front.of-loc.sg toward-in.front.of-dat.sg
‘in the front’ ‘forward’
c. do-před-u  d. na-před
to-in.front.of-gen.sg on-in.front.of.acc.sg
‘forward’ ‘ahead’

• The case marker can be spelled out on different categories;
on P (9), (10); DP (11a), (12a); A (11b), (12b); Adv (12c).

(11) a. v Moskv-u  b. s-vysok-a  (R)
in Moscow-acc.sg out-high-gen.sg
‘to Moscow’ ‘from above’

(12) a. do Prah-y  b. z-vysok-a  c. z-tam-a  (Cz)
to Prague-gen.sg out-high-gen.sg out-there-gen.sg
‘to Prague’ ‘from above’ ‘from there’

2. CASE AND DECOMPOSITION OF PP

2.1 Ps assigning more cases

• How does the case assignment work in the case of Ps assigning more cases, e.g. (3)-(6)?

• Different cases express different meanings:
  o Locative and instrumental express the stative (locative) meaning
  o Accusative expresses the dynamic (directional) meaning
  o Evidenced by (in)compatibility of particular Ps with stative verbs.
E.g. only instrumental Ps in (4a), not accusative Ps in (4b), are compatible with the stative predicate *stál* (13).

(13) a. Stál nad / pod / před / za bedn-amí (Cz)
stood above under in front of behind box-inst.pl
‘He stood between/above/under/in front of/behind boxes.’
b. *Stál nad / pod / před / za bedn-y
stood above under in front of behind box-acc.pl

• Assumption: Mapping between syntax and semantics

• PPs decomposed into DynamicP: encodes the dynamic (directional) meaning
  StativeP: encodes the stative (locative) meaning

• **DynamicP is higher than (contains) StativeP**

  o Semantically:
  

  Jackendoff (1983, 164):

  (14) a. [Place PLACE-FUNCTION ([THING])]
b. [Place ON ([Thing TABLE])]
c. [Path PATH-FUNCTION ([Place PLACE-FUNCTION ([THING])])]
d. [Path FROM ([Place ON ([Thing TABLE])])]

  Bierwisch (1988, 34)

  (15) a. Locative *in*: /in/; [-N, -V, -Dir];  λy λx [ LOC x ⊆ LOC y ]
b. Directional *in*: /in/; [-N, -V, +Dir];  λy λx [ FIN [ LOC x ] ⊆ LOC y ]

  Kracht (2002, 159):
  
  Locative expressions universally consist of two layers: L = localiser and M = modaliser.

  (16) [ M [ L DP ]]

  The localiser describes the way in which objects are positioned wrt. each other.
  The modaliser describes the way in which an object moves wrt. the given configuration.

  o Empirically manifested

  There are complex dynamic Ps containing a stative P (17), (18).
  *(pod, za have a stative meaning there)*

  But there are no complex stative Ps containing a dynamic P.
Dynamic wh-adverbs are derived from stative wh-adverbs; see TempAdv in (19).

(19)  a. kdy  b. do-kdy  c. od-kdy  
when  to-when  from-when 
‘when’  ‘till when’  ‘from when’

Dynamic adverbal PPs are also derived from stative Ps (20), (21).

(20) a. pered  b. v-peréd  c. s-pered-i  
in front of  in-in.front.of-acc  from-in.front.of-gen  
‘in front of’  ‘forward’  ‘from the front’

(21) a. do-před-u  b. ve-před-u  c. na-před  
to-in.front.of-gen.sg  in-in.front.of-loc.sg  on-in.front.of-acc.sg  
‘forward’  ‘in the front’  ‘ahead’

• Thus, PPs are decomposed in the following way:

(22) \([\text{DynamP} \text{ Dynam} [\text{StatP} \text{ Stat} [\text{DP} \text{ N}]]]\)

• Given the mapping between syntax and semantics, PPs in (3)-(6) are ambiguous between (23a) and (23b)

(23) a. \([\text{StatP} \text{ Stat} [\text{DP} \text{ N}]]\) : locative and instrumental  
b. \([\text{DynamP} \text{ Dynam} [\text{StatP} \text{ Stat} [\text{DP} \text{ N}]]]\) : accusative

• Dynamic case appears when Dynam projects

Stative case appears when only Stat projects

2.2 Complex Ps

❖ How does the case assignment work in the case of complex Ps like (24) and (25)?

(24) a. iz-za stol-a    b. iz-pod stol-a  (R)  
out-behind table-gen.sg  out-under table-gen.sg  
‘from behind the table’  ‘from under the table’
(25) a. ze-za stol-u  
out-behind table-gen.sg
‘from behind the table’

b. z-pod stol-u  
out-under table-gen.sg
‘from under the table’

• Case is assigned by the higher (left) P
  since za and pod assign instrumental and accusative and z(e)/iz genitive
  and the complements are marked by genitive

• Thus, the left morpheme spells out Dynam and the right one Stat.
  (They cannot be reversed because z(e) has only the dynamic meaning.)

2.3 Adverbial PPs

❖ How does the case assignment work in the case of adverbial PPs like (26) and (27)?

(26) a. v-perěd  
in-in.front.of-acc
‘forward’

b. s-pered-i  
from-in.front.of-gen
‘from the front’

(27) a. do-před-u  
to-in.front.of-gen.sg
‘forward’

b. ku-před-u  
toward-in.front.of-dat.sg
‘forward’

• Case is also determined by the higher P
  ◆ since pered assigns only instrumental (26)
  ◆ since před assigns instrumental and accusative and do genitive, k(u) dative,
    před cannot assign case in (27)

2.4 The prepositional case and the head T

• According to data, the case-assigning head should know whether or not Dynam projects.

• Stat and Dynam cannot be the case-assigning heads because:
  Dynam should assign case when Stat does not assign case
  Stat should assign case when Dynam does not project
  The look-ahead problem: Stat does not know whether or not Dynam will merge
  Predictability problem: would not be clear why Stat can sometimes assign case
                        and sometimes cannot

• Another possibility: Stat can bear unval unint ϕ-features (as probes in the case of structural cases)
  and they are optional.
This also cannot solve the dependency between the presence/absence of $\varphi$-features on Stat and the presence/absence of Dynam ($\varphi$-features on Dynam).\textsuperscript{1}

\textbf{Proposal:}

Case is assigned by a higher head, which can see all the relevant information.

- I use Biskup’s (2009) proposal:
  - Cases generally (not only structural) are an unvalued T(ense)-F on D.
  - Ps bear unvalued $\varphi$-Fs and a valued T-F.

This is an extension of Pesetsky & Torrego’s (2004, 2006) proposal:
  - Structural case is an unvalT-F on D that is valued by T and $T_0$ (Asp).
  - Prepositions bear a valT-F.

\textbf{Advantages}

- All cases are treated uniformly as Agree between T-Fs and $\varphi$-Fs of the probe and goal (28).

\begin{tabular}{|l|l|}
\hline
Structural & T: unval $\varphi$-Fs and val T-F  \\
 & Asp: unval $\varphi$-Fs and val T-F (by P, V) \\
\hline
Non-structural & P: unval $\varphi$-Fs and val T-F \\
\hline
\end{tabular}

- T-F on Ps relates PP (the prepositional case and the lexical aspect) with the morphological aspect and with the perfective structural accusative.

T-F on P is responsible for different definiteness effects:

- Perfectivity (definiteness of the reference time)
- Islandhood of PPs (islandhood is related to definiteness)
- Islandhood of the perfective structural accusative

\textsuperscript{1} See the following table for all possible scenarios:

a. no Dynam. Dynam without $\varphi$-fsc. Dynam with $\varphi$-fs1. no Stat not interesting\textsuperscript{**}2. Stat without $\varphi$-fs**OK3.

Stat with $\varphi$-fsOK** OK cells pose the dependency problem. Cases 1b and 1c are ungrammatical because the presence of the dynamic meaning (Dynam) presupposes the presence of the stative meaning (Stat). Cases 2a and 2b violate the Case Filter because the prepositional complement does not bear a case. Case 3b is bad because the appropriate P would have the dynamic meaning but the prepositional complement would bear a stative case. 3c is bad because $\varphi$-features on Dynam would be unvalued.
• Analogously to the verbal domain, there is $T_P$:

\[ (29) \ [T_P T_P [DynamP Dynam [StatP Stat [DP N]]]] \]

• The dynamic or stative case is not identical for all Ps, see (1)-(6).
  The case is determined by the type of the preposition.

• $T_P$ has to know which case it shall assign.
  ○ Ensured by incorporation of Stat and Dynam into $T_P$.
  
  Should not be a problem because Ps can incorporate into a higher category: verb (see Biskup (to appear) for arguments that prefixes are incorporated Ps)
  
  Bošković (2004): PPs have a layered structure similar to CP and P incorporates into higher heads.

• Case assignment in a dynamic PP: 1. Incorporation, 2. Agree between $T_P$ and DP

\[
\text{Agree between Tense-features and } \phi\text{-features}
\]

\[ (30) \ [T_P T_P (\text{unval}_F, \text{val}_T-F)_\text{DynamStat} [\text{DynamP DynamStat} [\text{StatP StatDP} [\text{val}_F-F, \text{unval}_T-F]]]] \]

○ Supported by the fact that there are languages with P agreement: Irish, Welsh, Jacaltec, Abaza (Baker 2008, Brennan 2008) and with tensed prepositions like Titan or Māori (Bowern & Aygen-Tosun 2000, Harlow 2007).

### 2.5 LOC and LocP

• Semantics of PPs is more complex; see e.g. Lang (1991), Wunderlich & Herweg (1991), Bierwisch (1996), Kracht (2008).

• Lang’s (1991, 129) lexical meaning of locative prepositions:

\[
(31) \lambda y \lambda x (\text{LOC}(x, \text{REG}*(y)) \ldots) \\
\text{REG}^* \text{ is a set of functions; they assign a neighbourhood region to object } y. \\
\text{LOC localizes the object } x \text{ wrt the region of } y.
\]

• Similarly, Wunderlich & Herweg’s (1991, 777) meaning of stative Ps:

\[
(32) \lambda y \lambda x \text{ LOC}(x, \text{PRÄP}*(y)) \\
\text{(Compare Svenonius’ (2008) PlaceP and AxPartP.)}
\]
• There are languages expressing LOC overtly: English, Hebrew, Japanese, Korean, Tzeltal

• Dynamic PPs contain the operator CHANGE (BECOME); see e.g. Dowty (1979), Wunderlich &

(33) \( \lambda y \lambda x \text{CHANGE} (\text{LOC}(x, \text{PRAP}^*(y))) \)

It identifies the transition and takes the final state as its argument.

• Following the region semantics tradition, I assume the syntactic structure (34)

(34) \([\text{Tp} \text{ P } [\text{BecompP} \text{ Become } [\text{LocP} \text{ Loc } [\text{RegP} \text{ Reg } [\text{DP} \text{ N }]]]]] \]

  BecomeP: the former DynamP
  Reg(ion)P: the former StatP

• E.g. for LF of *iz doma / z domu ‘out of the house’, I propose:

(35) \( Tp \text{ P } \lambda x \lambda t \text{[at(BECOME(\neg \text{LOC}(x, \text{INT}(\text{dům})), t))]} \]

• The time is identified either with the reference time (PPs as verbal adjuncts) or with the event
  time (PPs as adjuncts or complements of V).

  For time in PPs, see e.g. Stechow (2006, 2007, 10): \([\text{auf}] = \lambda w.\lambda x.\lambda l.\lambda t. x \text{ is on } l \text{ in } w \text{ at } t \).

2.6 Prepositional complements

• When the prepositional complement is overt (36a), case is spelled out on it.

• If there is no noun (36b-d), case is spelled out on a higher category: A, Adv, P.

(36) a. v Moskv-u in Moscow-acc.sg
    b. z-vysok-a out-high-gen.sg
    c. z-tam-a out-there-gen.sg
    d. do-před-u to-in.front.of-gen.sg

  ‘to Moscow’   ‘from above’   ‘from there’   ‘forward’

  ➢ Claim
There is a covert noun complement in PPs like z-vysok-a, z-tam-a and do-před-u

**Arguments:**

- The consistent case behavior of dopředu, zvysoka, ztama PPs

  It bears nominal cases of the masc. paradigm hrad ‘castle’ and město ‘city’.

  Case is a reflection of Agree between φ-features and T-Fs

  There must be φ-features, which ensure that case endings are always of the appropriate paradigm

- The noun is visible in certain cases; -ek spells out N:

  (37) a. před-ek-0 in.front.of-N-nom.sg
      b. do před-k-u to in.front.of-N-gen.sg

- PPs like do-před-u, ku-před-u, ztama etc. refer to a certain place.

  Hence there should be a (covert) referential element.

  (38) a. před-ek: the place in the front
      b. do-před-0-u: to the place in the front

- There is indeed a preposition containing place:

  (39) a. před-ek-0 in.front.of-N-nom.sg
      b. do před-k-u to in.front.of-N-gen.sg

- Another support for a covert N in adverbial PPs comes from case marking.

  Adverbial PPs mostly assign genitive (if they can), i.e., the case of nominal complements.

  (40) ze-zad-u out-behind-gen.sg
      mistnost-i room-gen.sg

      (cf. Russian s-zad-i dom-a ‘from the back of the house’) ‘from the back of the room’

- There is indeed a relation between nouns of the paradigm město (41a) and adverbials of the paradigm město (41b).

  (41) a. Ráno miluju. morning like
      b. Přišel ráno. came morning

      ‘I like mornings.’

      ‘He came in the morning.’

- N město (kolo) is visible in instrumental PP kol-em (42a) and accusative PP o-kol-o (42b).

  Okolo and kolem assign genitive, the case of nominal complements.

  (42) a. kol-em circle-inst.sg
      b. o-kol-o about-circle-acc.sg

      ‘around/along’

      ‘around/along’
• Caha & Medová (2009): manner adverbs derived from adjectives like *rychl-*e ‘fast’ bear the locative case of the paradigm *město* ‘city’ and adverbs like *smutn-*o ‘sadness’ nominative or accusative.

Arguments: parallelism between resultatives and the adverbs in the active and passive, allomorphy, crosslinguistic data.

• Doetjes (1997): Q-adverbs contain nominal material which forms the restrictor of the tripartite quantificational structure: Q[^restrictor noun][^nucleus VP].

The reason why Q-adverbs cannot combine with nouns.

This holds for *z-řídk-*a, which is a Q-adverb; compare (43a) with (43b).

The pure adjective *řídk-*á is OK (39c).

(43)  

a. *Zřídka zpívá nahatý.  
   seldom sings naked  
   ‘He seldom sings naked.’
   
b. *zřídka píseň  
   seldom song

c. (v rádiu) řídká píseň  
   (in radio) rare song

The same holds for Q-adverb *čast-*o, which contains the covert N *město*, too.

(44)  

a. *Často zpívá doma.  
   often sings at home  
   ‘He often sings at home.’
   
b. *často píseň  
   often song

c. častá píseň  
   frequent song

In Russian, the noun is visible; see the masculine raz:

(45)  

a. mnogo raz  
   many time  
   ‘often’

• The covert N *město* is also present in wh-PPs and deictic PPs

   See the genitive –*a* in *z-kam-*a ‘from where’ *z-tam-*a ‘from there’.

• Old Czech (and Proto-Slavic) has *sem-*o ‘here’, *tam-*o ‘there’ (Vasmer 1976-1980, Rusinová 1984)

   o: nom and acc of *město*.

• Vangsnes (2008): Scandinavian whPs ‘how’ contain an abstract nominal morpheme WAY.

• Kayne (2004): *here* and *there* modify the empty noun PLACE which has a null determiner (46a).
PLACE can be overt in some dialects of English.
The same holds for Czech (46b).

(46)  
a. $[\text{DP THAT } [\text{NP there PLACE}]]$
b. tam-to místo 
    there-that place

• More interesting analysis: decomposition of $t-a-m$ ($k-a-m$ ‘where’, $s-e-m$ ‘here’, $o-n-a-m$ ‘over there’…): $t$- is a deictic morpheme
  $-m$ expresses the noun $N$ (place)

  **Arguments:**
  pronominal $-m$ adverbs refer to a place: $s-e-m$ ‘here’, $t-am$ ‘there’ $o-n-am$ ‘over there’, $k-a-m$ ‘where’
  $-m$ forms m-participles from verbs in Old Czech (Rusínová 1984); cf. Russian $-m$- participles.
Pásmo ‘zone, tape’ possibly derived from ie. pes-, pēs- ‘fly, flap’ (Rejzek 2001).

• Then, the syntactic structure of PPs:

(47) $[\text{T} \text{P } [\text{BecomeP Become } [\text{LocP Loc } [\text{RegP Reg } [\text{DP } N_{\text{overt/covert}} ]]]]]$

### 3. CASE IN THE SYNTACTIC DERIVATION

#### 3.1 Generally

- Derivation of case:
  - Lexical entries:
    Chomsky (1995, 394): syntactic objects are triples of features, semantic, syntactic and phonological.
    ➢ Correspondence between semantic properties of heads in PP and their syntactic features
  - Syntax:
    ➢ Syntactic features of heads incorporated into $T_P$ represent the value(s) of T-F on $T_P$
    These values are copied on DP by Agree ($T_P$, DP)
  - PF:
    ➢ Given case rules, the values are spelled out as a case
  - Advantage
    The relation between Ps and their case(s) is not idiosyncratic
    Case is based on semantic properties of heads in the decomposed PP (case has meaning)
3.2 Semantics of PPs and case rules

- **Source Ps**
  - LF of *iz / z* ‘out’:

\[
\begin{align*}
\text{(48)} & \quad T_r \text{ } \lambda x \lambda t \text{[at(BECOME(\neg LOC(x,\text{INT(dům))),t))]} \\
& \quad \lambda Q \lambda t \text{[at(Q,t)]} \quad T_r \quad \text{BecomeP} \quad \lambda x \text{[BECOME(\neg LOC(x,\text{INT(dům)))]} \\
& \quad \lambda P \text{[BECOME(\neg P)]} \quad \text{Become} \quad \text{LocP} \quad \lambda x \text{[LOC(x,\text{INT(dům))]} \\
& \quad \lambda R \lambda x \text{[LOC(x,R)]} \quad \text{Loc} \quad \text{RegP} \quad \text{INT(dům)} \\
& \quad \lambda y \text{[INT(y)]} \quad \text{Reg} \quad \text{DP} \quad \text{dům}
\end{align*}
\]

- Correspondence between semantics and syntactic features
  - INT corresponds to the syntactic internal-F on Reg
  - \(\lambda P \text{[BECOME(\neg P)]}\) corresponds to the syntactic source-F on Become

- **Case rule**
  - All source Ps assign genitive, hence the case rule (49)

\[
\text{(49)} \quad [\text{source, } x] \rightarrow \text{genitive} \quad (x \text{ is a variable over syntactic features)}
\]

  DP with such features is spelled out with genitive

- **Stative Ps**
  - LF of stative *za / za* ‘behind’

Lang (1991): lexical entry of *hinter* ‘behind’:

\[
\begin{align*}
\text{(50)} & \quad \lambda y \lambda x \text{ LOC(x,EXT(y,-obs))} \\
& \quad obs \text{ is the observer axis, } +obs \text{ is for } vor \text{ ‘in front of’}
\end{align*}
\]

(51)

\[
\begin{align*}
\text{(51)} & \quad T_r \quad \lambda x \lambda t \text{[at(LOC(x,EXT(dům, -obs)),t)]} \\
& \quad \lambda Q \lambda t \text{[at(Q,t)]} \quad T_r \quad \text{LocP} \quad \lambda x \text{[LOC(x,EXT(dům, -obs))]} \\
& \quad \lambda R \lambda x \text{[LOC(x,R)]} \quad \text{Loc} \quad \text{RegP} \quad \text{EXT(dům, -obs)} \\
& \quad \lambda y \text{[EXT(y,-obs)]} \quad \text{Reg} \quad \text{DP} \quad \text{dům}
\end{align*}
\]
• Syntactic features
  EXT corresponds to the syntactic external-F on Reg
  ±obs axis (and ±vertical axis for pod and nad) corresponds to projective-F on Reg

• Case rule
  Since projective Ps assign instrumental, hence the case rule (52)

(52) [projective] → instrumental
    DP with this feature is spelled out with instrumental

• LF of stative *pered / před* ‘in front of’ is like (51) with +obs:

(53) \[\lambda x \lambda t[ \text{at}(\text{LOC}(x, \text{EXT}(dům, +obs)), t)]\]

  Syntactic features and the case rule as in the case of *za*.

❖ Goal Ps

• LF of goal *za / za* ‘behind’
  Like stative *za* (51) + positive BECOME:

(54) \[
\lambda Q \lambda t[ \text{at}(\text{Q}, t)] \quad \begin{array}{c}
\text{BecomeP} \\
\lambda \text{[BECOME(LOC}(x, \text{EXT}(dům, -obs))))
\end{array}
\]

\[
\lambda P[\text{BECOME}(P)] \quad \begin{array}{c}
\text{LocP} \\
\lambda \text{[LOC}(x, \text{EXT}(dům, -obs))]
\end{array}
\]

\[
\lambda R \lambda x[ \text{LOC}(x, R)] \quad \begin{array}{c}
\text{RegP} \\
\lambda \text{[EXT}(y, -obs)]
\end{array}
\]

\[
\lambda y[\text{EXT}(y, -obs)] \quad \text{DP} \\
\text{dům}
\]

• Syntactic features
  EXT corresponds to external-F on Reg
  -obs corresponds to projective-F on Reg
  \[\lambda \text{P[BECOME}(P)]\] corresponds to goal-F on Become

• Case rule
  Goal Ps mostly assign accusative, hence:

(55) [goal, x] → accusative

• There are also goal Ps with other cases, like *do* assigning genitive
• LF of goal *do* ‘to’
  Like semantics of *iz* / *z* (48), but with positive BECOME
  
  - Syntactic features
    INT corresponds to internal-F on Reg
    \( \lambda P[BECOME(P)] \) corresponds to goal-F on Become
  
  - Case rule
    Since *do* assigns genitive, hence the case rule (56)
  
  (56) \([\text{goal, internal}] \rightarrow \text{genitive}\)

- **Assumption:** Application of case rules is determined by the Subset Principle (DM)

- Rule (56) \([\text{goal, internal}] \rightarrow \text{genitive}\) is more specific than rule (55) \([\text{goal, x}] \rightarrow \text{accusative}\)
  Hence genitive (not accusative) is spelled out with *do*

- Rule (55) \([\text{goal, x}] \rightarrow \text{accusative}\) is more specific than rule (52) \([\text{projective}] \rightarrow \text{instrumental}\)
  Hence accusative (not instrumental) is spelled out with goal *za*

- **Complex Ps**
  
  - LF of *iz*-*za* / *ze*-*za* ‘from behind’
    *za* and *iz* / *ze* merged as Reg
  
  (57) \[
  \begin{align*}
  T_P P & \quad \lambda x \lambda t[\text{at}(\text{BECOME}(\neg \text{LOC}(x, \text{INT}(\text{EXT}(dům,-obs)))), t)] \\
  \lambda Q \lambda t[\text{at}(Q, t)] T_P & \quad \text{BecomeP} \quad \lambda x[\text{BECOME}(\neg \text{LOC}(x, \text{INT}(\text{EXT}(dům,-obs))))] \\
  \lambda P[\text{BECOME}(\neg P)] \quad \text{Become} & \quad \text{LocP} \quad \lambda x[\text{LOC}(x, \text{INT}(\text{EXT}(dům,-obs)))] \\
  \lambda R \lambda x[\text{LOC}(x, R)] \quad \text{Loc} & \quad \text{RegP} \quad \text{INT}(\text{EXT}(dům,-obs)) \\
  \lambda R[\text{INT}(R)] \quad \text{Reg} & \quad \text{RegP} \quad \text{EXT}(dům,-obs) \\
  \lambda y[\text{EXT}(y,-obs)] \quad \text{Reg} & \quad \text{DP} \quad dům
  \end{align*}\]

  - Syntactic features
    EXT corresponds to external-F
    -obs corresponds to projective-F
INT corresponds to internal-F
\( \lambda P[\text{BECOME}(\neg P)] \) corresponds to source-F

- **Case rule**
  
  Given case rule (49), which is more specific than (52), genitive appears
  
  (49) \([\text{source}, x] \rightarrow \text{genitive}\)
  
  (52) \([\text{projective}] \rightarrow \text{instrumental}\)

### 3.3 The syntactic derivation, PF and LF

- Given that Become is higher than Reg, incorporation happens to the right (see e.g. \textit{do-před-u} ‘forward’, \textit{iz-za} ‘from behind’)

- **The complex head \( T_P \):**

  
  (58)

  \[
  \begin{array}{c}
  \text{TP} \\
  \downarrow \\
  \text{T} \\
  \downarrow \\
  \text{Become} \\
  \downarrow \\
  \text{Loc} \\
  \downarrow \\
  \text{Reg}
  \end{array}
  \]

  
  - **Claim**
    
    Case is spelled out in accordance with the linearized syntactic structure, on the closest overt element.

- **If \( N \) is overt, case is spelled out on \( N \),**

  1. The syntactic derivation of \textit{do Prahy} ‘to Prague’ is in (59a):
    
    T-F on DP is valued as \([\text{goal, internal}]\) through Agree with \( T_P \)

  2. PF in (59b):
    
    Given the case rule (56) \([\text{goal, internal}] \rightarrow \text{genitive}\), DP gets genitive
    
    \textit{Praha} is a feminine \( N \) of the paradigm \textit{žena} ‘woman’, hence marker \(-y\)
    
    There is \( N \textit{Prah} \) in DP, hence \(-y\) is suffixed to it

  3. LF in (59c)
(59) a. 

```
  \( \text{T}_p \text{P} \)
   \( \text{T}_p \)  \( \text{BecomeP} \)
   \( \text{T}_p \)  \( \text{Become} \)  \( \text{Become} \)  \( \text{LocP} \)
   \( \text{Become} \)  \( \text{Loc} \)  \( \text{Loc} \)  \( \text{RegP} \)
   \( \text{Loc} \)  \( \text{do} \)  \( \text{Reg} \)  \( \text{DP} \)
   \( \text{D} \)  \( \text{NP} \)
      \( \text{Prah} \)  \( \leftarrow y \)
```

b. 

```
do
```

```
Prah  \( \leftarrow y \)
```

c. 

```
  \( \lambda x \lambda t[\text{at}(\text{BECOME}(\text{LOC}(x,\text{INT}(\text{Praha}))),t)] \)
   \( \lambda Q \lambda t[\text{at}(Q,t)] \)  \( \text{T}_p \)  \( \text{BecomeP} \)  \( \lambda x[\text{BECOME}(\text{LOC}(x,\text{INT}(\text{Praha}))))] \)
   \( \lambda P[\text{BECOME}(P)] \)  \( \text{Become} \)  \( \text{LocP} \)  \( \lambda x[\text{LOC}(x,\text{INT}(\text{Praha})))] \)
   \( \lambda R \lambda x[\text{LOC}(x,R)] \)  \( \text{Loc} \)  \( \text{RegP} \)  \( \text{INT}(\text{Praha}) \)
   \( \lambda y[\text{INT}(y)] \)  \( \text{Reg} \)  \( \text{DP} \)  \( \text{Prah} \)
```

The syntactic derivation of **do předku** ‘to the front’ (60a)

T-F on DP is valued as [goal, internal] through Agree with \( \text{T}_p \)

(60) a. 

```
  \( \text{T}_p \text{P} \)
   \( \text{T}_p \)  \( \text{BecomeP} \)
   \( \text{T}_p \)  \( \text{Become} \)  \( \text{Become} \)  \( \text{LocP} \)
   \( \text{Become} \)  \( \text{Loc} \)  \( \text{Loc} \)  \( \text{RegP} \)
   \( \text{Loc} \)  \( \text{do} \)  \( \text{Reg} \)  \( \text{DP} \)
   \( \text{D} \)  \( \text{RegP} \)
   \( \text{Reg} \)  \( \text{NP} \)
      \( \text{[ext]} \)  \( -e k \)  \( \leftarrow u \)
   \( \text{[project]} \)
      \( \text{[před]} \)  \( -k \)  \( \leftarrow u \)
```

PF of **do předku** in (60b):
Given the case rule (56) ([goal, internal] → genitive), DP gets genitive

-\((e)k\) is a masculine N of the paradigm \(hrad\) ‘castle’, hence genitive \(-u\)

The closest overt element is N \(-\(e)k\)

0 LF of \(do \ p\v{r}ed\)ku in (60c):

\[
\begin{align*}
\lambda Q\lambda t[\text{at}(Q,t)] & \quad T_{\rho} P \\
\lambda P[\text{BECOME}(P)] & \quad \text{Become} \\
\lambda R\lambda x[L\text{OC}(x,K)] & \quad \text{Loc} \\
\lambda x[\text{BECOME}(\text{LOC}(x,\text{INT}(\text{tn}[\text{EXT}^c(n,+\text{obs})\wedge Z(n)]))))] & \quad \text{RegP} \\
\lambda z[\text{INT}(z)] & \quad \text{DP} \\
\lambda S\text{tn}[S(n)] & \quad \text{D} \\
\lambda y[\text{EXT}^c(y,+\text{obs})\wedge Z(y)] & \quad \text{RegP} \\
\lambda y[\text{EXT}^c(y,+\text{obs})] & \quad \text{Reg} \\
\text{NP} & \quad \lambda u[Z(u)] 
\end{align*}
\]

• If N is covert, case is spelled out on the closest non-N element

• E.g. on P:

0 Derivation of \(dop\v{r}edu\) ‘forward’ in (61a)

T-F on DP is valued as [goal, internal, external, projective]; given (56) → genitive

0 PF in (61b):

There is a covert N of the paradigm \(hrad\), hence \(-u\)

Since there is no overt element in DP, \(-u\) is suffixed to the closest P: \(p\v{r}ed\)

\[
\begin{align*}
\lambda t\lambda x[\text{at}(\text{BECOME}(\text{LOC}(x,\text{INT}(\text{tn}[\text{EXT}^c(n,+\text{obs})\wedge Z(n)]))))],t] & \quad T_{\rho} P \\
\lambda Q\lambda t[\text{at}(Q,t)] & \quad T_{\rho} P \\
\lambda P[\text{BECOME}(\text{P})] & \quad \text{Become} \\
\lambda R\lambda x[\text{LOC}(x,K)] & \quad \text{Loc} \\
\lambda x[\text{BECOME}(\text{LOC}(x,\text{INT}(\text{tn}[\text{EXT}^c(n,+\text{obs})\wedge Z(n)]))))] & \quad \text{RegP} \\
\lambda z[\text{INT}(z)] & \quad \text{DP} \\
\lambda S\text{tn}[S(n)] & \quad \text{D} \\
\lambda y[\text{EXT}^c(y,+\text{obs})\wedge Z(y)] & \quad \text{RegP} \\
\lambda y[\text{EXT}^c(y,+\text{obs})] & \quad \text{Reg} \\
\text{NP} & \quad \lambda u[Z(u)] 
\end{align*}
\]
\( \text{LF of} \ \text{dopředu in (61c):} \)

\( \text{‘z’ is a free variable, interpreted by the context} \)

\( \text{‘z’ is usually the speaker or the subject} \)

(61) c. \[ \lambda \lambda \lambda \text{BECOME}(\text{LOC}(x, \text{INT}(\text{EXT}(z, + \text{obs})))) \]

\( \lambda Q \lambda \lambda \text{BECOME}(Q) \)

\( \lambda \lambda \lambda \text{LOC}(x, \text{INT}(\text{EXT}(z, + \text{obs}))) \)

\( \lambda R \lambda \lambda \text{INT}(R) \)

\( \lambda \lambda \text{EXT}(y, + \text{obs}) \)

\( \text{Spellout on a modifier} \)

\( \text{If an adjective is present in DP, case is spelled out on the adjective.} \)

\( \text{See the derivation of} \ \text{zvysoka ‘from above’ in (62a)} \)

DP is valued as [source, internal] through Agree with T\(_P\)

\( \text{PF in (62b)} \)

Given the case rule (49): [source, x] \(\rightarrow\) genitive, DP gets genitive

There is a covert N of the paradigm město ‘city’, hence -a

\text{vysok is the closest overt element for -a} \)

(62) a. \[ \lambda \lambda \lambda \text{BECOME}(\text{LOC}(x, \text{INT}(\text{EXT}(z, + \text{obs})))) \]

\[ \lambda Q \lambda \lambda \text{BECOME}(Q) \]

\[ \lambda \lambda \lambda \text{LOC}(x, \text{INT}(\text{EXT}(z, + \text{obs}))) \]

\[ \lambda R \lambda \lambda \text{INT}(R) \]

\[ \lambda \lambda \text{EXT}(y, + \text{obs}) \]

b. \[ \lambda \lambda \lambda \text{BECOME}(\text{LOC}(x, \text{INT}(\text{EXT}(z, + \text{obs})))) \]

\[ \lambda Q \lambda \lambda \text{BECOME}(Q) \]

\[ \lambda \lambda \lambda \text{LOC}(x, \text{INT}(\text{EXT}(z, + \text{obs}))) \]

\[ \lambda R \lambda \lambda \text{INT}(R) \]

\[ \lambda \lambda \text{EXT}(y, + \text{obs}) \]
\( \text{OLF of } zvysoka \text{ in (62c)} \)

(62) c. \( T_P \lambda x \lambda t \text{[at(BECOME}(\neg \text{LOC}(x,\text{INT}(\text{tn(HIGH(n)∧PLACE(n))}))),t)]} \)

\( \lambda Q \lambda t \text{[at}(Q,t)] \) \( T_P \) \text{BecomeP} \( \lambda x \text{[BECOME}(\neg \text{LOC}(x,\text{INT}(\text{tn(HIGH(n)∧PLACE(n))})))]} \)

\( \lambda P \text{[BECOME}(\neg P)] \) \text{Become} \( \text{LocP} \) \( \lambda x \text{[LOC}(x,\text{INT}(\text{tn(HIGH(n)∧PLACE(n))})))]} \)

\( \lambda R \lambda x \text{[LOC}(x,R)] \) \text{Loc} \( \text{RegP} \) \text{INT}(\text{tn(HIGH(n)∧PLACE(n))}) \)

\( \lambda z \text{[INT}(z)] \) \text{Reg} \( \text{DP} \) \text{tn}(\text{HIGH(n)∧PLACE(n)})

\( \lambda S \text{[S}(n)] \) \text{D} \( \lambda y \text{[HIGH}(y)∧\text{PLACE}(y)] \)

\( \lambda y \text{[HIGH}(y)] \) \text{AP} \( \text{NP} \lambda u \text{[PLACE}(u)] \)

- **Spellout on a decomposed adverb**

- Syntactic derivation of \( ztama \) ‘from there’ in (63a)

  DP is valued as [source, internal] through Agree with \( T_P \)

- PF in (63b)

  Given the case rule (49): [source, x] \( \rightarrow \) genitive, DP gets genitive

  - \( m \) is N of the paradigm \( město \) ‘city’, hence \( -a \)
  - \( m \) is the closest overt element for \( -a \)

(63) a. \( T_P \)

\( T_P \) \text{BecomeP} \( T_P \) \text{Become} \( \text{LocP} \) \text{Loc} \( \text{RegP} \) \text{DP} \( \text{INT}(\text{tn(HIGH(n)∧PLACE(n))}) \)

\( \text{High} \) \( \text{PLACE}(z) \) \( \text{D} \) \( \text{NP} \lambda y \text{[HIGH}(y)∧\text{PLACE}(y)] \)

\( \lambda y \text{[HIGH}(y)] \) \text{AP} \( \text{NP} \lambda u \text{[PLACE}(u)] \)

b. \( z \) \( -t \) \( -am \) \( -a \)
0 LF of ztama in (63c):

\[
(63) \quad \text{c.} \quad T_P \quad \lambda x \lambda t [\text{at}(\text{BECOME}(\neg \text{LOC}(x, \text{INT}(\text{tn}[\text{PLACE}(n)])), t))]
\]

\[
\lambda Q \lambda t [\text{at}(Q, t)] \quad T_P \quad \text{BecomeP} \quad \lambda x [\text{BECOME}(\neg \text{LOC}(x, \text{INT}(\text{tn}[\text{PLACE}(n)])))]
\]

\[
\lambda P [\text{BECOME}(\neg P)] \quad \text{Become} \quad \lambda x [\text{LOC}(x, \text{INT}(\text{tn}[\text{PLACE}(n)]))]
\]

\[
\lambda R \lambda x [\text{LOC}(x, R)] \quad \text{Loc} \quad \lambda x [\text{LOC}(x, \text{INT}(\text{tn}[\text{PLACE}(n)]))]
\]

\[
\lambda z [\text{INT}(z)] \quad \text{Reg} \quad \lambda x [\text{LOC}(x, \text{INT}(\text{tn}[\text{PLACE}(n)]))]
\]

\[
\lambda S [\text{INT}(z)] \quad \text{DP} \quad \text{tn}[\text{PLACE}(n)] \quad \lambda x [\text{PLACE}(u)]
\]

4. CONCLUSION

The prepositional case is determined by semantic properties of particular prepositional heads.

It is a result of the operation Agree between $T_P$ and the prepositional complement.

The prepositional complement can be overt as well as covert.

Case is spelled out on the closest overt element in PP.

References


