This paper argues that verbal prefixes and prepositions are identical elements. More specifically, a homophonous preposition and verbal prefix can be two copies of one P element. I argue that prefixes and prepositions bear a valued Tense-feature (T-f). Semantic effects of T-f depend on the syntactic position of P elements in a sentence. Further, I argue that T-f of P elements links nominal reference to temporal reference and that this feature is responsible for islandhood. I also propose that all cases (not only structural) are unvalued T-f on N.

1. Prepositions and verbal prefixes are identical elements

There are several reasons for this claim. Firstly, it is known that prefixes and prepositions have the same source in Indo-European languages. See 14 randomly chosen prefixes in (1) and (3). Almost all prefixes have a prepositional counterpart, as shown in (2) and (4). See also Matushansky (2002) for morpho-phonological similarities between prepositions and prefixes in Russian and Asbury, Gehrke and Hegedűs (2006) for other languages.

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

Czech:
(3) prefixes: do-, z-, na-, nad-, od-, pře-, po-, pod-, pří-, pro-, v-, vy-, za-
(4) prepositions: do, z, na, nad, od, přes, po, pod, při, pro, s, v, za

Secondly, prepositions can be bound morphemes, just like prefixes. Consider composed adverbs in (5) and prepositions combined with pronouns in example (6).

(5) a. z-dálky  also possible:  b. z dálky  (CZ)
     from-distance
     ‘from far away’
     c. na-č ( = na co)  d. od-kdy   e. v-zadu
     on what
     ‘wherefore’        ‘from-when’        ‘at the back’

(6) a. za-ň (= za něj)  b. na-ň (= na něj)  (CZ)
     behind him
     on him

* I would like to thank Steven Franks, Stephanie Harves, Lucie Medová, Tarald Taraldsen, and Beata Trawinski for their suggestions and helpful comments.
Thirdly, lexicosemantic properties of prefixes and prepositions are also very similar, as is evident from comparison of (7a) with (7b) and (8a) with (8b).

(7) a. v-bežat’  
in-run  
‘to get into a container by running’

b. v komnate  
in room-loc  
‘to be in a container (room)’

(8) a. za-jít  
behind-go  
‘to get behind x by going’

b. za domem  
behind house-instr  
‘to be behind the house’

Fourth, as shown in example (9) and (10), prefixes can be combined with a homophonous preposition in one sentence.

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

(10) ..., už sem došla do věku, kdy...  
already aux to-went to age when
‘… I already reached the age of…’

Fifth, prepositions can be multiplied (copied) in colloquial Russian, as demonstrated by the following example.

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

(Yadroff & Franks 2001, 73, (17a))

Sixth, in Russian, the PP that does not fit the prefix cannot intervene between the homophonous prefix and preposition. (12a) and (12b) show that vletel can co-occur with vPP and naPP and (12c) shows that vletel can co-occur with both PPs if naPP follows vPP. But (12d) is ungrammatical because na blocks the local relation between v in vletel and v in v komnatu. The same pattern of behavior of P elements can be found in Serbo-Croatian (Arsenijević 2006).

(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.’

Superlexical (interpretations of) prefixes are glossed in capitals: ATT=attenuative, COMPL=completive, CUM=cumulative, DEL=delimitative, DISTR=distributive, EXC=excessive, REP=repetitive.

1
‘The parrot flew onto the table.’

c. Popugaj v-letel v komnatu na stol.
   parrot in-flew in room-acc on table-acc
   ‘The parrot flew into the room, onto the table.’

d. * Popugaj v-letel na stol v komnatu.
   parrot in-flew on table-acc in room-acc

Seventh, there are semantic parallelisms between prefixes and prepositions. The first parallelism concerns localization. P elements as prefixes make verbs perfective (9), (10); they localize reference time wrt. event time. Ps as prepositions localize the first argument wrt. the second argument – see (7b) and (8b) - because prepositions typically are two-place predicates. The second parallelism concerns definiteness. Ps as prefixes make reference time definite, see Ramchand (2004, 22) for meaning of the perfective aspectual head introducing the reference time variable $t$:

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

And P elements as prepositions make arguments definite. It is known that there is a link between non-structural cases and definiteness (specificity); see e.g. Starke (2001). Therefore PPs and arguments with a non-structural case are islands for extraction, as demonstrated in examples (14)-(16). Compare also Yadroff & Franks (2001), who argue that English definite prepositional to the women is fissioned (functional phrase with features: definite, goal, case) Russian dative ženšinam.

(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

2. Analysis: Tense-features
In this section, I am going to answer the question what is responsible for the parallel behavior of prefixes and prepositions. Pesetsky & Torrego (2006) propose that prepositions bear a val(ued) tense feature (T-f). I follow their proposal and since I argue that prefixes and prepositions are identical elements (that is, Ps), both bear a val T-f (the value could be specified as definite, bounded or quantized).

### 2.1. P elements and arguments

Selection of a DP by a P can be treated as Agree, i.e. as a probe-goal relation. Since probes are unval(ued) features in minimalism (e.g. Chomsky 2000) and nominal heads bear val ϕ-fs (gender, number, person), I assume that Ps bear unval ϕ-fs. This is supported by the fact that there are languages with P Agreement, e.g. Hungarian, Irish or Welsh. Pesetsky and Torrego (2004, 2006) propose that structural case is unval T-f on the nominal head N (D) and that it is valued by head T and T₀ (Asp). Thus, I will extend their proposal and argue that all cases - not only structural cases - are unval T-f on N. This means that Agree between a P and DP values the unval T-f on DP (it gets a case) and values the unval ϕ-fs on P (it gets agreement morphology, which is overt e.g. in Irish). Examples (17) and (18) show that case - i.e. val T-f - on DPs is indeed a reflection of the localization relation. Different cases, in fact, mean different localization. The directional meaning is typically expressed by accusative, as shown in (17a) and (18a), the locative meaning is typically expressed by locative, as in (17b) and (18b), and the source meaning is expressed by genitive, as in (17c) and (18c).

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

(18) a. na střechu  
on roof-acc  ‘onto the roof’
b. na střeše  
on roof-loc  ‘on the roof’
c. ze střechy  
out.of roof-gen  ‘from the roof’

### 2.2. Aspectual head

#### 2.2.1. Aspectual head and perfectivity

Almost all prefixes make verbs perfective; there are only a few exceptions. Therefore I propose that T-f on Asp(ectual) head is unvalued and that this feature selects an element with val T-f. Recall that I have argued that prefixes are Ps and that Ps have val T-f. Thus, let us look at how it works e.g. in the case of (19).
Since prepositions are two-place predicates, PPs will be decomposed. I follow Svenonius (2004), who decomposes prepositional phrases into $pP$ and PP, similarly to verbal phrases; consider (20).

(20) \[
\begin{array}{c}
\text{Figure} \\
p \\
p' \\
PP \\
P \\
\text{Ground}
\end{array}
\]

The head $p$ introduces the Figure argument and $P$ introduces the Ground argument. The Figure argument is located, moved or characterized wrt. the Ground argument. Consequently, the relevant part of sentence (19) looks like (21).

(21) \[
\begin{array}{c}
\text{AspP} \\
\text{Asp} \\
vP \\
v' \\
v \\
\text{VP} \\
on \\
v-\text{exa} \\
v-\text{exa} \\
on \\
pp \\
p' \\
p \\
pP \\
\text{Moskvu}
\end{array}
\]

The P element $v$ - which bears val T-f and unval $\varphi$-fs - is merged with Moskvu, which bears unval T-f and val $\varphi$-fs. Agree happens and $\varphi$-fs on the P element $v$ are valued by $\varphi$-fs on Moskvu and T-f on Moskvu is valued by T-f on $v$, which gives accusative Moskvu. Then, $p$ is merged and $v$ moves to $p$. In the next step, on is merged with $p'$, hence on as Figure is located wrt. the Ground argument Moskvu. Then, exa is merged and $v$ incorporates into it and then vexa incorporates into the head $v$. On is moved to Spec,vP. Then Asp (with its unval T-f) selects vP and the incorporated P element $v$ values T-f on Asp as perfective. Given the meaning of the perfective head in (13) and the lexical properties of the P element $v$, the definite reference time corresponds to the transition between the process subevent and the result subevent. This means that on reached Moskvu.

A comparison of (19) and (22) reveals that prefixes value T-f on Asp as perfective but prepositions do not. Thus, there is a correlation between movement of P and perfectivity. Since the P element $v$ does not move out of $pP$ in sentence (22), T-f on Asp is valued as imperfective by the
val T-f of the verb *exa*. Consequently, we get the indefinite reference time and the sentence does not imply that *on* reached *Moskvu*. The verbal predicates and the *pP* predicate combine via event identification.

(22) On exal v Moskvu.  
    he drove in Moscow-acc  
    ‘He was driving to Moscow.’

A prefix may differ from the preposition, as shown by the following example. In this case, there are two different P elements, as illustrated in the partial derivation in (24).

(23) On pri-exal v Moskvu.  
    he by-drove in Moscow-acc  
    ‘He came to Moscow.’

(24) ... AspP  
    Asp ...  
    vP  
    v’  
    VP  
    on  
    pri-exa  
    pri-exa  
    pP  
    on  
    pri  
    PP  
    v  
    Moskvu

The P element *v* is merged as P and *pri* is merged as *p* and then it incorporates into the verb and values T-f on Asp as perfective. Given the meaning of the perfective head in (13) and the lexical properties of *pri*, the definite reference time again corresponds to the result transition.

2.2.2. Aspectual head and case

We have seen that P with its val T-f values unval T-f on Ground, which is manifested by case. However, Figure cannot get a case in *pP* because it is not c-commanded by a P element. Example (25) shows that Figure *vroucí kávu* gets structural accusative.

(25) … a do-lila do mého šálku vroucí kávu.  
    and to-poured to my cup hot-acc coffee-acc  
    ‘and she topped up my cup with hot coffee.’
I assume that structural accusative – unval T-f on DPs - is valued by the aspectual head because: Firstly, AspP is present in every sentence; every verb must be perfective or imperfective. And structural accusative is not valued by ν because stative predicates have no causer (i.e. they have no νP) but accusative objects are possible, as shown in (26).

(26) ljubit’ Mashu
    love Masha-acc
    ‘to love Masha’

Secondly, there is a relation between prefixes and the aspectual head and case of direct objects may be affected by the added prefix. Consider (27), where the cumulative prefix na changes the case of the plural object.

(27) a. nesti cvety
    carry flowers-acc
    ‘to carry flowers’

b. na-nesti cvetov
   CUM-carry flowers-gen
   ‘to carry a lot of flowers’

Third, in Polish, genitive on the internal argument in partitive constructions is restricted to the perfective predicates (Blaszczyk 2007).

Fourth, it is known that in Russian partitive genitive on the object is also triggered by the perfective aspect.

Fifth, in certain languages, there is a clear correlation between aspect and the form of the objective case; see e.g. Kiparsky (1998) for the accusative-partitive alternation in Finnish.

Sixth, it is also a well-known fact that in Germanic languages internal arguments can affect aspectual properties of the whole event.

Seventh, in aspect split languages, a particular case is restricted to certain aspect, e.g. in Hindi ergative is restricted to the perfective aspect (Woolford 2007).

Thus, given the Phase Impenetrability Condition in (28), Figure has to move to the edge of the vP phase to be accessible for the aspectual head.

(28) Phase Impenetrability Condition (Chomsky 2000, 108)

In phase α with head H, the domain of H is not accessible to operations outside α;

only H and its edge are accessible to such operations.

Then, when unval φ-fs on Asp probe, Agree can happen and φ-fs on Asp are valued by φ-fs on Figure and T-f on Asp (which has been valued by the P element incorporated into the verb) values T-f on Figure as structural accusative, as demonstrated by sentence (25). Existence of Agree between Asp and Figure is supported by example (29), where φ-fs on přidělanou Agree with φ-fs
on poličku. The control example (30) shows that přidělanou in (29) is not just an adjectival modifier of poličku.

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

(30) 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 the aspectual head is present in every sentence, then the same holds for structural accusative. Therefore I assume that DPs can get more cases. They are visible e.g. in Korean or in Lardil (see Richards 2007 for Lardil examples). Here it means that DP is spelled out with the last tense value or structurally, with the highest tense value. Thus, e.g. in sentence (19) On vexal v Moskvu., T-f on on is firstly valued by Asp and then by T as nominative. The same happens in passives, consider example (31). T-f on Figure vroucí káva is also firstly valued by Asp and then by T.

(31) Vroucí káva byla do-lita do mého šálku.
hot-nom coffee-nom was to-poured to my cup-gen
‘Hot coffee was poured into my cup.’

However, only structural cases can be overwritten. Since the Ground argument is trapped - spelled out - in the pP phase, T cannot value its T-f as nominative, as demonstrated by (32) for the prepositional case and (33) for inherent dative.

to my-nom cup-nom was-3.sg.m to-poured-3.sg.m
b. Do mého šálku bylo do-lito.
to my-gen cup-gen was-3.sg.n to-poured-3.sg.n
‘Something was poured into my cup.’

(33) a. * Pavel byl dán knihu.
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
In this section, I argue that val T-f on P elements links nominal reference to temporal reference and that this feature is responsible for islandhood. We have seen that there are two types of val T-f on the aspectual head. The first type is perfective, which is valued by Ps (and in a few cases by a
perfective verb). The second type is imperfective, which is valued by imperfective verbs. Both types can value unval T-f on DPs as structural accusative. So, one can ask whether the accusatives are not different. Certain data show that in fact they are different; (non-)islandhood of accusative DPs is dependent on the value of T-f, as shown by the contrast in example (34). In (34a) unval T-f on \textit{dopis} is valued by the imperfective T-f on Asp, which has been valued by the verb. In contrast, in sentence (34b), unval T-f on \textit{dopis} is valued by the perfective T-f on Asp (which has been valued by the prefix) and the sentence is degraded. Example (35) shows that the same holds for mass nouns. Compare also Krifka (1992), who shows that aspect marking affects the reference type of nouns in Slavic.

(34)  
\begin{enumerate}
  \item a. \([O \čem]_1 \text{ Pavel psal dopis } t_1\)?  
   \text{about what Pavel-nom wrote letter-acc}  
   \text{‘About what was Pavel writing a/the letter?’} 
  
  \item b. ?? \([O \čem]_1 \text{ Pavel do-psal dopis } t_1)?  
   \text{about what Pavel-nom to-wrote letter-acc}  
   \text{‘About what did Pavel write a/the letter?’} 
\end{enumerate}

(35)  
\begin{enumerate}
  \item a. \([Z jaké oblasti]_1 \text{ pil Pavel víno } t_1)?  
   \text{from which area drank Pavel-nom wine-acc}  
   \text{‘From which area was Pavel drinking wine?’} 
  
  \item b. ?? \([Z jaké oblasti]_1 \text{ vy-pil Pavel víno } t_1)?  
   \text{from which area out-drink Pavel-nom wine-acc}  
   \text{‘From which area did Pavel drink up the wine?’} 
\end{enumerate}

The following example shows that boundedness (definiteness) is also present in the case of prefixed adverbs. In contrast to the unprefixe adverb in (36a), the adverb with P element \textit{do} in (36b) is bounded.

(36)  
\begin{enumerate}
  \item a. \textit{kdy} \quad \text{b. do-kdy}  
   \text{‘when’} \quad \text{‘till when’} 
\end{enumerate}

Thus, islandhood is due to val T-f on P elements. This feature can apply either directly - as in examples (14)-(16), where P selects the appropriate arguments – or indirectly, as in (34b) and (35b), where the valued T-f on the prefix values T-f on Asp, and this feature in turn values the unvalued T-f on DP.

2.3. Superlexical Ps and lexical Ps

There are many similarities between superlexical prefixes and lexical prefixes. Therefore, in this section, I argue that superlexicals can be merged in the same position as lexical prefixes. Firstly,
superlexical prefixes can license arguments and case, as can lexicals, as shown by the accusative DP in (37) and the dative DP in (38).

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

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

Secondly, superlexical prefixes can also change case of the object, as already shown by example (27) with the cumulative prefix na-. The third argument for the low merger of superlexical prefixes is that superlexicals can participate in idioms, just like lexical prefixes; consider the Russian example in (39) and the Czech one in (40).

(39) po-byvat’ ěej-libo škure  
    DEL-be in someone’s skin  
    ‘to be in the same unpleasant position as someone else’

(40) při-hřát si polivěčíčku  
    ATT-warm up self-dat soup-acc  
    ‘to have an axe to grind’

Fourth, superlexicals can also form secondary imperfectives and the (un)grammaticality of the appropriate secondary imperfective is determined by the type of the prefix only to some extent. E.g. the delimitative prefix po- forms a secondary imperfective with verbs byt’, kričat’, chlestat’, as shown in (41), but the same prefix does not form secondary imperfectives with verbs iskat’ (look for), temnet’ (darken) or bluždat’ (wander).

(41) a. po-byvat’  b. po-krikivat’  c. po-chlestat’  
    DEL-be  DEL-shout  DEL-whip  

Fifth, the interpretation of a prefix - whether it is interpreted as a lexical or superlexical prefix - is dependent on the presence and properties of other elements in vP, as demonstrated by contrasts in (42) and (43). Example (42) shows that the lexical interpretation of do- depends on the presence of the direct object. And (43) shows that pere- cannot be interpreted distributively with the singular object (43a), in contrast to (43c), and that pere- can only be interpreted as a superlexical prefix with kričat’ and ego (43b) and only as a lexical prefix with the motion verb šagnut’ and the concrete noun porog in (43d). Thus, if lexicals and superlexicals were merged in different positions, the
merger of the prefix - whether it should be merged low or high in the clausal structure - would have
to be sensitive to these properties.

(42) a. On do-pisal. he COMPL-wrote
    ‘He finished writing.’

(43) a. pere-čitat’ knigu
    across-read book-acc
    ‘to read the book’

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

Sixth, the superlexical interpretation is also present in the case of composed adverbs, as
demonstrated by po-zadu in (44), but the adverb does not contain as high clausal structure as would
be necessary for the high superlexical merger.

Seventh, superlexicals can also be combined with a homophonic preposition in one sentence, as
already shown by example (9). The eighth reason is that superlexicals - just like lexicals - make
verbs perfective; consider (9) again. Ninth, superlexicals are a subset of lexicals; compare (45) with
(46) and (47) with (48).

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-

Russian
(47) LP prefixes: do-, iz-, na-, nad-, ot-, pere-, po-, pod-, pri-, pro-, s-, v-, vy-, za-
(48) SP prefixes: do-, iz-, na-, ot-, pere-, po-, pod-, pri-, pro-

Because of these reasons, I analyze superlexical prefixes in the same way as lexicals. More
specifically, for the P element na- in example (9) On nanes na čerdak mnogo sena., I propose
derivation (49). Note that in addition to the cumulative interpretation, na- makes the same job as
lexical prefixes; it brings about a certain localization relation between Figure mnogo sena and
Ground čerdak. Hence, na- merges as P and moves to p. Then, it incorporates into the verb and
values T-f on Asp as perfective. As in the case of lexicals, this gives the definite reference time and Figure *mnogo sena* results on Ground čerdak. As to the cumulative interpretation, it is not necessary for *na-* to be merged directly in AspP or in a higher, e.g. cumulative, phrase. To derive cumulativity, it suffices to check the appropriate cumulative feature on Asp (or Cum). This is ensured by an Agree relation between a cumulative feature on the moved P element *na-* and the corresponding cumulative feature on the aspectual (cumulative) head.²

(49)     AspP

Asp

on

V P

na-nes

P P

mnogo sena

na

P P

na

čerdak

3. Conclusion

In this paper, I have argued that prefixes - both lexicals and superlexicals - and prepositions are identical elements: Ps. P elements bear a valued T-f and all cases are an unvalued T-f on N. DPs (NPs) can get more cases but only structural cases can be overwritten. I have also argued that T-f of P elements links nominal reference to temporal reference and that this feature is responsible for islandhood.

References

Asbury, A., B. Gehrke & V. Hgedős (2006), One size fits all: prefixes, particles, cases and adpositions as members of the category P. Handout from WECOL in Fresno.

² In addition, the object must be a plural or mass noun. This can be treated as a selectional relation between the cumulative version of *na-* and the Figure argument in *pP*.


Svenonius, P. (2004), Adpositions, Particles, and the Arguments they Introduce. lingBuzz/000042


http://people.umass.edu/ellenw/Woolford%20Aspect%20Splits%20As%20Contextual%20Faithfulness.pdf