Prefixes as Prepositions and Multiple Cases

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1. Introduction

This paper is concerned with P elements in Russian and Czech. A closer look at P elements reveals that there are semantic parallelisms in the behavior of prepositions and verbal prefixes. The first parallelism relates to localization. On the one hand, P elements as prepositions are standardly treated as two-place predicates: S/N/N or <e,<e,t>> or <l,<l,t>> (where *l* is the type of places), see Bierwisch 1988, Heim & Kratzer 1998, Stechow 2006, respectively. Thus, prepositions localize the first argument - which can be e.g. an individual (type e) - with respect to the second argument, as shown in the Russian example (1). On the other hand, P elements as prefixes attached to a verb localize the reference time with respect to the event time in a certain way. Thus, e.g. in a Reichenbachian ternary system, the reference time (sometimes called topic time) includes the event time.

(1) v Moskve
in Moscow.loc
'$\lambda x \in D_e$. x is in Moscow'

The second parallelism relates to definiteness. Prefixes make verbs perfective in most cases, as demonstrated by the Russian examples below, where the standard perfectivity tests show that the prefixed verbs indeed are ungrammatical with phasal verbs (3) and have the future interpretation in present tense (4). And it has been argued that perfectivity brings about definiteness of reference time; see Ramchand (2004). As shown in (5), in her proposal the perfective aspectual head existentially binds the event variable *e* and introduces the reference time variable *t* and there is a presupposition that there is a single unique moment t_{def} in the event that is salient. What is crucial is that the reference time variable *t* is equal to the salient presupposed time moment t_{def} that occurs within the time trace of the event $\tau(e)$. Then, perfectivity – depending on where the asserted definite time occurs in the event – can be of three different types: inceptive, telic or delimited.

(2) a. pod-pisat'
under-write
'to sign'

b. na-pisat'
on-write
'to write down'

* I would like to thank Roland Meyer and the audience at FDSL 7 for their comments and helpful suggestions.

(3) a. * načal pod-pisat'
he began to under-write
b. * načal na-pisat'
he began to on-write

(4) a. on podpišet
'he will sign'
b. on napišet
'he will write down'

(5) [[Asp]] = λP λt [there is a single unique moment t_{def} in the event that is salient] ∃e:[P(e) & t = t_{def} ∈ τ(e)])

(Ramchand 2004, 22)

Concerning definiteness and P elements as prepositions, it has been argued that there is a relation between prepositional cases, inherent cases and definiteness or specificity; see e.g. Starke (2001). It has been observed that e.g. in Hebrew only definite direct objects are marked with the prepositional element *et* (Danon 2006) or that the Hindi marker *ko*, which is an inherent case marker of indirect objects in ditransitives, also serves as the case marker of specific direct objects in transitives (Mohanan 1994). The relation between nonstructural cases and definiteness underlies the well-known fact that PPs and arguments bearing a nonstructural case are islands for extraction; consider the Czech examples in (6)-(8). The modified corpus example (6b) shows that extraction of the prepositional complement is ungrammatical. Example (7) shows that subextraction out of PP is ungrammatical as well. And (8) demonstrates that extraction out of dative argument is also bad. The parallel behavior of verbal prefixes and prepositions we just saw is one of the reasons why I propose that prefixes and prepositions are identical elements (Ps) and that a homophonous preposition and verbal prefix occurring in one sentence can be two copies of one P element. There are further six arguments supporting this analysis (see Biskup to appear) but because of lack of space I will not repeat them here.[1]

(6) a. … , do-jedem do Kvasin, …
to-go to Kvasiny.gen
'We will come to Kvasiny.' (ORAL2006#203762)
b. * Čeho$_1$ do-jedem do t_1?
what to-go to

(7) a. Do-jedem do Kvasin u naší babičky.
to-go to Kvasiny.gen at our grandmother
'We will come to Kvasiny near our grandmother.'
b. * [U koho/čeho]$_1$ do-jedem do Kvasin t_1?
at who/what to-go to Kvasiny.gen

[1] An additional argument for the copy analysis of verbal prefixes and prepositions comes from Old Church Slavonic. In Old Church Slavonic, some temporal and locative meanings were expressed just by a prepositionless case, e.g. the goal argument appeared with genitive *doiti města* 'reach the town'. But later such meanings were expressed more explicitly, hence in Czech we find *dojít do města*, where the P element *do* is also used as a preposition (see Večerka 2006).

(8) a. ‚… opravdu věřila historce se ztraceným kotětem.
really believed story.dat with lost kitten
'She really believed the story about the lost kitten.' (SYN2005#6727434)
b. * [S čím]$_1$ opravdu věřila historce t_1?
with what really believed story.dat

Consequently, the question arises what the nature of P elements is. Why do Ps behave in this way? These questions, I will answer in the following sections. In section 2, I argue that the parallel behavior of verbal prefixes and prepositions is due to the fact that Ps bear a valued Tense feature. I will argue that not only structural cases but also nonstructural ones are an unvalued Tense feature on D. Then, I will argue that the Tense feature on Ps relates the prepositional case and the lexical aspect with the morphological aspect and with the perfective structural accusative. In section 3, I propose that the Tense feature (case) on DPs can be revalued. I also propose that nonstructural cases, in contrast to the structural ones, cannot be revalued because the complement of P is trapped in the *p*P phase. Section 4 concludes the paper.

2. P Elements and the Tense Feature

2.1 P Elements and Prepositional Case

Emonds (1985, chapter 1 and 7) argues that words like *that*, *for* and other prepositions and conjunctions are closely related and that the category COMP should be identified with the category P. Similarly, Pesetsky and Torrego (2006) argue that elements like *that*, *for*, *about* and other prepositions show an 'X-trace effect' – concretely, 'that-trace effect', 'for-trace effect' and 'P-trace effect' - and that there is a link between these X-trace effects and phenomena like T-to-C movement in English matrix questions and embedded declaratives in Belfast English. All these phenomena have to do with tense. More specifically, they propose that prepositions bear a valued Tense feature. In this paper, I follow their proposal. As already mentioned above, both prepositions and verbal prefixes are spellouts of a P, therefore in the present analysis both elements bear a valued Tense feature, which brings about various phonological, syntactic and semantic effects. It is not a trivial question what exactly the value of the Tense feature on Ps is. It could be specified e.g. as definite, bounded or quantized.

In the minimalist framework, selectional relations can be treated as an Agree operation, which is a probe-goal relation. Probes are treated as unvalued features in minimalism.[2] And

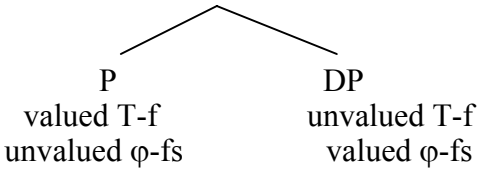
[2] For the sake of simplicity, I leave the issue of interpretability of features (and its relation to featural values) aside in this paper.

nominal heads typically bear valued φ-features. Thus, for the selectional relation between a preposition and a DP we need a probe feature(s) on P. The tense feature on Ps is valued, hence it cannot serve as a probe. Therefore I propose that Ps bear unvalued φ-features, which serve as a probe. Then, given the Agree relation between φ-features on P and DP, the prediction is that one finds agreement morphology on prepositions. Although it is not the case in Russian or Czech, there are languages showing P agreement, e.g. Hungarian, Irish or Welsh. As demonstrated in example (9), taken from Asbury, Gehrke and Hegedűs (2007, 7), in Hungarian inflecting postpositions can agree with the pronoun.

(9) (én) mögött-em
(I) behind-1.sg
'behind me'

Pesetsky and Torrego (2004, 2006) propose that structural case is an unvalued (and uninterpretable) Tense feature on the nominal head N or D and that it enters an Agree relation with T and T_0 (which is an aspectual head). Here, I will extend their proposal and suggest that all cases - not only structural cases - are an unvalued Tense feature on the nominal head D. This extension and the extension of φ-features to P heads allows us to use the Tense feature on P in the case assigning process and also allows to treat all cases uniformly, with respect to the features participating in the case assigning relation. It also brings about a nicer picture of prepositional phrases. More concretely, we come to a featural configuration with two pair relations between P and DP, as shown in (10). This means that the Agree operation between P and DP values the unvalued Tense feature on DP, hence it gets a case, and values the unvalued φ-features on P, which gets agreement morphology, which is overt e.g. in Hungarian, as we saw in (9).

(10)



Given this proposal, we have two types of features (Tense feature and φ-features) on three elements (P, T, DP) and the Agree operation between them, as shown in table 1:

P: val T-f and unval φ-fs T: val T-f and unval φ-fs	Agree	DP: unval T-f and val φ-fs

Table 1: Tense features and φ-features on P, T, and DP

As to the interpretational phenomena related to P elements as prepositions, valued Tense features on DPs, which are manifested as a case, give different types of localization, as illustrated in example (11). The Russian example shows that the type of localization is determined not only by lexicosemantic properties of the appropriate preposition but also by the type of the case. E.g. the locative meaning is expressed by the locative case (11a), the directional meaning is expressed by accusative (11b), and the source meaning by genitive (11c). It is even more obvious in languages with more elaborated case system, like e.g. Hungarian or Finnish. Hungarian systematically expresses not only the difference between non-dynamic cases (the locative meaning) and dynamic cases (the source or goal meaning) but also between interior and exterior cases. As shown by the contrast in example (12), the interior goal meaning is expressed by illative (12a), the exterior goal meaning is expressed by sublative (12b), the interior source meaning is expressed by elative (12c) and the exterior source meaning is expressed by delative (12d); see e.g. Tompa (1968) and Kenesei, Vago and Fenyvesi (1998).

(11) a. v Moskv-e
in Moscow-loc
'in Moscow'

b. v Moskv-u
in Moscow-acc
'to Moscow'

c. iz Moskv-y
out.of Moscow-gen
'from Moscow'

(12) a. ház-ba
house-illative
'into the house'

b. ház-ra
house-sublative
'onto the house'

c. ház-ból
house-elative
'out of the house'

d. ház-ról
house-delative
'from (top of) the house'

As already discussed in section 1, prepositions are two-place predicates. Talmy (1975, *et seq*.) calls the two arguments Figure and Ground. The Figure argument (in other approaches called trajectory) is the entity that is located, moved or somehow characterized with respect to the reference entity, i.e., the Ground argument (in other approaches called landmark). Svenonius (2004) follows Talmy and splits prepositional phrases into PP and *p*P. Since there is an asymmetry in behavior of the Figure and Ground argument, he proposes that prepositional phrases (*p*Ps) can be split in the same way as verbal phrases (*v*Ps). Since the Ground argument is within the syntactic sphere of influence of the preposition, like Patient in the case of the verbal phrase, it is introduced by the head P as the internal argument, and the head *p* (in analogy to *v*) introduces the external argument, i.e. the Figure. In the present analysis, I will follow Svenonius's proposal (2004) and decompose prepositional phrases into PP and *p*P.

2.2 P Elements and Aspectual Head

2.2.1 (Im)perfectivity

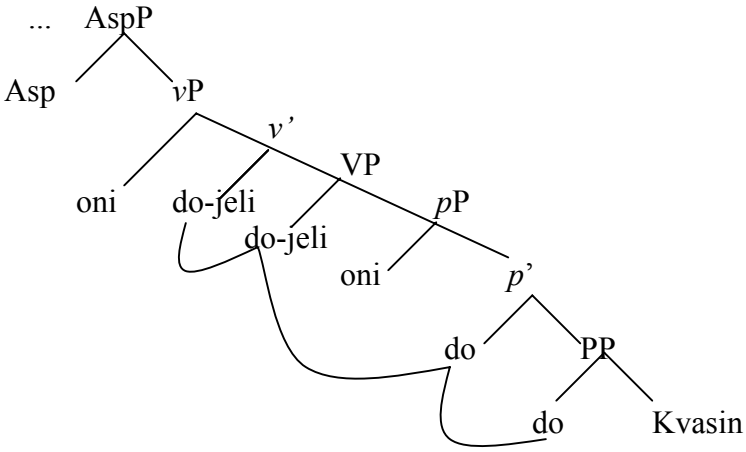
As mentioned in section 1, almost all prefixes make verbs perfective. Hence, there must be a relation between the prefix attached to the verb and the aspectual head. In the preceding sections, I argued that prefixes are Ps and that Ps bear a valued Tense feature, which is responsible for the case on the DP complement. The same feature now can be used in the relation between prefixes and the aspectual head. More specifically, I propose that the aspectual head bears an unvalued Tense feature and that this feature selects an element with a valued Tense feature, which has the advantage that it can treat the dependency between the presence of a (P)refix on the verb and the perfective aspectual interpretation. Thus, when a P element raises and incorporates into the verb, then the Tense feature on the aspectual head selecting *v*P finds its valued Tense feature and is valued, which means that the aspectual head becomes perfective. On the one hand, the Tense feature on Ps participates in the case assigning processes in *p*Ps and on the other hand it affects aspectual properties of verbs. In this way, the Tense feature on Ps relates nonstructural cases and the perfective aspectual properties of verbs and induces the semantic effects discussed in section 1. Now, let us look at how the proposal works e.g. in sentence (13), which is a modified version of example (6a).

(13) Oni do-jeli do Kvasin.
they to-went to Kvasiny.gen
'They came to Kvasiny.'

First, the P element *do* bearing a valued Tense feature and unvalued φ-features is merged with *Kvasiny*, which bears an unvalued Tense feature and valued φ-features. As a consequence of the operation Agree, φ-features on *do* are valued by φ-features on *Kvasiny* and the Tense feature on *Kvasiny* is valued by the Tense feaure on *do*, which gives a case (genitive *Kvasin*), as illustrated in (14). In the next step, *p* is merged and *do* moves to *p*. Then, DP *oni* is merged with *p*', hence *oni* as the Figure argument is located with respect to *Kvasiny*, which is the Ground argument. *Jeli* is merged and *do* incorporates into it and then *do-jeli* incorporates into the head *v*. *Oni* is moved to Spec,*v*P, therefore it is interpreted as agent at the semantic interface. In the next step, the aspectual head with its unvalued Tense feature selects *v*P and the incorporated P element *do* values the Tense feature as perfective. Since perfectivity of the aspectual head brings about definiteness of the reference time, as discussed in section 1, given lexical properties of the verb *jet* and the P element *do*, the definite reference time corresponds

to the transition between the caused process subevent and the result subevent, which means that (13) implies that *oni* reached *Kvasiny*.

(14) ... AspP



One then expects that when the appropriate P element does not incorporate into the verb, the Tense feature on the aspectual head is not valued as perfective.[3] As expected, when *do* does not raise out of *p*P, i.e. it is spelled out only as a preposition, as in example (15), the verb remains imperfective and we get the imperfective paradox. Since the Tense feature on the aspectual head gets the imperfective value, the indefinite reference time arises and although there is an endpoint present in the sentence, (15) does not mean that *oni* reached *Kvasiny*.

(15) Oni jeli do Kvasin.
they went to Kvasiny.gen
'They were going to Kvasiny.'

As to the question how the movement of the P element out of *p*P is triggered, I follow Chomsky (2000) and (2001) and assume that the head V can bear an EPP feature, which is optional. Chomsky (2001) suggests - building on Reinhart's proposal (1997) - that optional rules can apply when they bring a new outcome, more specifically, that the strong *v* can be assigned an EPP feature if that has an effect on interpretation. In a parallel fashion, I propose the same for the head V. Given the standard assumption that the main verb obligatorily moves to *v*, the P element incorporated into the verb will always be visible for the selecting aspectual head and consequently it will affect the aspectual interpretation. Thus, from this point of view, the optional EPP feature on V is not problematic because it has semantic consequences.

[3] This can happen only if the verb itself is perfective; there are a few unprefixed verbs that are perfective.

2.2.2 Case

In the previous section we saw that the valued Tense feature on P values the unvalued Tense feature on the Ground argument, which results in the morphological realization of case. What about the Figure argument? Since the Agree operation is based on c-command, Figure cannot get a prepositional case in *p*P. Given the Case Filter - originally formulated in Chomsky (1981) - every DP has to bear a case, which means that the Figure argument must get its case somewhere else. According to Svenonius (2004), Figure - which is the external argument of the preposition - moves into the higher syntactic domain for licensing, just like agent - which is the external argument of the verb - moves into the T domain for nominative case. Indeed, in transitive constructions, Figure typically gets structural accusative, as demonstrated by the following Czech example with Figure *vodu*.

(16) Pavel do-lil vodu do sklenice.
Pavel.nom to-poured water.acc to glass.gen
'Pavel topped up the glass with water.'

In the minimalist framework, structural accusative is usually assigned by the strong *v* (e.g. Chomsky 2001), in the latest version of minimalism by V, which inherits φ-features of the phase head *v* (Chomsky 2005 [2008], 2007). Here, I depart from this approach and propose that structural accusative is assigned (valued) by the aspectual head. There are several arguments for this analysis.

Generally, there is a relation or dependency between the form of the (objective) case and aspectual properties of the predicate in various languages. Specifically, Russian has an accusative-genitive (partitive) alternation and the partitive genitive on the object is triggered by the perfective aspect. Similarly, as demonstrated by Błaszczak (2007), in Polish partitive constructions genitive on the internal argument is restricted to the perfective predicates.

Kagan (2007) argues that Modal Genitive - i.e. genitive of negation and intensional genitive - can be assigned (instead of the structural accusative) only to those nouns that are interpreted as properties in Russian. Note also that there is a relation between referential properties of objects and the aspectual properties of predicates (e.g. Krifka 1992).

Another argument comes from Russian cumulative prefixation. We have already seen that there is a relation between prefixes and the aspectual head. Example (17) shows that the case of the plural direct object may be affected by the added prefix. This suggests that the aspectual head mediates between (the presence of) the prefix and the form of the objective case.

(17) a. nesti cvety
carry flowers.acc
'to carry flowers'

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

If the aspectual head participates in case assigning processes, one expects that there is a morphological reflection of the Agree operation. Existence of Agree between the aspectual head and the Figure argument is demonstrated by the perfect construction in (18a). The Czech example shows that φ-features on *přidělanou* Agree with φ-features on the object *lampičku*.[4] The modified example (18b), which is pragmatically odd, shows that *přidělanou* in (18a) is not just an adjectival modifier of the noun *lampičku*.

(18) a. Čte v posteli a přitom tam dodneška nemá přidělanou tu lampičku.
reads in bed and nevertheless there till today neg.has by.made.fem.sg.acc the lamp.fem.sg.acc
'He reads in bed but he has not fixed the lamp there until today.' (SYN2005#28148899)

b. #Čte v posteli a přitom tam dodneška nemá tu přidělanou lampičku.
reads in bed and nevertheless there till today neg.has the by.made.fem.sg.acc lamp-fem.sg.acc
'He reads in bed but he does not have the fixed lamp there until today.'

Such relations do not exist only in Slavic languages. In Finnish, there is also a correlation between aspectual properties of predicates and the form of the objective case, namely, the accusative-partitive alternation; see Kiparsky (1998). The partitive case expresses the unboundedness of the event and the accusative case the boundedness. It is also a well-known fact that in Germanic languages internal arguments can affect aspectual properties of the whole event (Verkuyl 1972).

In languages with aspect split, a particular case is restricted to a certain aspect. In Hindi, as in many Indic Indo-European languages, the ergative case is restricted to the perfective aspect; see Mahajan (1997). If Mahajan's analysis of the ergative pattern is correct and the ergative marker, in fact, is a preposition that can incorporate into the auxiliary in certain languages, then we get an additional argument supporting the present approach where prepositions are responsible for cases, perfectivity and definiteness effects. In Hindi-like languages, where prepositions do not incorporate into the auxiliary, they bring about ergativity, which is related to perfectivity. In Slavic languages like Czech or Russian prepositions incorporate into the main verb and bring about perfectivity of the predicate and certain types of cases, and in languages where prepositions incorporate into the auxiliary, ergativity - which is related to perfectivity - is marked by the *have* auxiliary.

[4] Similar effects are observable with 'get passives' in Czech.

If all *v*Ps are phases, as argued e.g. by Legate (2003), then the Figure argument generally is not accessible to the aspectual head because of the PIC.[5] Therefore, for Figure to be accessible for the aspectual head and to satisfy the Case Filter, it must move to the edge of the *v*P phase. Then, when unvalued φ-features on the aspectual head probe, Agree between them and Figure can happen and φ-features on the aspectual head are valued by the valued φ-features on Figure and the Tense feature on the aspectual head - which has been valued by the P element incorporated into the verb - values the Tense feature on Figure as structural accusative, as shown by sentence (16). In this case, there is again a featural configuration with two pair relations, but now, between the aspectual head and DP, as demonstrated in table 2.

Asp	Agree	DP
valued (by P) Tense feature unvalued φ-features		unvalued Tense feature valued φ-features

Table 2: Tense features and φ-features on Asp and Figure

This means that there is a link between the lexical aspect, which is represented by the P element as preposition (and the whole *p*P, e.g. with the resultative interpretation in the case of (16)), the grammatical aspect, which is affected by the P element incorporated into the verb, and the perfective structural accusative, which is a consequence of valuing the Tense feature on the aspectual head by the appropriate P element. In other words, it is the Tense feature on P elements that links the structural accusative with the grammatical aspect and with the lexical aspect. This also means that one and the same P element can take part in both the structural case assigning process and the nonstructural case assigning process. Thus, DPs can enter into the Agree relation with P, T and Asp, as shown in table 3.

P: val T-f and unval φ-fs T: val T-f and unval φ-fs Asp: val T-f and unval φ-fs	Agree	DP: unval T-f and val φ-fs

Table 3: Tense features and φ-features on P, T, Asp and DP

Agree between DP and P gives a nonstructural case and Agree between DP and T or Asp gives a structural case. All cases can be treated as a result of valuing the Tense feature on DP.[6]

[5] 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.

[6] The question is what the role of the verb is in the case assigning processes. If all nonstructural cases are valued by a P element in languages like Czech (cf. Emonds's *Alternative Realisation* 1985 or Bayer, Bader, and Meng's K(ase)P 2001 on unification of prepositions and cases), then verbs themselves, in fact, do not participate in case assigning processes.

We have seen that the aspectual head participates in case assigning processes, specifically, that the Tense feature on the aspectual head values the Tense feature on DPs and that there are two types of the valued Tense feature on the aspectual head. The first type is perfective, which is valued by P elements incorporated into the verb (in a few cases, it can be valued by an unprefixed perfective verb). The second type is imperfective, which is valued by imperfective verbs.[7] The following Russian example shows that both types of the Tense feature can value the unvalued Tense feature on DP as structural accusative.

(19) a. On pisal stroku.
he wrote line.acc
'He was writing the/a line.'
b. On do-pisal stroku
he to-wrote line.acc
'He finished the/a line.' or 'He added the/a line.'

The question arises what the difference between the two accusatives is. It has been argued that in Slavic the aspectual properties of verbs – i.e. (im)perfectivity - affect the reference type of nouns, see e.g. Krifka (1989, 1992) or Filip (1999). Recall that I argued in section 1 that there is a relation between definiteness (specificity) and nonstructural cases and that nonstructural cases are islands for extraction. Consequently, one should ask how the accusatives behave in this respect. The following data from Czech show that there are indeed two types of structural accusative and that (non-)islandhood of accusative DPs is dependent on the value of their Tense feature. In example (20a), the unvalued Tense feature on *dopis* is valued by the imperfective Tense feature of the aspectual head, which has been valued by the verb. In contrast, in sentence (20b), the unvalued Tense feature on *dopis* is valued by the perfective Tense feature of the aspectual head, which has been valued by the prefix, therefore the sentence is degraded. As demonstrated by the contrast in example (21), the same distinction holds for mass nouns. Extraction from a DP with the perfective structural accusative is worse than extraction from a DP with the imperfective structural accusative.[8] The same contrast is also observable in Russian, as shown in Romanova (2007).

(20) a. O čem Pavel psal dopis t?
about what Pavel.nom wrote letter.acc
'About what was Pavel writing a/the letter?'

[7] As usual, the imperfective value is taken to be the unmarked value. Therefore verbs with an incorporated P element always value the Tense feature on Asp as perfective. Another possibility would be to assume that imperfective verbs enter the derivation without a valued Tense feature and then the Tense feature on Asp gets the default (imperfective) value.

[8] Because of lack of space, I cannot touch upon the question whether or not this distinction is only present in cases of predicates with incremental themes.

b. ??O čem Pavel do-psal dopis t?
about what Pavel.nom to-wrote letter.acc
'About what did Pavel write a/the letter?'[9]

(21) a. Z jaké oblasti pil Pavel víno t?
From which area drank Pavel.nom wine.acc
'From which area was Pavel drinking wine?'
b. ??Z jaké oblasti vy-pil Pavel víno t?
From which area out-drank Pavel.nom wine.acc
'From which area did Pavel drink up (all) the wine?'

From this discussion, I conclude that the valued Tense feature on P elements links the nominal reference to the temporal reference through the aspectual head. And it seems that this feature is responsible for islandhood. The Tense feature can apply either directly – as we saw in examples (6)-(8), where P selects the appropriate argument – or indirectly, as in example (20b) and (21b), where the valued Tense feature on the P element values the Tense feature on the aspectual head, and this feature in turn values the unvalued Tense feature on the DP. The indirect application of the Tense feature in the case of the structural accusative can be the reason for the fact that extraction from a DP with the perfective structural accusative is not as bad as the extraction from a DP with a nonstructural case. Although there is no difference in morphological realization of the two accusative cases, this situation resembles the Finnish accusative-partitive case alternation on objects.

It seems to be a general property of P elements that they bring about definiteness or boundedness effects; such effects are observable in other domains as well. The Czech example (22) shows that boundedness is also present in the case of prefixed adverbs. In (22a) the questioned path is unbounded at both ends, but in the case of the prefixed adverb in (22b) the path is bounded at the beginning.[10]

(22) a. kudy
which way
'which way'

b. od-kud
from-where
'from where'

3. The Tense Feature and Multiple Cases

That every verb has morphological aspect means that every sentence has an aspectual projection. All unvalued probes must be valued in the course of a derivation because of the principle of Full Interpretation, see (23).

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[9] What the Tense feature here does is boundedness (the quantized interpretation), not definiteness in the pragmatic sense. *Letter* can be interpreted as 'old' as well as 'new'.

[10] The same effects appear in the case of prefixed temporal adverbs as well; compare unbounded: *kdy* 'when' and bounded *dokdy* 'till when' or *odkdy* 'from when'.

(23) Full Interpretation
Interfaces must contain only interpretable (valued) material.[11]

Recall that the aspectual head bears unvalued φ-features and the Tense feature (which is valued after merger of the aspectual head with *v*P), which enter into an Agree relation with the φ-features and the Tense feature on a DP. This means that every sentence has structural accusative. Since it can happen that there are more cases than DPs in a sentence, e.g. in unaccusative constructions, we necessarily come to the proposal that DPs can get more cases than one, cf. also Merchant (2006a), Richards (2007) or Matushansky (2008). More concretely, I propose that Tense features on DPs can be revalued. This proposal is supported by the fact that there are languages in which DPs can bear more case markers than one, e.g. Korean, Japanese, Kayardild or Lardil. Since case markers can be stacked in these languages, Tense features generally are not overwritten, i.e. lost, but just revalued and languages are parameterized as to whether or not their morphology allows more than one overt case on one DP. The morphology of Russian or Czech does not allow more than one overt case marker on one element, therefore the structurally highest Tense value should always appear on the particular DP. This proposal has the advantage that in the case of unergatives it is not necessary to assume a special type of *v* or covert cognate objects in order to get rid of *v*'s unvalued φ-features. As to Burzio's Generalization, the lack of the external argument does not mean the lack of the accusative case here. The structural case is just revalued by the nominative case.

To get some examples, consider (24)=(13). The tense feature on Figure *oni* is firstly valued by the aspectual head as accusative and then by the head T as nominative. Therefore *oni* is spelled out with the nominative marker. In the same way, it works in the case of unaccusative or passive constructions.

(24) Oni do-jeli do Kvasin.
they to-went to Kvasiny.gen
'They came to Kvasiny.'

More interesting cases are restructuring constructions such as (25). In (25a), there are three structural cases: one nominative and two accusatives. In (25b), *lawyer* - patient of *kill* - takes two structural accusatives and the agent of *kill* can be optionally expressed by the instrumental case. In (25c), *lawyer* raises even higher and its Tense feature is revalued by the matrix T, in addition to the matrix Asp and the embedded Asp, hence it is spelled out with the

[11] This is based on Chomsky (1995, 27): '…there can be no superfluous symbols in representations (the principle of Full Interpretation, FI)…'

nominative marker. Since φ-features on both aspectual heads are valued by *lawyer*, no other argument can be marked by accusative, as shown in (25d).

(25) a. Pavel nechal Karl-a zabít právník-a. (CZ)
Pavel.nom let Karel-acc kill lawyer-acc
'Pavel had Karel kill the lawyer.'
b. Pavel nechal právník-a zabít (Karl-em).
Pavel.nom let lawyer-acc kill Karel-instr
'Pavel had the lawyer killed (by Karel).'
c. Právník se nechal zabít (Karl-em).
lawyer.nom self let kill Karel-instr
'The lawyer had himself killed (by Karel).'
d. Právník se nechal (*Pavl-a) zabít (*Karl-a).
lawyer.nom self let Pavel-acc kill Karel-acc

Evidence that Tense features can be revalued comes from Japanese. Hiraiwa (2001) argues that Japanese allows optional ECM across a finite clause boundary (26). Hence, unvalued φ-features on the embedded T must also be valued in the case when *Mary* is marked by accusative. This means that in this case the Tense feature on *Mary* – which was valued by the embedded T – is revalued by the matrix (aspectual) head.

(26) John-ga [$_{CP}$ Mary-ga/wo kodomo-da to] omo-ta.
John-nom Mary-nom/acc child-cpl-pres C think-pst
'John thought that Mary was a child.' (Hiraiwa 2001, 71)

So far, we have dealt with cases where a structural case was revalued by another structural case. What about revaluation by a nonstructural case? Hornstein (1999) proposes that control is raising to a theta role position. If his analysis is correct, then in (27) the Tense feature on *Marii* is first valued by the embedded aspectual head as accusative and then it is revalued by a covert preposition in the matrix clause (cf. Merchant 2006b for the fact that nominative on a raised subject can be revalued by a preposition in Greek).

(27) Pavel doporučil Mari-i tančit na stole. (CZ)
Pavel.nom recommended Marie-dat dance on table
'Pavel recommended Marie to dance on the table.'

In contrast to structural cases, nonstructural cases cannot be revalued. Example (28a), which is a modified version of example (16), shows that the Tense feature on *sklenice*, which has been valued by the preposition *do* as genitive cannot be revalued by the head T as nominative. The moved DP must retain its prepositional case and the verb must be spelled out with the default agreement, as shown in (28b). See also Woolford (2006), who shows for other languages that nonstructural cases are preserved under A-movement.

(28) a. * Do sklenic-e byl-y do-lit-y.
to glass-nom.pl.f were-3.pl.f to-poured-3.pl.f
b. Do sklenic byl-o do-lit-o.
to glass.gen.pl.f was-3.sg.n to-poured-3.sg.n
'The glasses were topped up.'

The following Russian example, which is a slightly modified example from Richards (2007, 2), shows that overtly prepositionless nonstructural cases also cannot be revalued. The contrast between (29a) and (29b) demonstrates that the structural accusative can be replaced by the genitive-of-negation case but that the instrumental case cannot.

(29) a. Anna pišet pis'mo ručkoj.
Anna writes letter.acc pen.instr
'Anna is writing a letter with a pen.'
b. Anna ne pišet pis'ma ručkoj / *ručki.
Anna not writes letter.gen pen.instr pen.gen
'Anna isn't writing a letter with a pen.'

According to Richards (2007), the reason why nonstructural cases cannot be changed is that they have semantic content, in contrast to structural cases. However, this proposal is not on the right track because structural accusative also has semantic content, which is obvious e.g. from the fact that phrases with structural accusative can have a measure function. It has been argued that certain temporal adverbials bear structural accusative in Russian and that this type of adverbials can measure temporality of events (e.g. Pereltsvaig 2000, Szucsich 2002). Similarly, direct objects also measure events, concretely in example (30a), *tunel* bearing the structural accusative measures the path of the event, therefore adding the goal PP *do Dejvic* results in ungrammaticality.[12] Example (30b), where the path is measured only by the goal PP *do Dejvic*, shows that the problem really lies in the double measurement in (30a). In contrast to (30a) with the structural accusative object, (30c) with *do Dejvic* and *tunelem* marked by instrumental is grammatical because instrumental DPs do not measure events.

(30) a. Pavel pro-šel tunel (*do Dejvic). (CZ)
Pavel.nom through-went tunnel.acc to Dejvice
'Pavel went through the tunnel (to Dejvice).'
b. Pavel pro-šel do Dejvic.
Pavel.nom through-went to Dejvice
'Pavel went to Dejvice.'
c. Pavel pro-šel tunel-em do Dejvic.
Pavel.nom through-went tunnel.instr to Dejvice
'Pavel went through the tunnel to Dejvice.'

[12] If *do Dejvic* modifies *tunel*, the sentence, of course, is grammatical.

Recall also that I showed that there are two types of structural accusative, which differ in island effects and which resembles the Finnish accusative-partitive case alternation in relation to boundedness.

An interesting approach to multiple cases can be found in Matushansky (2008). She proposes that the morphological realization of particular cases (the bundle of case features) is driven by language specific rules for vocabulary insertion with underspecification and impoverishment. Matushansky's approach, however, is not fully worked out with respect to the morphonological realization of particular cases and with respect to the differences in revaluation of structural and nonstructural cases.

So, what drives the distinction between structural and nonstructural cases? I propose that it is the phase status of the nonstructural cases, more specifically, the phase status of prepositional phrases. Abels (2003) argues that prepositional phrases in Russian and other Slavic languages are phases.[13] According to Chomsky (2000), phases – as natural and relatively independent syntactic objects – should be propositional. This holds for prepositional phrases with satisfied argumental requirements. In section 1 we saw that prepositions typically have the type of transitive verbs – they are analyzed as <e,<e,t>> or S/N/N or taking places instead of individuals as <l,<l,t>> – in this respect, prepositional phrases are analogical to the *v*P phase. Thus, if prepositional phrases are phases, then the Tense feature (case) on the prepositional complement cannot be revalued because given the PIC it is not accessible for a higher probe with the Tense feature (e.g. Asp or T). The fact that there is default agreement on the predicate in the following Czech example shows that *Pavlovi* and *Praze* as prepositional complements indeed are not accessible for the head T.

(31) Pavl-ovi se líbil-o v Praze.
Pavel-dat self liked-sg.n in Prag
'Pavel enjoyed Prag.'

If it is the (non-)phasehood that determines whether or not the Tense feature on the appropriate DP can be (re)valued, then one expects the phase blocking effect in the case of other phases as well. Chomsky (2007) proposes that DPs are phases. It is known that Slavic languages have cardinals that are ambiguous between the noun category and the numeral category. If Chomsky (2007) is right, such cardinals are an ideal diagnostics for the presented analysis. The prediction is that only cardinals of the noun category block case valuation. In the Czech example (32a), *tisíc* 'thousand' - as a numeral - modifies *ženami* and agrees with it

[13] However, given the decomposed structure of *p*Ps, I do not follow Abels's (2003) anti-locality analysis of extraction.

in case, gender and number and the case of *ženami* is valued by the preposition *s*. In contrast, in (32b), *tisíc* is a noun – it bears its own gender and number feature - therefore the case of *žen* cannot be revalued by *s*. Thus, the prediction is valid; the embedded DP *krásných žen* is spelled out with genitive in the complement of the higher DP phase and its Tense feature is not accessible for the preposition.

(32) a. s t-ěmi tisíc-i krásn-ými žen-ami
with the-fem.pl.instr thousand-fem.pl.instr nice-fem.pl.instr women-fem.pl.instr
b. s t-ím tisíc-em krásn-ých žen
with the-masc.sg.instr thousand-masc.sg.instr nice-fem.pl.gen women.fem.pl.gen
'with the thousand of nice women'

The situation is different in the case of the *v*P phase. Given the strong PIC and the fact that structural cases like nominative or accusative are valued outside *v*P, e.g. the direct object cannot be spelled out in the complement of the phase head, it must move at least to the edge of the *v*P phase in order not to violate the Case Filter (and we know that objects indeed can be extracted). Since there is no phase boundary between the head Asp and T, the Tense feature on the object can also be revalued by T, as e.g. in the case of passives.

How does it work in the case of the CP phase? Arguments can be extracted out of CPs and example (27) shows that in certain cases the Tense feature on the extracted argument can be revalued in the matrix clause. In contrast, when the appropriate argument is spelled out in the CP phase, as *Marii* in the modified example (33a), its Tense feature cannot be revalued by the probe in the higher phase. The grammatical control example (33b) - where *Marii* is not spelled out in the complement of the phase head C - shows that the ungrammaticality is due to the CP barrier.

(33) a. * Pavel doporučil, aby Mari-i tančila na stole. (CZ)
Pavel.nom recommended so.that Marie-dat danced on table
b. Pavel doporučil Mari-i, aby tančila na stole.
Pavel.nom recommended Marie-dat so.that danced on table
'Pavel recommended Marie to dance on the table.'

To conclude this discussion, it is not the phase status of *p*Ps itself but it is also the impossibility of extraction of the P complement that makes the nonstructural cases so special with respect to the case revaluation in Russian or Czech.

4. Conclusion

I have argued that there are semantic parallelisms between prepositions and verbal prefixes with respect to localization and definiteness effects and that they are due to the Tense feature.

Since verbal prefixes are incorporated prepositions, the Tense feature on P elements relates the prepositional case and the lexical aspect (represented by *p*P) with the morphological aspect (represented by AspP) and with the perfective structural accusative (which is valued by Asp). Thus, the Tense feature on Ps relates the verbal reference to the nominal reference and is responsible for islandhood. I have argued that not only structural cases but also nonstructural ones are an unvalued Tense feature on D and that the Tense feature (case) can be revalued. Nonstructural cases, in contrast to the structural ones, cannot be revalued because the complement of P is trapped in the *p*P phase.

References

Abels, K. (2003), Successive Cyclicity, Anti-locality and Adposition Stranding. Ph.D. dissertation. University of Connecticut, Storrs.

Asbury, A., B. Gehrke and V. Hegedűs (2007), One Size Fits All: Prefixes, Particles, Adpositions and Cases as Members of the Category P. In: C. Keskin (ed.), *UiL OTS Yearbook 2006*, 1-17.

Bayer, J., M. Bader and M. Meng (2001), Morphological underspecification meets oblique case: syntactic and processing effects in German. *Lingua* 111, 465-514.

Bierwisch, M. (1988), On the Grammar of Local Prepositions. In: M. Bierwisch, W. Motsch, I. Zimmermann (eds.), *Studia grammatica* 29. Berlin: Akademie-Verlag. 1-65.

Biskup, P. (to appear), P(refixe)s and P(reposition)s. In: B. Dvořák (ed.), Proceedings of the 2nd Congress of Slavic Linguistic Society.

Błaszczak, J. (2007), The NOM/GEN "Subject" Puzzle in Polish. In: P. Kosta and L. Schürcks (eds.), *Linguistic Investigations into Formal Description of Slavic Languages*. Frankfurt am Main: Peter Lang, 127-146.

Chomsky, N. (1981), *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, N. (1995), *The Minimalist Program*. Cambridge, Mass.: MIT Press.

Chomsky, N. (2000), Minimalist Inquiries: The Framework. In: R. Martin, D. Michaels, and J. Uriagereka (eds.), *Step by Step: Essays on minimalist syntax in honor of Howard Lasnik*. Cambridge, Mass.: MIT Press, 89-156.

Chomsky, N. (2001), Derivation by Phase. In: M. Kenstowicz (ed.), *Ken Hale: A Life in Language*. Cambridge, Mass.: MIT Press, 1-52.

Chomsky, N. (2005), On Phases. Ms. MIT. [Published in: R. Freidin, C. P. Otero and M. L. Zubizarreta (eds.), *Foundational Issues in Linguistic Theory. Essays in Honor of Jean-Roger Vergnaud*. Cambridge, Mass.: MIT Press, 133-166 (2008)].

Chomsky, N. (2007), Approaching UG from Below. In: U. Sauerland and H. M. Gärtner (eds.), *Interfaces + Recursion = Language?* Berlin: Mouton de Gruyter, 1-29.

Český národní korpus – ORAL 2006, Ústav Českého národního korpusu FF UK, Praha. http://ucnk.ff.cuni.cz.

Český národní korpus – SYN 2005, Ústav Českého národního korpusu FF UK, Praha. http://ucnk.ff.cuni.cz.

Danon, G. (2006), Caseless nominals and the projection of DP. *Natural Language & Linguistic Theory* 24.4, 977-1008.

Emonds, J. (1985), *A unified theory of syntactic categories*. Dordrecht: Foris.

Filip, H. (1999), *Aspect, eventuality types, and nominal reference*. New York, London: Garland.
Heim, I. and A. Kratzer (1998), *Semantics in Generative Grammar*. Oxford: Blackwell.
Hiraiwa, K. (2001), Multiple Agree and the Defective Intervention Constraint in Japanese. *MIT Working Papers in Linguistics* 40, 67-80.
Hornstein, N. (1999), Movement and Control. *Linguistic Inquiry* 30, 69-96.
Kagan, O. (2007), A Modal Analysis of Genitive Case in Russian. In: P. Kosta and L. Schürcks (eds.), *Linguistic Investigations into Formal Description of Slavic Languages*. Frankfurt am Main: Peter Lang, 217-226.
Kenesei, I., R. M. Vago and A. Fenyvesi (1998), *Hungarian*. London, New York: Routledge.
Kiparsky, P. (1998), Partitive Case and Aspect. In: M. Butt and W. Geuder (eds.), *The Projection of Arguments: Lexical and Compositional Factors*. Stanford: CSLI Publications, 265-307.
Krifka, M. (1989), *Nominalreferenz und Zeitkonstitution. Zur Semantik von Massentermen, Pluraltermen und Aspektklassen*. München: Wilhelm Fink Verlag.
Krifka, M. (1992), Thematic Relations as Links between Nominal Reference and Temporal Constitution. In: I. Sag and A. Szabolcsi (eds.), *Lexical Matters*. Stanford: CSLI Publications, 29-53.
Legate, J. A. (2003), Some Interface Properties of the Phase. *Linguistic Inquiry* 34, 506-516.
Mahajan, A. (1997), Universal Grammar and the Typology of Ergative Languages. In: A. Alexiadou and T. A. Hall (eds.), *Studies on Universal Grammar and Typological Variation*. Amsterdam/Philadelphia: John Benjamins, 35-57.
Matushansky, O. (2008), A Case Study of Predication. In: F. Marušič and R. Žaucer, (eds.), *Studies in Formal Slavic Linguistics. Contributions from Formal Description of Slavic Languages 6.5*. Frankfurt am Main: Peter Lang, 213-239.
Merchant, J. (2006a), Polyvalent cases, geometric hierarchies, and split ergativity. In: J. Bunting, S. Desai, R. Peachey, Ch. Straughn and Z. Tomkova (eds.), *Proceedings of the 42nd annual meeting of the Chicago Linguistics Society*. Chicago: CLS.
Merchant, J. (2006b), Phrasal and clausal comparatives in Greek and the abstractness of syntax. Ms. University of Chicago.
Mohanan, T. (1994), *Argument Structure in Hindi*. Stanford: CSLI Publications.
Pereltsvaig, A. (2000), On accusative adverbials in Russian and Finnish. In: A. Alexiadou and P. Svenonius (eds.), *Adverbs and Adjunction*. Linguistics in Potsdam 6, 155-176.
Pesetsky, D. and E. Torrego (2004), Tense, Case, and the Nature of Syntactic Categories. In: J. Guéron and J. Lecarme (eds.), *The syntax of Time*. Cambridge, Mass.: MIT Press, 495-539.
Pesetsky, D. and E. Torrego (2006), Probes, Goals and Syntactic Categories. In: Y. Otsu (ed.), *Proceedings of the Seventh Tokyo Conference on Psycholinguistics*. Tokyo: Hituzi Syobo Publishing Company, 25-61.
Ramchand, G. (2004), Time and the event: The semantics of Russian prefixes. In: P. Svenonius (ed.), *Nordlyd 32.2, special issue on Slavic prefixes*, 323-361.
Reinhart, T. (1997), *Wh*-in-situ in the framework of the Minimalist Program. *Natural Language Semantics* 6, 29-56.
Richards, N. (2007), Lardil "Case Stacking" and the Structural/Inherent Case Distinction. lingBuzz/000405.
Romanova, E. (2007), Constructing perfectivity in Russian. Ph.D. dissertation, University of Tromsø.
Starke, M. (2001), Move Dissolves into Merge. Ph.D. dissertation, University of Geneva.
von Stechow, A. (2006), Spatial prepositions in interval semantics. Ms. Universität Tübingen.

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

Szucsich, L. (2002), *Nominale Adverbiale im Russischen. Syntax, Semantik und Informationsstruktur*. München: Otto Sagner.

Talmy, L. (1975), Semantics and syntax of motion. In: J. P. Kimball (ed.), *Syntax and Semantics*, Vol. 4. New York: Academy Press, 181–238.

Tompa, J. (1968), *Ungarische Grammatik: aus den Arbeiten des Instituts für Sprachwissenschaft an der Ungarischen Akademie der Wissenschaften*. Budapest: Akad. Kiadó.

Večerka, R. (2006), *Staroslověnština v kontextu slovanských jazyků*. Olomouc, Praha: Euroslavica.

Verkuyl, H. (1972), *On the Compositional Nature of the Aspects*. Dordrecht: Foundations of Language Supplement Series 15.

Woolford, E. (2006), Lexical Case, Inherent Case, and Argument Structure. *Linguistic Inquiry* 37, 111-130.