

Prefixation and Scales

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Abstract

This paper investigates the question of what the status of prominence scales is in grammatical theory. Specifically, we look at the interaction of prefixation and the theta role scale and the case scale in Russian and Czech. We argue that there is a correlation between the type of (crossings in) the complex scale tree, morphological marking, syntactic operations and the grammatical status of sentences. We show that only certain types of (crossings in) the complex scale tree, which correspond to certain types of syntactic processes, are allowed in the grammar. We argue that the theta role scale and the case scale belong to the syntactic structure and that they are determined by syntacticosemantic properties of the clause structure. The complex scale of particular sentences is a result of grammatical principles and operations.

1. Data

1.1. Intransitive verbs

1.1.1. *Unprefixed intransitive verbs*

We begin with unprefixed intransitive verbs. The argument of intransitive verbs typically bears nominative case. This is shown in (1) for unergative verbs and in (2) for unaccusative verbs. The (b) examples demonstrate that the single argument cannot bear the accusative marker. There are only a few unaccusative verbs assigning accusative case in Czech.

- (1) a. Pavel pracuje.
 Pavel.nom works
 ‘Pavel works.’/‘Pavel is working.’

*We would like to thank participants of the Workshop on Scales for their suggestions and helpful comments.

- b. * Pavl-a pracuje.
Pavel-acc works
- (2) a. Oper-a hoří.
Opera-nom burns
'The Opera is burning.'/'The Opera burns.'
- b. * Oper-u hoří.
Opera-acc burns

There are also special classes of verbs, such as unaccusative psych verbs, which take a nominative object (patient) and a dative experiencer, as shown in (3). Example (3b) demonstrates that the patient argument cannot be assigned accusative case, (3c) shows the same for the experiencer argument and (3d) shows that if both arguments are realized as prepositional phrases, the verb bears default agreement.

- (3) a. Pavl-ovi se líbil-a ta nová pohádk-a. (CZ)
Pavel-dat self liked-sg.f the new story-sg.f.nom
'Pavel enjoyed the new story.'
- b. * Pavl-ovi se líbil-a tu novou pohádk-u.
Pavel-dat self liked-sg.f the new story-sg.f.acc
- c. * Pavl-a se líbil-a ta nová pohádk-a.
Pavel-acc self liked-sg.f the new story-sg.f.nom
- d. Pavl-ovi se líbil-o v Praze.
Pavel-dat self liked-sg.n in Prag
'Pavel enjoyed Prag.'

Another verbal class with unpredictable cases is the class of experiencer verbs taking a nominative patient and an accusative experiencer, as illustrated in (4). Example (4b) shows that cases on the arguments cannot be switched. The experiencer - although it is the higher argument - cannot be marked by nominative and the patient cannot get the accusative case. (4c) then shows that in addition to the nonstructural accusative on *Pavel*, the predicate cannot take another accusative argument.

- (4) a. Pavl-a bavil-a ta nová pohádk-a. (CZ)
Pavel-acc interested-sg.f the new story-sg.f.nom
'Pavel was interested in/enjoyed the new story.'

- | | | | |
|----|-----------|-----------------|------------------------|
| b. | * Pavel | bavil | tu novou pohádk-u. |
| | Pavel-dat | interested.sg.m | the new story-sg.f.acc |
| c. | * Pavl-a | bavil-o | tu novou pohádk-u. |
| | Pavel-acc | interested-sg.n | the new story-sg.f.acc |

1.1.2. Prefixed intransitive verbs

In this section, we investigate the question of what happens if a prefix is attached to intransitive verbs. As illustrated in example (5a), the stative predicate *měrz* cannot be combined with the resultative prepositional phrase *v ajsberg*. However, the prefix *v-* attached to the verb can license the directional prepositional phrase, as shown in (5b).

- (5) a. On *měrz* (**v ajsberg*)
 he froze in iceberg.acc
- b. On *v-měrz v ajsberg*
 he in-froze in iceberg.acc
 'He froze in the/a iceberg.'

In cases where a directional prepositional phrase can be combined with an unprefixated verb, prefixation just brings about the result implication. In (6a), there is an imperfective paradox; although there is an endpoint present in the sentence, it does not mean that *on* reached *Moscow*. In contrast, in (6b) prefix *v-* brings about the telic type of perfectivity and the sentence implies that he reached *Moscow*.

- (6) a. On *echal v Moskv-u*.
 he drove in Moscow-acc
 'He was driving to Moscow.'
- b. On *v-echal v Moskv-u*.
 he in-drove in Moscow-acc
 'He drove to Moscow.'

The following example shows that prefixes can also license accusative objects. In (7b) verb *spal* with the completive prefix *do-* can be combined with the accusative object *noč*, in contrast to the unprefixated verb in (7a).

- (7) a. On *spal* (**noč*). (R)
 he slept night.acc

- b. On do-spal noč.
 he to-slept night.acc
 ‘He slept till the end of the night.’

1.2. Transitive verbs

1.2.1. Unprefixed transitive verbs

Let us now look at unprefixed transitive predicates. Transitive verbs take a nominative and accusative argument. The nominative case is aligned with the agent argument and the accusative case with the patient argument, as demonstrated in (8a). Example (8b) shows that the reversed alignment is not possible. This alignment is only possible with passive morphology and the instrumental agent, as illustrated in (8c).

- (8) a. Pavel bil Jirk-u.
 Pavel.nom beat Jirka-acc
 ‘Pavel beat Jirka.’
- b. Pavel bil Jirk-u.
 Pavel.nom beat Jirka-acc
 * ‘Jirka beat Pavel.’
- c. Pavel byl bit Jirk-ou.
 Pavel.nom was beaten Jirka-instr
 ‘Pavel was beaten by Jirka.’

1.2.2. Prefixed transitive verbs

Prefixes attached to transitive verbs either just induce perfectivity or they also add a prepositional phrase, as shown in (9). Example (9c) demonstrates that the nominative case is typically aligned with the agent theta role, the accusative case with patient and the oblique case with the goal prepositional phrase. As shown in example (9d), the reversed alignment of the patient argument and the goal argument is not possible.

- (9) a. On pisal svoje imja.
 he wrote self name.acc
 ‘He was writing his name.’

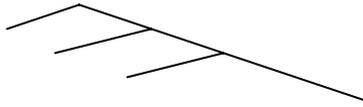
- b. * On v-pisal svoe imja.
 he in-wrote self name.acc
- c. On v-pisal svoe imja v knjig-u početa.
 He in-wrote self name.acc in book-acc of honor
 'He wrote his name in the book of honor.'
- d. * On v-pisal v imja knjig-u početa.
 He in-wrote in name.acc book-acc of honour

2. Scales

2.1. Scales generally

Scales can be treated as hierarchies,¹ and hierarchies can be treated as a certain type of graph. In this paper, we will represent scales as trees, as schematized in (10). Taking (10) into consideration, it is clear that scales have a structure. Relations between scale members then are based on structural relations; here we will use c-command.

(10)



Let us now turn to particular prominence scales. For the case scale, we make use of Bobaljik's (2008) case scale, as shown in (11a).² (11a) means that nominative case is more prominent than accusative case and that accusative case in turn is more prominent than dative or oblique case. As for the theta role scale, we follow *Forscherguppe 742* (2005); consider (11b).

(11) Prominence scales:

- a. Case scale: nominative > accusative > dative/oblique
- b. Theta role scale: agent > patient > goal

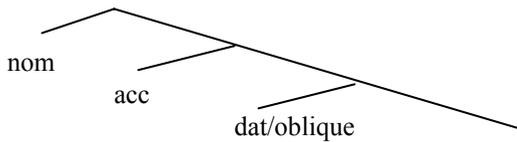
¹Certain approaches even use the term *hierarchy* instead of *scale*.

²Compare also Bobaljik's (2008) more general Case Realization Hierarchy (i). For our purposes, (11a) is sufficient.

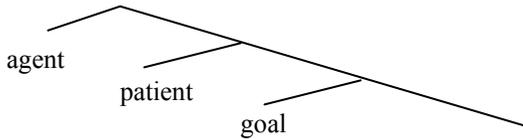
(i) Unmarked (Nom=Abs) > Dependent (Acc=Erg) > Lexical (Dat)

Combining the tree of c-command relations in (10) with the scales in (11) results in (12a) and (12b). The nominative case, since it is the most prominent scale member, c-commands the accusative case and the dative or oblique case and the accusative case in turn c-commands the dative or oblique case. In a parallel fashion, the agent theta role, which is the most prominent one, c-commands the patient theta role and the goal theta role and the patient theta role in turn c-commands the goal theta role.

(12) a.

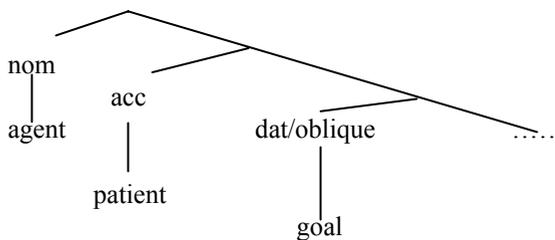


b.



To get more interesting theoretical statements, the particular scales in (12a) and (12b) can be conjoined. Thus, if we keep the c-command relations between scale members and map members of one scale onto members of the other scale, we get the complex scale tree (13), as shown below. This complex scale tree in fact represents the unmarked harmonic alignment of six particular scale members.³

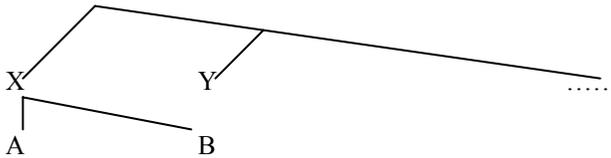
(13)



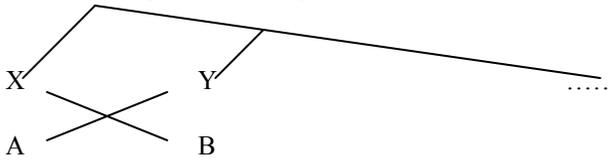
³According to Aissen (2003, 441), harmonic alignment applies to pairs of scales and aligns each element on one with each element on the other and then generates constraint subhierarchies expressing the relative markedness of each such association.

The generalization is that the unmarked alignment is a mapping between scale trees without crossing. To give a couple of examples of what we mean by crossing, consider (14). In (14a) there is a one-way crossing, in (14b) a two-way crossing, which in addition is reciprocal; we will see other types of crossings in subsequent sections. The marked alignment then is a mapping between scale trees with a crossing.

(14) a. One-way crossing

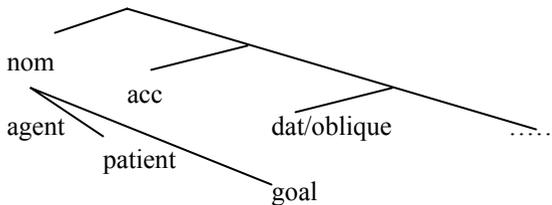


b. Two-way reciprocal crossing



In the complex scale tree, the degree of markedness is also determined by the c-command relations. As demonstrated in (15), the patient theta role c-commands the goal theta role in the complex scale tree; therefore a goal with the nominative marker is more marked than a patient with the nominative marker (and a patient with the nominative case would be more marked than an agent).

(15)



Markedness or crossings can go in both directions. Upwards, as in the case of passivization in Czech, where the patient gets the nominative case, or downwards, as in the case of the antipassive voice in West Greenlandic,

where the patient argument gets the instrumental case. Note that this says nothing about the direction of operations in syntactic trees.

Languages generally do not have to express whole scales. Consider e.g. case marking in ergative languages versus non-ergative languages. Languages also do not have to use whole scales in every sentence, as is clear e.g. from cases of intransitive sentences. Indeed, as we will see below, in particular sentences, scales are dissociated; they are not structurally mapped.

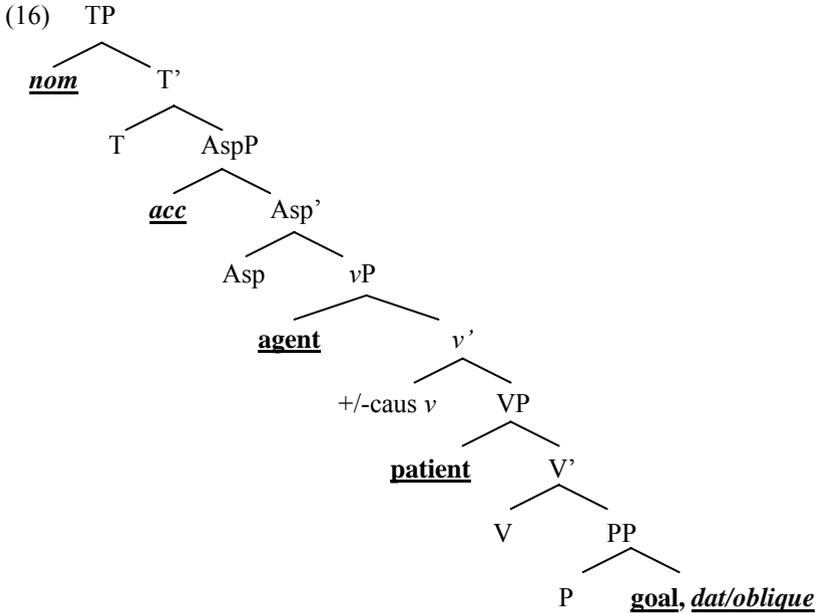
2.2. Scales in a minimalist analysis

The syntactic tree in (16) shows that both prominence scales are present in the syntactic structure and that c-command relations between members of particular scales are preserved. As already said in the previous section, the case scale and the theta role scale are not structurally mapped. We can see that the theta role scale is sandwiched inside the case scale. This is a consequence of the fact that structural cases are structurally higher than nonstructural cases.⁴ Specifically, structural cases are assigned or valued in the functional domain by the tense head and the aspectual head through the operation Agree and nonstructural cases are assigned in the theta domain by the verb or prepositions through the operation External Merge.⁵ One observes that only the goal argument and the dative or oblique case are mapped structurally, with unmarked harmonic alignment. The reason for this is that in the case of prepositional cases the case goes hand in hand with the theta role.

⁴We leave aside adjunction here.

⁵Compare also Babby's (1987) Syntactic Case Hierarchy (i) and Franks's (1995) Case Hierarchy (ii):

- (i) Lexical Case takes precedence over a Configurational Case.
- (ii) a. the +Oblique Cases are assigned at D-Structure,
b. the -Oblique Cases are assigned at S-Structure.



The prominence scales are (at least partially) determined by semantic properties of the syntactic structure. It is a well-known fact that there is a connection between structural cases and tense and aspect (see e.g. Pesetsky & Torrego 2004). The head T can be treated as a dyadic operator that takes the reference time, which is related to Asp, and the speech time, and similarly the head Asp takes the event time, which is anchored in the verbal domain, and the reference time. Thus, T scopes over Asp and Asp over (the decomposed) vP. Therefore the nominative case, which is connected to T, c-commands – is more prominent than – the accusative case, which is assigned in AspP.

Parallel reasoning applies to the theta role scale. We assume that the event structure, i.e. vP, is decomposed. The (non-)causative *v* scopes over the process or stative V and V scopes over PP. Evidence for the event decomposition and ordering of subevents comes e.g. from the contrast between the restitutive and the repetitive reading of the scope-taking adverb *again*. Stechow (1996) shows that in the restitutive reading, in contrast to the repetitive reading, *again* only scopes over VP (and PP) to the exclusion of vP. If theta roles are assigned configurationally as a result of DP-Merger (see Hale & Keyser 1993 or Ramchand in press), then the agent theta role in

Spec,vP c-commands - is more prominent than – the patient theta role in Spec,VP and the patient theta role in turn is more prominent than the goal theta role in PP.

3. Scales and derivations

3.1. Unprefixed intransitive verbs

We saw in section 1 that the single argument of intransitive verbs is typically realized as nominative. The natural question arises: Why? A possible answer is because nominative is the most prominent case. But how does it work?

We need to introduce some basic properties of our theoretical framework. Pesetsky & Torrego (2004, 2006) propose that structural case is an unvalued Tense feature on the nominal head N or D and that it is valued by head T and T_0 (i.e. the aspectual head). Biskup (submitted, to appear) extends their proposal and suggests 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 us to treat all cases uniformly with respect to the features participating in the case assigning relation. As shown in (17), the three heads P, T and Asp bear a valued Tense feature and unvalued φ -features at a certain stage of the derivation and can agree with a DP, which gets a case as a consequence of the Agree operation.

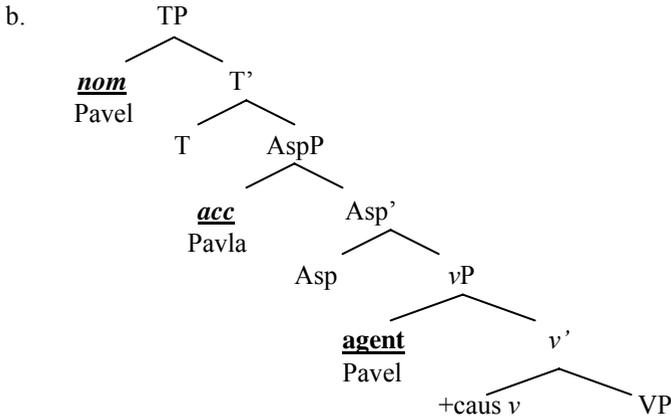
(17)

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

Biskup (to appear) proposes that the Tense feature on DPs – i.e. cases – can be revalued. This means that a DP can get multiple cases, but since the morphology of Russian or Czech does not allow multiple overt case markers on one element, they are not visible, in contrast to languages like Japanese, Kayardild, Korean or Lardil, which allow more case markers. Thus, in Russian or Czech, the structurally highest Tense value always

appears on the particular DP. Let us now look at unprefixated unergative verbs. The derivation of (18a)=(1a) looks like (18b):

- (18) a. Pavel pracuje.
 Pavel.nom works
 ‘Pavel works.’
 ‘Pavel is working.’



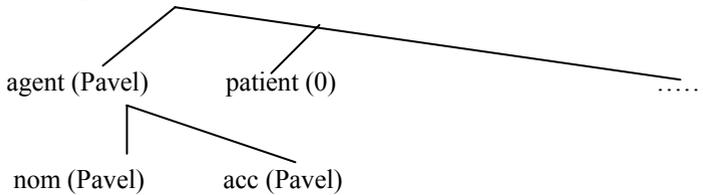
Agent *Pavel*, which is merged in Spec,vP, first agrees with the aspectual head and gets the accusative case. Given the principle of Full Interpretation (19), which states that interfaces must contain only material that is interpretable (valued), unvalued ϕ -features on the head T must also be valued.

- (19) Full Interpretation (Chomsky 1995, 27)
 ‘...there can be no superfluous symbols in representations (the principle of Full Interpretation, FI)...’

Thus, *Pavel* also agrees with the head T and its Tense value (case) is revalued. Therefore it is spelled out with the nominative marker.⁶ As to the complex scale tree, we get a one-way type of crossing, as illustrated in (20):

⁶It is not important here whether or not *Pavel* agrees with the head Asp and T in situ. We put *Pavel* in Spec,AspP and Spec,TP just to show that it is marked by the accusative and nominative case.

(20) Complex scale tree of (18a)



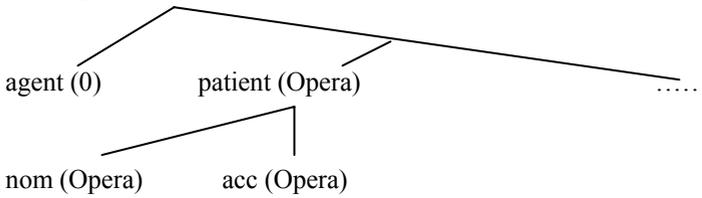
The tree demonstrates that *Pavel* is marked by the accusative case, which normally is unmarkedly aligned with the patient theta role; see (13) again. It generally holds, not only for the language system, that a marked value or status is formally expressed (see e.g. Croft 1993 for a language typological point of view). However, there is no special verbal morphology (as e.g. in the case of passives) in (18a) and the argument is marked with the most unmarked case, namely, nominative. The reason for this is that there is no patient theta role in (18a). Thus, in this case, the morphologically unmarked alignment is a result of lacking the patient theta role, the principle of Full Interpretation and the fact that cases (Tense features on DPs) can be revalued.

In the case of unprefixated unaccusative verbs, it works similarly. In (2a), which is repeated here as example (21), patient *opera* bearing the unvalued Tense feature and valued ϕ -features first – given the derivational approach – agrees with the head Asp, which results in the accusative Tense value on *opera*, and then it agrees with the head T and gets the nominative Tense value. Since this is the last (highest) Tense value on *opera*, the latter is spelled out with the nominative marker.

- (21) Oper-a hoří.
 Opera-nom burns
 ‘The Opera is burning.’
 ‘The Opera burns.’

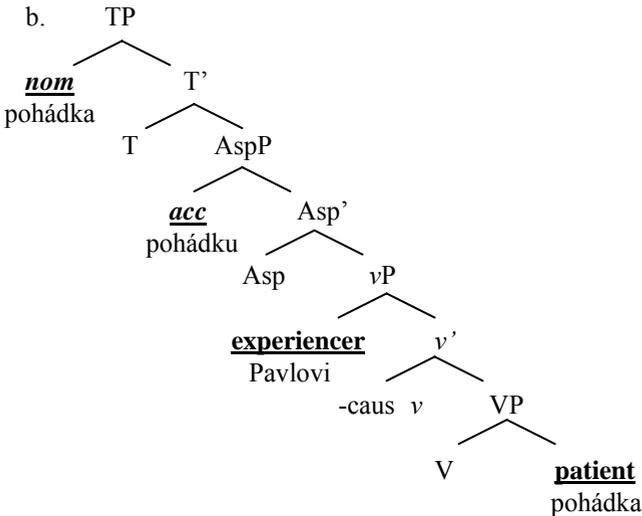
In the complex scale tree (22), there is again a one-way crossing, now going from the patient theta role to the nominative case; compare (22) with the complex scale tree in (20). As in the unergative example above, there is no special morphological marking on the elements in sentence (21). Here, the reason is that there is no agent theta role, as illustrated in (22).

(22) Complex scale tree of (21)



Let us now move to experiencer unaccusative verbs. Dative experiencers in constructions like (23a)=(3a) are standardly analyzed as specifiers of *v*P, as demonstrated in (23b). Then, one would expect that the case on *Pavlovi* is revalued by the heads *Asp* and *T* in accordance with minimality principles and that the argument is spelled out with the nominative case. However, this is not the case, as (23a) shows.

- (23) a. Pavl-ovi se líbil-a ta nová pohádk-a.
 Pavel-dat self liked-sg.f the new story-sg.f.nom
 ‘Pavel enjoyed the new story.’



We assume that nonstructural cases like the dative here are prepositional phrases, hence *Pavlovi* in (23a) is a prepositional phrase with a covert preposition, as e.g. in the case of free datives. Biskup (to appear) argues that

the Tense value of the prepositional complement cannot be revalued because prepositional phrases are phases, i.e. *pPs* (cf. also Abels 2003, who argues that prepositional phrases in Russian and other Slavic languages are phases). Since *Pavlovi* is trapped in the phase complement, then, given the Phase Impenetrability Condition (Chomsky 2000) in (24), its dative case cannot be revalued by the accusative or nominative case.

(24) Phase Impenetrability Condition (Chomsky 2000, 108):

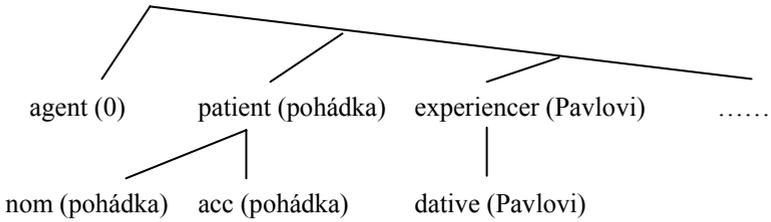
In phase α with head H, the domain of H is not accessible to operations outside α ; only H and its edge are accessible to such operations.

Given the principle of Full Interpretation, unvalued ϕ -features on the heads Asp and T must also be valued. This job must be done by the patient argument *pohádka*. If all *vPs* are phases (i.e. unaccusative *vPs* too) as argued by Legate (2003), then the patient argument must raise to the edge of *vP* and then it agrees with the heads Asp and T, which results in the accusative and nominative cases, as demonstrated in (23b). The fact that there is a default agreement on the predicate in example (3d), repeated here as (25), shows that *Pavlovi* and *Praze* in the prepositional complements indeed are not accessible for Asp and T and the operation Agree.

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

The complex scale tree of (23a) is shown in (26). One sees the unaccusative one-way crossing combined with the unmarked alignment of experiencer with dative. Since the harmonic alignment of the experiencer theta role with the dative case is unmarked and there is no agent theta role – as in the case of the unaccusative complex scale tree – there is no reason for a special morphological marking. Thus, the morphologically unmarked alignment is a result of lacking the agent theta role, the principle of Full Interpretation and the fact that cases on prepositional complements cannot be revalued.

(26) Complex scale tree of (23a)



In section 1 we saw that there is also a special class of experiencer verbs taking a nominative patient and an accusative experiencer. These verbs can be analyzed in the same way as the dative experiencer verbs. As to example (27a)=(4a), we just put *Pavla* in the tree in (23b) instead of *Pavlovi* (and change the predicate). As above, the experiencer argument is trapped in the phase complement of the (covert) preposition, hence its nonstructural accusative case cannot be revalued by the nominative case, and therefore example (27b)=(4b) is ungrammatical.⁷ As shown in example (27c)=(4c), in addition to *Pavla* with the nonstructural accusative case, the predicate cannot take another accusative argument. Unvalued ϕ -features on the head T must also be valued, which must result in revaluing the case on *tu novou pohádku*. As to the complex scale tree, we have the same analysis as in the case of dative experiencer verbs; we just put *nonstructural accusative* in the tree instead of *dative*.

- (27) a. Pavl-a bavil-a ta nová pohádk-a.
 Pavel-acc interested-sg.f the new story-sg.f.nom
 ‘Pavel was interested in/enjoyed the new story.’
- b. * Pavel bavil tu novou pohádk-u.
 Pavel-dat interested-sg.m the new story-sg.f.acc
- c. * Pavl-a bavil-o tu novou pohádk-u.
 Pavel-acc interested-sg.n the new story-sg.f.acc

⁷Similar accusative experiencer verbs can be found in other languages, too, see e.g. *interessieren*-type verbs in Sternefeld (2006) for German or Pesetsky (1995) for some other languages.

3.2. Prefixed intransitive verbs

Example (5), repeated here as (28), shows that if the stative predicate *mërz* is prefixed, it can be combined with the resultative prepositional phrase *v ajsberg*. Biskup (to appear) argues that verbal prefixes are spellouts of a P element incorporated into the verb and that the valued Tense feature on the incorporated P element values the unvalued Tense feature on the aspectual head. It brings about perfectivity – concretely, in the case of (28b), the telic type of perfectivity – which licenses the resultative *pP v ajsberg*.

- (28) a. On *mërz* (**v ajsberg*)
 he froze in iceberg.acc
 b. On *v-mërz v ajsberg*
 he in-froze in iceberg.acc
 ‘He froze in the/a iceberg.’

Since prepositions are standardly analyzed as two-place predicates – as S/N/N or $\langle e, \langle e, t \rangle \rangle$ or $\langle l, \langle l, t \rangle \rangle$; see Bierwisch (1988), Heim & Kratzer (1998), Stechow (2007), respectively – i.e. they localize the first argument with respect to the second argument, we decompose prepositional phrases into PP and *pP*, following Talmy (1978) and Svenonius (2004). The internal argument is taken by the head P and is called the *ground*, and the external argument, which is called the *figure*, is introduced by the head *p*. The figure argument is the entity that is located, moved or somehow characterized with respect to the ground argument. Hence, (28b) is derived as shown in (29).⁸

⁸We put *on* in the specifier positions of Asp and T just for expository reasons, to show that it is marked by accusative and nominative (the same strategy is also used in the following syntactic trees). Here, we are indifferent wrt. the final position of *on*. If every *vP* is a phase, then it is clear that *on* must appear at least at the edge of *vP*.

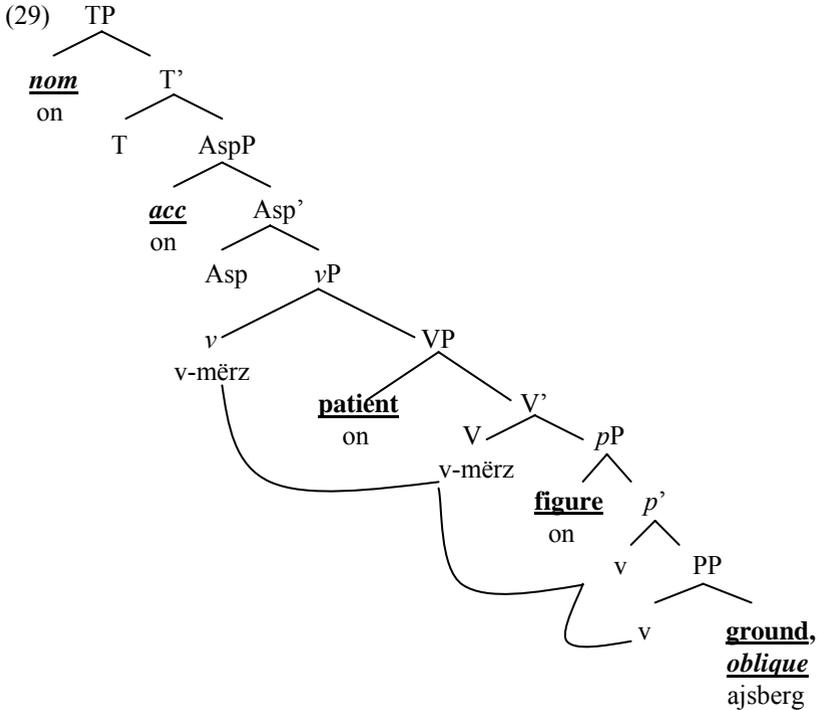
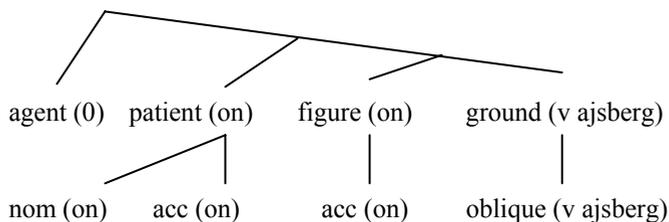


Figure arguments typically get the accusative case (which is revalued by the nominative case in intransitive constructions), hence this is the unmarked harmonic alignment. We assume, see e.g. Hornstein (1999), that arguments can get multiple theta roles and that every subevent must have an argument (Levin & Rappaport Hovav 2004). Then movement (and the operation Agree) of *on* in the syntactic derivation (29) yields the unaccusative type of crossing with the unmarked alignment of *figure* with structural accusative combined with the unmarked alignment of *ground* with oblique, as shown in the complex scale tree (30).⁹ Given this unaccusative crossing and the two unmarked alignments, we do not observe any special morphological marking in sentence (28b).

⁹From now on, the term *goal* will be replaced by *ground*.

(30) Complex scale tree of (28b)

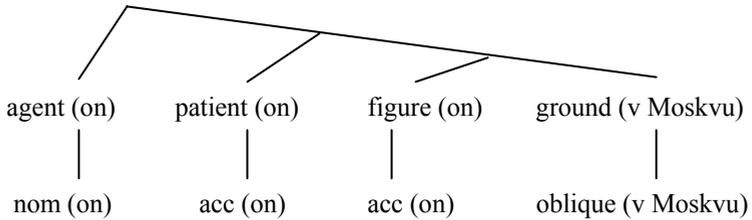


In contrast to the stative verb in (28), the motion verb *echal* can be combined with a directional prepositional phrase, as shown in the following example. Since motion verbs have a path in their meaning, the directional prepositional phrase *v Moskvu* can be mapped onto the path of event *echal* in (31a). In example (31b), the prefix *v-* incorporated into the verb values the Tense feature on the aspectual head; this again brings about the telic type of perfectivity, hence the sentence means that he reached Moscow, in contrast to the imperfective example (31a).

- (31) a. On *echal v Moskv-u*.
 he drove in Moscow-acc
 'He was driving to Moscow.'
- b. On *v-echal v Moskv-u*.
 he in-drove in Moscow-acc
 'He drove to Moscow.'

Since the event of *echal* has an agent, *on* bears the agent, patient and figure theta roles, as demonstrated in the complex scale tree (32). At the same time, *on* bears the nominative case and the structural accusative case. Consequently, we arrive at the unmarked harmonic alignment of agent with nominative, patient with accusative, figure with accusative and ground with oblique in (32). As to the markedness status, the complex scale tree (32) is less marked than the one in (30). A comparison of the complex scale trees (30) and (32) and their appropriate sentences (28b) and (31) confirms that the one-way type of crossing with the missing agent argument plays no role for morphological marking.

(32) Complex scale tree of (31)



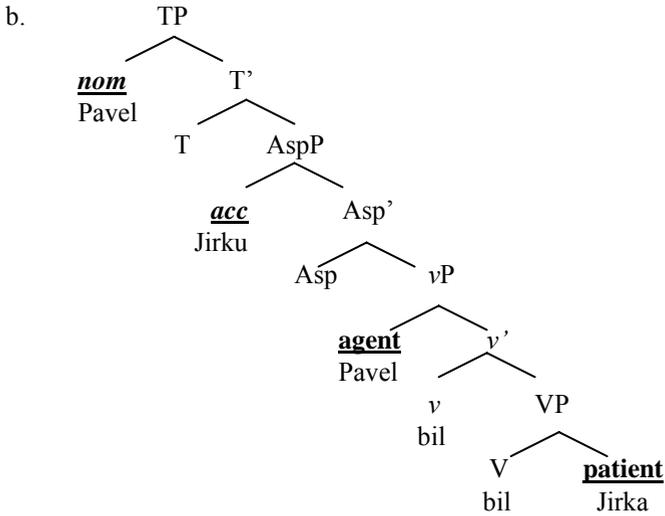
In section 1, we showed that prefixes can also add an argument with structural accusative; consider example (7)=(33) again. Since verbal prefixes are spellouts of a preposition, they add a prepositional phrase to the verbal argument structure, which means that they also add new argument positions. This happens in the case of (33b), where *noč* is merged as the figure argument in Spec,*v*P.

- (33) a. On spal (*noč).
 he slept night.acc
 b. On do-spal noč.
 he to-slept night.acc
 ‘He slept till the end of the night.’

3.3. Unprefixed transitive verbs

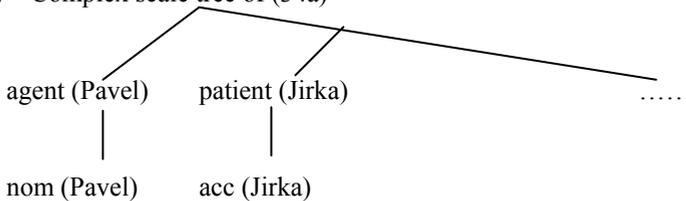
We will begin with the unmarked harmonic alignment of transitive verbs; consider example (34)=(8a). Given the Case Filter, every DP must have a case. However, the patient argument *Jirka* is not accessible for the head Asp and T because of the Phase Impenetrability Condition (24). Thus, it must be moved by an Edge Feature to the edge of *v*P – more specifically, in accordance with the Extension Condition, to the outer Spec,*v*P. In this position, *Jirka* agrees with the head Asp and its Tense feature is valued as accusative. Theoretically, the Tense feature on *Jirka* could be revalued by the head T as nominative but then *Pavel* would have no case and the derivation would crash because of the Case Filter. Hence, it is *Pavel* that moves to Spec,TP and gets the nominative case there.

- (34) a. Pavel bil Jirk-u.
 Pavel.nom beat Jirka-acc
 ‘Pavel beat Jirka.’



The form of the complex scale tree (35) is a result of the two movements: *Jirka* across *Pavel* to the edge of *vP* and *Pavel* across *Jirka* to Spec,TP, which in turn are determined by syntactic conditions like the Phase Impenetrability Condition or the Case Filter. There are two unmarked harmonic alignments (the agent theta role aligned with the nominative case and the patient theta role aligned with the accusative case), which means no crossing in the complex scale tree and no special morphological marking in sentence (34a).

- (35) Complex scale tree of (34a)

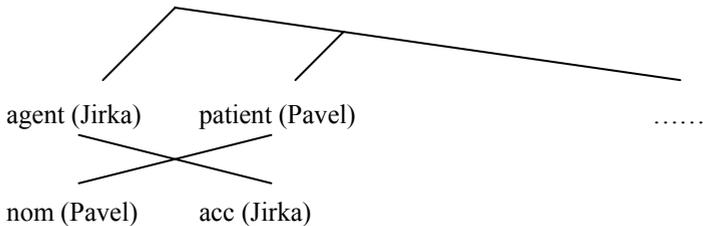


As demonstrated in example (8b), for convenience repeated as (36), the reversed alignment of the agent and patient argument is ungrammatical. The ungrammatical status is due to the violation of minimality principles. Following the argumentation above, in the derivation of sentence (36), the patient argument *Pavel* moves to the edge of vP across the agent argument *Jirka*. Then, however, the operation Agree between the aspectual head and *Jirka* (note that *Jirka* is marked by accusative) crosses *Pavel* in the outer Spec,vP.

- (36) Pavel bil Jirk-u.
 Pavel.nom beat Jirka-acc
 * ‘Jirka beat Pavel.’

The complex scale tree of example (36) looks like (37). There is a two-way type of crossing that is reciprocal. It is intuitively clear that if two entities interchange their forms, one cannot expect that this state of affairs remains normal (consider e.g. mistaken identity comedies).

- (37) Complex scale tree of (36)



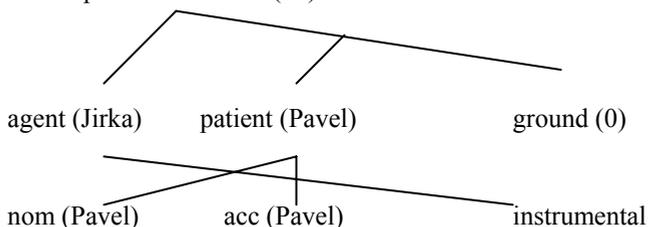
The way out of this problem is to mark the change. It must be somehow repaired. This happens in the case of the passive sentence in (38); therefore it is grammatical.

- (38) Pavel byl bit Jirk-ou.
 Pavel.nom was beaten Jirka-instr
 ‘Pavel was beaten by Jirka.’

If you take a look at the complex scale tree (39), you see that the agent argument is marked by the instrumental case instead of the accusative

case.¹⁰ Although there is a two-way type of crossing, as in (37) above, the crucial fact is that the crossing is not reciprocal. Note also that the verbal morphology in example (38) is more marked than the one in (36); it is more complex. Compare Greenberg (1966) or Croft (1993), who argue that according to the structural markedness criterion, passives are usually more marked.

(39) Complex scale tree of (38)



As to the syntactic derivation of example (38), it is important that the agent argument *Jirka* is trapped in the instrumental *pP* phase; therefore its Tense feature cannot be revalued by the heads *Asp* or *T* and it is the Tense feature on *Pavel* that must agree with *Asp* and *T*.

Our analysis is supported by the following facts from Philippine languages. Table (40) with the Philippine-type voice system shows that the passive voice is the unmarked alignment and that ergative case is used instead of accusative case in the active voice.

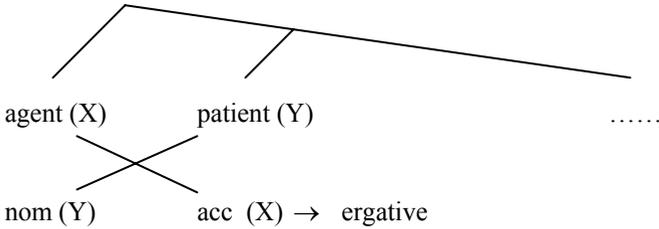
(40)

active voice		passive voice	
nom/direct	(patient)	nom/direct	(agent)
ergative	(agent)	accusative	(patient)

It seems that the situation in the active voice is analogous to the passive example (38). The reciprocal crossing in the Philippine active voice must be somehow repaired, therefore the ergative case – which is often taken to be nonstructural (inherent) case; hence it can be put in the same position as instrumental in (39) – replaces the accusative case, as demonstrated in the following complex scale tree:

¹⁰It does not play a role whether or not the external argument is overtly expressed. It is just a phonological issue.

(41) Complex scale tree of the Philippine active voice

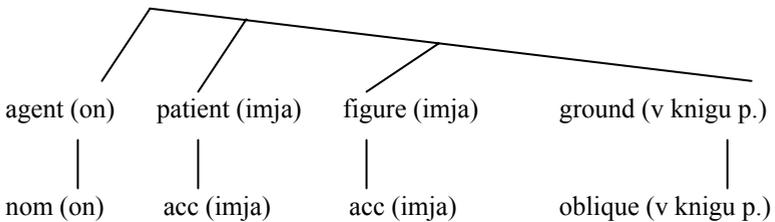


3.4. Prefixed transitive verbs

We have seen that verbal prefixes are spellouts of a P element, therefore they can add a prepositional phrase to the argument structure if it is not the case that the prepositional phrase is already present there; consider the contrast between (42a) and (42b). Sentence (42b) is represented by the complex scale tree in (43) below. There are four bidirectional unmarked harmonic alignments. The agent theta role is aligned with the nominative case, the patient theta role with the accusative case, the figure argument with accusative and the ground argument with the oblique case. Given these unmarked alignments, we do not observe any special morphological marking in sentence (42b).

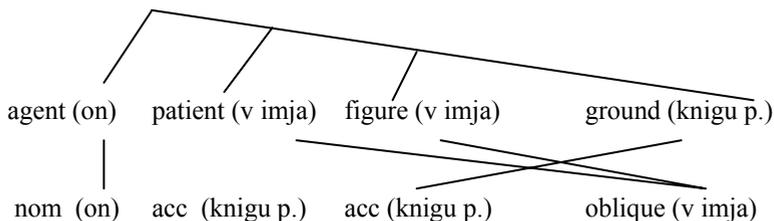
- (42) a. * On v-pisal svoe imja.
 he in-wrote self name.acc
- b. On v-pisal svoe imja v knig-u početa.
 He in-wrote self name.acc in book-acc of honor
 ‘He wrote his name in the book of honor.’
- c. * On v-pisal v imja knig-u početa.
 He in-wrote in name.acc book-acc of honour

(43) Complex scale tree of (42b)



The ungrammatical example (42c)=(9d) demonstrates that the reversed alignment of the figure (patient) argument and the ground argument is not possible. The complex scale tree of (42c) then looks like (44). There is again a reciprocal two-way crossing (plus the crossing going from the patient theta role to the oblique case and the unmarked alignment of agent with nominative).

(44) Complex scale tree of (42c)



However, there is no way to repair the reciprocal two-way crossing in example (42c) by morphological marking, as there was e.g. in the case of the passive construction (38) or in the Philippine active voice in (40). The problem lies in the fact that there are solid relationships inside the prepositional phrase. Given the fact that theta roles are assigned configurationally as a result of the DP-Merger, i.e. the argument merged in Spec,*p*P must be the figure and the argument merged as the complement of V must be the ground, the reciprocal two-way crossing is simply not available (see Svenonius 2004, according to whom it generally holds that the internal argument of P is a ground and the external argument of P (*p*) is a figure).¹¹

4. Conclusion

We have argued that certain prominence scales are present in the syntax and that they are determined by c-command relations and semantic properties of the clause structure. We have also argued that the complex scale of particular sentences is a result of grammatical principles, such as the

¹¹At first glance, it seems that in cases with more symmetrical arguments the reversed alignment is possible; see (i). In fact, it is not a reversed alignment; the prepositional argument must always be interpreted as the ground argument.

(i) a. He stirred apple sauce into water. b. He stirred water into apple sauce.

principle of Full Interpretation or the Case Filter, and grammatical operations, such as the operation Agree or Move. We have drawn a parallel between the type of the complex scale tree, syntactic operations, morphological marking, and the grammatical status of sentences. Then we have shown that certain types of the complex scale tree are grammatical, e.g. one-way crossings with a missing argument, and that certain types are not, e.g. reciprocal two-way crossings. Although particular complex scale trees are the result of grammatical principles and operations, the information about which types of complex scale tree are possible and which ones are not does not belong to the syntax itself.

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