

# Centrum voor Wiskunde en Informatica

Centre for Mathematics and Computer Science

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Extended abstract

Computer Science/Department of Software Technology

Report CS-R8940

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# The Syntax of Slavic Aspect

## Extended Abstract

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The aspect literature assumes a fundamental difference between the Slavonic aktionsarts and the Germanic aspect. The paper presents a syntactic theory of verb structure which reduces these contrasts. Arguments are given that Polish aspect-formation is inflectional and that aspectual prefixes are SP(VP) and SP(V̄). These two positions are landing sites for the perfective-forming Affect P, i.e. (i) P-insertion, (ii) movement of directional Ps to SP(V̄) and (iii) movement of quantificational Ps to SP(VP). V̄-aspect rules are formally identical with English verb-forming rules, where, however, the prefixes do not c-command their traces, thus P-doubling is precluded. The formal convergence of Affect P in Polish and English strongly supports the syntactic approach to inflectional and derivational morphology.

*Key Words and Phrases:* aspect, inflection, derivation, Aktionsart, Affect P, Move  $\alpha$ , word structure, word formation, specifier, lexicon, thematic roles,  $\theta$ -roles, zero derivation, P-incorporation, *Over-cliticization*, *Particle Movement*, *Load-verbs*, root, perfective, imperfective, prepositions, c-command, aspect transition, Derived Imperfectives, quantifiers, distributivity, P-doubling, Morphological Transparency, case assignment.  
*1985 Mathematics subject classification:* 68Q50  
*1987 CR Categories:* F.4.2, I.2.7.

## INTRODUCTION

Polish and English appear to differ diametrically in the morphosyntactic determination of the two categories relevant to aspectual composition: verbs and NPs. English NPs are obligatorily determined for (in)definiteness, while verbs carry no morphological marker of their aspectual status as state, process or event. In Polish the situation is reversed: nominal determiners are optional (Polish is a gender language) while verbs are always morphologically marked for (im)perfectivity. This contrast may promote a view of Slavonic aspect as lexical, a view which is backed by the proverbial complexity of Slavonic verbal morphology. In the descriptive literature aspectual morphology is treated as derivational.

The goal of the paper is to present a theory of Slavonic verb structure that overcomes the drawbacks of descriptive and lexicalist approaches to word structure. This theory, I hope, is a step towards a better understanding of the contrasts and similarities between Slavonic and English aspect composition. C.f. VERKUYL 1989.

In Part I I give arguments that Polish aspect is an inflectional process. I propose that the Polish VP contains two specifier positions which are crucial for the formation of perfective: SP(VP) and SP(V̄).

\* This paper will be presented at the Seventh Amsterdam Colloquium, Amsterdam, December 19-22, 1989.

These two positions serve as landing sites for Affect P, a cluster of perfective rules which affect prepositions; Verbal prefixes are prepositions. In addition to the two prefixal positions (always perfective) there is a suffixal  $SP(V^0)$  position (lexically always imperfective). Each of these positions carries a feature FOR (imperfective) or IN (perfective). In contrast with English, Polish sentence contains a (possibly abstract) obligatory adverbial operator IN or FOR, which binds the aspect feature in one and only one of the affixes, and thus defines the operating aspect of a projection. The bound affix is always empty. It is obligatorily filled by a syntactic or morphological operation. Polish aspect formation thus consists of two parts: binding and filling. For prefixal positions filling is always a result of Affect P:

	Prefix	Adverb
adverbial binding	$\Delta_a$ .....	$\alpha_a$
	Prefix	XP
Affect P	$P_i$ .....	$e_i$

Slavonic aspect is intrinsically parasitic, i.e. it may be realized only through an accompanying process (Affect P). The optionality of the adverbial operator in English sentence allows English sentences to be ambiguous with respect to aspect, which is impossible in Polish.

The enormous complexity of Slavonic aspectual forms results from the amazing diversity of constructions that fall under the Affect P part of the Slavonic aspect. Some of these constructions are discussed in Part 2, for  $SP(VP)$ , and Part 3, for  $SP(\bar{V})$  positions. There exists a symmetric division of labor between the two positions:  $SP(VP)$  attracts P operators: adverbial modifiers of action and prepositional quantifiers of NPs.  $SP(V)$  attracts directional Ps, either intransitive, i.e. particles, or transitive governors of argument NPs.

Although the syntactic realization of the rules is particular to Polish, most - if not all of them - find their counterpart in English, either as Logical Form operations (for quantifiers) or various rules of English derivational morphology, such as *Over-Cliticization*, *P-Absorption*, *Particle Movement*, *Zero Derivation*, *Load-verb* construction and others. Aspectual effects of these rules in English deserve systematic investigation.

The present study leads to the conclusion that Polish verbal Roots, represented as  $V^0$  in X-bar notation, are lexically always imperfective (states or processes). Perfective verbs are not Roots, but V projections (morphologically complex verbs) which are formed via Affect P. The derived nature of the (Slavonic) perfective will be a matter of further research.

## PART 1. THE STRUCTURE OF POLISH VERB

### 1.1 Outline of the analysis: the structure of Polish Verb

Polish has two SPEC(V) positions which provide insertion sites for prepositional prefixes: SPEC(VP) and SPEC( $\bar{V}$ ):

(1)

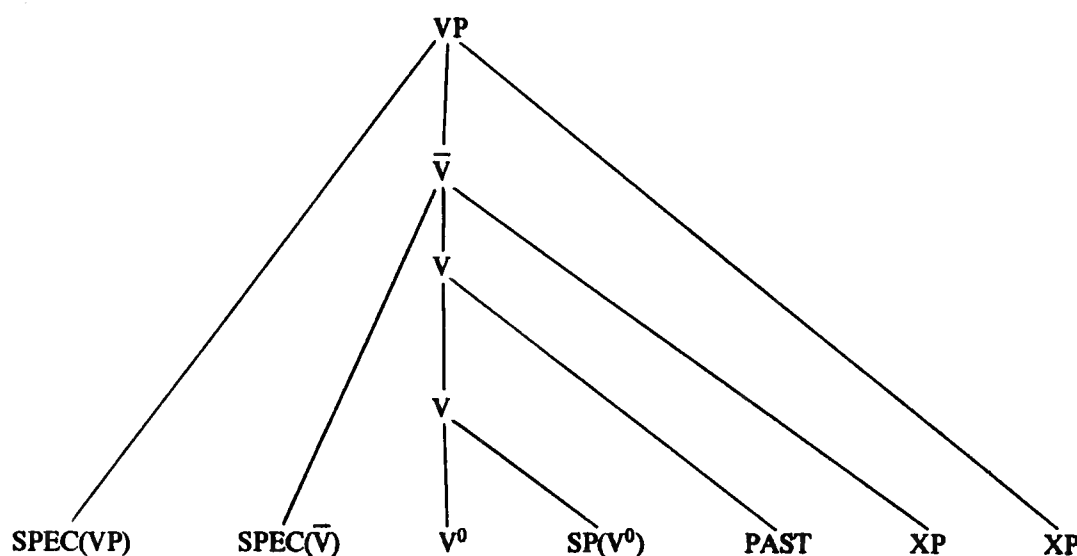


FIGURE 1

Both positions serve as hosts for perfective prefixation, but they radically differ as semantic categories.  $SP(\bar{V})$  accepts exclusively directional prepositions. Prepositions in  $SP(VP)$  are either pure-perfective (my term) or else they are various operators, cf. modal, distributive, accumulative, completive. Operators may be inserted in situ, cf. pure-perfective, or by movement. Directionals are always inserted by movement from an argument position. The two categories may cooccur under certain conditions. In syntax the prefixes c-command the 'basic V projection' which contains Root  $V^0$ , the imperfective suffix  $SP(V^0)$  and participial inflection (PAST or PRESENT). Directionals c-command the arguments of  $V^0$ , and operators c-command both arguments and adjuncts. Both prefixal specifiers are bound morphemes. In phonological form they cliticize onto the basic V projection<sup>1</sup>.

1. Alternatively, the two prefixal positions may be considered complementizers, daughters of VP and  $\bar{V}$ , respectively. The final analysis will require more comparative data. Arguments for the COMP hypothesis in Polish;

(i) a possible lack of (COMP,  $\bar{S}$ ), thus multiple wh-movement;

(ii) the prefixal positions are Ps, while the suffixal position is V; for Emonds 1985 complementizers are Ps. Affect P would be a structure preserving substitution, analogous to structure-preserving analysis of wh-movement.

(iii) Hungarian aspect-forming adverbial preverbs are inserted in COMP, cf. HORVATH 1981.

The structure in (1) represents the sole source of Polish verbal prefixation, i.e. there is no other verbal prefixation but perfective. Predictably, inflection and derivation will overlap.

English has no position which corresponds to Polish SPEC(VP) or SPEC( $\bar{V}$ ). Furthermore its basic V projection is Root =  $V^0$ . English is a Root = Word language. In Polish and most other Slavic languages  $V^0$  and  $N^0$  Roots are always closely tied to their inflection. The Root-structure of English verb is therefore as in (2)

(2)

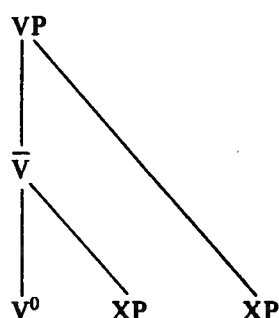


FIGURE 2

(3)

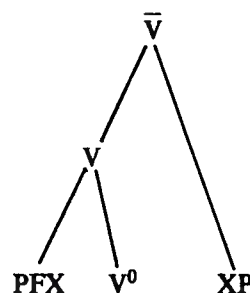


FIGURE 3

English has no inflectional prefixation. Its derivational prefixation, cf. *over-*, *out-* must result from adjunction to  $V^0$ , as in (3). Thus English prefixes never c-command argument or adjunct positions. This contrast in c-command distinguishes the two morphologies. C-command is required for P-doubling which is therefore impossible in English, cf. section 3.1.

## 2. ARGUMENTS THAT POLISH ASPECT IS INFLECTIONAL AND THAT THE PREFIXES ARE PREPOSITIONS

- A. There are sixteen aspectual prefixes. Except for *roz-* all have a homonymous, often synonymous, prepositional counterpart. *Roz-* is an intransitive preposition, i.e. particle. In Polish all particles are bound morphemes.
- B. New prefixed verbs are easily coined and understood. They are not listed in dictionaries.
- C. The number of listed verbs is enormous (tens of thousands, WRÓBEL 1984).
- D. Operator prefixes do not lexicalize semantically. Predictably, verbs headed by directional prefixes may lexicalize, as they are in the thematic Complex Verb domain.
- E. Aspectual prefixation is a productive process of native Polish syntax. There are three borrowed prefixes, i.e. *dis-*, *de-* and *re-*. They never make a perfective verb, and thus must occur with SP(V) to form aspect. They don't have prepositional counterparts. Their phonology is different. I assume that borrowed prefixed verbs are inserted in the head position of VP, with a + boundary, cf. *de* + *militaryzować* 'demilitarize'.

- F. The Perfective/Imperfective category is a subcategorized category, cf. aspectual verbs such as *być* 'be' select only the imperfective class; past participle *-wszy* 'having V-ed' takes all and only perfective verbs; present participle *-ąc* takes all and only imperfective verbs. Derivational categories, cf. zero-affixed verbs, are never subcategorized for.
- G. Perfective prefixes c-command and may be c-commanded by inflectional suffixes:

$$[[[PFX[PFX[V^0-SP(V^0)-TENSE]]]AUX]$$

My analysis provides a solution for a well known paradox of Slavic prefixal phonology, cf. PESETSKY 1985, SZPYRA 1987.

- H. Perfective prefixes are the only source of verbal prefixation in Polish.
- I. Perfective prefixation interferes with case assignment, operator scope, selected features of verbal arguments and other facets of clausal syntax and semantics.
- J. All members of category V have an aspectual form.

### 1.3 Aspect Transition and Derived Imperfectives

Figure 1 shows that Polish verb structure contains three aspectual positions. Prefixes are always perfective, which I will indicate by feature IN, and suffixes are always imperfective, which will be indicated by feature FOR. Since all three affixes may cooccur in one verbal projection it is necessary to formally account for the fact that every verb structure has only one operating aspect. The uniqueness of the operating aspect may be derived from the bijection principle, on the assumption that each sentence contains only one aspectual adverb which binds the aspectual feature on one of the affixes. This is expressed by the coindex (a).

Derivation of aspectual projections and the aspect transition is illustrated in (4 o-iii) with the Root 'sτ' 'send'

(4) 0.            sτ-a-τ

#### IMPERFECT ASSIGNMENT

i.            sτ- a -τ  
                 FOR(a)

#### PERFECT FORMATION

ii.            przy-sτ- a -τ  
                 IN(a)    FOR

#### DERIVED IMPERFECT

iii.            przy-syτ- a -τ  
                 IN        FOR(a)



i. Imperfect Assignment  $V^0 \rightarrow \text{FOR}$ 

Polish Roots are always imperfective states or processes. Unlike in English, their imperfectivity is transparently expressed by the morphology of the  $\text{SP}(V^0)$  position. Formally, this may be represented by the rule of Imperfect Assignment:

$$\text{FOR}(a)/V^0 \text{ ---}$$

ii. Perfect Formation  $\text{FOR} \rightarrow \text{IN}$ 

Structure (i) is mapped into (ii) via Perfect Formation, i.e. a transformation Affect P, which applies obligatorily in the context

$$\text{SP}(V), \text{IN}(a), \Delta \dots \text{SP}(V^0), \text{FOR}$$

PF is an insertion or movement of P into an empty  $\text{SP}(V)$  position, indicated by  $\Delta$ .

(iii) Derived Imperfect  $\text{IN} \rightarrow \text{FOR}$ 

(ii) is mapped into (iii) by Derived Imperfect Formation (DI), which applies obligatorily in the context:

$$\text{SP}(V), \text{IN}, P_i + F \dots \text{SP}(V^0), \text{FOR}(a), \Delta$$

DI applies exclusively to structures where  $\text{SP}(V)$  is non-empty, which may be achieved solely by PF, i.e. mapping from (i) to (ii). In addition, DI requires that P carry a semantic feature + F, which limits DI to semantic subclasses of categories in  $\text{SP}(V)$  position and excludes DI from applying to pure-perfectives, which do not carry + F. Morphological realization of DI is strictly local. It is either an insertion of the morpheme into an empty  $\Delta \text{SP}(V^0)$  position or else a phonological operation on the  $V^0$  stem adjoined to the aspect position (GUSSMANN 1984). Comparison of (i) and (iii) indicates that the latter operation applies to  $s\tau$  'send'. The context dependency and nonlocality of the syntactic DI operation is evidenced by the fact that the morphological operation may occur only in the (distant) presence of the prefix. Unprefixed DI forms do not exist:

(5)  $*s\tau\tau\text{-}a\text{-}\tau$ 

The transition of the index (a) plays crucial role in the statements of aspect rules. So far the position of the index has been taken as a primitive, however. The rules indicate that the transition of (a) has the direction in (6).

$$(6) \quad 0 \rightarrow \underset{\text{FOR}}{1} \rightarrow \underset{\text{IN}}{2} \rightarrow \underset{\text{FOR}}{3}$$

I hypothesise that the transition in (6) is universal and the languages may have language particular, possibly morphological means of implementing it. Polish has the following language particular Lexical Redundancy Rules:

(7) IN  $\rightarrow$  SP(V)      prefixes

(8) FOR  $\rightarrow$  SP(V<sup>0</sup>)    suffixes

Thus the transition in (6) is always a chain in (9):

(9) 0  $\rightarrow$   $\xrightarrow{\text{suffixation}}$  1  $\rightarrow$   $\xrightarrow{\text{prefixation}}$  2  $\rightarrow$   $\xrightarrow{\text{suffixation}}$  3

In English the aspect transition is not correlated with inflectional morphology. In particular, English does not express 1 by suffixation. Still, should the transition of (a) in (6) hold as a universal, (1) i.e. Imperfect Assignment may be carried on in the Root Lexicon. Part 3 of the paper which contrasts English derivational morphology with Polish aspect rules brings evidence that English has some remnants of perfective prefixation (2), which may also be the basis of an abstract (3).

## PART 2 VP-ASPECT. OPERATORS

### 2.1.0 Pure-perfective

(10) NA-pisar listy

SP(VP)-write-SP(V<sup>0</sup>)-PAST letter-PL:GEN

He wrote the letters

The sole function of pure-perfective prefixes is aspect. Other prefixes of this class are *z-*, *u-*, *prze-*, *po-*, *wy-*. Directional Ps like *ob-*, *do-*, *roz-* never occur in this structure. The prefixes are inserted in situ. About 250 verbs may form perfective this way. The verbs do not form a semantic class, though they are never verbs of movement. Most borrowed verbs form perfective via this structure.

Pure perfective does not impose any restrictions on the number feature of the arguments and does not affect case. As observed by VERKUYL 1989 for Russian unbounded NPs are not felicitous with perfective and undetermined nouns must be interpreted as definite. This is also true for Polish.

The individual prefixes of this class c.f. *na-* are not categories. The prefixes are merely phonological realizations of the category perfective. There is no semantic selection between the verb and the prefix. The verb selects pure-perfective prefix entirely idiosyncratically. Predicatably, this structure does not allow any semantic lexicalization.

In Polish these structures do not allow Derived Imperfectivization, cf. *\*napisywar listy*. The proper

generalization is this. The only non-phonological feature on the SP(VP) in this structure is +PERFECT, since the prefixes are not categories. Derived Imperfect may only be formed with specifiers which contain a semantic feature, c.f. +Directional. Forming a Derived Imperfective of pure-perfective does not make any sense. Derived imperfectivity is a result of the parasitic nature of the Slavic aspect.

## 2.2.0 Operators

### 2.2.1 Accumulative NA-

- (11) NA- padało śniegu

There fell a lot of snow

- (12) NA- obieraliśmy ziemniaków

We peeled quite a number of potatoes.

NA- denotes summation of parts of action. It binds un-accusative subjects (11) and direct objects (12), which must be mass or plural, and assigns them partitive genitive case<sup>2</sup>.

OPERATORS AND CASE: (hypothesis) Accusative/Nominative is assigned by the verb in the scope of tense. In Polish an accusative becomes genitive when a closer operator intervenes (cf. negation, partitive, opaque, accumulative). In other languages this may be expressed by indefinite or bare plural objects.

### 2.2.2 Accumulative NA- .... siż-self

- (13) NA-chodził siż

He walked a lot

- (14) NA-czytał siż kryminałówGEN

He read a lot of detective stories

- (15) NA-sypało siż śniegu-GEN

There fell a lot of snow

Selectional restrictions and case like in 2.2.1. In addition, however, the accumulation of the parts of action affects the Agent, which may be considered a species of experiencer. This explains the presence

2. The semantic classification of prefixes in section 2.2.0 draws from Grzegorzczkova c.a. 1984. Some examples also come from this source.

of siŹ = 'self' in (13) and (14).

### 2.2.3 Distributive PO-

- (16) Goście PO-s-chodzili siŹ  
Guests gathered together one by one.
- (17) PO-wy-nosił story  
He carried away the tables one by one.

The distributive PO- emphasises individual portions of action. It binds plural or mass subjects and objects of agentive verbs. Case: nominative/accusative.

### 2.2.4 Supplementary DO-

- (18) DO-słodził herbatę ACC  
He sweetened the tea a bit more
- (19) DO-uczył się  
He studied more
- (20) DO-kroił chleba GEN  
He cut more bread

DO- means 'in addition to the same previous action'. No selectional restrictions, but mass objects receive partitive genitive, cf. (20).

### 2.2.5 Completive WY-

- (21) naród WY-ginał  
The entire nation died out.
- (22) WY-łapałmy muchy  
We caught up all the flies.

WY- is a universal quantifier which binds unaccusative objects and subjects. These arguments must be mass, plural or collective. Plurality of a non-unaccusative subject is not sufficient:

- (23) WY-łapałmy \*muchę/muchy  
we caught up a fly/ the flies

The case of the object is never partitive. This is predictable, since universal quantifiers do not allow partitive genitive.

### 2.2.6 Serial Completive PRZE-

(24) PRZE-badał pacjentów

He examined all the patients one after one

Like WY-, but spanning over the individual objects of a collection.

### 3.0 THE DISTRIBUTIVE PO- $\bar{N}$ PHRASE

Polish has a distributive PO- $\bar{N}$  phrase, whose properties may shed additional light on the syntax of some of the prefixal operators. PO is a preposition which attaches to unaccusative subjects and direct objects, which must be count. PO disambiguates sentences like (26a). (26b) has only distributive reading.

(25) W kurnikach ubyło PO kurze

There disappeared a hen in each coop.

(26) a. Jan i Piotr podnieśli pianino

Jan and Peter lifted a piano

b. Jan i Piotr podnieśli PO pianinie

PO assigns Locative to singular nouns and accusative to plural nouns. The distribution, selectional requirements and case assignment indicate that PO is a nominal quantifier. i.e. like the prefixes it does not bind locations but objects and subjects. In addition, PO must be in the scope of a plural argument:

(27) \*W kurniku-SG ubyło PO kurze.

(28) \*Piotr podniósł PO pianinie

These sentences are grammatical, however, if the verb is imperfective.

(29) W kurniku-SG ubywało PO kurze

(30) Piotr podnosił PO pianinie.

In imperfective the meaning is iterative. This contrasts PO with the prefixes, which always occur in imperfective structures, and do not form derived perfectives. In English the distributive floating quantifier *each* is ungrammatical with a singular subject:

(31) \*Peter lifted a piano each.

\*Peter each lifted a piano.

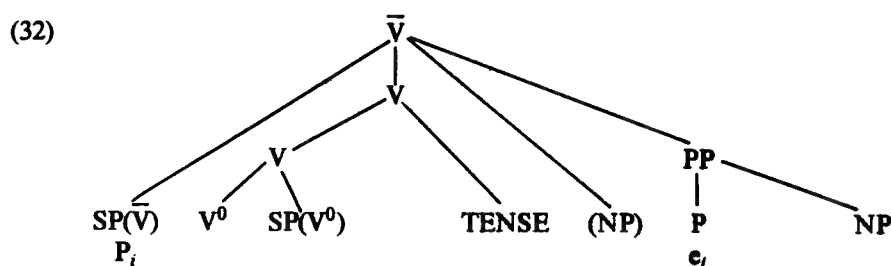
The contrast between (30) and (31) may be attributed to the morphological transparency of Polish aspect, i.e. in Polish the durative aspect itself may satisfy the scope requirements of PO.

**DIRECTION OF THE ANALYSIS:** PO and the prefixes belong to the same category of adverbial operators. They differ in their surface position. Since this position matters for case assignment, the formatives must be inserted prior to NP-structure, where case is assigned. The prefixes must c-command the bound NPs at NP-structure, as in Figure 1, on the assumption that c-command is necessary for long distance case assignment. In contrast to directionals, operators do not double as they are not lexical governors of the NPs, c.f. section 3.1.

### PART 3. $\bar{V}$ ASPECT. DIRECTIONALS.

#### 3.1 Polish aspectual prefixation and P-doubling

This section of the paper analyses transitive and intransitive structures in Polish, where perfective configuration is formed by reanalysis and movement of transitive Ps, as in (32).



Analysis: The process consists of two operations:

- (i) Insertion of the prefix in the configuration  $SP(\bar{V})_i \cdots P_i$  to which I will refer as P-movement. P-movement is obligatory when the  $SP(\bar{V})$  carries feature +PERFECT, in analogy to wh-movement.
- (ii) P-doubling: insertion of the copy of P in the empty P position. I propose the following condition on P-doubling:

#### (33) C-COMMAND CONDITION ON P-DOUBLING

Insert a copy of P in the empty position e in the configuration

$$P_i \cdots [[e]_P, NP]$$

where  $P_i$  c-commands  $[e]_P$

The condition (33) makes appropriate predictions for other Polish structures, and contrasts Polish

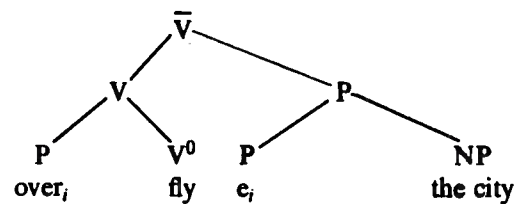
with English, where P prefixation is an adjunction. In (34) I illustrate doubling with  $V^0$  *biegr* 'he run' and *las* 'forest'

- (34) do-biegr do lasu TO  
 od-biegr od lasu FROM  
 pod-biegr pod las TO NEAR  
 po-biegr do lasu TOWARD (outside point of reference)  
 przy-biegr do lasu TOWARD (inside point of reference)  
 wy-biegr z lasu OUT OF  
 w-biegr  $\left\{ \begin{array}{l} \text{w las} \\ \text{do lasu} \end{array} \right\}$  INTO
- (35) prze-biegr (przez) las THROUGH, ACROSS, ABOUT

In (34)-(35)  $V^0$  assigns Theme to the subjects. I assume that it is the 'original' P which assigns the Location role to the NP. The copy P follows only the semantic instructions of the prefix, which is the reason for certain freedom in the copying. The copy P is a case assigner, and as shown in (34)-(35) the P is obligatory, except for the preposition *prze-*. This optionality of doubling with *prze-/przez* may be better understood when contrasted with related English processes: *Over-cliticization* and P-absorption.

### 3.2 English Over-Cliticization

(36)



English does not allow P-doubling (cf. \**to overfly over the city*). The c-command condition (33) is not met in the English structure. In English P-cliticization is not a structure preserving substitution, but an adjunction to head. English does not have the SP(V) position, and the process is restricted to *over* and *under*, often accompanied by semantic lexicalization. From the doubling condition (33) it follows that that English *over-cliticization* may not reanalyze PPs governed by transitive verbs:

- (37) a. to throw the ball over the fence  
 b. \*to overthrow the ball (over) the fence.

Interestingly, P-cliticization does occur with transitive  $V^0$  Roots when P is intransitive, i.e. a particle:

- (38) a. to throw the government over  
 b. to over<sub>i</sub> throw the government e<sub>i</sub>

In (38) there is no reanalysis. P may move as there is no NP which needs case. C-command condition (33) correctly predicts that (37b) is grammatical in Polish:

- (39) prze-rzucił piłkę przez płot  
 He threw the ball over the fence

### 3.3 P-absorption in English

English has another process which shares many properties with P-cliticization. Consider (40)

- (40)a. He strode over the ditch  
 b. He strode - the ditch

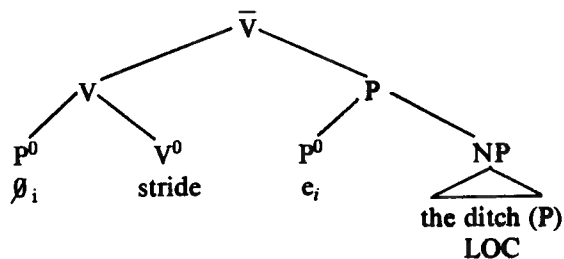
I derive the structure in (40b) by the rule of P-absorption. P-absorption applies to 50 or so English Roots. It affects zero Ps, when certain thematic and semantic conditions are met. The syntactic environment of P-absorption is identical to *Over-cliticization* i.e. P may not be absorbed where it is a case assigner, cf. (41)-(42).

- (41) a. I walked through the street.  
 b. I walked - the street.  
 (42) a. I walked him through the street.  
 b. \*I walked him - the street.

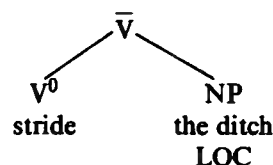
Following the suggestion of Zubizarreta 1988 for *enter* I propose that P-absorption creates a complex verb. In the present system it is expressed in X-bar notation, i.e. the verb in (40a) is  $V^0$ , a Root, while the verb in (40b) is V, i.e. a lexical projection. Thus the structure derived by English P-absorption is like in (43), not like in (44).



(43)



(44)



#### ARGUMENTS FOR THE COMPLEX VERB ANALYSIS IN (43):

- A. The introduction of (44) to the Root Lexicon violates Root Identity of intransitive verbs. In principle, any intransitive Root  $V^0$  could then take a direct object, i.e. subcategorize for both NP and PP.
- B. Thematic structure: In (43) the empty P assigns the thematic index (P) to Location. Since I assume that  $V^0$  has only one thematic index: for the Theme NP or predicate XP, the NP in (44) is left without a role.
- C. Historical: of 50 verbs which allow P-absorption half once occurred with the directional prefix *over* (cf. OED)
- D. Contrastive: Polish strictly prohibits P-absorption, i.e. P may not be deleted with an unprefix root:

- (45) a. *kroczyr przez granicę*  
 He strode across the border
- b. \**kroczyr granicę*
- c. *prze-kroczyr granicę*  
 cross-strode the border

The contrast is explained as follows: Both English and Polish disallow (44). Thus P-absorption may only arise via constructing a complex verb projection. In Polish the perfective prefixation is the only source of verbal prefixation. Due to the principle of Morphological Transparency, cf. section 3.4., the prefix in Polish must always be phonological. In Polish it is the only marker of the inflectional category Perfective.

### 3.4 Morphological Transparency of Polish Aspect

I propose that Polish perfective affixes must be phonologically visible due to the principle of Morphological Transparency of a non-paradigmatic Inflection:

- (46) Morphological Transparency: a category  $\alpha$  must be phonologically visible if (i)  $\alpha$  carries an inflectional feature and (ii)  $\alpha$  is not in a paradigm.

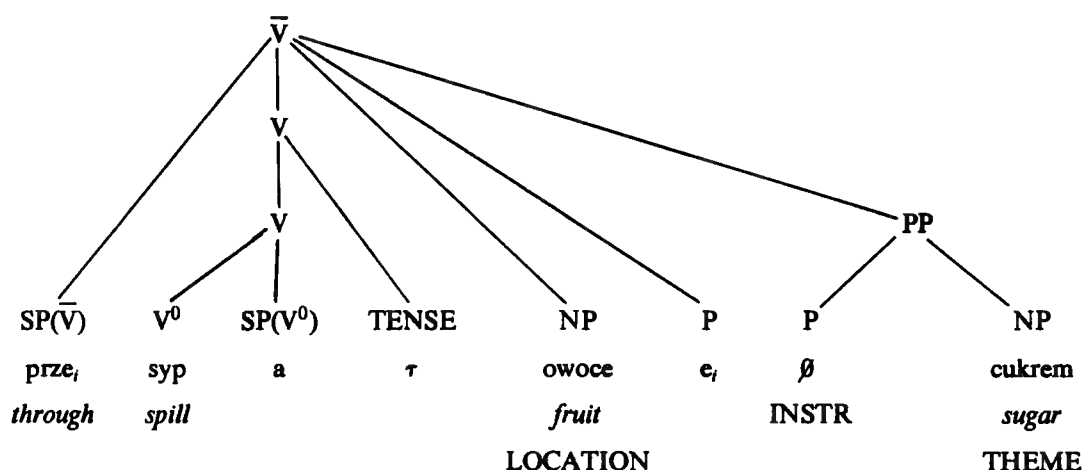
Unlike case or tense inflections, aspectual prefixes and suffixes do not enter conjugational paradigms. This very complex and interesting matter will be discussed in detail in the paper. One of the factors is the parasitic nature of Slavic aspectual prefixation: perfective is executed via an accompanying process, save for pure-perfective. The processes are very diverse, cf. syntax of operators or zero derivation. Any verbal root has many aspect forms, depending on its class and semantics.

Principle (46) does not prohibit zero-inflection in paradigms, which is correct, as there are case markers which are phonologically zero in Polish (paradigm 27, sg nom cf. GUSSMANN 1984).

### 3.5 Load-verbs in Polish

Load-type verbs attracted attention of syntacticians (RAPPAPOORT and LEVIN 1987), LEVIN and RAPPAPOORT 1986, WALIŃSKA DE HACKBEIL 1986). These verbs are interesting for their case and thematic properties, as well as for the study of aspect. Polish, where they are syntactically productive, offers new evidence as to their nature: the structures arise exclusively as part of Perfective Formation:

(47)



Other prefixes of this class are:

- (48) ZA all over location  
PO over location

WY	all over location
O/OB	around location
PRZE	through a layer in location
NA	inside location

The most salient feature of Polish *load*-verbs is the fact that the argument structure (49) does not occur without the prefix, which is a problem for affixation theories of word formation:

(49) \* V Location-NP-ACC Theme-NP-INSTR

ANALYSIS: The prefixes in (48) are intransitive prepositions, corresponding to English particles. Polish does not have free particles. Since Perfective Formation is obligatory, cf. 1.3, the intransitive Ps move obligatorily to  $SP(\bar{V})$ . This analysis correctly predicts the lack of P-doubling in two of the possible targets. P-doubling occurs only in the configuration:

$P_i, \dots, [e]_{P_i}$  NP, where  $P_i$  c-commands  $e_i$

In (47) the Location NP is not governed by an  $[e]_P$  c.f. (50). The intransitive  $[e]_P$  is c-commanded by the prefix, but it does not govern an NP c.f. (51).

(50) *prze-sypał (\*przez) owoce cukrem*

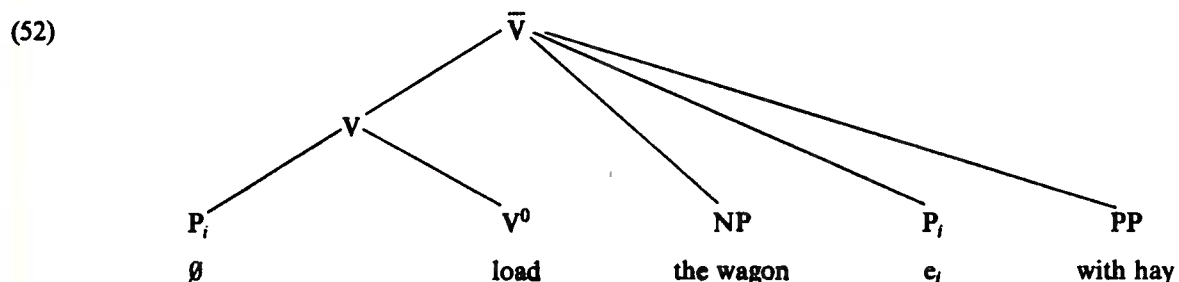
(51) *prze-sypał owoce (\*przez) cukrem*

The analysis also correctly predicts the ungrammaticality of the non-prefixed INSTR-Theme structures in Polish, cf. (49). The obligatory movement of P is assured by the presence of the perfective specifier. Under my analysis *load*-verbs are not formed by the reanalysis of a Location PP and incorporation of a governing P to the verb but by movement of an intransitive P. I consider the class of intransitive Ps in (48) specifiers of Location-NPs. They differ semantically from transitive directionals in (34): they specify the mode of covering a surface.

In (47) the  $\emptyset$  P assigns INSTR case to the Theme NP. The technical details of the thematic structure of *load*-verbs will be studied in the paper. Briefly: Theme is assigned by  $V^0$ . The role of Location is assigned under predication (c.f. WALIŃSKA DE HACKBEIL 1986, 1989). This makes important predictions for zero derivation in *load*-verbs, c.f. section 3.8; only roles assigned under case, i.e. directly by V or P form Complex Verb Configuration with the verb. These arguments are thematically governed by the verb. Arguments whose roles are assigned under predication, c.f. the direct object in *load*-verbs may not be incorporated into the verb.

### 3.6 English *load*-verbs and aspect

I propose that English *load*-verbs are derived analogically to the Polish *load*-verbs in (47), i.e. they form an abstract complex verb.



There is a strong historical evidence for the analysis in (52). Many *load*-verbs once occurred with particles *be-/by* and *over*:

(53) bespatter, besprinkle, bestrew, bestow, bedabble, bedeck, bedoub...

(54) oversprinkle, overswarm, overspread

Since English has unbound particles, *over* may still occur in the original position.

(55) He sprinkled it over with water.

The historical fate of the specifying *be-* and *over*, i.e. their disappearance, follows naturally from my analysis: these prefixes are not protected by Morphological Transparency (46) as they are not inflectional in English. The analysis is further supported by the fact that English has unbound aspect particles, c.f. *up*:

(56) He drank the wine up \*FOR/IN

Rappaport and Levin 1987 note that *load*-verbs in their WITH-variant entail achievement of state in contrast to the locative variant:

(57) Henry loaded the hay on the wagon

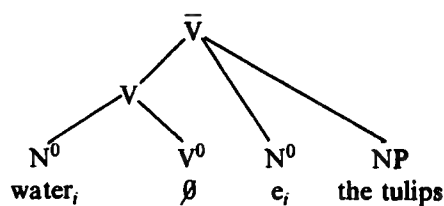
(58) Henry loaded the wagon with hay

They make an attempt of explanation using their Lexical Conceptual Structure representation. In the paper I give arguments against their analysis and defend the absorbed P hypothesis as an explanation of the perfectivity of (58).

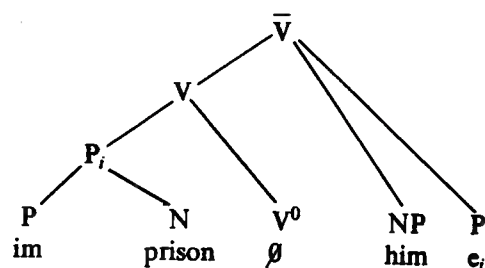
### 3.7 Zero Derivation and aspect

Zero Derivation is a process of forming verbs from other categories, c.f. *wet NP*, *water NP*, *march NP*. In Walińska de Hackbeil 1985, 1986 I argue that Zero Derivation involves incorporation of a thematic argument into verb via move  $\alpha$ , where  $\alpha = A, N, V, P$ . As a result, a complex verb structure is formed, as in (59a-b).

(59a)



(59b)

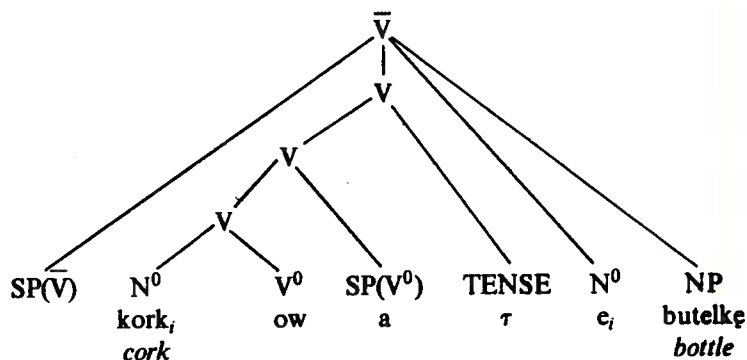


English Zero Derivation is typically independent of prefixation, c.f. (59a), but may be accompanied by it, c.f. (59b). Polish, too, displays these two modes of deriving verbs, and unsurprisingly the prefixed verbs are always perfective, since Polish has no verbal prefixation independent of Perfective Formation. This means that unprefixed structures corresponding to (59b) are not grammatical, which is also true for English:

(60) \* prison him

*En*-prefixation was once very productive in English. Like *over* and *be*, *en-* is not protected by Morphological Transparency, thus it has massively dropped in several hundreds of zero derived verbs. The structures below are Polish structures which correspond to the English (59a) and (59b) respectively:

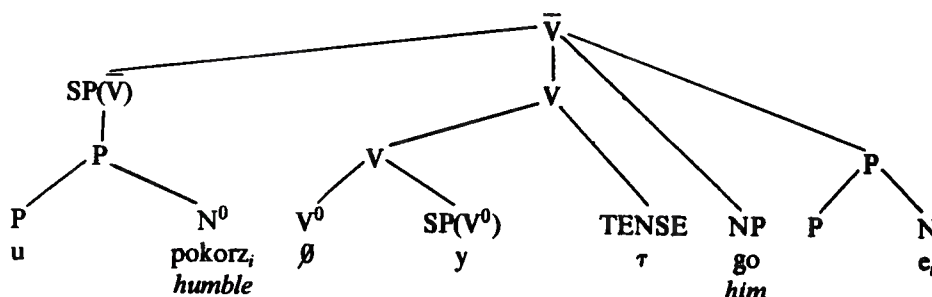
CLASS A (61a)



He corked the bottle FOR/\*IN

## CLASS B

(61b)



He humbled him IN/\*FOR

The two classes differ significantly, and the contrast is predicted by the analysis.

Class A is very free in terms of argument structure of verbal heads. The derived verbs are imperfective, so they form perfective as any other verb and may cooccur with operators and directionals. Class B is zero derived and perfectivized simultaneously. Since the incorporated P phrase occurs in the  $SP(\bar{V})$  position these verbs may cooccur only with operators. I consider the prefixes of class B copulative or predicative prepositions, c.f. English *as* or *en-* in *imbitter NP* (Walińska de Hackbeil 1985, 1986). Most productive one in Polish is *u-*. These prefixes always head predicate phrases, so the structure B is restricted to causatives and inchoatives.

### 3.8 Zero derivation in load-verbs.

As argued in section 3.5, in *load-verbs* only the Theme argument is coindexed thematically with the verb, while Location is assigned under predication. It follows that only Theme may be incorporated into the verb. Although the zero derived verbs may occur without perfective prefixation and form perfective with other perfective classes, c.f. *bandażować*, *za-bandażować*, the thematic restriction indicates that incorporation in *load-verbs* constitutes a special case, and the two processes must be correlated. Incorporation of Location in *load-verbs* is strictly ungrammatical:

(62) \* O-butelkować wino

O-bottled wine

He bottled the wine

## CONCLUSIONS

$\bar{V}$  ASPECT: English does not have the morphological aspect, yet the rules which derive Polish perfective are also part of English grammar:

- Polish: a. Movement of Directional Ps  
 b. Optional doubling of *prze-*  
 c. Prefixal Zero Derivation  
 d. *Load-verbs* (overt P)

- English: a. *Over-cliticization*  
 b. P-absorption  
 c. *En-prefixation* as Zero Derivation  
 d. *Load-verbs* (abstract P)

In both languages the Affect P cluster occurs at the same level representation, i.e. d-structure restricted to  $V^0$  Roots: causative, locational and manner of movement verbs. The language particular contrasts in the application and the effects of the rules are not expressed in the statements of the rules or by classifying the English Affect P as derivational and the Polish one as inflectional. The contrasts follow from the properties of sentence structure independent of Affect P:

- (i) The specification of IN/FOR feature of the aspectual operator (Parameter):  
 obligatory POLISH/optional ENGLISH
- (ii) The presence in the Polish syntactic structure of two prefixal SP(V) positions:  
 POLISH: Affect P is a structure preserving substitution, the prefix c-commands its trace.  
 ENGLISH: Affect P is an adjunction to the head, the prefix does not c-command its trace.

VP ASPECT: Affect P, where P is a quantificational operator, occurs at the level of unrestricted d-structure, thus the rules are not Root-governed and may apply to structures derived at  $\bar{V}$  level. Formal properties of these rules require further research. Since these rules crucially involve the quantification of argument NPs they may represent Polish-particular or Slavonic type of aspect composition.

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