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Towards an Areal Typology of Prefixal Perfectivization

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Abstract
This paper presents the results of an areal-typological study of prefixal perfectivization in Slavic, Baltic, Yiddish, Hungarian, Ossetic and Kartvelian languages based on a uniform set of morphological and functional-semantic parameters. It is shown that there are two clusters of prefixal perfectivization, i.e., Slavic and Kartvelian, while other languages display significant degrees of difference both from each other and from the two clusters. It is further argued on the basis of existing evidence that the development and distribution of the current "landscape" of preverb-based aspectual systems in the languages of Central and Eastern Europe and the Caucasus have been shaped by a complex interplay of genetic, typological and contact factors.

Keywords: aspect, perfectivization, prefixation, areal linguistics, contact linguistics, linguistic typology.

1. Introduction

Recent studies in the typology of verbal aspect (Dahl 1985; Breu 1992, 2000a; Bybee et al. 1994; Dahl 2000; Plungian 2011) have argued that Slavic aspect constitutes a cross-linguistically rather special type of aspectual system and have emphasized the role of prefixation (preverbation) in both its diachronic rise and synchronic makeup. Parallels to Slavic aspectual systems in the neighboring languages have been pointed out in general works on aspect at least since Comrie (1976): cf. Dahl (1985); Breu (1992); Maisak (2005); Kiefer (2010) and especially Tomelleri (2008, 2009, 2010). However, to date a comprehensive comparative study of all the aforementioned aspectual systems, approaching them with a common typological methodology and scrutinizing the areality of the phenomenon, has been lacking.

The goal of this paper is to investigate the systems of aspectual preverbation of the languages of Eastern Europe, including not only Slavic, but

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also Baltic, Germanic, Hungarian, as well as the languages of the Caucasus (Kartvelian and Ossetic), with respect to a common set of typological parameters. These parameters involve the morphological properties of verbal prefixes, their semantic and functional characteristics, and notably the functional properties of verbal systems with preverbs. The parametric values of the languages studied are analyzed from both a qualitative and quantitative perspective in order to arrive at a non-aprioristic clustering of verbal systems. It is shown that two major clusters of such systems emerge, viz. Slavic vs. Kartvelian, forming two opposite poles of a continuum in which other languages occupy various intermediate positions. The roles of typological universals, genetic inheritance and contact-induced change in the development of the current areal patterning of verbal systems with prefixal perfectivization are assessed (cf. the "triangulation" approach proposed by Wiemer et al. (2014)); I argue that language contact has played a noticeable, though limited role in this development.

The structure of the article is as follows. In section 2 I provide a working definition of preverbs and outline the domain of my study. In section 3 I outline the parameters used for a typological classification of preverb-based aspectual systems. Section 4 presents the results of the quantitative cluster analysis of the values of the typological parameters, and section 5 discusses the role of genetic, typological and contact factors in the development and areal distribution of prefixal perfectivization.

2. The Domain of Investigation

Following Maslov 1959a, Comrie 1976, Dahl 1985, and much other work on Slavic aspect and the typology of aspectual systems, I treat "perfectivization" as overt formal expression of the boundedness of the event denoted by the verbal stem. Most saliently, perfectivization applies to verbs denoting telic processes and signals that the terminal point of such a process has been achieved. In many of the languages of Central and Eastern Europe, both Indo-European and non-Indo-European, perfectivization is expressed by means of a special kind of verbal prefixes called preverbs. Here I define preverbs independently of aspectual considerations as morphemes which systematically (though not necessarily always, cf. Hungarian or German) occur as verbal prefixes and express (at least as their most concrete and often historically primary meaning) broadly understood spatial modification

of the eventuality denoted by the verb (e.g., path with verbs of motion, e.g. Russian *bežat'* 'run' ~ ***u****bežat'* 'run away', ***pod****bežat'* 'run towards' etc., cf. Lazard 1995, 23).

The original function of preverbs is to express spatial (or, via metaphor, temporal) boundaries of the event denoted by the base verbs, hence their characterization as "bounders" and the term "bounder-based perfectives" (Bybee and Dahl 1989; Bybee et al. 1994, 87–90) for the aspectual systems where such morphemes are used to mark perfectivization. Bounder-based perfectives (in contrast to "anterior-based perfectives", Bybee and Dahl 1989; Bybee et al. 1994) are cross-linguistically characterized as being closer to derivation rather than inflection, in principle independent of the expression of tense and mood, showing varying degrees of idiosyncrasy of verb+preverb combinations (potentially ranging from fully compositional to fully idiomatic), and creating systems of "Aktionsarten", where perfectivization is coupled with other so-called "procedural" meanings (e.g., intensive, delimitative, cumulative etc.), rather than binary oppositions.

Perfectivization by means of preverbs is amply attested in Slavic languages, as well as in a number of neighboring languages, such as Baltic (Lithuanian *skaitė* 'was reading' ~ ***per****skaitė* 'read through'), Germanic (Yiddish *washn* 'wash' ~ ***oys****washn* 'wash up'), Finno-Ugric (Hungarian *olvasta* 'was reading it' ~ ***fel****olvasta* 'read it through'), Iranian (Ossetic *fysta* 'was writing' ~ ***nyff****ysta* 'wrote up') and Kartvelian (Georgian *c'ers* 'is writing' ~ ***da****c'era* 'wrote up'). Prefixal perfectivization is also attested to varying extents in Romani dialects (Schrammel 2005), Istro-Romanian (Klepikova 1959, Hurren 1969), and Livonian (de Sivers 1971), where both prefixes and their functions have been borrowed under intensive language contact. Verbal prefixation without systematic aspectual functions is found on the fringes of this area, e.g. in such languages as German and Dutch to the West, Ostyak, Vogul and Selkup (Uralic, Kiefer and Honti 2003) to the East, and North-Caucasian (e.g., Abkhaz, Adyghe, Agul, Dargwa).

The languages included into the core of my areal-typological investigation are the major standard Slavic languages (Russian,[1] Polish, Czech, Slovak, Bulgarian, Macedonian, Bosnian/Croatian/Serbian, as well as a variety of Upper Sorbian known as "Colloquial Upper Sorbian", Breu 2000b, 2012), the

1 For Ukrainian and Belorussian, I have no sufficient and reliable data; for all what I know, their verbal systems do not differ from that of Russian in any respect relevant for my study.

Baltic languages (Lithuanian and Latvian), Yiddish and German, Hungarian, Ossetic, the Kartvelian languages (Georgian, Svan, Mingrelian and Laz), as well as the North-West Caucasian Adyghe. The inclusion of German and Adyghe, which do not have prefixal perfectivization *sensu stricto*, is justified by the necessity to have some "controls" for the study, constituted by verbal systems with the productive use of preverbs without systematically developed aspectual functions.

3. The Typological Parameters

The parameters used in the investigation of the systems of prefixal perfectivization fall into three groups concerning: (i) the morphological properties of preverbs; (ii) their functional properties; and (iii) the functional make-up of verbal systems with preverbs. Below I list the parameters and provide illustrative examples.

1) Morphological properties of preverbs

1.1) Morphological status of preverbs, i.e. whether they are bound morphemes or separable wordforms, as for instance in German, example (1).

GERMAN (Zeller 2004, 190)

(1) a. Die Männer werden das Heu **auf**laden.
'The men will load the hay up.'
b. Die Männer laden das Heu nicht **auf**, sondern **ab**.
'The men are not loading the hay [up], they're loading it down.'

Separable preverbs are attested in German, Yiddish, Hungarian, Ossetic and Svan.

1.2) Other verbal prefixes besides preverbs *sensu stricto* as defined in section 2, cf. examples (2) and (3).

LITHUANIAN

(2) a. tebe-**per**-rašo
CNT-PRV-write:PRS.3
'is still rewriting'
b. **nu**-si-leido
PRV-RFL-let:PST.3
's/he descended [lit. let oneself down]'

Georgian

(3) **ça**-v̲-i̲-k̡itx-e
PRV-1.SB-CV-read-AOR
'I read it'

Prefixes besides preverbs are attested in Baltic, Ossetic, Adyghe and Kartvelian.

1.3) Position of preverbs in the verbal complex (provided there are other prefixes): word-initial vs. medial vs. immediately preceding the stem. See Georgian example (3) for word-initial preverbs and Lithuanian example (2a) for word-medial preverbs.

1.4) Iteration (stacking) of preverbs: whether verbal prefixes may be productively stacked, cf. Russian ***po-na-vy****-dumyvala* 'she invented many different things'. Preverb stacking is amply attested in Slavic (cf. Rojzenzon 1974 and much recent literature, e.g., Tatevosov 2009), but hardly elsewhere; to a limited extent, preverb iteration is found in Latvian, German and Adyghe.

1.5) Morphological subclassification of preverbs: whether prefixes may be further subdivided according to some formal property, e.g., separable vs. inseparable preverbs in German and Yiddish or deictic vs. locative preverbs in Georgian, which occur in different slots of the verbal complex, cf. example (4).

Georgian

(4)	a. **mi**-di-s	~	**mo**-di-s
	PRV.DEIC-go-PRS.3SG		PRV.DEIC-go-PRS.3SG
	's/he is going from here'		's/he is coming here'
	b. **a**-di-s	~	**a-mo**-di-s
	PRV.LOC-go-PRS.3SG		PRV.LOC-PRV.DEIC-идти-PRS.3SG
	's/he is going up there'		's/he is coming up here'
	c. **še**-di-s	~	**še-mo**-di-s
	PRV.LOC-go-PRS.3SG		PRV.LOC-PRV.DEIC-go-PRS.3SG
	's/he is going inside (there)'		's/he is coming inside (here)'

Morphological subcategorization of preverbs is found in German, Yiddish, Kartvelian and Adyghe.

2) Functional properties of preverbs and prefixal verbs.

2.1) Systematic expression of deictic notions, cf. Georgian example (4) above and Iron Ossetic in table 1.

Table 1. Expression of Deixis in Iron Ossetic Preverbs (Abaev 1959, 650–651)

	'inside'	'outside'	'down'	'up'
towards the speaker	ba-	ra-	ær-, sæ-	š-
from the speaker	ærba-	a-	nə-	

Systematic expression of deixis by preverbs is attested in German and all Caucasian languages of my sample.

2.2) Perfectivizing function of preverbs is systematically attested in all the investigated languages except German, where it is very limited, and Adyghe, where it is lacking.

2.3) "Purely perfectivizing" preverbs, i.e., those whose contribution to the meaning of the verb is limited to rendering the verb perfective; arguably, most cases of "pure perfectivization" are due to the so-called "subsumption" whereby the resulting state expressed by the preverb coincides with that implied by the verb itself (see Vey 1952; van Schooneveld 1958); however, as argued by Dickey (2008, 2012), preverbs may develop purely perfectivizing functions by lexical expansion resulting in their emancipation from particular semantic classes of verbs, as has happened with e.g. *po-* in East Slavic, *s-/z-* in West Slavic, *pa-* in Lithuanian or *da-* in Georgian.

2.4) Delimitative preverbs, i.e., those attaching to verbs denoting states and atelic processes with the resulting prefixal verb expressing a temporally bounded state or process, e.g. Russian *spat'* 'sleep' ~ ***po****spat'* 'sleep for a while', cf. Ossetic, example (5).

Iron Ossetic (Achvlediani (ed.) 1963, 238)

(5) iw sal-dær až-ə kwə **a**-kwəš-ta
one so.much-INDF year-OBL COMP PRV-work-PST.3SG
p'lotnik-æj..
carpenter-ABL
'Having worked as a carpenter for several years...'

Delimitative preverbs (with varying productivity) are attested in Slavic, Baltic and Ossetic.

2.5) Durative (imperfective) use of prefixal verbs of motion, cf. Colloquial Upper Sorbian example (6).

Colloquial Upper Sorbian (Breu 2000b, 56)

(6) Dyš smó mó šijeli, **su** te lětadła rune **wot-lećeli**.
'When we came, the planes were just flying away.'

Such a use, alien to most Slavic languages but Sorbian, is attested in Baltic, German, Yiddish, Ossetic, Adyghe and all Kartvelian languages.

2.6) Durative (imperfective) use of prefixal verbs not denoting motion, cf. again Colloquial Upper Sorbian example (7).

Colloquial Upper Sorbian (Breu 2000b, 55)

(7) Wón **na-pisa** rune někotre słowa.
'He is writing some words now.'

Imperfective use of prefixed verbs in general is more restricted than that of verbs of motion, and is attested only in Baltic languages, German, Yiddish and Adyghe.

3) Functional properties of verbal systems

3.1) Use of the present tense of prefixed (or non-prefixed perfective, if such exist) verbs in the contexts of historical present and habitual, cf. Czech (8) vs. Russian (9), illustrating the well-known East-West divide of the Slavic aspectual systems (Dickey 2000), and Laz (10).

Czech (Dickey 2000, 136)

(8) Dívka čte knihu, ve které je 60 stránek. První den **přečte**$_{PF}$ čtvrtinu knihy...
'A girl is reading a book containing 60 pages. In the first day she reads a quarter of the book.'

Russian (ibid.)

(9) Devočka čitaet knigu, v kotoroj 60 stranic. V pervyj den' ona *__pročitaet__$_{PF}$ // __pročityvaet__$_{IPF}$ četvërtuju čast' knigi...
'id.'

Laz, Arhavi dialect (Lacroix 2009, 342)

(10) ha daγi-s mutu ko-b-ʒir-na,
this mountain-DAT something AFF-1SG.SB-see-COND
o-b-i-bxor-ja.
PRV-1SG.SB-CV-eat-EVID
'When I find something on this mountain, I eat it up.'

The use of prefixed verbs in historical present and habitual contexts is attested in all languages of my sample except Polish, East Slavic, Bulgarian and Macedonian.

3.2) Futurate use of the present tense of prefixed/perfective verbs, e.g. Mingrelian *č̣aruns* 's/he writes' ~ ***do**č̣aruns* 's/he will write', is attested in all Slavic languages except BCS, Bulgarian and Macedonian, and in Kartvelian languages.

3.3) The use of prefixed/perfective verbs with phasal predicates, impossible in most Slavic languages, cf. Russian *načal risovat'* / **__na__risovat'* 's/he began to paint', is amply attested in other languages, cf. Hungarian example (11).

Hungarian [Majtinskaja 1960, 139]

(11) [...] aki kezd-te már **le**-szed-ni az
which start-PST.3SG.OC already PRV-take-INF DEF
abrakos tarisznyá-k-at.
forage sack-PL-ACC
'[...] who already started to unload the sacks with forage.'

Besides Hungarian, such use is attested in Colloquial Upper Sorbian, German, Yiddish, Baltic, and Kartvelian.

3.4) Morphological means of secondary imperfectivization, i.e. formation of a verb able to occur in imperfective contexts on the basis of a verb formed by (prefixal) perfectivization, e.g., Russian ***pere**pisat'* 'rewrite' ~ ***pere**pisyva**t'*** 'be engaged in rewriting', Lithuanian ***per**rašyti* ~ ***per**rašinė**ti*** 'id.', Mingrelian ***ge**-tmi-a-ʒic-en-d-u* 'was laughing at him/her'. Such formations are attested (with varying degrees of productivity) in all Slavic languages, Lithuanian, Ossetic and Mingrelian.

3.5. Syntactic means of secondary imperfectivization, i.e. special constructions rather than morphological markers allowing a prefixed perfective verb to appear in imperfective contexts, e.g. postposition of preverbs in Hungarian, example (12).

Hungarian (Csirmaz 2006, 113)

(12) a. Amikor csenget-t-ek, János **le-men-t** a lépcső-n.
when ring-pst-3pl Janos prv-go-pst.3sg def stairs-spres
'When the bell rang, Janos went down the stairs.'

b. Amikor csenget-t-ek, János **men-t** **le** a lépcső-n.
when ring-pst-3pl Janos go-pst.3sg prv def stairs-spres
'When the bell rang, Janos was going down the stairs.'

Secondary imperfectivization by syntactic means is attested in Colloquial Upper Sorbian, Latvian and Hungarian; in all these languages it involves use of verbs with adverbials semantically (though not always formally) corresponding to preverbs.

3.6) Non-preverbal morphological means of perfectivization, attested in Slavic and Lithuanian, cf. Russian *tolkat'* 'push' ~ *tolk**nu**t'* 'push once', Lithuanian *moti* 'wave' ~ *mos**telė**ti* 'wave once'.

3.7) Future tense independent of aspectual distinctions, e.g. Lithuanian *rašy**si**u* 'I will be writing' ~ *pa**r**ašy**si**u* 'I will write (the whole thing)'. Such future formations (both morphological and periphrastic) are attested in Sorbian, South Slavic, German, Yiddish, Baltic, Ossetic, Adyghe, Mingrelian and Laz.

3.8) The distinction between inflectional perfective (Aorist) and imperfective (Imperfect) tenses in addition to the derivational aspectual distinctions based on prefixal perfectivity is attested in Bulgarian and Macedonian, Adyghe and all Kartvelian languages, albeit only in Bulgarian the two systems appear fully independent of each other and semantically compositional (see e.g. Lindstedt 1984).

The values of the parameters for all the investigated languages are summarized in table 2. All the parameters but 1.3) (position of preverbs) are treated as binary with values "1" ("yes") and "1" ("no"). Undoubtedly, this is a simplification, since many parameters presuppose a scale rather than a binary opposition, but such a reduction of the actual diversity to just two opposing values is a viable solution if one wishes to apply a quantitative cluster analysis. For parameter 1.3) "1" is "preverbs are verb-initial", "2" is "other prefixes may both precede and follow preverbs", and "3" is "preverbs immediately precede the root"; for languages not possessing other verbal prefixes this parameter is left blank; blank cells in the table mean either "parameter is inapplicable" or "not enough data is available".

Table 2. Parameter Values for the Studied Languages

Parameters	*Rus*	*Pol*	*Cze*	*Slvn*	*BCS*	*Bulg*	*Mac*	*Sorb*	*Lith*	*Latv*
1.1 separability	0	0	0	0	0	0	0	0	0	0
1.2 other prefixes	0	0	0	0	0	0	0	0	1	1
1.3 position									2	3
1.4 iteration	1	1	1	1	1	1	1	1	0	1
1.5 morph. subtypes	0	0	0	0	0	0	0	0	0	0
2.1 deixis	0	0	0	0	0	0	0	0	0	0
2.2 perfectivization	1	1	1	1	1	1	1	1	1	1
2.3. pure perfectives	1	1	1	1	1	1	1	1	1	1
2.4. delimitative	1	1	1	1	1	1	1	1	1	1
2.5. durative motion v.	0	0	0	0	0	0	0	1	1	1
2.6. durative other v.	0	0	0	0	0	0	0	1	1	1
3.1. perfective present	0	0	1	1	1	0	0	1	1	1
3.2. perf.pres. = future	1	1	1	1	0	0	0	1	0	0
3.3. phasal verbs	0	0	0	0	0	0	0	1	1	1
3.4. morph. 2imperf	1	1	1	1	1	1	1	1	1	0
3.5. synt. 2imperf	0	0	0	0	0	0	0	1	0	1
3.6. non-pref. perf.	1	1	1	1	1	1	1	1	1	0
3.7. neutral future	0	0	0	1	1	1	1	1	1	1
3.8. aorist/imperfect	0	0	0	0	0	1	1	0	0	0

Parameters	*Ger*	*Yid*	*Hun*	*Oss*	*Geo*	*Svan*	*Ming*	*Laz*	*Ady*
1.1 separability	1	1	1	1	0	1	0	0	0
1.2 other prefixes	0	0	0	1	1	1	1	1	1
1.3 position				1	1	1	2	2	2
1.4 iteration	1	0	0	0	0	0	0	0	1
1.5 morph. subtypes	1	1	0	0	1	1	1	1	1
2.1 deixis	1	0	0	1	1	1	1	1	1
2.2 perfectivization	0	1	1	1	1	1	1	1	0
2.3. pure perfectives	0	1	1	1	1	1	1	1	0
2.4. delimitative	0	0	0	1	0	0	0	0	0
2.5. durative motion v.	1	1	0	1	1	1	1	1	1
2.6. durative other v.	1	1	0	0	0	0	0	0	1
3.1. perfective present	1	1	1	1	1		1	1	1
3.2. perf.pres. = future	0	0	1	0	1	1	1	1	0
3.3. phasal verbs	1	1	1	0	1		1	1	1
3.4. morph. 2imperf	0	0	0	1	0	0	1	0	0
3.5. synt. 2imperf	0	0	1	0	0	0	0	0	0
3.6. non-pref. perf.	0	0	1	0	0	0	0	0	0
3.7. neutral future	1	1	1	1	0	0	1	1	1
3.8. aorist/imperfect	0	0	0	0	1	1	1	1	1

4. Results of the Quantitative Analysis

The values of the parameters introduced in the previous section and shown in table 2 were fed into the NeighborNet algorithm (Huson and Bryant 2006), which creates bi-dimensional graph diagrams showing clustering and degree of similarity or difference between items (in our case, verbal systems) based on the parametric values. The degree of (dis)similarity between items is iconically reflected in the distance between the terminal nodes of the diagram, while the lack of significant correlations between individual parameters is revealed by the complex non-linear structure of the graph. The clustering of the investigated verbal systems is shown in figure 1. First of all, it is clear that the preverb-based aspectual systems in the languages studied display a high degree of diversity, amply revealed by a multifactorial analysis not focusing only on the most evident aspectual distinctions. Notably, the important intra-Slavic division between the "Western" and "Eastern" aspectual areas demonstrated by Dickey (2000 and subsequent publications) turns out to be "invisible" from a broader cross-linguistic perspective, being minor in comparison to the full range of diversity attested in the studied verbal systems.

Figure 1.

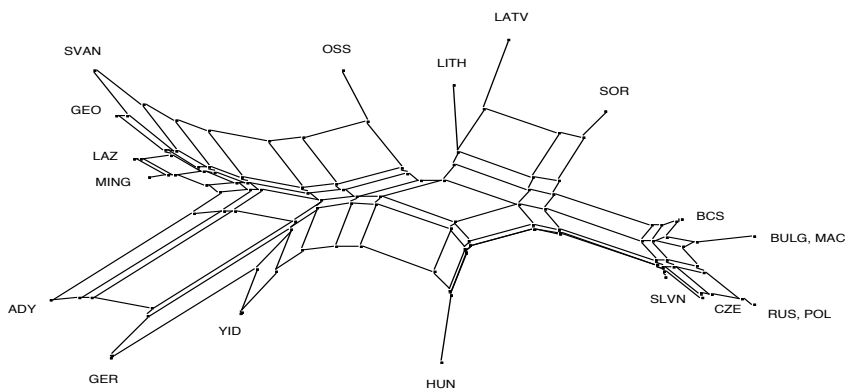

Figure 1 clearly shows two major clusters of systems of prefixal perfectivization, both defined by genetic relationship rather than areal proximity: the

Slavic cluster (with Colloquial Upper Sorbian as an outlier) and the Kartvelian cluster (with the geographically close Ossetic as a distant outlier). These two clusters form the opposing poles of the continuum, with other languages occupying intermediate positions and not showing significant similarity either to each other or to either of the two poles. It is notable that Ossetic, geographically so close to Kartvelian, is located right in the middle of this continuum, showing almost as much overall similarity to Slavic as to its Caucasian neighbors. The Slavic and the Kartvelian clusters are characterized by fairly different constellations of parameter values, suggesting not one but two "prototypes" of prefixal perfectivization, i.e. the Slavic and the Caucasian (comprising Ossetic as well) one, whose properties are listed in table 3.

Table 3. The Two "prototypes" of Prefixal Perfectivization

Slavic	Kartvelian / Caucasian
iteration of preverbs	no preverb iteration
no clear morphological or functional subdivisions of preverbs	morphological and functional subdivisions of preverbs
lack of other verbal prefixes	presence of other verbal prefixes
no systematic expression of deixis by preverbs	systematic expression of deixis by preverbs
productive delimitative prefixation	no productive delimitative Aktionsart (except Ossetic)
productive morphological secondary imperfectivization	no productive secondary imperfectivization (except Ossetic and Mingrelian)
a suffixal perfectivizer	no perfectivizers except preverbs
prohibition of the co-occurrence of perfective verbs with phasal predicates	no prohibition of the co-occurrence of perfective verbs with phasal predicates (except Ossetic)
prohibition of the imperfective use of prefixed verbs of motion	imperfective use of prefixed motion verbs
no inflectional Aorist and Imperfect (except Bulgarian and Macedonian)	inflectional Aorist and Imperfect (except Ossetic)

Figure 1 also reveals an important limitation of the quantitative clustering method, i.e. its inability to determine clear areal influences (e.g., Sorbian is shown to be different from other Slavic languages, but is not shown to have

significant similarities to German, which has exerted much contact pressure on its structure), which is an indication that contact-induced change affects individual parameters rather than whole grammatical systems.

5. The Role of Contact, Genetics and Typology

In this section I will necessarily briefly assess the roles in the areal distribution of the systems of prefixal perfectivization of such factors as universal typological tendencies, language contact, and genetic inheritance.

Cross-linguistically, verbal satellites or other elements specifying the spatial extent of the situation tend to develop into aspectual "bounders" (Breu 1992; Bybee et al. 1994; Maisak 2005). Such developments have been recurring in the documented history of the Indo-European languages, being attested, besides Balto-Slavic, with Latin (Haverling 2003) and Gothic (Maslov 1959b) preverbs, as well as with adverbial particles in Germanic (e.g. Brinton 1988) and Italian (Iacobini and Masini 2006). Outside Indo-European the use of (not necessarily prefixal) verbal satellites for perfectivization is attested in Estonian (Metslang 2001), in Quechua (Hintz 2011), see example (13), and some Austronesian languages, see example (14).

South Conchucos Quechua (Peru, Hintz 2011, 27, 28)

(13) a. tsa karrete:ra-man cha-**rpu**-r ka:rru-ta shuya-ku-ru:.
then road-ALL arrive-PFV:down-SS vehicle-ACC wait-RFL-PST:1
'Then arriving down to the road, I waited for a bus.'

b. tsayno: niptinnam... upa:lla-ku-**rpu**-ya-rqa-n.
so WHEN.he.spoke quiet-RFL-PFV:down-PL-PST-3
'After he spoke like that, they were completely quiet.'

Kusaie (Austronesian > Oceanic, Micronesia, Lee 1974, 198–199)

(14) a. Sruhk-**ack** poum.
raise-PFV:up hand:2SG.POSS
'Raise your hand.'

b. Sah el ahkos-**ack** insin soko ah.
Sah 3 light-PFV:up boat one DEF
'Sah started up the motorboat.'

c. Sepe el fahk-**ack** ma lukmac se nuh seltahl.
Sepe 3 say-PFV:up thing secret INDF to them
'Sepe disclosed the secret thing to them.'

Language contact phenomena attested in the domain of prefixal perfectivization are rather diverse and include both matter (MAT) and pattern (PAT) borrowing (in terms of Matras and Sakel 2007). Situations of MAT-borrowing comprise instances of transfer of individual prefixes into a system already possessing preverbs (e.g. Baltic dialects in contact with Slavic, see e.g. Wiemer 2009), as well as borrowing of whole preverb systems into languages originally without preverbs (e.g., Romani dialects in contact with Slavic, or Livonian in contact with Latvian). Cf. examples (15) from Romani, (16) from Livonian and (17) from Istro-Romanian, which has borrowed from Slavic not only prefixes, but the imperfectivizing suffix as well.

ROMANI, North Russian dialect in contact with Russian (Rusakov 2001, 315–316)

(15) *te* ***ot****-des* 'give away' ~ Rus. ***ot****dat'*, *te* ***vy****-des* 'give out' ~ ***vy****dat'*, *te* ***roz****-des* 'distribute' ~ Rus. ***raz****dat'*, ***ros****-phenava* 'I will tell' ~ Rus. ***ras****skažu*

LIVONIAN in contact with Latvian (de Sivers 1971, 28–29)

(16) *lād̄ō* 'go': ***aiz****-lād̄ō* 'go out' ~ Latv. ***aiz****iet*, ***ap****-lād̄ō* 'go around' ~ Latv. ***ap****iet*, ***ie****-lād̄ō* 'go in' ~ Latv. ***ie****iet*, ***nuo****-lād̄ō* 'reach' ~ Latv. ***no****iet*, ***sa****-lād̄ō* 'come together' ~ Latv. ***sa****iet*.

ISTRO-ROMANIAN in contact with Balkan Slavic (Klepikova 1959, 38–39)

(17) a. *ćira* ~ ***po****ćira* 'have supper'
b. *durmi* 'sleep' ~ ***ze****durmi* 'to fall asleep' ~ ***ze****durmi****ve****i* 'to be falling asleep'

Examples of PAT-borrowing are even more numerous. They comprise restructuring of semantics of prefixes and change in the expression of Aktionsarten (e.g., Yiddish in contact with Slavic or Sorbian in contact with German, see Wexler 1964, 1972, Talmy 1982, Toops 1992), cf. example (18).

Yiddish in contact with Slavic (Wexler 1964, 1972; Talmy 1982)

(18) ***on****-shraybn* 'write' ~ Rus. ***na****pisat'*, ***far****-blijen* 'break into blossom' ~ Rus. ***za****cvesti* vs. Ger. ***ver****-blühen* 'wither'

Other instances of PAT-borrowing include the calquing of the German "adverbial particles" in Slavic and Romani varieties (Bayer 2006; Schrammel 2002, 2005), cf. example (19), and expansion of the Lithuanian iterative suffix *-(d)inė-* into the domain of secondary imperfectivization (Kardelis, Wiemer 2002; Wiemer 2009), example (20).

Romani (Austrian Sinti) in contact with German (Schrammel 2002, 52)

(19) Auf amol dšias o vuda ***pre***.
suddenly go:PST.3SG DEF door up
'Suddenly the door opened.' (~ Ger. Auf einmal ging die Tür **auf**)

Lithuanian

(20) a. kai **per**-ei-**dinė**-jo gatv-ę
when PRV-go-ITER-PST.3 street-ACC.SG
'while crossing the street' (non-Stand. Lith.) ~ Russian kogda **perechodil** ulicu

b. kai **ėj-o** **per** gatv-ę
when go-PST.3 across street-ACC.SG
'id' (Stand. Lith.)

In each individual case the extent of contact influence in the domain of prefixal perfectivization depends on the sociolinguistic situation and on the structural similarities vs. differences between the verbal systems (e.g. under contact with Slavic secondary imperfectivization did not arise in Yiddish and Latvian, whose verbal systems lack any comparable verbal affix). Even in situations of prolonged and very intensive language contact MAT- and/or PAT-borrowing tends to be limited to formally transparent and semantically loaded features, and "global copying" of an aspectual system as a whole is not attested and does not seem to be possible.

Turning to the factor of genetic relatedness in the development of the aspectual systems, it is important to note that in all languages except those which have directly borrowed verbal prefixes, systems of preverbs encoding spatial meanings are inherited from the respective protolanguages. Thus,

Slavic, Baltic and at least some Germanic and Ossetic preverbs go back to the Proto-Indo-European verbal satellites; Hungarian preverbs find counterparts in the Ob-Ugric languages (Kiefer and Honti 2003, Honti 1999); though fairly diverse, the preverbs in Kartvelian are attested across the whole family (Hewitt 2004, Rostovtsev-Popiel 2012a), and there are all reasons to project them to the proto-Kartvelian stage. This implies that at least some prerequisites for the development of the prefixal perfective have been present in the languages in question prior to any possible contact between them which could lead to the spread of the grammaticalization pattern "spatial preverb > Aktionsart preverb > perfectivizing preverb". On the other hand, it is clear that in all language families under study the development of verbal satellites or preverbs into markers of perfectivity is a relatively late innovation, in some cases, e.g. Hungarian (Kiss 2006) and Georgian (Shanidze 1942; Rostovstev-Popiel 2012b) traceable through historical documents. Therefore, the question remains which factors triggered the development and spread of the perfectivizing use of preverbs in the Central and Eastern European and some Caucasian languages.

In particular, there is no reason to assume that the currently observed similarities between the European and the Caucasian subareas of prefixal perfective have arisen due to language contact between these two groups of languages (contra Abaev 1965, who postulated prehistoric Slavic influence on Ossetic, and, indirectly, on Kartvelian; see critique in Thordarson 1982, 254–256; Levitskaja 2004, 32–33). Though prehistoric contacts between the Balto-Slavic and the Iranian peoples and languages are assumed to have taken place (e.g. Zaliznjak 1962, Ėdel'man 2002), they must have significantly predated the time when the modern grammatical systems and especially their functional make-up started emerging. Rather, the Balto-Slavic and Ossetic systems of prefixal perfectivization are independent developments based on a common genetic inheritance.

However, it is quite plausible that language contact between Ossetic and Kartvelian has been at least partly responsible for the development of prefixal perfectivization in both language families. To this points the fact that the spatial meanings of Ossetic preverbs are largely similar to the meanings of Georgian preverbs, comprising two semantic features: locative ('upwards', 'downwards', 'inside', 'outside' etc.) and deictic ('towards the speaker' vs. 'from the speaker'). Though in Georgian and other Kartvelian languages locative and deictic meanings are expressed separately (see example (4) above),

while in Ossetic they are conflated into indivisible morphemes (see Table 1 above), the functional similarity between the two preverb systems is obvious. It is also important to note that the key semantic features of the Kartvelian-Ossetic systems of prefixes are lacking in the Balto-Slavic languages (but are present in the "outsider" German).

To conclude, the distribution of prefixal perfectives in the languages of Central and Eastern Europe and the Caucasus involves a complex interplay of genetic inheritance, contact-induced developments and universal-typological tendencies, and cannot be attributed to just one of these factors, or to a single center of innovation and spread (e.g. Slavic). Rather, at least two mutually independent centers of development must be postulated: the Balto-Slavic and the Kartvelian-Ossetic. Importantly, clues of possible contact-induced developments are to be sought not in the obvious major grammatical features (e.g. perfectivization as such), which can well be explained by universal tendencies, but in the more intricate properties of verbal systems, e.g. in the semantics and polysemy of preverbs.

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Abbreviations

ABL – ablative, ACC – accusative, AFF – affirmative, ALL – allative, AOR – aorist, CNT – continuative, COMP – complementizer, COND – conditional, CV – "characteristic vowel", DAT – dative, DEF – definite, DEIC – deictic, EVID – evidential, INDF – indefinite, INF – infinitive, IPF – imperfective, ITER – iterative,

LOC – locative, OBL – oblique, OC – objective conjugation, PF – perfective, PL – plural, POSS – possessive, PRS – present, PRV – preverb, PST – past, RFL – reflexive, SB – subject, SG – singular, SPRES – superessive

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