

Prefixation in the Rise of Slavic Aspect

Stephen M. Dickey

1. Introduction

Investigations of the history of the aspect category in Slavic have typically focused on the history of the usage of the imperfective and perfective aspects, and not their markers (cf., e.g., Bermel 1997). Most that have considered the interrelating history of markers of aspect have focused on developments in imperfectivizing suffixation (e.g., Silina 1982). Few have considered the role of prefixes. In previous work, I have attempted to explain the rise of bleached prefixes such as western Slavic *s-/z-* (Dickey 2005), Russian semelfactive *s-* (Dickey, Janda 2009), and the rise of Russian delimitative *po-* (Dickey 2007). I have also attempted to explain cross-Slavic differences with regard to *po-* (Dickey 2011a) as well as the significance of increasingly subjective types of procedural prefixation in Russian, focusing on intensive-resultatives (Dickey 2011b). This paper attempts to explain the rise of perfectivizing prefixation in Slavic.

Regarding prefixes as markers of the perfective in Slavic, two things seem to be uncontroversial: (a) prefixes developed into markers of the perfective aspect in Common Slavic; (b) the semantic function of Slavic prefixes gradually expands from the simple expression of spatial trajectories to the assertion of attained telicity (or completion; the cross-linguistic prototype of the perfective). As mentioned above, the meanings expressed by Slavic prefixes have become more subjective over time, i.e., they have developed perfective meanings that are not based on prototypically telic situations (cf., e.g., Russian *popisat'* 'write for a while' and intensive-resultatives such as *izvorovat'sja* 'steal to the point of becoming an incorrigible thief').

The precise manner in which Slavic prefixes became markers of perfectivity is not clear. There are several facts that must be kept mind in this regard. First, verbal prefixation has been widespread in many other Indo-European languages (e.g., Greek, Germanic and Baltic), but only in the Slavic languages did attained telicity become an inherent component of their meaning.

Second, unlike inflectional morphemes, which are generally single markers for a whole semantic category (with limited allomorphs and irregular variants), Slavic perfectivizing prefixes comprise a class with upwards of 15 members,

which suggests that the dynamic of their grammaticalization is different from that of single inflectional morphemes: it seems that they must have grammaticalized as a class in principle, and not individually.

Third, a minority of Slavic prefixes – one or at most two in a given Slavic language – lost their original spatial meaning at different times, leaving only abstract (procedural or aspectual) meanings. For instance, in Czech, Slovak and Slovene *s-/z-* has been bleached as an abstract perfectivizer, serving only to perfectivize telic verbs. In East Slavic and Bulgarian, *po-* has been bleached of its spatial meaning, and has become a delimitative and atelic perfectivizer. A theory of the development of Slavic perfectivizing prefixation must be able to account for this differential in the degree of “grammaticalization” of individual prefixes as well as for the fact that ordinarily only one prefix becomes completely bleached of its spatial meaning in a given Slavic system.

This article borrows concepts from catastrophe theory, chaos theory and network theory to show how the bleaching of an individual prefix could lead to changes in the meanings of all prefixes, whereby they increased their informational value from simply marking trajector-landmark relationships to marking attained result/change of state ($s_1 > s_2$). This theory has the advantage of being more explicit than current accounts of the development of Slavic perfectivizing prefixation, following current approaches to language change and dynamic systems, and comporting very well with the attested data. Section 2 presents some basic theoretical assumptions, and sections 3-5 present the analysis, discussion and conclusions.

2. Basic Theoretical Assumptions

This analysis adopts the “punctuated-equilibrium” view of language change (cf. Janda, Joseph 2003: 50-58). That is to say, language change includes (but does not exclusively consist of) relatively “punctual” changes that interrupt periods of relative stasis. It should be pointed out that “punctual” changes are not to be understood as literally punctual, e.g., in a single speaker (cf. the remarks by Janda, Joseph 2003: 73), but as relatively quick events causing systemic change that occur over one or more generations. Further, periods of absolute equilibrium or stasis do not exist in language, and here we can only speak of periods of relative equilibrium/stasis. It makes sense that in language at least some of the relatively intense changes occur in a kind of feedback loop with slower changes that proceeded during periods of relative stasis.

In mathematics, since Thom 1972, such catalytic events in various domains have been termed *catastrophes*, and a whole theory, *catastrophe theory*, has been developed to account for such changes. Catastrophe theory has been applied to social sciences and even to human cognition (cf. Port, van Gelder 1995). The idea of catastrophes has also been employed in linguistics, most notably by Lightfoot 1997, who adopts the term for relatively sudden events causing systemic change,

though with respect to the parametric settings of a universal grammar, which are irrelevant to the issues at hand here. Note that the term *catastrophe* is used here only in this sense, and not with reference to actual catastrophic (i.e., disastrous) social events, which are recognized as causing significant language change by Labov (1994: 24), among others.

This analysis also makes use of some basic concepts from chaos theory, in particular principles of self-organization (cf., e.g., Prigogine, Stengers 1984). As in the case of catastrophe theory, chaos theory has been developed largely with mathematical approaches. However, principles of self-organization have been applied in various disciplines, including linguistics, mostly to the development of phonological systems (cf., e.g., Wedel 2004), but also to language change more generally (cf., e.g., Ehala 1996). This study draws from Ehala 1996 in particular to help make sense of the development of Slavic aspectual systems at various points.

An important notion in self-organization processes is that of an *attractor*, which is a “stationary state towards which a system (or a subsystem within a system) tends to evolve” (Ehala 1996: 7). As Lass (1997: 295, cf. also the reference cited there) points out, a system will settle into the region of an attractor, and thereafter will remain there unless some event “dislodges” it. Lass (295-297) further links the effects of attractors to the general unidirectionality of grammaticalization. However, attractors can only be considered “goals” inasmuch as there seems to be a tendency towards a steady state in dynamical systems; no teleology as such is understood by this concept.

In a cognitive semantic analysis, a salient and typologically common concept, such as change of state ($s_1 > s_2$) or temporal sequencing, could function as an attractor, i.e., the “sink” (Lass 1997: 293) that is a semantic space into which the meanings of linguistic units with related meanings will eventually settle. Thus, the notion of an attractor can help us make sense of changes in language such as reanalysis and analogy that lead to the grammaticalization of certain categories.

This analysis also makes use of some very basic concepts from network theory in order to provide a graphic model of Slavic verbal prefixes as a semantic network. Semantic networks consist of nodes (or vertices) that are connected by edges, which represent shared semantic features (cf. Beckage, Colunga 2015). The nodes of a network can be connected by single relationships (a simple network), or there can be multiple edges between nodes (a multiplex network). A network model of prefixes will be used in conjunction with the notion of an attractor to explain how a change in the semantic meaning of a single prefix could alter the nature of the semantic values of the entire set of prefixes, thus changing the semantic effects of verbal prefixation.

Lastly, this analysis approaches morphologically complex verbs as constructions, in keeping with Construction Grammar (CxG; cf., e.g., Goldberg 2006). According to CxG, *constructions* are not limited to combinations of words: all pairings of form and meaning are considered constructions, including morphologically complex words. The next section develops a CxG approach to Slavic

prefixed and suffixed verbs in order to facilitate an understanding of the relationship between prefixation and perfective aspect in Slavic.

3. A Construction Grammar Approach to the Rise of Perfectivizing Prefixation

In Late Common Slavic (as evidenced by Old Church Slavic) prefixation was the productive model of deriving perfective (pf) verbs (e.g., *na-* ‘on’ + *siliti* ‘strengthen’ > *nasiliti* ‘do violence to, force’), and suffixation was the productive manner of deriving imperfective (impf) verbs (e.g., *nasili-* ‘do violence to’ + *-a-* > *nasiljati* ‘idem’). Simplex verbs, e.g. *siliti* ‘strengthen’ were mostly imperfective. As most prefixation altered lexical meaning, the consensus is that prefixation alone could not have produced the number of lexically identical pairs necessary to grammaticalize the system. For example *nasiliti* ‘do violence to’ was not lexically identical to *siliti* ‘strengthen’ and so these two verbs were not aspectual partners. Accordingly, it was only the lexically identical derived impf verbs that created the grammatical system of Slavic aspect; i.e., the system arose with the formation of pairs such as *nasiliti* / *nasiljati* ‘do violence to’. The focus on derived imperfectives as the *sine qua non* of a derivational aspect system, which began with Maslov (1961), strikes me as too idealized, at least as far as the genesis and early stages of development are concerned. Note that aspectual or proto-aspectual systems without derived imperfectives do exist; one example appears to be contemporary Georgian (cf. Rostovcev-Popiel 2012 for discussion). Nevertheless, it is hard to imagine a fully grammaticalized derivational system of the Slavic type without a large inventory of derived imperfective verbs.

So the problem is to explain how prefixes became markers of perfectivity, if the PF : IMPF opposition only becomes fully grammaticalized when prefixed verbs are subsequently suffixed. In order not to slip into a teleological mode of thinking, let us reformulate the problem: Late Common Slavic verb stems had the following basic structure: [PREFIX]-[ROOT]-[SUFFIX]; how did the PREFIX-slot become a marker, or attractor position for perfectivity (i.e., $s_1 > s_2$)?

The most obvious answer is that the PREFIX-slot was initially not there to perfectivize verbs, but had some other function. I suggest that the initial function of prefixes was to type-classify situations containing a motion component (e.g., *ot-iti* ‘away-go’, *prě-iti* ‘across-go’ *pri-iti* ‘at-go > arrive’). Beyond this, their use to identify situations in terms of metaphorical or metonymical trajectories meant that the classification of a situation was dependent on the identification of the outcome. Such outcomes were signaled metaphorically or very often metonymically by different prefixes, cf., e.g., OCS *vb-žešti* ‘in-burn > light [a lamp, etc.]’, *za-žešti* ‘beyond-burn > set ablaze’, *o-žešti* ‘around-burn > burn the surface of’, *sv-žešti* ‘down-burn > burn down’. In contrast to objects, which are immediately perceivable as wholes, actions can only be classified in a limited number of ways on the basis of a single sensory perception of an activity; pre-

fixes were employed as a means of further distinguishing basic level activities according to their trajectories and/or outcomes.

Thus, the cognitive anchor point for the identification of a non-motion situation was the change in the environment (i.e., the result) brought about by the situation, e.g., something ablaze for the predicate *za-žešti* ‘set alight [lit. beyond-burn]’ or a close-cropped/tonsured head for *po-strišti* ‘crop/tonsure [lit. all-over-clip]’; the result/outcome was part of the profile of the verbal form. If classification by prefixation meant identification by result/outcome (cf. Dickey and Janda 2015: 63), then there would sooner or later arise a need to express situations of a given type, e.g., *setting ablaze* or *cropping/tonsuring someone’s head*, without accessing the situation via its result, i.e., without including the result in the profile, but backgrounding it to the profile base. This was achieved by suffixation, initially with the suffix *-a*¹, to produce *za-židz-a-ti* ‘be setting alight’ and *po-stridz-a-ti* ‘be cropping’².

In the case of a prototypical agentive action, the inclusion of an outcome in the profile of verb is synonymous with inclusion of the *goal*: *strišti* ‘clip’ merely profiles a process of *clipping*, immediately perceivable in space; *po-strišti*^{pf} ‘all-over-clip’ identifies the action of *cropping/tonsuring* via the outcome (which is intended by the agent). The derived impf verb *po-stridz-a-ti* classifies a process of *clipping* immediately perceivable in space as a subpart of an action of *cropping/tonsuring*, with the assertion that if the *clipping* continues, a tonsured head will be the outcome (which is not true of all instances of the process of *clipping*). Put somewhat differently, *strišti* ‘clip’ is a basic-level category, whereas *po-strišti*^{pf} / *po-stridz-a-ti* ‘crop/tonsure’ represents a subordinate-level category identified by its outcome (whether actual, in the case of the pf verb, or potential, in the case of the impf verb).

Such classification by outcomes (which presupposes knowledge of goals) did not produce perfectivization automatically. (By *perfectivization* in Common Slavic, I merely mean the imposition of a construal of an action as a complete whole along with its outcome, the immediate effect of which is inability of a verb to express an ongoing process, e.g., in the actual present.) That is to say, nothing in principle would prevent *po-strišti* ‘tonsure’ from expressing the attainment of result in some contexts, and the process in other contexts (as happens with prefixed verbs in modern German). In what follows I outline a plausible scenario for this development of a perfectivizing effect of prefixes, in which one must distinguish several stages and different effects with motion verbs and non-motion verbs.

¹ Other suffixes were also used in Old Church Slavic and in the individual languages, but *-a-* seems to have been the oldest productive imperfectivizing suffix.

² The prototypical case of backgrounding the result to the profile base is the construal of a situation as an ongoing process; construal as a habitually recurring situation also backgrounds the result inasmuch as there is no focus on a given, single result, and a simultaneous focus on a plurality of results is not a default strategy, requiring a specifically distributive construal, which is why all Slavic languages have developed specifically distributive pf verbs at one time or another.

4. From Adpositions to Verbal Prefixes (Preverbs)

The PREFIX-slot seems to have arisen as adverbial particles were reanalyzed as verbal prefixes, or preverbs. According to Gamkrelidze and Ivanov (1995: 311-312) the default word order of Proto-Indo-European was *OpV*, i.e., object (*O*) – relational particle (*p*) – verb (*V*). Thus, relational/adverbial particles were simultaneously “postpositions” to a noun and “preverbs” to a verb. They observe (312) that a restructuring from *OpV* to *VpO* word order took place in the individual dialects, and that this switch resulted in various innovations, such as the (prefixal) augment in Sanskrit, Greek and Armenian, as well as Germanic prefixes such as Gothic perfectivizing/future *ga-* and the Slavic perfectivizing prefixes. They go into no detail in this regard; I assume that it was the change in default word order that entrenched a reanalysis of postpositions to prefixes in Slavic.

Pinault 1995 assumes an original *OV* word order as well, though he suggests that the preverbal position of the relational element also arose if the noun (object) was extracted from a *pOV* sequence, and points out that the two possibilities (*p* separate from *V*, i.e., *p ... V* and *p* adjacent to *V*, i.e., *pV*) were concurrent options, perhaps stylistic variants. He points out two things that are relevant here. First, prefixation must be very ancient, as evidenced by etymologies such as PIE **nizdó* ‘nest’ (< *ní-* ‘down’ + *sed-* ‘sit’ + *-ó* [nominal suffix]). Second, the lexical modification of a verb by a particle did not depend on adjacency, as evidenced by the fact that Vedic *ví ... vr-* means ‘open’ just as *ví-vr-* does. However, the perfectivizing function of prefixation/preverbization in Slavic does seem to be dependent on univertation, for reasons that I cannot discuss here.

Gamkrelidze’s and Ivanov’s formulation of the change in word order, *OpV* > *VpO*, only reflects the first stage and the final result; the formulation *VpO* should not be taken to mean that no verbs were prefixed, but rather that the relational element modifying the noun was in prenominal position. A more accurate formulation for Slavic might be *Op₁V* > *p₁V(p₂)O*. In the earliest texts, we see that prefixed motion verbs could take the bare allative dative that was possible with their unprefixed correlates (1a), whereas such usage was generally replaced with a prepositional phrase (1b).

- (1) a. *I priide Dorogobužju* (Old East Slavic; 12th cent.; RNC)
 and at-come-AOR Dorogobužь-DAT
 ‘And he came to Dorogobužь’
- b. *Olegь že priide ko gradu*
 Oleg-NOM FOC at-come-AOR toward city.DAT
 ‘As for Oleg, he came to the city’

Thus, the full development for Slavic seems to have been *Op₁V* > *p₁VO* > *p₁V(p₂)O* > *p₁Vp₂O*.

The reanalysis as a verbal prefix is the first step toward creating a system of prefixal verb classification. This account of the establishment of prefixes as a result of a change in word order is similar to the account of the development of verb particles in the history of English as a consequence of changes in word order (also a change from *OV* to *VO*) given by Los *et al.* (2012: 140-144). Note again that in the initial stage this “classification” of situations is largely relevant for motion predicates (which makes sense, given that the prefixes were originally spatial particles).

Though such usage resembles modern pf usage, the prefixation of motion verbs in fact did not produce perfectivity, which can be seen in the well-known usage of prefixed motion verbs to express stative toponymic relations, shown in (2).

- (2) *Dněprъ bo tečety izъ Okovsьkogo lěsa, i potečety na*
 Dnieper-NOM for flows out Okovsky-GEN wood-GEN and along-flows on
poludni, a Dvina izъ togo že lěsa potečety,
 south-ACC but Dvina-NOM out that-GEN FOC wood-GEN along-flows
i idety na polunočje i vnidet v more Varjaskoe.
 and goes on north-ACC and in-goes in sea-ACC Varangian-ACC
 ‘For the Dnieper flows from the Okovsky wood, and flows to the south, and the Dvina
 flows from that very wood, and goes to the north and goes into the Varangian Sea.’

Note that such durative present-tense usage is restricted to motion verbs, and is not a feature of pf verbs in Slavic in general. Only recently has such usage been connected to features of motion verbs, as opposed to being considered exceptional aspect usage (cf. Tomelleri 2007). That is to say, with motion verbs the effect of prefixation was originally to specify the vector of the motion relative to a landmark, and the perfectivizing force was relatively weak. At this stage, there was probably merely a system where prefixed motion verbs had a default perfective value in the past tense (arrival at the landmark) but allowed imperfective readings in the present tense, cf. again example (2)³.

Thus, perfectivization did not arise directly as a result of the univerbation of spatial particles and motion verbs. Consequently, we must seek the threshold development that caused widespread perfectivization elsewhere. The next section argues that the overall development was the spread of prefixation to non-motion predicates, which was accelerated by the bleaching of the spatial meaning of the prefix *u-*.

³ Note also that prefixes do not perfectivize motion verbs in Georgian and Ossetic, as discussed by Tomelleri 2009. Other usage, e.g., from Old Church Slavic, indicates that perfectivization was not a regular effect of the prefixation of directed motion verbs. For discussion, cf. Dickey 2014.

5. *The Bleaching of U- as a Catastrophic Change Entrenching Perfectivization*

What ultimately triggered the obligatory perfective value of prefixation was the spread of prefixation to verbs whose meaning did not include veridical motion. Examples would be change-of-state verbs such as OCS *iz-baviti^p* ‘save, redeem’ or *raz-bogatěti^p* ‘become rich’, which, as mentioned above, are biased toward the goal as an anchor point⁴. As such predicates do not profile any pre-telos veridical motion relative to a landmark, the prefix can only signal that the goal state is included in the profile of the construction. Thus, as sketched above with *po-strišti^p* ‘crop/tonsure’, in non-motion verbs the prefix expresses the attainment of some result, with different prefixes being chosen because of various metonymic relationships between trajectors and landmarks, as exemplified above with *žešti* ‘burn’. To sum up, with non-motion predicates, what the prefix signals is not a straightforward trajector-landmark relation, but some result that is often indirectly metonymically related to the prototypical trajector-landmark relation expressed by a prefix. This does not mean that a pre-telos process component in such predicates is completely inaccessible; rather, it requires special marking, which was effected by the new imperfectivizing suffixes.

This non-spatial nature of some prefixation (which was originally emphasized by Shull 2003, who terms non-spatial prefixation *abstract prefixation*) is very important, and is worth reiterating with concrete examples. Let us take Bosnian/Croatian/Serbian (which has a conservative/archaic system of prefixation) as an example: one can say (a) *is-piti vino iz čaše* ‘out-drink wine out of a glass’, (b) *is-piti čašu* ‘out-drink a glass’ and (c) *is-piti vino* ‘out-drink the wine’, i.e., ‘drink up the wine’, though the second is most common. The Old Church Slavonic data are similar, attesting as far as I can tell only (b) and (c), e.g., *is-piti čašo* ‘out-drink a cup’ and *is-piti ocьbъ* ‘out-drink the vinegar’. Though regarding (a) one can say that the prefix signals a real trajector-landmark relation (liquid exiting a container), regarding (b) and (c) the most one can say is that the notion ‘out of’ expressed by the prefix is applied metonymically, i.e., some liquid ends up out of a container, regardless of whether the object of the verb is the trajector or the landmark or not. And it is entirely possible, and I would argue most probable, that the main meaning of the prefix *iz-* in BCS *is-piti* ‘drink up’ (and even already in OCS *is-piti* ‘idem’) is not spatial at all, but abstractly resultative, i.e., it merely signals that the liquid consumed or the container is maximally affected by the action (presumably with some larger, contextually relevant result). Again, the choice of prefix for a given verb was originally determined by metonymic associations, which were nevertheless based on some plausible spatial trajectory (e.g., liquid exiting a container). Thus, as these associations were spatial in origin, they usually resulted in one or two prefixes being the most suitable

⁴ Cf. in this regard Wagner’s *et al.* 2008: 266-267 discussion of differences between motion and non-motion events in cognition.

candidates for the derivation of a pf verb with a minimum of lexical difference from its source verb.

Such metonymically motivated prefixation should be kept distinct from the semantic overlap of a spatial prefix with the meaning of its base verb whereby the prefix appears to be “bleached” of its original spatial meaning and functions merely as a perfectivizer. This kind of semantic overlap of a prefix and a base verb has been variously termed *subsumption* and *Vey-van Schooneveld effect*, and the effect is one of the apparent semantic “emptiness” of a prefix save for its perfectivizing function. A modern example is Russian *na-pisat'* (and its congeners in other Slavic languages), in which the meaning of *na-* ‘on’ overlaps with the meaning of *pisat'* ‘produce text on a surface’ so that the prefix seems to be “empty,” a so-called *préverbe vide* whose sole function is to perfectivize the verb. A consequence of this “emptiness” is that the pf *na-pisat'* is paired with the simplex impf *pisat'* ‘write’. Here it should be pointed out that such “emptiness” is largely illusory, as has been recently demonstrated by Janda *et al.* 2013.

The effect of a meaning of completion expressed by a prefix that is semantically unmotivated in terms of its original spatial meaning represents a resultative (perfective) construction [PREFIX + ROOT + STEM SUFFIX]_{PF}, which differs from the original spatial construction expressing the vector of motion [PREFIX + ROOT + STEM SUFFIX]_{VEC.MOT} discussed in section 4. That is to say, the development of perfectivizing prefixation amounted to the development of a [PREFIX + ROOT + STEM SUFFIX] construction that did not identify motion events by a trajectory relative to a landmark, as outlined above. In some early stage there were two differing constructions, a PERFECTIVE construction and a VECTOR-OF-MOTION construction, and the VECTOR-OF-MOTION construction was eventually assimilated into the PERFECTIVE construction in Late Common Slavic, with the relic usage of prefixed motion verbs in durative and processual contexts exemplified in (2) still attested early in the historical era.

From the above, it is clear that there were already scattered cases of abstract perfectivizing prefixation in Late Common Slavic, some of which were deceptively abstract as in the case of *ispiti* ‘drink up’. It is likely that the aggregate effect of various individual cases of abstract prefixation was an increased association of prefixation with perfectivization (i.e., the inability of a verb to profile an ongoing process). However, it is just as likely that the system was definitively established by some threshold development, especially given our knowledge that language change frequently occurs in events of concentrated change interrupting periods of relative equilibrium (cf. section 2). Accordingly, we should look for some kind of development that would trigger the system to change so that perfectivization became obligatory (with the concomitant proliferation of the apparently unmotivated, abstract function of spatial prefixes to produce PERFECTIVE constructions). Since all prefixes were originally spatial adverbs, the development should probably be sought in some aspect of spatial prefixation, or a particular spatial prefix, which despite its original spatial meaning would produce resultative verbs as opposed to verbs expressing a vector of motion beyond the isolated cases discussed above. Given that there were 17 verbal prefixes in Late

Common Slavic with uneven tendencies to occur in abstract (non-spatial) prefixation, and given that the probability of all 17 of spontaneously undergoing the same change is very low, I suggest that it was a radical development in a single prefix that changed the nature of prefixation.

One prefix appears to have undergone precisely this kind of development in Proto-Slavic: the prefix *u-*. The meaning of the preposition *u* was proximity (and proximity has remained its meaning in those languages that have retained it), cf., e.g., OCS *da oběduetъ u nego* ‘to eat with him/at his place [in his proximity]’. Although this prefix formed some directed motion verbs with an ablative meaning (e.g., OCS *u-běžati^p* ‘flee’ and OESl *u-iti^p* ‘get/slip away’, *u-nesti^p* ‘steal’), Klenin (1983: 156–157) argues that the ablativity of such motion verbs was not due to the prefix, but to the meaning of the source verbs themselves, e.g., *běžatiⁱ* ‘flee’⁵. The meaning of *u-* was instead very resultative, and reflected “an evaluation of the subject’s purpose or success in performing the motion”. Further, it was affixed to a great many resultative non-motion verbs, e.g., *u-biti^p* ‘kill’, *u-rězati^p* ‘chop off’, *u-gasnuti^p* ‘go/die out’; as Vaillant (1964: 340) points out, the meaning of this prefix is most often “not discernable [...] and it serves to provide numerous perfectives.” It is important in this respect to keep in mind that Late Common Slavic had another prefix, *otъ-* that was the default for ablative motion, cf., e.g., OCS *ot-iti^p* ‘go away’, *otъ-běžati^p* ‘flee, run away’, *otъ-vesti^p* ‘lead away’, *otъ-nositiⁱ* ‘carry away’, *otъ-pasti^p* ‘fall off’, *otъ-sylatiⁱ* ‘send away’, *o[tъ]-choditiⁱ* ‘walk away’, etc.

It is important to point out that in the history of Slavic the central spatial meaning of prefixes was originally identical to their cognate prepositions (e.g., OCS *iz-* ‘out-’ and *iz* ‘out of’, etc.). As there are no attested ablative uses of the preposition *u*, only proximal ones, there is little reason to assume that the original sense of Slavic *u-* was ablative, especially in light of Klenin’s arguments. The sense of ablativity was the result of source-oriented motion verbs combined with the original meaning of proximity of *u-*, so that *u-běžati* originally meant something like ‘flee the proximity of [an animate being]’ – see below.

In view of all of the above, I think the available evidence suggests that *u-* became the first “grammaticalized” abstractly resultative prefix on the basis of the overlap of the meaning of the prefix with motion verbs such as those listed above and other verbs with a component of ablative motion or deprivation, e.g., OCS *u-daliti^p* ‘remove’, *u-pasti^p* ‘fall’, *u-krasti^p* ‘steal’, *u-eti^p* ‘take from’, etc. Once the prefix was reanalyzed as an abstractly resultative prefix, it began to produce resultative motion verbs without obvious ablative meanings such as OESl *u-goniti* ‘catch up to’, as well as a host of other resultative non-motion verbs, including OCS *u-balovati^p* ‘heal’, etc. It is important to point out the diversity of the types of resultative verbs produced by *u-* in Late Common Slavic: these include destruction verbs (e.g., *u-biti^p* ‘beat to death’), consumption verbs (e.g., *u-jasti^p* ‘eat up’), creation verbs (e.g., *u-gotovati^p* ‘prepare’, *u-stroit^p* ‘build’) in-

⁵ Klenin (1983: 156) points out that both OCS *běžatiⁱ* and *uběžati^p* translate Greek *φεύγω* ‘flee’ and *ἐκφεύγω* ‘flee, flee out of, escape’.

transitives (e.g., *u-stati*^p ‘cease’), various transitive achievement verbs (*u-tъknōti*^p ‘meet, encounter’), numerous factitives (e.g., *u-krĕpiti*^p ‘strengthen’, *u-množiti*^p ‘increase’), and numerous inchoatives (e.g., *u-krotĕti*^p ‘calm down’, *u-mĕknōti*^p ‘turn soft’); note also a degree of productivity as a prefix forming middle-voice procedural verbs evident in *u-piti se*^p/*u-pivati se*ⁱ ‘intoxicate oneself’. The productivity of *u-* as a resultative prefix for inchoative verbs is important because inchoative predicates such as *sъchnōti* ‘dry’ have no inherent predisposition towards one kind of spatial telicity over another: the fact that they were productively derived with *u-* demonstrates that this prefix already had an abstract resultative meaning. In addition, it is essential to point out that resultative verbs in *u-* include many core/high-frequency verbal notions such as OCS *u-čĕti*^p ‘begin’, *u-bitĭ*^p ‘beat to death’, *u-mrĕti*^p ‘die’, *u-loviti*^p ‘catch’, *u-jasti*^p ‘eat up’, *u-sъchnōti*^p ‘dry up’, etc., many of which survive in the modern Slavic languages.

Thus, the most likely catalyst for the new abstract, resultative/perfectivizing function of prefixes was a bleaching of the original meaning of proximity of the prefix *u-* in motion verbs (such verbs, being source-oriented, express by default movement away from the proximity of some landmark). This bleaching was the first catastrophe of Slavic aspectual systems. This is not to say that no other Slavic prefixes were developing abstract meanings of result in Late Common Slavic; *po-*, which meant ‘to’, ‘from’, and ‘surface contact’, *sъ-* ‘together’ and *jbz-* ‘out of’ were also developing salient resultative functions. Rather, the catastrophe of the despatialization of *u-* should be seen as a change that was in a feedback relationship with a presumably slowly increasing tendency for Slavic prefixes to profile the abstract transition to a new state ($s_1 > s_2$) in addition to their original profiles of various spatial trajectories in verbs expressing veridical motion, which was discussed above.

The original situation, in which all prefixes were primarily spatial but optionally expressed the transition to a new state $s_1 > s_2$ (primarily in the past tense), is shown in Figure 1, in which the network of prefixes consists of three subnetworks: a subnetwork of SOURCE prefixes (linked by red edges), a subnetwork of GOAL prefixes (linked by violet edges), and PATH/LOCATION prefixes (linked by green edges). The spatial features are the only inherent features of the prefixes.

In this network, the initial central node or hub was *po-*, which had a SOURCE meaning, a PATH/LOCATIVE meaning and a weaker GOAL meaning (cf. Němec 1954). Its centrality is conditioned by the fact that it is a member of all three subnetworks; note also that it was one of the three most productive prefixes in Old Church Slavic (the other two being *ob-* and *u-*). At this time, prefixes were developing salient resultative functions as well, most notably, *jbz-* ‘out’, *sъ-* ‘together/down from’, and *po-* in its various meanings of ‘from’, ‘along’, and ‘to’. However, judging from the Old Church Slavic data, *u-* was most productive as a purely resultative prefix, bleached of its original spatial meaning of PROXIMITY.

So how did *u-* end up despatialized at a time when other prefixes either were not or only partially so? I believe this development was largely a consequence of the contexts in which the prefix occurred. In Modern Russian as well as Old Church Slavic the corresponding preposition *u* ‘by/at’ is attested usually with hu-

mans, e.g., Rus *u nas* ‘by/at us’ and OCS *u nichъ* ‘by them’. Note also that according to the SSI (719) this meaning of proximity to humans produced abstract meanings of the preposition, such as ‘the expression of the individual on whom an action depends’, e.g., OCS *života prosi u tebe i dalъ emu esi* ‘he asked life of you and you have given [it] to him’. Without getting into the issue of how despatialized such abstract meanings of the preposition actually were in Old Church Slavic, we can simply point out that the frequent use of the preposition/preverb *u* with humans (cf. the example above for the preposition, and the fact that fleeing (OCS *u-běžati*) occurs with respect to human agents, and stealing (OCS *u-krasti*) occurs with respect to human possessors), and therefore pronouns, meant that *u-* occurred frequently in deictic contexts⁶.

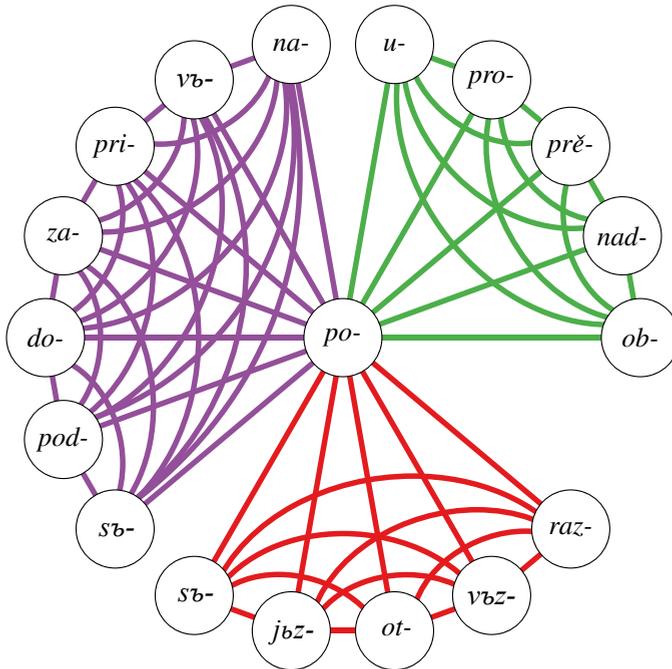


Figure 1.

Common Slavic Prefixes, Stage 1. A Network of Markers of SOURCE (red), GOAL (purple) and PATH/LOCATION (green) Relationships

Recalling the post-PIE change in word order from *OpV* to *pVO* discussed in section 4, we can hypothesize that at an early stage the particle *u* occurred post-

⁶ Cf. also Modern Russian usage, in which verbs in *u-* co-occur with the proximity preposition, e.g., *U nas kot ubežal*, lit. ‘by us cat ran away’ = ‘Our cat ran away’.

posed to a nominal element, e.g., [*nas u*] *běžā* ‘[us-GEN PROXIMITY] fled’. In the next stage, the particle was reanalyzed as a preverb, i.e., *nas* [*u-běžā*] ‘us-GEN [PROXIMITY-fled]’. I assume that its use in such deictic contexts, in combination with the aforementioned reanalysis of postpositions to preverbs, was responsible for a semantic reanalysis of *u-* from a particle meaning PROXIMITY to a resultative prefix in cases where the deictic context was clear and the pronoun was omitted. That is to say, in deictically clear contexts, *u-bežā* was reanalyzed from ‘PROXIMITY-fled’ to ‘RESULT-fled’. Again, it was the despatialized, resultative use of *u-* with motion verbs that provided the model for its widespread use as an abstract resultative prefix with various kinds of non-motion verbs discussed above.

6. *The Consequences of the Bleaching of U- for the Semantic Network of Prefixes*

When *u-* lost its spatial meaning in basic, high frequency verbs (see section 5) and became an abstract resultative prefix, there was an important change for the semantic network of verbal prefixes. The picture changed in that, whereas in stage 1 they all shared some spatial feature, all that could now be shared by the prefixes was the meaning of change of state ($s_1 > s_2$). Though I have singled out the bleaching of *u-* as the crucial event that led to the grammaticalization of perfectivizing prefixation, in reality this development was probably the culmination of a feedback loop with the aforementioned increasing tendency of other prefixes to express $s_1 > s_2$, at the expense of spatial trajectories in cases of veridical motion or straightforward metaphorical transfers of such spatial trajectories.

Thus, the despatialization of *u-* created an instability in the system of prefixes, because in addition to the increasingly metonymically based abstract meanings of other prefixes, one of the frequent spatial prefixes simply lost its spatial meaning. This change represented a bifurcation point at which the system had to either eliminate the fluctuation precipitated by *u-* or reanalyze all prefixes as essentially resultative prefixes based on the shared meaning $s_1 > s_2$. In the latter case, the edge linking all prefixes became $s_1 > s_2$. To be sure, most of the prefixes continued to additionally express their spatial profiles; the change was that they now all obligatorily expressed $s_1 > s_2$, whether or not they expressed a spatial profile. This new situation is shown in Figure 2, in which the edges shared by *u-* with all other prefixes are those of $s_1 > s_2$, whereupon the latently present feature of $s_1 > s_2$ present in all other nodes becomes the feature that any two nodes share.

The establishment of change of state ($s_1 > s_2$) as the meaning linking prefixes as a class in Common Slavic was the final step in the transition from spatial prefixation to a system of perfectivizing prefixation, and probably represents the threshold development in the grammaticalization of Slavic aspect. Thus, the semantic bleaching of *u-* was a catastrophe in that this initially minor change forced the entire semantic nature of verbal prefixation in Slavic to undergo a major change.

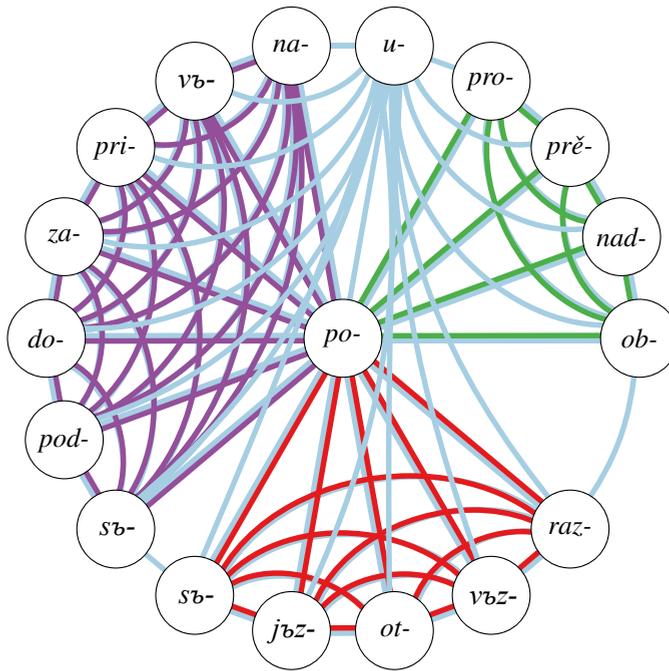


Figure 2.

Late Common Slavic Prefixes as a Network of Markers of $s_1 > s_2$ (light blue links)

In cognitive linguistic terms, the establishment of the perfectivizing function of Slavic prefixation may be seen as the extraction of a schema of $s_1 > s_2$ from the spatial meanings of the individual prefixes, which, again, was a natural development once one of them (*u-*) lost its spatial meaning. It was the result of slow, incremental changes based on semantic reanalyses of various prefixes in various contexts coupled with a catastrophe that caused the definitive change in the system. Here it is important to point out that in a usage-based model, the change in the system does not eradicate all previous usage incompatible with the new system in one fell swoop. Relics of the old system, here the use of motion verbs in stative contexts (cf. ex. (2) above) persisted as marginal usage for some time.

In the changes, described above, $s_1 > s_2$ appears to be functioning as an attractor, in that once established, $s_1 > s_2$ comes to be expressed by all prefixes, regardless of whether they additionally express a concrete spatial trajectory or not. In other words, with the help of specific events (the semantic development of *u-* and imperfectivizing suffixation), $s_1 > s_2$ becomes the “sink” (Lass 1997: 295) in semantic space into which the meanings of the prefixes settle, and out of which they are not dislodged (except in cases of language interference, as in Upper Sorbian). The original spatial meanings, while still present, become increasingly parasitic on $s_1 > s_2$, that is to say, they become a component dependent on

that abstract meaning. It is important to point out that the overall development has been abstracted in the description above, and that apart from the catastrophic change undergone by *u-* different prefixes developed toward the meaning of $s_1 > s_2$ at different speeds for various reasons that cannot be detailed here.

7. Summary and Conclusions

This article has argued for a punctuated equilibrium approach to the rise of perfectivizing prefixation in Slavic. Originally, prefixation in Slavic was spatial in nature, with varying degrees of entrenchment of the meaning of change of state ($s_1 > s_2$) – more in non-motion verbs, less in motion verbs. The perfectivizing effect of Slavic prefixation is a by-product of the original function of such perfectivization, which was to classify directed motion predicates.

As $s_1 > s_2$ became more salient as a non-spatial variant meaning of individual prefixes (primarily *po-*, *u-*, *svn-* and *jbz-*), the semantic overlap of the meaning of *u-*, ‘PROXIMITY’, with motion verbs in deictically clear contexts created a situation where the prefix was apparently bleached of its spatial meaning in high frequency verbs. *U-* was thus reanalyzed as an abstract, resultative prefix. This produced a situation in which the meaning shared by Slavic prefixes was $s_1 > s_2$, whereupon they began to express primarily this meaning, though their spatial profiles (with the exception of *u-*) continued to determine their distribution. This was the advent of perfectivizing prefixation in Slavic, and coincided with the rise of imperfectivizing suffixation.

Basic concepts from dynamic systems theory allow us to see the rise of perfectivizing prefixation in a new light. The semantic bleaching of *u-* can be seen as a catastrophe, a change producing a bifurcation point in the system of Slavic verbal prefixation, as opposed to a random case of high productivity. Change of state ($s_1 > s_2$) appears to have functioned as an attractor in the development of the system of Slavic prefixation. This in fact should come as no surprise, given the typological frequency of change of state as a component meaning of perfective grammemes (cf. Dahl 1985: 78). Finally, the 17 verbal prefixes of Late Common Slavic have been treated as a semantic network (which is necessary in any case) more explicitly than in previous analyses.

Bibliography

- Beckage, Colunga 2015: N. Beckage, E. Colunga, *Language Networks as Models of Cognition: Understanding Cognition Through Language*, in: A. Mehler, A. Lücking, S. Banisch, P. Blanchard, B. Job (eds.), *Towards a Theoretical Framework for Analyzing Complex Linguistic Networks*, Berlin 2015, 3-28.

- Bermel 1997: N. Bermel, *Context and the Lexicon in the Development of Russian Aspect*, Berkeley 1997.
- Cooper 1999: D. Cooper, *Linguistic Attractors. The Cognitive Dynamics of Language Acquisition and Change*, Amsterdam 1999.
- Dahl 1985: Ö. Dahl, *Tense and Aspect Systems*, Oxford 1985.
- Dickey 2005: S. Dickey, *S-/Z- and the Grammaticalization of Slavic Aspect*, "Slovene Linguistic Studies", 5, 2005, 3-55.
- Dickey 2007: S. Dickey, *A Prototype Account of the Development of Delimitative PO- in Russian*, in: D. Divjak, A. Kočańska (eds.), *Cognitive Paths into the Slavic Domain*, Berlin 2007, 326-371.
- Dickey 2011a: S. Dickey, *The Varying Role of PO- in the Grammaticalization of Slavic Aspectual Systems: Sequences of Events, Delimitatives, and German Language Contact*, "Journal of Slavic Linguistics", 19 (2), 2011, 175-230.
- Dickey 2011b: S. Dickey, *Subjectification and the Russian Perfective*, in: M. Grzygiel, L. Janda (eds.), *Slavic Linguistics in a Cognitive Framework*, Frankfurt am Main 2011, 37-66.
- Dickey 2014: S. Dickey, *On the Origin of Slavic Prefixed Imperfective Motion Verbs*, "Scando-Slavica", 60 (2), 2014, 159-171.
- Dickey, Janda 2009: S. Dickey, L. Janda, *Chochotnul, schitril: The Relationship Between Semelfactives Formed with -NU- and S- in Russian*, "Russian Linguistics", 33 (3), 2009, 229-248.
- Dickey, Janda 2015: S. Dickey, L. Janda, *Slavic Aspectual Prefixes and Numeral Classifiers: Two Kinds of Lexico-Grammatical Unitizers*, "Lingua", 168, 2015, 57-84.
- Ehala 1996: M. Ehala, *Self-Organization and Language Change*, "Diachronica", 13 (1), 1996, 1-28.
- Gamkrelidze, Ivanov 1995: T. Gamkrelidze, V. Ivanov, *Indo-European and the Indo-Europeans: a Reconstruction and Historical Analysis of a Proto-Language and a Proto-Culture*, Berlin 1995.
- Janda, Joseph 2003: R. Janda, B. Joseph, *On Language, Change, and Language Change – Or, Of History, Linguistics and Historical Linguistics*, in: B. Joseph, R. Janda (eds.), *The Handbook of Historical Linguistics*, Oxford 2003, 3-180.
- Janda et al. 2013: L. Janda, A. Endresen, J. Kuznetsova, O. Lyashevskaya, A. Makarova, T. Nettet, S. Sokolova, *Why Russian Aspectual Prefixes Aren't Empty. Prefixes as Verb Classifiers*, Bloomington, IN 2013.
- Klenin 1983: E. Klenin, *Verbs of Motion Prefixed in U- in Old and Modern Russian*, in: V. Markov, D. S. Worth (eds.), *From*

- Los Angeles to Kiev. Papers on the Occasion of the Ninth International Congress of Slavists, Kiev, September, 1983*, Columbus, OH 1983, 155-168.
- Labov 1994: W. Labov, *Principles of Linguistic Change. Volume 1: Internal Factors*, Oxford 1994.
- Lightfoot 1997: D. Lightfoot, *Catastrophic Change and Learning Theory*, "Lingua", 100, 1997, 171-192.
- Los et al. 2012: B. Los, C. Blom, G. Booij, *Morphosyntactic Change: A Comparative Study of Particles and Prefixes*, Cambridge 2012.
- Maslov 1961: Ju.S. Maslov, *Rol' tak nazyvaemoj perfektiivacii i imperfektivacii v processe vzniknovenija vzniknovenija slavjanskogo glagol'nogo vida*, in: V.V. Vinogradov (pod red.), *Issledovanija po slavjanskomu jazykoznaniju*, Moskva 1961, 165-195.
- Pinault 1995: G. Pinault, *Le problème du préverbe en Indo-Européen*, in: A. Rousseau (ed.), *Les Préverbes dans les langues d'Europe*, Villeneuve d'Ascq 1995, 35-59.
- Port, van Gelder 1995: R. Port, T. van Gelder (eds.), *Mind as Motion: Explorations in the Dynamics of Cognition*, Cambridge MA, 1995.
- Prigogine, Stengers 1984: I. Prigogine, I. Stengers, *Order Out of Chaos*, London 1984.
- Rostovcev-Popiel 2012: A. Rostovcev-Popiel, *Stanovlenie kategorii aspekta v gruzinskom jazyke*, "Acta linguistica petropolitana", 8 (2), 2012, 290-310.
- Shull 2003: S. Shull, *The Experience of Space: The Privileged Role of Spatial Prefixation in Czech and Russian*, Munich 2003.
- Silina 1982: V.B. Silina, *Istorija kategorii glagol'nogo vida*, in: R.I. Avanesovi, V.V. Ivanov (pod red.), *Istoričeskaja grammatika ruskogo jazyka. Morfologija: Glagol*, Moskva 1982, 158-279.
- SSI: R. Cejtin, R. Večerka, E. Blagova (pod red.), *Staroslavjanskij slovar' (po rukopisjam X-XI vekov)*, Moskva 1994.
- Thom 1972: R. Thom, *Stabilité structurelle et morphogénèse; essai d'une théorie générale des modèles*, Reading, MA 1972.
- Tomelleri 2007: V. Tomelleri, *Zur Typologisierung der historischen Aspektologie (Nochmals zu den präfigierten Bewegungsverben in der altrussischen 'Povest' vremennyh let')*, in: W. Hock, M. Meier-Brügger (eds.), *Daŕ slovesŕny: Festschrift für Christoph Koch zum 65. Geburtstag*, Munich 2007, 297-308.

- Tomelleri 2009: V. Tomelleri, *The Category of Aspect in Georgian, Ossetic and Russian. Some Areal and Typological Observations*, "Faits de Langues. Les Cahiers", 1, 2009, 245-272.
- Vaillant 1964: A. Vaillant, *Grammaire comparée des langues slaves. Tom III. Le Verbe*, Paris 1964.
- Wagner *et al.* 2008: L. L. Wagner, A. M. Yocom, M. Greene-Havas, *Children's Understanding of Directed Motion Events in an Imitation Choice Task*, "Journal of Experimental Child Psychology", 100 (4), 2008, 264-275.
- Wedel 2004: A. Wedel, *Self-Organization and Categorical Behavior in Phonology*, PhD dissertation, University of California at Santa Cruz, 2004.

Abstract

Stephen M. Dickey

Prefixation in the Rise of Slavic Aspect

This paper investigates the role that prefixes played in the development of the Slavic aspect category utilizing concepts from dynamic systems theory. It is argued that the bleaching of the prefix *u-* was crucial in the development of the perfectivizing function of Common Slavic prefixes, and that the semantic concept of change of state functioned as an attractor in the development of the network of prefixes and the aspect category as a whole.

Keywords: Prefixes, Slavic aspect, diachrony, attractors, catastrophic change