To appear in Proceedings of NELS 46

Locality of Exponence in Distributed Morphology: Root Suppletion in Slovenian*

Jurij Božič

McGill University

1. Introduction

This paper discusses a case of root allomorphy in Slovenian, a South Slavic language. In Slovenian, a small set of roots shows one type of exponent in simple verbs, but another type in participles and other non-tensed verbal structures. The selection of the two exponent types is not predictable phonologically, implying that the trigger of this allomorphy is morphosyntactic. This paper shows that the trigger is not adjacent to the root, which means that the pattern is a case of *non-local* allomorphy.

This topic of root allomorphy and its locality has implications for Distributed Morphology (Halle & Marantz 1993) (henceforth, DM), where syntactic structure is mapped to phonological features by the operation termed Vocabulary Insertion (VI). Since DM is a *realizational* view of morphology, locality constraints on VI are crucial for explaining the surface patterns of exponence we observe in word-internal constructions cross-linguistically. One such pattern is phonologically unpredictable *allomorphy*, which Embick (2010) interprets as the result of contextual VI-application, where the context is crucially defined in a strictly local fashion. In this system, only syntactic heads that are immediately adjacent to the point of insertion can serve as context for allomorphy – Merchant (2015, 273) terms this the *Node Adjacency Hypothesis*. Cases of non-local allomorphy have, however, been identified in Itelmen (Bobaljik 2000), Itzaj Maya (Radkevich 2011), and Russian (Gribanova & Harizanov 2015), but some of these can be reanalyzed so as to conform with Node adjacency (Bonet & Harbour 2012, Butler 2012, Gribanova 2015). Merchant (2015), on the other hand, provides a compelling case against Node Adjacency in Greek and proposes that entire *spans* of syntactic heads may serve as context for allomorphy, which he calls the *Span Adjacency Hypothesis*. This introduces a degree of non-locality to VI.

The second theoretical issue to be mentioned is the status of *root allomorphy* and whether it should be analyzed as *suppletion* or not: Embick & Marantz (2008) and Embick (2010) subscribe to the view that roots are not subject to late insertion, from which

*For comments and discussion on the research that led to this paper I would like to thank Lisa deMena Travis, Jessica Coon, Glyne Piggott, Andrew Nevins, Peter Jurgec, Richard Compton, Máire Noonan, Heather Newell, Michael Wagner and Heather Goad. Any errors are my own.

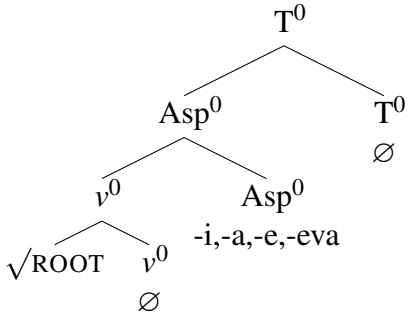
it follows that root suppletion does not exist. Under this view, root allomorphy is derived through Readjustment Rules, which are special morphophonological rules that modify exponents of roots. The opposing view (Siddiqi 2009, Harley 2014) proposes that roots *are* subject to late insertion, and hence suppletion, just like any affix, challenging the unconstrained nature of Readjustment Rules. We shall here side with the latter view. However, any issue relating to VI-locality and root suppletion can be translated to an issue of Readjustment Rule locality, which perhaps makes this theoretical divide less important here.

In this paper, we show that the non-local pattern of root allomorphy in Slovenian also fails to be derived by the strictly local Node Adjacency Hypothesis as proposed by Embick (2010). We subscribe to the Span Adjacency Hypothesis, as proposed by Merchant (2015), to derive it, offering support to Merchant's approach of establishing a degree of VI non-locality. However, we also show that the Span Adjacency Hypothesis, in its current formulation, misses generalizations on exponence in Slovenian and elsewhere, in general. The paper closes with the formulation of a tentative generalization regarding root-affix distinctions and allomorphy: we will note that, in cases of *outward-sensitive allomorphy*, roots seem to exhibit a degree of non-locality whereas affixes do not, but that affixes seem to show some non-locality in cases of *inward-sensitive allomorphy*.

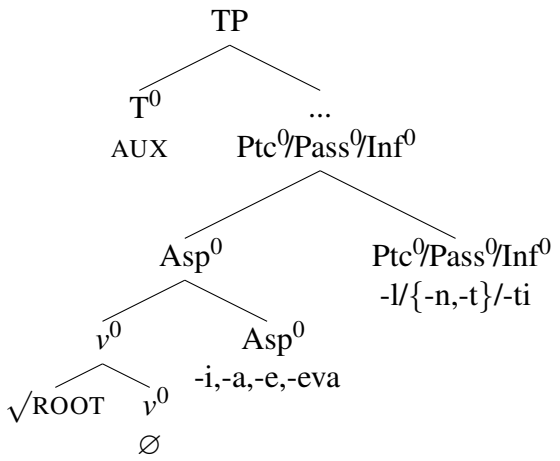
2. Root allomorphy in Slovenian

Descriptively, Slovenian simple verbs consist of a root, a theme vowel and agreement suffixes, where the *root+theme* combination constitues the verbal stem. The verbal stem may also be used to form different types of participles: *l*-participles (named after the participial suffix /-l/), passive participles and active participles (Toporišič 2000, Herrity 2000). Simple verbal forms are derived by head-movement up to (and including) T^0, and these are only used to express the present tense (1). The future and past are expressed through compound tenses in Slovenian (2): a combination of an auxiliary verb (at T^0) and a *l*-participle is used to achieve this (Marvin 2002). The verbal complex of heads that makes up an *l*-participle hosts no T^0, but rather Ptc^0 in its stead, meaning that head-movement only occurs up to Ptc^0 in participles.

(1) *Tensed verbal complex*



(2) *Non-tensed verbal complex*



Two other constructions can be expressed in the tenseless verbal complex: passive participles, which we derive with Pass^0, and infinitives, which we derive with Inf^0, following Marvin (2002, 83-117). Since the spell-outs of these heads are in complementary distribution, they could perhaps be represented by the same head with different featural compositions, but we set such speculations aside here. Note that Marvin (2002) does not include Asp^0 in these trees and she instead situates theme vowels within $\sqrt{}$P. However, since theme vowels in Slovenian are in complementary distribution with other aspectual suffixes, we treat them as spell-outs of Asp^0. See Božič (2015, 123-128) for discussion.

The pattern of interest for this paper is the *root allomorphy* that these different verbal constructions correlate with. A fixed set of roots undergoes allomorphy when different constructions are formed. Consider this pattern in (3).

(3) *Root allomorphy examples*

ROOT	VERB$_{1P.SG}$	*l*-PTC	PASS.PTC	ACT.PTC	NOML.	INF
$\sqrt$kolj-	ˈkolj-e-m	ˈkl-a-l-a	ˈkl-a-n			ˈkl-a-ti
$\sqrt$poj-	ˈpoj-e-m	ˈp-e-l-a	ˈp-e-t	poˈj-oʧ		ˈp-e-ti
$\sqrt$boj-	boˈj-i-m	ˈb-a-l-a		boˈj-eʧ		ˈb-a-ti
$\sqrt$ʒanj-	ˈʒanj-e-m	ˈʒ-e-l-a	ˈʒ-e-t	ʒanˈj-oʧ	ʒanˈj-its-a	ˈʒ-e-ti
$\sqrt$koln-	ˈkown-e-m	ˈkl-e-l-a	ˈkl-e-t	kowˈn-eʧ		ˈkl-e-ti
$\sqrt$ber-	ˈber-e-m	ˈbr-a-l-a	ˈbr-a-n	beˈr-oʧ	ˈber-a	ˈbr-a-ti

Root glosses: $\sqrt$kolj- ‘slaughter’, $\sqrt$poj- ‘sing’, $\sqrt$boj- ‘fear’, $\sqrt$ʒanj- ‘reap’, $\sqrt$koln- ‘swear’, $\sqrt$ber- ‘read, select’

These roots show alternations of vowels and consonants with zero, which we can purely descriptively call deletions: all the root-forms with non-deleted segments are given in boxes in (3). Notice that no deletion occurs in verbs, but root-forms with deleted segments occur in *l*-participles, passive participles and infinitives. There are two additional construction types present in (3) that were not shown in (1)–(2): active participles and nominalizations. Active participles, like other participles and infinitives, are also non-tensed verbal structures, in which the verbal stem is suffixed with either /-eʧ/ or /-oʧ/.[1] Nominalizations may either occur without an overt nominalizer, as in *ber-a* ‘selection (NOM.SG.F)’, where /-a/ is the inflectional suffix, or with an overt nominalizer, as in *ʒanj-its-a* ‘female reaper (NOM.SG.F)‘, where /-ic/ is the nominalizer. It is, however, questionable whether nominalizations such as this contain any verbal projections at all: they may be bare-root nominalizations, which are quite common in Slovenian (Marvin 2002, 117-119).

It is important to immediately note that the ‘deletions’ that we see in (3) are not triggered phonologically: the occurrence of the vowels and sonorants ([n], [j]) that delete in

[1] With some roots, theme vowels also surface with active participles, implying that Asp^0 is present. But with the roots discussed here, no overt theme vowels occur. Note that all the active participles in (3) can form reduced clauses with an argument, implying that they do have a verbal structure.

(3) is in no way restricted by the synchronic phonology of Slovenian.[2] Except for the few cases of allomorphy, root vowels never delete in *l*-participles. Glides do not undergo deletion either, as the following forms show [$\sqrt$go$^{\text{'}}$j-i-m] (1P.SG.V) ∼ [$\sqrt$go$^{\text{'}}$j-i-l-a] 'cultivate (F.SG.PTC)', [$^{\text{'}}\sqrt$sej-e-m] (1P.SG.V) ∼ [$\sqrt$se$^{\text{'}}$j-a-l-a] 'plant (F.SG.PTC)', nor do combinations of [l] or [n] and [j] delete, as the following data show [$^{\text{'}}\sqrt$valj-a-m] (1P.SG.V) ∼ [$^{\text{'}}\sqrt$valj-a-l-a] 'roll (F.SG.PTC)', [$^{\text{'}}\sqrt$sanj-a-m] (1P.SG.V) ∼ [$^{\text{'}}\sqrt$sanj-a-l-a] 'dream (F.SG.PTC)', [$^{\text{'}}\sqrt$jenj-a-m] (1P.SG.V) ∼ [$^{\text{'}}\sqrt$jenj-a-l-a] 'diminish (F.SG.PTC)'. If anything, the cross-paradigmatic retention of such segments is much more common than their deletion. One might further ask if at least parts of the root-allomorph alternations are phonologically conditioned: in particular, can the 'deletion' of a vowel in the root create a phonotactically illicit consonantal cluster that must then be resolved through consonant deletion (p.c. Peter Jurgec)? This could perhaps be argued for cases such as $\sqrt$ʒanj- ∼ $\sqrt$ʒ-, as [ʒnj] is likely not a licit cluster, but then it would not be clear why both consonants undergo deletion, since at least [ʒn] is a licit cluster. Such an analysis would, however, fail for cases when the root is preceded by a telic prefix as in [pre-$\sqrt$ʒanj-e-m] (1P.SG.V) ∼ [pre-$\sqrt$ʒ-e-l-a] (F.SG), where the hypothetical root-initial cluster [ʒnj] would be parsed into two syllables, as in the hypothetical [preʒ.nje.la], and this would be a fully licit phonotactic configuration, since Slovenian has numerous instances of [nj] onset clusters. Furthermore, such an analysis would also leave other cases unexplained: in cases such as $\sqrt$kolj- ∼ $\sqrt$kl-, [klj] onset clusters seem to be fully licit in Slovenian, cf. [kljutʃ] 'key (NOM.SG)', [$^{\text{'}}$kljuv-a-ti] 'peck (INF)', etc., inhibiting the explanation of consonant 'deletion' as onset cluster resolution. In sum, the allomorphic pattern does not seem to be phonologically conditioned.

If the root allomorphy cannot be governed by the phonology, the pattern at hand must be a case of lexically specified *contextual allomorphy*. Under the assumption that roots are subject to late insertion, this means that the pattern is a case of root suppletion, i.e. a case of contextual VI-application. Before we proceed further, it is crucial to determine which context conditions the allomorphy, and also which exponents are the contextual exponents and which the default *elsewhere* cases. Notice that the root-forms with deleted segments (call these **B-type**) occur with *l*-participles, passive participles and infinitives – all non-tensed versions of the verbal complex. The root-forms with non-deleted exponents (call these **A-type**), however, occur in a variety of constructions: simple verbs, active participles, and also in nouns which may not contain any verbal projections (but if they do, they just contain the basic verbal stem). The generalization at hand is that the B-type cases constitute a natural class of contexts, i.e. they all occur in a subpart of the non-tensed verbal complex, but the A-type contexts do not form a natural class, as they form a set of disconnected contexts, ranging from nominals to verbs. This generalization can be captured by designating Ptc^0/Inf^0/Pass^0 as the triggers of the contextual allomorphy, implying that the non-deleted root-forms are the *elsewhere* items with no specified context, while the deleted root forms are the contextual allomorphs. Consider the insertion at $\sqrt$REAP:

[2]The only alternation that could be analyzed as phonological is the alternation between [w] and [l] in [$\sqrt$kown-] ∼ [$\sqrt$kl-] 'swear', as underlying /l/ tends to be realized in [w] in coda positions in Slovenian (Božič 2015, 111-116). However, this simply means that the allomorphs in question are /$\sqrt$koln-/ ∼ /$\sqrt$kl-/.

(4) $\sqrt{\text{REAP}} \leftrightarrow$ ʒanj (elsewhere)
$\sqrt{\text{REAP}} \leftrightarrow$ ʒ / _____Ptc^0/Inf^0/Pass^0 (contextual)

If the triggering heads, Ptc^0, Inf^0 and Pass^0, are in fact the same head, as was speculated before, this renders the analysis in (4) even more elegant.[3]

It is here assumed that VI-rules, as in (4), apply to a string of linearized heads (Embick 2010) the precedence relation of which we indicate with the concatenation symbol '$\bigoplus$', also following Embick. A more explicit formalization of (4) reveals that the contextual rule requires access to non-local context:

(5) $\sqrt{\text{REAP}} \leftrightarrow$ ʒ / _____$v^0 \bigoplus \text{Asp}^0 \bigoplus \boxed{\text{Ptc}^0/\text{Inf}^0/\text{Pass}^0}$

According to the Node Adjacency Hypothesis (Embick 2010, 49), only heads immediately adjacent to the point of insertion can constitute context for insertion. (4) directly violates this, as the triggering context (represented in a box) is separated from the point of insertion for at least two heads, of which Asp^0 is overt. Embick (2010, 59) proposes that heads with null exponents undergo deletion termed *Pruning*, which is a way of getting rid of null heads that intervene between the overt ones, bringing the overt heads in a local configuration. However, Pruning can only apply to a given head after VI has attempted to insert at its position: since VI-application always starts at the root and proceeds outwards in Embick's system, Pruning can only be used to create local head-configurations in cases of *inward-sensitive* allomorphy (where the point of insertion is sensitive to a position already inserted at). This renders Pruning useless for establishing the correct locality in cases of *outward-sensitive* allomorphy (where root suppletion belongs), as also observed by Merchant (2015, 285). However, even if Pruning could delete the null v^0, the contextual trigger would still be separated from the root by Asp^0, which is not null. In short, the system proposed by Embick (2010) cannot derive the pattern of root allomorphy in Slovenian.

A brief caveat is required for completeness. The allomorphic pattern in question can also be triggered locally for a smaller number of roots, i.e. Asp^0 may trigger this pattern if it is specified for a secondary imperfective (also called 'iterative') feature: [$\sqrt$poj-e-m] 'sing (1P.SG.V)' → [**pre**-$\sqrt$poj-e-m] (1P.SG.V.TELIC) → [**pre**-$\sqrt$p-**eva**-m] (1P.SG.V.TELIC.ITER). We do not discuss this local pattern further here.

3. Span Adjacency Hypothesis

Merchant (2015) discusses similar cases of non-local root allomorphy in Greek and non-standard dialects of English, and also shows that they cannot be derived by Embick (2010). Merchant's solution to this problem is rooted in redefining the notion of VI-locality. According to him, VI-application is not sensitive just to (linearized) adjacent syntactic heads,

[3] If it was assumed, for some reason, that the B-type contexts were not the trigger, and that the non-deleted exponents were the elsewhere items, then we would need to posit several different triggers to insert the non-deleted contextual items. What is worth noting here is that these would require the root to be sensitive to non-local heads (T^0 in simple verbs), just as it is under the analysis in (4), as is discussed below.

but rather to entire *spans* of heads in an extended projection, based on the 'spans' of Svenonius (2012). The definition of a Span is given in (6).

(6) *Span* (Merchant 2015, 288)
Let T be an ordered n-tuple of terminal nodes $\langle t_1, ..., t_n \rangle$ such that for all $t \in T, t = t_1$ or t is an element of the extended projection of t_1.
a. For all $k = 1...n, t_k$ is a span. (Every node is a trivial span.)
b. For any $n > 0$, if t_k is a span, then $\langle t_k, ..., t_{k+n} \rangle$ is a span.

Merchant essentially proposes to treat any piece of a string of heads as a span, even if the string encompasses only one head (in which case, the span is trivial), which enables him to state that spans, and spans alone, condition VI-locality. The following illustrates what may constitute a span in the verbal complex:

(7) *Possible node spans* (Merchant 2015, 288)

$\langle V^0, v^0 \rangle$	$\langle v^0, \text{Voice}^0 \rangle$	$\langle \text{Voice}^0, \text{Asp}^0 \rangle$
$\langle V^0, v^0, \text{Voice}^0 \rangle$	$\langle V^0, \text{Voice}^0, \text{Asp}^0 \rangle$	$\langle \text{Voice}^0, \text{Asp}^0, T^0 \rangle$
$\langle V^0, v^0, \text{Voice}^0, \text{Asp}^0 \rangle$	$\langle v^0, \text{Voice}^0, \text{Asp}^0, T^0 \rangle$	
$\langle V^0, v^0, \text{Voice}^0, \text{Asp}^0, T^0 \rangle$		
$\langle \text{Asp}^0, T^0 \rangle$		

Note that no 'intervening' head can be skipped, implying that, for instance, $\langle v^0, T^0 \rangle$ cannot constitute a span. Such a notion of VI-locality permits us to formalize the Slovenian pattern:

(8) *Insertion at* $\sqrt{\text{REAP}}$
$\sqrt{\text{REAP}} \leftrightarrow$ ʒanj
$\sqrt{\text{REAP}} \leftrightarrow$ ʒ / _____ $\langle v^0, \text{Asp}^0, \text{Ptc}^0/\text{Inf}^0/\text{Pass}^0 \rangle$

Under the Span Hypothesis, the insertion at the root can be sensitive to the span $\langle v^0, \text{Asp}^0, \text{Ptc}^0/\text{Inf}^0/\text{Pass}^0 \rangle$, which is adjacent to the root. Aside from gaining empirical coverage, the benefits of the Span Hypothesis include the fact that it diminishes the need for stipulative operations such as Pruning or Readjustment Rules: all allomorphy may be derived by VI-application and null heads no longer 'intervene' in establishing the context of allomorphy.

4. Issues with non-locality

Though the Span Adjacency Hypothesis gains significant empirical coverage and does away with stipulative theoretical machinery, it still comes with a theoretical cost: the loss of predictive power. The span-based VI-locality appropriately restricts contextual sensitivity of VI to spans within an extended projection and only spans *adjacent* to the point of insertion may constitute VI-context. However, since a span may include every head in the verbal complex, including Agr^0, this approach brings with it a concern characteristic of non-local computation, one connected to the exponence of affixes in complex paradigms.

To address this problem, let us consider the exponence of *l*-participial paradigms in Slovenian, and also in Slovenian′, a constructed toy-language. Special attention is paid to the *theme vowels*, which are given in boxes:

(9) a. Participial paradigm in Slovenian

	SG	DU	PL
MASC	√jok-[a]-l-∅	√jok-[a]-l-a	√jok-[a]-l-i
NEUT	√jok-[a]-l-o	√jok-[a]-l-i	√jok-[a]-l-a
FEM	√jok-[a]-l-a	√jok-[a]-l-i	√jok-[a]-l-e

b. Participial paradigm in Slovenian′

	SG	DU	PL
MASC	√jok-[a]-l-∅	√jok-[ɪ]-l-a	√jok-[o]-l-i
NEUT	√jok-[e]-l-o	√jok-[ɛ]-l-i	√jok-[u]-l-a
FEM	√jok-[i]-l-a	√jok-[a]-l-i	√jok-[ɔ]-l-e

In Slovenian, theme vowels (here, Asp^0) always show *stable exponence* across complex paradigms (as in the participles here). In the constructed language, Slovenian′, theme vowels can be sensitive to the featural contents of Agr^0, potentially yielding a different allomorph for every possible ϕ-feature combination, as in (10) below. Embick's Node Adjacency and Merchant's Span Hypothesis make different predictions here: Node Adjacency predicts that Slovenian′ is impossible as a natural language, whereas Slovenian is predicted and is actually the only option here. The Span Hypothesis, on the other hand, predicts that both Slovenian and Slovenian′ may exist. The comparison in (9) suggests that the stable exponence of affixes in complex paradigms offers a generalization on the locality of allomorph selection, which the Node Adjacency adequately captures. The Span Hypothesis, on the other hand, is not able to express this generalization, as the stable exponence in Slovenian can only be interpreted as a *lexical accident*, as it permits both (9a) and (9b).[4] This is, of course, not only true of Slovenian, but generally of languages with complex morphology, as the construction of 'stable' paradigms is commonly observed cross-linguistically.

(10) *VI-application at Asp^0 in Slovenian′: singular VI-rules*

$\text{Asp}^0 \leftrightarrow$ a / _____ $\langle \text{Ptc}^0, \text{Agr}^0_{[\phi:\text{M.SG}]} \rangle$

$\text{Asp}^0 \leftrightarrow$ e / _____ $\langle \text{Ptc}^0, \text{Agr}^0_{[\phi:\text{N.SG}]} \rangle$

$\text{Asp}^0 \leftrightarrow$ i / _____ $\langle \text{Ptc}^0, \text{Agr}^0_{[\phi:\text{F.SG}]} \rangle$

However, the short-coming of the Span Adjacency Hypothesis is perhaps more serious than is obvious at first. Since any stable exponence in a complex of adjoined heads is only accidental in the Span Hypothesis, this diminishes the ability of Distributed Morphology

[4] Syntactic locality, i.e. Phasal Spell-Out (Chomsky 2001), is predicted to interrupt allomorphic relations (Embick 2010), but Asp^0 and Agr^0 are predicted to be in the same phase, especially if we assume the DM-view which proposes that Agr^0 is adjoined to verbal complexes at PF (Halle & Marantz 1994). In fact, $\sqrt{\text{ROOT}}$ and Ptc^0 need to be in the same phase for the root allomorphy to obtain and there is no empirical reason to relegate Agr^0 to a different phase. Even if evidence could be found, the point of (9) is not unique to Slovenian.

to account for *paradigm construction*: Bobaljik (2002) determines that paradigms are not actual linguistic objects, but rather an 'epiphenomenon' of the grammar. In other words, the way the grammar is constrained is what derives paradigms, and it is here that locality constraints on VI-application play a crucial role. The Span Hypothesis makes it difficult to account for systematic paradigm construction because all stable exponence in a word is accidental. This is a side-effect of non-locality, as Node Adjacency, on the other hand, directly predicts systematic paradigm construction. In sum, a strictly local approach to exponence is needed if Distributed Morphology is to have an adequate account of paradigm construction.

4.1 Generalization on root-affix assymmetry

While Node Adjacency (Embick 2010) seems crucial for deriving paradigms, some sort of non-locality seems to be needed to derive the behaviour of roots in Slovenian, and also in Greek and dialectal English, as Merchant (2015) demonstrates. These facts point to the generalization that the exponence of roots seems to have somewhat laxer locality conditions than the exponence of affixes. This goes against the tentative observation that Bonet & Harbour (2012) make, which is that root suppletion is only ever local, exactly the opposite to what we have suggested here. However, if the Slovenian, Greek and dialectal English data cannot be reanalyzed in a more adequate way that would also conform with strict locality, the proposed generalization stands.

Bonet & Harbour (2012, 227-232) also observe that affixal allomorphy may be more non-local as compared to root allomorphy, their crucial example coming from Kiowa, a Tanoan language: in Kiowa, a modality affix, inserted at Mod^0, exhibits *inward* sensitivity to the transitivity affixes in v^0, which is a non-local context, as several heads may intervene between them.[5] If the Kiowa case cannot be reanalyzed in a local fashion, then the generalization about affixal allomorphy we have suggested (viz. that it is strictly local) should be confined to cases of *outward* allomorphy, where the cases discussed in (9) and (10) belong:

(11) *Root-affix tendency in exponence*
Roots may be subject to laxer locality restrictions on exponence than affixes in cases of outward allomorphy. Affixes, on the other hand, tend to be bound by strictly local restrictions in these cases.

This generalization is stated as a 'tendency' here and it must be treated as tentative without more extensive typological investigation. Nevertheless, we may provide some speculation about the inward-outward allomorphy distinction that this generalization refers to. If affixes tend to be bound by strict locality restrictions in outward allomorphy, this still leaves room for non-local sensitivity of affixes in inward allomorphy, as in the Kiowa case. Permitting laxer locality restrictions on inward affixal allomorphy is perhaps not as undesirable as the

[5]Bonet & Harbour (2012, 232) also discuss Itelmen, a Kamchatkan language, which shows a case of *outward* non-local affixal allomorphy, as originally discussed by Bobaljik (2000), but they briefly indicate that this case can likely be reanalyzed in a local fashion. This is the only potential case of outward non-local affixal allomorphy that I am aware of.

non-locality of outward affixal allomorphy (e.g. as in the toy-language Slovenian′): this could be because inward affixal non-locality would still require the formation of stable paradigms across the different possible ϕ-dimensions expressed in Agr^0 (i.e. Slovenian′-cases would not be licensed). In other words, allowing such non-local inward allomorphy would predict that, for any difference in the lexical or functional (non-Agr^0) heads in the paradigm, e.g. as in perfective verbs vs. imperfective verbs, different sets of affixal allomorphs could occur. Consider example (12) for illustration:

(12) Perfective verbs: $\sqrt{\text{ROOT}} \bigoplus v^0 \bigoplus \text{Asp}^0_{[+\text{PERF}]} \bigoplus \text{Mod}^0 \bigoplus \text{T}^0 \bigoplus \text{Agr}^0_{[\phi]}$
Imperfective verbs: $\sqrt{\text{ROOT}} \bigoplus v^0 \bigoplus \text{Asp}^0_{[\text{-PERF}]} \bigoplus \text{Mod}^0 \bigoplus \text{T}^0 \bigoplus \text{Agr}^0_{[\phi]}$

In the example given in (12), the exponents of heads above Asp^0 could all have different allomorphs depending on the perfectivity specification, under inward affixal non-locality. This would create different paradigms based on perfectivity alone. However, the paradigms themselves would be 'stable' across the possible ϕ-dimensions in the sense of the discussion surrounding (9), simply because outward affixal non-locality would still be impossible. Whether this prediction of inward affixal non-locality is fully desirable is left for future discussion. If so, then confining the generalization in (11) to cases of outward allomorphy is appropriate.

5. Conclusion

This paper has put forth a case of non-local root allomorphy in Slovenian, which cannot be derived by the Node Adjacency hypothesis proposed by Embick (2010) within Distributed Morphology. The Span Adjacency Hypothesis (Merchant 2015) can successfully derive the non-local pattern and avoid resorting to stipulative theoretical machinery such as Pruning or Readjustment Rules. However, it was shown that the Span Hypothesis fails to make sufficiently constrained predictions about the patterns of exponence we observe in the world's languages. In particular, it fails to give systematic predictions for paradigm construction, where the Node Adjacency hypothesis, however, is much more successful. Based on the Slovenian data supplied here, and those from Greek and dialectal English discussed in Merchant (2015), we have formulated the tentative generalization that roots tend to be subject to laxer locality restrictions on exponence than affixes. If this can be convincingly maintained, future work should seek to develop a 'middle-way' theory of locality, one that is sufficienty constrained for the exponence of affixes but appropriately lax for the exponence of roots.

Jurij Božič
jurij.bozic@mail.mcgill.ca

References

Bobaljik, Jonathan. 2000. The ins and outs of contextual allomorphy. In *University of Maryland Working Papers in Linguistics 10*, ed. K. K. Grohman & C. Struijke, 35–71.

Bobaljik, Jonathan. 2002. Syncretism without paradigms: Remarks on williams 1981, 1994. In *Yearbook of Morphology 2001*, 53–85. Netherlands: Springer.

Bonet, Eulàlila, & Daniel Harbour. 2012. Contextual allomorphy. In *The morphology and phonology of exponence*, ed. Jochen Trommer, 195–235. Oxford: Oxford University Press.

Božič, Jurij. 2015. Spell-Out of Phonological Domains: The Case of Slovenian. Master's thesis, University of British Columbia, Vancouver, BC.

Butler, Lindsay K. 2012. Status: Local (aspect, transitivity and voice in mayan status allomorphy). Poster presented at *Workshop on Locality and Directionality at the Morphosyntax-Phonology Interface*, Stanford University, October 13th 2012.

Chomsky, Noam. 2001. Derivation by Phase. In *Ken Hale. A Life in Language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.

Embick, David. 2010. *Localism versus globalism in morphology and phonology*. Cambridge, MA: MIT Press.

Embick, David, & Alec Marantz. 2008. Architecture and blocking. *Linguistic Inquiry* 39:1–53.

Gribanova, Vera. 2015. Exponence and morphosyntactically triggered phonological processes in the Russian verbal complex. *Journal of Linguistics* 519–561.

Gribanova, Vera, & Boris Harizanov. 2015. Locality and directionality in inward-sensitive allomorphy: Russian and Bulgarian. To appear in *The Morphosyntax-Phonology Connection*, Oxford University Press. http://web.stanford.edu/∼gribanov/downloads/Gribanova_Harizanov_MSPI.pdf.

Halle, Morris, & Alec Marantz. 1993. Distributed Morphology and the Pieces of Inflection. In *The View from Building 20*, MIT Working Papers in Linguistics, 111–176. Cambridge, MA: MIT Press.

Halle, Morris, & Alec Marantz. 1994. Some Key Features of Distributed Morphology. *MIT Working Papers in Linguistics 21: Papers on phonology and morphology* 21:257–288.

Harley, Heidi. 2014. On the identity of roots. *Theoretical Linguistics* 40:225–276.

Herrity, Peter. 2000. *Slovene: A Comprehensive Grammar*. London, New York: Routledge.

Marvin, Tatjana. 2002. Topics in the stress and syntax of words. Doctoral dissertation, MIT, Cambridge, MA.

Merchant, Jason. 2015. How much context is enough? Two cases of span-conditioned stem allomorphy. *Linguistic Inquiry* 46:273–303.

Radkevich, Nina. 2011. On locality in contextual allomorphy: Evidence from Mayan. Paper presented at NELS 42, University of Toronto.

Siddiqi, Daniel. 2009. *Syntax within the word: Economy, allomorphy and argument selection in Distributed Morphology*. John Benjamins.

Svenonius, Peter. 2012. Spanning. *MS* CASTL: University of Tromsø. http://ling.auf.net/lingbuzz/001501/current.pdf.

Toporišič, Jože. 2000. *Slovenska slovnica*. Maribor: Obzorja.