On Russian Comparative Morphology, Nanosyntax, and Pointers

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1. Introduction

1.1. Outline

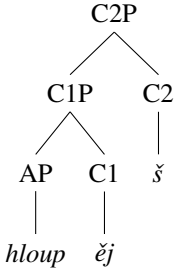
In this paper, I show that the nanosyntactic analysis of comparative morphology in Caha et al. (2019) faces a challenge when applied to the facts of Russian, which stems from architectural properties of the framework. I first overview Russian comparative formation and then apply the analysis in Caha et al. (2019) to it and expose the resulting issues. I suggest that an alternative analysis in terms of Distributed Morphology (DM) bypasses these issues due to availability of contextual allomorphy in its toolbox.

1.2. Comparatives in Nanosyntax

Caha et al. (2019) provide an analysis of comparative morphology within the framework of Nanosyntax (see Starke 2009). The central tenets of the analysis can be summarised as follows. There is no contextual allomorphy and no diacritics that regulate allomorph selection, tools that are available, for instance, in Distributed Morphology (see Halle & Marantz 1993). Instead, nanosyntactic morphemes encode and spell out different amounts of syntactic structure, and the choice of a particular morpheme depends on the amount of syntactic structure spelled out by that morpheme and by the stem it attaches to. This structural difference in size between morphemes yields apparent allomorphy.

The syntactic proposal in Caha et al. (2019) concerns the structure of the comparative. Instead of a single CMPR head (cf. Bobaljik 2012), comparative morphology is introduced by two heads embedded one into the other, C1 and C2. The central case providing evidence for such a structure is Czech comparative morphology. Caha et al. (2019) show that there are three ways to form synthetic comparative forms in Czech: (i) most adjectives take the suffixes *-ěj-š*, e.g. *hloup* 'stupid' – *hloup-ěj-š-í*; (ii) some only take *-š*, e.g. *tichý* 'silent' – *tiš-š-í*; (iii) finally, some adjectives do not have an overt comparative morpheme, e.g. *kluz-k-ý* 'slippery' – *kluz-č-í*, where *-í* is a concord marker. Crucially, there are no adjectives that only take the *-ěj* suffix not followed by *-š*; in other words, the presence of *-ěj* entails the presence *-š*. This co-occurrence of suffixes reflects the syntactic structure of the comparative (1).

(1)



While the parts of structure that are adjacent to the root can receive zero exponence, no head that is separated from the root by an intervener can receive zero exponence conditioned by the root. This is

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 Proceedings of the 39th West Coast Conference on Formal Linguistics, ed. Robert Autry et al., 584-591. Somerville, MA: Cascadilla Proceedings Project.

a consequence of non-terminal spell-out, whereby a morpheme can spell out multiple nodes. The reason behind the variation in comparative morphology in Czech is that different roots spell out different portions of the comparative syntax: roots like *hloup* 'stupid' do not spell out any, while roots like *tich-* 'silent' spell out C1, and roots that do not take any comparative suffixes spell out both C1 and C2. What makes their insertion in the positive possible is the Superset Principle, which states that a lexically stored tree L matches a syntactic node S iff L contains the syntactic tree dominated by S as a subtree.

The structure in (1) is further refined by splitting A into the Q head, which Caha et al. (2019) take to contribute gradability, and Root. This split is based on roots like *sliz-k-ý* 'slimy' – *sliz-č-ý* that require the suffix *-k* and can occur without it as nouns, see *sliz* 'slime'. Roots like *hloup-* 'stupid', on the contrary, spell out both Q and Root.

Spell-out follows the algorithm that I reproduce in (2) for convenience.

(2) *Spell-Out Algorithm* (Caha et al. 2019)

a. Merge F and spell out.

b. If (a) fails in the second workspace, undo merge F, and close the workspace by merging it with the main derivation.

c. If (a) fails in the first workspace, try spec-to-spec movement of the node inserted at the previous cycle, and spell out.

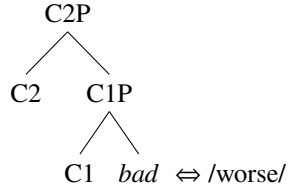
d. If (c) fails, move the complement of F, and spell out.

e. If (d) fails, remove F from the first workspace, merge it with F^{-1} in a second workspace, and spell it out.

Only stages (a), (c), and (d) of the Spell-Out algorithm will be of relevance in this paper since these are sufficient to regulate suffixal derivations. They specify the order of operations during spell-out within a single workspace. Importantly, spec-to-spec movement precedes complement movement. On multiple workspaces and their relevance to comparative formation as well as for an in-depth discussion of the assumptions and technicalities of the analysis, see Caha et al. (2019).

One final bit of technology needs to be mentioned before we move on to Russian. Caha et al. (2019) account for suppletion by recourse root sizes. For instance, the English *bad* is specified as QP, and *worse* as C2P. Suppletive roots like *worse* need to be prevented from insertion in the positive degree. They differ from other roots in that they include "pointers" to the roots occurring in the positive, see (3).

(3)



In (3), C1P—and subsequently C2P—can be spelled out as *worse* only if at the previous derivational stage QP was spelled out as *bad*. When QP is built, only *good* is considered for insertion, and when *worse* is inserted at C1P, *bad* is overwritten due to Cyclic Override, whereby the lexical item inserted at YP replaces, overrides any lexical item inserted at the previous stage, XP.

2. Russian comparatives

2.1. Suffixes of the comparative

Russian exhibits both synthetic and analytic comparative forms of adjectives. In what follows, I will only be concerned with the former. On the distribution and syntactic properties of the two classes of forms, see Grashchenkov & Lyutikova (2017). Importantly, the two classes are not in complementary distribution, and in fact, most adjectives have both comparative forms.

Synthetic comparatives in Russian are predominantly indeclinable; the same forms function as adverbial comparatives, e.g. the comparative of both *èlegant-n-yj* 'graceful' and *èlegant-n-o* 'gracefully' is *èlegant-n-ee*. Traditionally (Garde 1980: 224–227, i.a.), three suffixes of the comparative are singled out:

(4) a. *-ee*, e.g. *bel-yj* 'white' – *bel-ee*;
b. *-e*, e.g. *dorog-oj* 'dear, expensive' – *dorož-e*;
c. *-še*, e.g. *ton-k-ij* 'thin' – *ton′-še*.

The **first** of these suffixes, *-ee*, is the most productive one. It appears with the majority of stems and palatalises the stem-final consonant in the comparative. Both in speech and in writing, the disyllabic form *-ee* varies with the monosyllabic *-ej*.

The **second** one, *-e*, is used with stems in velars /k g x/ and /st/, as well as select stems in dental obstruents and roots in dental obstruents followed by the suffix *-k* (Itkin 2007: 201–202), which is an adjectivising suffix, like the Czech *-k*. The suffix *-e* causes transitive softening (see Coats & Lightner 1975) of stem-final consonants, yielding the following alternations:

(5) a. *k* ~ *č*, e.g. *šib-k-ij* 'fast' – *šib-č-e* or *žar-k-ij* 'hot' – *žar-č-e*;
b. *g* ~ *ž*, e.g. *dorog-oj* 'dear, expensive' – *dorož-e* or *tug-oj* 'tight, taught' – *tuž-e*;
c. *x* ~ *š*, e.g. *sux-oj* 'dry' – *suš-e* or *tix-ij* 'quiet' – *tiš-e*;
d. *t* ~ *č*, e.g. *bogat-yj* 'rich' – *bogač-e* or *krut-oj* 'steep' – *kruč-e*;
e. *st* ~ *šč*, e.g. *prost-oj* 'simple' – *prošč-e* or *čist-yj* 'clean, pure' – *čišč-e*;
f. *d* ~ *ž*, e.g. *tvërd-yj* 'solid, hard' – *tvërž-e* or *molod-oj* 'young' – *molož-e*;
g. *v* ~ *vl′*, e.g. *dešëv-yj* 'cheap' – *deševl′-e* (accompanied by the /o/ ~ /e/ alternation).

A property of adjectives which take the *-e* suffix that is going to be crucial to the discussion below is that in adjectives ending in a dental obstruent which have the adjectivising suffix *-k* in the positive, the suffix is suppressed in the comparative. The suffix *-e* attaches to the root itself, resulting in the alternations listed in (6). A similar effect is observed in two out of six adjectives with the suffix *-ok*.

(6) a. *t* ~ *č*, e.g. *korot-k-ij* 'short' – *koroč-e*;
b. *d* ~ *ž*, e.g. *glad-k-ij* 'smooth' – *glaž-e* or *žid-k-ij* 'liquid, watery' – *žiž-e*;
c. *s* ~ *š*, e.g. *vys-ok-ij* 'high, tall' – *vyš-e*;
d. *z* ~ *ž*, e.g. *bliz-k-ij* 'close' – *bliž-e* or *niz-k-ij* 'low' – *niž-e*;
e. *st* ~ *šč*, e.g. *slad-k-ij*[1] 'sweet' – *slašč-e*.

As Itkin (2007: 202) observes, deverbal adjectives in a dental obstruent followed by *-k* and non-derived adjectives in other consonants preserve *-k* in the comparative, e.g. *pad-k-ij* 'greedy' – *pad-č-e*, *krep-k-ij* 'sturdy' – *krep-č-e*, etc.

The **third** suffix, *-še*, occurs with just a handful of stems (Garde 1980: 226–227). Note that in all of them that have the suffixes *-ok* and *-k*, the suffixes are suppressed in the comparative (7). In addition to *-še*, some of these adjectives also take *-ee*, the latter form being literary or used in certain set expressions.

(7) a. *dal-ëk-ij* 'faraway' – *dal′-še* (also *dal-ee*);
b. *ton-k-ij* 'thin' – *ton′-še*;
c. *glub-ok-ij* 'deep' – *glub-že* (exceptionally with /ž/).

[1] Itkin (2007: 202) notes that *slad-* alternates with *slast-*, e.g. *podslastit′* 'sweeten', making this a case of *st* ~ *šč*.

2.2. Morpheme combinations

Observing the patterns of comparative formation, one can note that, unlike the Czech set of comparative suffixes, the Russian ones do not exhibit a clear containment pattern. In fact, the suffix *-še* is never followed or preceded by *-ee* in comparatives; the suffix *-ejš* only appears in superlatives/elatives, e.g. *bel-yj* 'white' – *bel-ejš-ij* 'the whitest; very white'. Table 1 summarises the major classes of synthetic comparatives in Russian outlined above. *Rt* stands for root and *Rt′* indicates suppletion; *ϕ* stands for desinence, which in the case of adjectives expresses case, gender, and number; for brevity, *-k* subsumes all of the adjectivising suffixes in columns 2 and 3.

No.	Positive	Comparative	Example
a.	Rt-*ϕ*	Rt-*ee*	*bel-yj* 'white' – *bel-ee*
b.	Rt-*ϕ*	Rt-*e*	*dorog-oj* 'dear, expensive' – *dorož-e*
b′.	Rt-*ϕ*	Rt′-*e*	*plox-oj* 'bad' – *xuž-e*
c.	Rt-*k*-*ϕ*	Rt-*č*-*e*	*zvon-k-ij* 'ringing, resonant' – *zvon-č-e*
d.	Rt-*k*-*ϕ*	Rt-*e*	*bliz-k-ij* 'close' – *bliž-e*
e.	Rt-*ϕ*	Rt-*še*	*star-yj* 'old' – *star-še*
f.	Rt-*k*-*ϕ*	Rt-*še*	*ton-k-ij* 'thin' – *ton′-še*

Table 1: Major classes of synthetic comparatives in Russian

Table 1 concludes this necessarily brief overview of Russian comparative morphology. For more details and variation in comparative formation, see Garde (1980), Itkin (2007), Eskova (2011).

3. Analysis and thorns

3.1. Analysing Russian in Nanosyntax

Before moving on to the analysis of Russian comparative morphology in Nanosyntax, it is necessary to single out the individual morphemes which participate in comparative formation. Traditionally the three comparative suffixes overviewed in Section 2.1 are not subdivided further, but in what follows I depart somewhat from that tradition. As I have pointed out, the pieces of comparative morphology in Russian do not form a clear containment pattern like the one Caha et al. (2019) find in Czech, yet some of the generalisations above suggest possible subdivisions similar to the Czech case.

The final /e/ is found in all major classes of synthetic comparatives; additionally, it has uniform accentual properties, namely it is never stressed. One might suppose that this final /e/ spells out C2. However, there exist several adjectives that have declinable comparative forms: *lučš-ij* 'better', *xudš-ij* 'worse', *bol′š-ij* 'bigger', and *men′š-ij* 'smaller'. These forms lack the final /e/, which is replaced by regular adjectival desinences. This suggests that /e/ is not a comparative morpheme but rather a morpheme that spells out a higher node, making synthetic comparatives indeclinable. I will take this node to be INFL, without going into further details as to why most Russian synthetic comparatives are indeclinable.

To encode the allomorphy exhibited by the two remaining suffixes, /ej/ and /š/, we have to assume they spell out different chunks of the comparative syntactic structure and combine with roots of different sizes. We can hypothesise that one of these two suffixes spells out C2, and other one, [C2 [C1]].

(8) a. $[_{\text{IP}}\ \text{INFL}\ ] \Leftrightarrow$ /e/

b. $[_{\text{C2P}}\ \text{C2}\ ] \Leftrightarrow$ /š/

c. $[_{\text{C2P}}\ \text{C2}\ [_{\text{C1P}}\ \text{C1}\ ]] \Leftrightarrow$ /ej/

d. $[_{\text{C2P}}\ \text{C2}\ [_{\text{C1P}}\ \text{C1}\ [_{\text{QP}}\ \text{Q}\ ]]] \Leftrightarrow$ /k/

These suffixes combine with roots of different types, specified below.

(9) a. Rt ⇔ /zvon/

b. [$_{QP}$ Q Rt] ⇔ /bel/

c. [$_{C1P}$ C1 [$_{QP}$ Q Rt]] ⇔ /star/

d. [$_{C2P}$ C2 [$_{C1P}$ C1 [$_{QP}$ Q Rt]]] ⇔ /dorog/

e. [$_{C2P}$ C2 [$_{C1P}$ C1 [$_{QP}$ → *plox*]]] ⇔ /xuž/

The combinations of the roots in (9) with the suffixes in (8) yield the following derivations.

Roots like /dorog/ 'dear, expensive' express all of the comparative structure themselves and do not take any comparative suffixes. The same is true for suppletive roots like /xuž/ with the difference that the latter contain a pointer to the root used in the positive degree. Following Caha et al. (2019), I leave out the suffix /e/ spelling out the INFL node out of the illustrations below.

Roots like /star/ combine with the suffix /š/ via merge and complement movement. Instead of a tree representation, I give a step-by-step derivation of the form *star-š-e* 'older' in (10). Roman numerals stand for cycles of spell-out; letters above arrows refer to rules of the Spell-Out Algorithm in (2); in each cycle, the rules apply until the structure is spelled out or the list of rules is exhausted.

(10) i. $\xrightarrow{a}$ Rt ⇔ /star/

ii. $\xrightarrow{a}$ [$_{QP}$ Q Rt] ⇔ /star/

iii. $\xrightarrow{a}$ [$_{C1P}$ C1 [$_{QP}$ Q Rt]] ⇔ /star/

iv. $\xrightarrow{a}$ [$_{C2P}$ C2 [$_{C1P}$ C1 [$_{QP}$ Q Rt]]] $\xrightarrow{b}$ no second workspace $\xrightarrow{c}$ no specificator $\xrightarrow{d}$ [$_{C2P}$ [$_{C1P}$ C1 [$_{QP}$ Q Rt]][$_{C2P}$ C2]] ⇔ /star/, /š/

Roots like /bel/ combine with the comparative suffix /ej/ (11). Here, the operation of spec-to-spec movement (and the fact that it is ordered before complement movement) becomes relevant.

(11) i. $\xrightarrow{a}$ Rt ⇔ /bel/

ii. $\xrightarrow{a}$ [$_{QP}$ Q Rt] ⇔ /bel/

iii. $\xrightarrow{a}$ [$_{C1P}$ C1 [$_{QP}$ Q Rt]] $\xrightarrow{b}$ no second workspace $\xrightarrow{c}$ no spec $\xrightarrow{d}$ [$_{C1P}$ [$_{QP}$ Q Rt] [$_{C1P}$ C1]] ⇔ /bel/, /ej/

iv. $\xrightarrow{a}$ [$_{C2P}$ C2 [$_{C1P}$ [$_{QP}$ Q Rt] [$_{C1P}$ C1]]] $\xrightarrow{b}$ no second workspace $\xrightarrow{c}$ [$_{C2P}$ [$_{QP}$ Q Rt] [$_{C2P}$ C2 [$_{C1P}$ C1]]] ⇔ /bel/, /ej/

Finally, roots like /zvon/ combine with the adjectivising suffix /k/ and the comparative suffix involving in addition the spec-to-spec movement (12).

(12) i. $\xrightarrow{a}$ Rt ⇔ /zvon/

ii. $\xrightarrow{a}$ [$_{QP}$ Q Rt] $\xrightarrow{b}$ no second workspace $\xrightarrow{c}$ no spec $\xrightarrow{d}$ [$_{QP}$ Rt [$_{QP}$ Q]] ⇔ /zvon/, /k/

iii. $\xrightarrow{a}$ [$_{C1P}$ C1 [$_{QP}$ Rt [$_{QP}$ Q]]] $\xrightarrow{b}$ no 2nd workspace $\xrightarrow{c}$ [$_{C1P}$ Rt [$_{C1P}$ C1 [$_{QP}$ Q]]] ⇔ /zvon/, /k/

iv. $\xrightarrow{a}$ [$_{C2P}$ C2 [$_{C1P}$ Rt [$_{C1P}$ C1 [$_{QP}$ Q]]]] $\xrightarrow{b}$ no second workspace $\xrightarrow{c}$ [$_{C2P}$ Rt [$_{C2P}$ C2 [$_{C1P}$ C1 [$_{QP}$ Q]]]] ⇔ /zvon/, /k/

I have thus derived classes (b) and (b′), (e), (a), and (c). However, the analysis is obviously incomplete; the remaining patterns, (d) and (f), present a challenge and are discussed in the next subsection.

3.2. Pointers and the inconstant -k

What characterises classes (d) and (f), exemplified by adjectives *glad-k-ij* 'smooth' – *glaž-e* and *ton-k-ij* 'thin' – *ton′-š-e*, is that in both the positive form has the adjectivising suffix /k/, whereas the comparative form lacks it. Given the specifications in (8) and (9), this results in a conflict.

In class (d), the presence of the suffix /k/ in the positive degree indicates that the root itself only spells out Rt, and /k/ spells out Q. To reiterate, /k/ is able to spell out Q in the absence of C1 and C2 in the positive, which it also encodes in its lexical entry, by virtue of the Superset Principle. The comparative, however, contains no overt comparative suffix, and /glad/ behaves as if it were a root of class (b) like /dorog/, which does not require a suffix since it spells out C1 and C2 by itself. If, however, the root /glad/ spelled out [$_{C2P}$ C2 [$_{C1P}$ C1 [$_{QP}$ Q Rt]]] indeed, inserting /k/ in the positive would not be possible: whenever a root can spell out a certain head, it will do so due to the inner workings of the Spell-Out Algorithm. Adjectives of class (f) present the same problem with the difference that the root behaves as if it variably spelled out Rt only or [$_{C1P}$ C1 [$_{QP}$ Q Rt]].

The same problem arises in Czech as well and is already pointed out by Caha et al. (2019). In Czech, there are adjectives like *slad-k-ý* 'sweet' – *slad-š-í*, which exhibit a similar pattern to what we have observed in Russian. Caha et al. (2019) do not resolve this issue, yet suggest two potential solutions it within the nanosyntactic paradigm.

One is to loosen the Containment Hypothesis and admit that the comparative does not fully contain the positive. While this solution makes the problematic pattern a non-issue altogether, it comes at the cost of restricting the empirical coverage that the Containment Hypothesis delivers. Such a move would render the analysis developed by Caha et al. (2019) obsolete. If the comparative does not fully contain the positive, roots like /dorog/, /star/, etc. need to be reanalysed since a morpheme cannot spell out non-contiguous structure. This solution also undermines the analysis of *ABA pattern in that if the Containment Hypothesis is forsaken, it is not excluded in a principled way (Bobaljik 2012: 36–38). Since Caha et al. (2019) do not dwell this potential solution, I do not pursue this discussion further.

The other solution that Caha et al. (2019) suggest utilises the mechanism of pointers. The idea is that lexical entries of roots like the Czech /slad/ (or Russian /ton/) contain a pointer to the /k/ suffix. Caha et al. (2019) propose the following entry for /slad/:

(13) [$_{C1P}$ C1 [$_{QP}$ [Rt] [$_{QP}$ → *k*]]] ⇔ /slad/

Such an entry allows a root like /slad/ to only spell out Rt in the positive, making it possible for it to attach /k/. In the comparative, /slad/ can spell out the C1P containing both C1 and [$_{QP}$ Rt [$_{QP}$ → *k*]] with a pointer to the /k/ suffix, thus eliminating it by override. I show this derivation in (14).

(14) i. $\overset{a}{\rightarrow}$ Rt ⇔ /slad/

ii. $\overset{a}{\rightarrow}$ [$_{QP}$ Q Rt] $\overset{b}{\rightarrow}$ no second workspace $\overset{c}{\rightarrow}$ no spec $\overset{d}{\rightarrow}$ [$_{QP}$ Rt [$_{QP}$ Q]] ⇔ /slad/, /k/

iii. $\overset{a}{\rightarrow}$ [$_{C1P}$ C1 [$_{QP}$ Rt [$_{QP}$ *k*]]] ⇔ /slad/

iv. $\overset{a}{\rightarrow}$ [$_{C2P}$ C2 [$_{C1P}$ C1 [$_{QP}$ Rt [$_{QP}$ *k*]]]] $\overset{b}{\rightarrow}$ no second workspace $\overset{c}{\rightarrow}$ no spec (in C1P) $\overset{d}{\rightarrow}$ [$_{C2P}$ [$_{C1P}$ C1 [$_{QP}$ Rt [$_{QP}$ *k*]]] [$_{C2P}$ C2]] ⇔ /slad/, /š/

Below, I identify some problems caused by entries such as (13) and show that lexical items like that undermine the analysis provided by Caha et al. (2019) in at least two ways.

The entry in (13) is different from the ones that utilise pointers which we saw in the previous sections in that (i) it points to an f-morpheme rather than to a root, (ii) Rt is not the bottom node but is rather in the specifier of QP. The combination of these two properties results in unwelcome predictions.

First, consider an abstract example with two suppletive roots /a/ and /b/. Root /b/ contains a pointer to /a/, providing that /b/ can only be inserted if /a/ spells out Rt at the previous cycle. The lexical entry of /a/ also contains a pointer to /b/, which makes it possible for /a/ to override /b/ in turn. Crucially, this requires that Rt is not the bottom node of either of the two lexical entries.

(15) a. $[_{YP}$ Rt $[_{YP}$ Y $[_{XP} \rightarrow b\ ]]] \Leftrightarrow$ /a/

b. $[_{XP} \rightarrow a\ [_{XP}$ X $]] \Leftrightarrow$ /b/

The entries in (15) can then result in a derivation like (16).

(16) i. $\xrightarrow{a}$ Rt $\Leftrightarrow$ /a/

ii. $\xrightarrow{a} [_{XP}$ X Rt $] \xrightarrow{b}$ no second workspace $\xrightarrow{c}$ no spec $\xrightarrow{d} [_{XP}\ a\ [_{XP}$ X $]] \Leftrightarrow$ /b/

iii. $\xrightarrow{a} [_{YP}$ Y $[_{XP}$ Rt $[_{XP}$ X $]]] \xrightarrow{b}$ no second workspace $\xrightarrow{c} [_{YP}$ Rt $[_{YP}$ Y $[_{XP}\ b\ ]]] \Leftrightarrow$ /a/

The pattern in (16) is recognisable as an ABA pattern. I demonstrated it for an abstract case here, but the possibility of expressing an ABA pattern with pointers and Rt in a specifier of a phrase extends to superlative and comparative morphology under the Containment Hypothesis. Without additional restrictions, pointers make *ABA patterns in comparative morphology easily available within the analysis in Caha et al. (2019).

Second, consider another abstract example. Here, there is a morpheme that spells out a certain head, Y, and a root that contains a pointer to this morpheme.

(17) a. $[_{ZP}$ Z $[_{YP}\ [_{XP}$ X Rt $]\ [_{YP} \rightarrow$ *suffix* $]]] \Leftrightarrow$ /root/

b. $[_{YP}$ Y $] \Leftrightarrow$ /suffix/

The presence of a pointer allows the root to override the morpheme at a later derivational stage.

(18) i. $\xrightarrow{a}$ Rt $\Leftrightarrow$ /root/

ii. $\xrightarrow{a} [_{XP}$ X Rt $] \Leftrightarrow$ /root/

iii. $\xrightarrow{a} [_{YP}$ Y $[_{XP}$ X Rt $]] \xrightarrow{b}$ no second workspace $\xrightarrow{c}$ no spec $\xrightarrow{d}$
$[_{YP}\ [_{XP}$ X Rt $]\ [_{YP}$ Y $]] \Leftrightarrow$ /root/, /morpheme/

iv. $\xrightarrow{a} [_{ZP}$ Z $[_{YP}\ [_{XP}$ X Rt $]\ [_{YP}$ *suffix* $]]] \Leftrightarrow$ /root/

This example is similar to the derivation in (14). With the suffix /k/ in Czech, the pointer technology yields the correct result, namely the fact that /k/ is inserted in the positive and overridden in the comparative. Imagine, however, that in (17) X is Q, Y is CMPR (I am assuming this for brevity, but the same example can be reproduced with the split C1 and C2 heads), and Z is SPRL (which, again, may be split into S1 and S2). What (18) amounts to then is a pattern where the positive and the superlative degrees are spelled out by the adjectival root on it own and the comparative expressed in addition by a dedicated morpheme, e.g. **big – bigger* (CMPR) – *big* (SPRL). Here we see again that the pointer mechanism on its own, without additional restrictions, yields unwelcome empirical predictions.

The issue of the inconstant *-k* is not the only problem that the analysis in Caha et al. (2019) is faced with when applied to Russian data. Another one is the free availability of both synthetic and analytic forms, since for Caha et al. (2019) the choice between *more* and *-er* comparatives in English is also a result of difference in structural size between roots.[2] However, I leave the exploration of this and other potential issues, if any, for another occasion.

3.3. Sketch of a DM alternative

In the previous subsection, we have seen that the analysis in Caha et al. (2019) cannot capture classes (d) and (f) of Russian synthetic comparatives. In this section, I briefly sketch an alternative analysis couched in DM. An crucial difference between the two frameworks is that DM recognises contextual allomorphy, which in the nanosyntactic analysis of Caha et al. (2019) is a surface manifestation of non-terminal spell out of constituents of different sizes.

[2] See, however, Grashchenkov & Lyutikova (2017), where Russian analytic comparatives are analysed as the positive degree modified by the adverbs *bolee* 'more' or *menee* 'less'.

Itkin (2007: 201) suggests that *-e*, which triggers transitive softening, should be represented as /je/ and is and allomorph of the *-ee* suffix undergoing the /e/ ~ /∅/ alternation. I incorporate this insight but maintain the separation of /(e)j/ and /e/, where the final /e/ is a morpheme that spells out INFL. The suffixes /š/ and /(e)j/ can be regarded as contextual allomorphs, with *-š* being restricted to a listed set of roots. Following Caha et al. (2019), I assume that the suffix /k/ spells out Q. Finally, I suggest that in classes (d) and (f), the suffix /k/ alternates with /∅/ in the environment of a list of roots like /ton/ or /bliz/ on the one hand and the comparative on the other hand. I thus arrive at the following set of rules:

(19) a. WHITE ⊕ Q → bel

b. STURDY → krep

c. Q → ∅ / $]_A$ __] CMPR], where A = ton, bliz, ...

d. Q → k

e. CMPR → š / $]_B$ __, where B = dolg, dal, ran, ...

f. CMPR → ej

g. INFL → e

h. ej → j $]_C$ __, where C = dorog, sux, bogat, ...

4. Conclusions

In this paper, I have applied the nanosyntactic analysis of comparative morphology proposed by Caha et al. (2019) to Russian and shown that the analysis faces certain problems, most importantly the one posed by the adjectivising suffix *-k*. In a certain class of adjectives, the suffix is present in the positive degree form but not in the comparative, in an apparent violation of the Containment Hypothesis. In Nanosyntax, this pattern produces a conflict between the structural size of the same morphemes (roots and comparative suffixes) in the positive and the comparative. I have demonstrated that the potential solutions to this conflict (which also arises in Czech) pointed out by Caha et al. (2019), including the one that utilises the technology of pointers, yield unwelcome predictions, such as admitting ABA patterns. Finally, I sketched an alternative analysis couched in Distributed Morphology, which does not face the same problems due to the availability of contextual allomorphy in DM.

Inevitably, many aspects of Russian comparative morphology have not been addressed in this short paper. One avenue to pursue is suggested by the phonological (sub)generalisations in the distribution of suffixes in Section 2. It might turn out to be the case that allomorph selection and *-k* deletion pertain to the phonological component of grammar. However, I leave this and other matters for future research.

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Proceedings of the 39th West Coast Conference on Formal Linguistics

edited by Robert Autry,
Gabriela de la Cruz Sanchez,
Luis A. Irizarry Figueroa,
Kristina Mihajlovic, Tianyi Ni,
Ryan Smith, and Heidi Harley

Cascadilla Proceedings Project Somerville, MA 2024

ISBN 978-1-57473-481-2 hardback

Ordering information

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This paper can be cited as:

Kukhto, Anton. 2024. On Russian Comparative Morphology, Nanosyntax, and Pointers. In *Proceedings of the 39th West Coast Conference on Formal Linguistics*, ed. Robert Autry et al., 584-591. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #3676.