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**SOME ISSUES IN RUSSIAN ADJECTIVE FORMATION**
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## 1. INTRODUCTION

DM (Halle and Marantz 1993, 1994): morphology is built on the basis of syntactic structures (Syntax All The Way Down).

Rarely discussed predictions:

(i)   Derivational affixes should be able to combine not only with roots and stems, but also with **maximal projections**   ☑

(ii)  **syntactic locality constraints** must be observed in word-formation (e.g., binding cannot access the internal constituent of a word (Postal 1969), c-selection by a head is restricted to the head of its complement (Svenonius 1994, Matushansky 2006))   ☒

(iii) morphs that are both **semantically and syntactically empty** are allowed to the same extent as in syntax (i.e., not at all, under usual assumptions)   ☒

Word-structure is obviously hierarchical.

**Goals of this talk:**
➢   assess the **correctness** of these predictions
➢   discuss ways of resolving some apparent **counterexamples**
on the basis of Russian adjective formation.

## 2. XPS AS BASES FOR DERIVATION

Russian systematically uses PPs and NPs for adjective formation:

(1) a.   trëx- nog -ij          ⇐ *tri nogi* 'three legs'
         three leg -φ
         *three-legged*

    b.   krasn -o- nos -yj       ⇐ *krasnyj nos* 'red nose'
         red   -CN-nose -φ
         *red-nosed*

    c.   bez-     koneč- n- yj    ⇐ *bez konca* 'without end'
         without  end    ADJ -φ
         *endless*

How do we know it's a PP (or an NP) rather than just a combination of two morphemes?

(2) a.   žizn -e- radost -n   -yj   ⇐ *radost' žizni* 'joie de vivre'
         life -CN-joy    -ADJ -φ
         *joyous, full of joie de vivre*

    b.   ogn -e- upor -n   -yj    ⇐ ?
         fire -CN-persist -ADJ  φ
         *fire-resistant*

In bare phrase structure **what's the difference**?

ℕ₿: Semantic composition seems (at least) very similar – if word-external syntax is different, it has to be proven

However, derivation from XPs does not behave as predicted with respect to c-selection.

## 3. C-SELECTION

As expected in a hierarchical structure, an affix can affect further derivation.

Feminine noun formation (still looking for real minimal pairs):

(3) a.   skazi-**tel'** 'story-teller (archaic)' → skazi-tel'-**nic**-a 'female story-teller'
    b.   ras-skaz-**čik** 'story-teller' → ras-skaz-**čic**-a 'female story-teller'
    c.   skaz-oč-**nik** 'fairy-tale teller' → skaz-oč-**nic**-a 'fairy-tale teller'

(4) a.   plov-**ec** 'swimmer' → plov-č-**ix**-a 'female swimmer'
    b.   plyv-**un** 'habitual swimmer' → plyv-un-**j**-a 'female habitual swimmer'

Suffixes affect derivation – what about other material?
ℕ₿: I set prefixes aside, since they do not combine with XPs.

### 3.1. Property privation or possession

For adjectives denoting property privation or possession null-derivation is possible for a sub-class of inalienable possession nouns: those denoting **visible body parts**.
ℕ₿: Relational [+ human] nouns like *mother*, *friend*, *member* cannot form privation or possession adjectives, with *children* being only exception. The reason for this might be pragmatic, as comitative PPs (e.g., *with two friends*) also do not make good NP modifiers. There also exists the minimal pair *žestokoserdyj* 'cold-hearted' vs. *besserdečnyj* 'heartless', but internal organs do not easily form privation/possession adjectives.

(5) a.   trëx- nog -ij               c.   trëx- koneč- n-  yj
         three leg  -φ                    three end   ADJ -φ
         *three-legged*                   *three-ended*

    b.   bez-     nog -ij           d.   bes-     koneč- n-  yj
         without  leg  -φ                without  end    ADJ -φ
         *legless*                        *endless*

The suffix -*ĭn*- surfacing as -*n*- or -*en*- might be the default one for APs containing cardinals.

This is not a problem: if *a leg* is a visible body part, so are *three legs*. Locality is observed.

### 3.2. Measure adjectives

Adjectives formed on the basis of measure NPs exhibit more variation, with the choice of the suffix determined by the stem:

(6) a.   trëx- sekund-n-yj           d.   trëx- tysjač-n-yj
         three-second-ADJ-φ              three-thousand-ADJ-φ
         *three-second*                   *three-thousand*

    b.   trëx- čas-ov-oj             e.   trëx- million-n-yj
         three-hour-ADJ-φ               three-million-ADJ-φ
         *three-hour*                     *three-million*

    c.   trëx- mesjač-n-yj           e.   trëx- kilogramm-ov-yj
         three-month-ADJ-φ              three-kilogram-ADJ-φ
         *three-meter*                    *three-kilogram*

The choice of the suffix isn't determined semantically. The meaning of the resulting adjective is not that of possession.
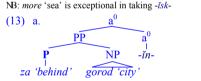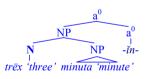
### 3.3. Adjectives derived from PPs

Locative PPs can be adjectivized with the suffixes *-ĭn-*, *-ov-* (rare) and *-ĭsk-*. The choice of the suffix is determined by the stem and is independent of the preposition.

(7) a. za-mor-sk-ij
over-sea-ADJ-φ
*overseas*

   b. pri-mor-sk-ij
by-sea-ADJ-φ
*seaside*

(8) a. za-gorod-n-yj
over-city-ADJ-φ
*country-side*

   b. meždu-gorod-n-yj
between-city-ADJ-φ
*intercity*

(9) a. do/pred-   voen-n-yj
until/before- war-ADJ-φ
*pre-war*

   b. posle-voen-n-yj
after- war-ADJ-φ
*post-war*

(10) a. do-puškin-sk-ij
until-Pushkin-ADJ-φ
*pre-Pushkin*

   b. posle-puškin-sk-ij
after-Pushkin-ADJ-φ
*post-Pushkin*

(11) a. pred-  groz-ov-oj
before-thunderstorm-ADJ-φ
*before the storm*

   b. protivo-  bol-ev-oj
against-  pain-ADJ-φ
*analgesic*

(12) a. po-štat-n-yj
by-department/state-ADJ-φ
*distributed by department/state*

   b. sverx-štat-n-yj
over.top-department-ADJ-φ
*supplementary (of workers)*

Ilya Itkin, p.c.: in de-locative derivation *-ĭsk-* is used for proper names and non-Slavic roots; otherwise *-ĭn-* is used. *-ov-* is rare

NB: *more* 'sea' is exceptional in taking *-ĭsk-*

(13) a.

b.

Why doesn't the intervening head intervene?

NB: For those who do not subscribe to the approach to NP-internal cardinals detailed in Ionin and Matushansky 2006 or believe that a cardinal is a head, or think it is introduced as the specifier of a functional head,, the same problem is posed by adjectives like *každodnevnyj* 'daily' (from *každyj den'* 'every day').

This looks like a bracketing paradox: the lexical semantics of the stem is not involved.

### 3.4. Summary

Three distinct cases of apparent **locality violations**:

➢ property privation/possession: visible body parts for *-Ø-*, otherwise *-ĭn-*

➢ measure adjectives: for some stems the suffix is *-ov-*, elsewhere *-ĭn-*

➢ adjectives derived from PPs: *-ov-* appears with some stems, *-ĭsk-* is reserved for non-Slavic vocabulary and proper names; *-ĭn-* is the default.

The choice of the adjectivizing suffix appears to be determined by the **preceding morpheme** or by the **nominal head** (the two hypotheses cannot be distinguished) and not affected by the prior addition of linearly non-intervening material.

NB: A prefix *can* play a role: **propensity adjectives** can be derived with the suffixes *-liv-* (*-iv-*) and *-čiv-*. Only unprefixed roots can combine with the suffix *-liv-*; otherwise the suffix *-čiv-* is used (Švedova 1980, Itkin 2005)

Both PPs and cardinal-containing NPs exhibit a **violation of the locality of c-selection** (there is an intervening head, which does not affect the choice of the suffix).

NB: A similar violation can be observed with the choice of the secondary imperfective allomorph, determined by the prefix-stem combination (Matushansky 2009).

### 4. JUNK DNA IN AFFIXATION?

Are there affixes with no meaning? If yes, is their role purely formal?

Can meaningful affixes lose their meaning?

### 4.1. Suffix doubling

Russian derivation often involves suffix doubling:

(14) a. korič   -n   -ev   -yj
cinnamon -ADJ -ADJ -φ
*brown*

   b. grex   -ov  -n   -yj    (cf. *grešnyj* 'sinful')
sin   -ADJ-ADJ -φ
*sinful*

(15) a. katalog-iz -ir -ov -a -t'
catalog-V -V -V -TH -INF
*to catalog*

   b. uči   -tel'-nic   -a    (cf. *učitel'* 'teacher')
teach -er  -er+F   NOM.SG
*female teacher*

What is the role of such multiple suffixes?

NB: In (15b) the suffix *-nik-* is probably inserted because the feminine suffix (detectable by the palatalization of [k]) would not be noticeable with the suffix-final [l'].

They are probably not semantically empty, as there clearly exist independently attested cases of apparent *semantic haplology*, most likely at work in Negative Concord (Zeijlstra 2004 and references therein) and Modal Concord (Geurts and Huitink 2006, Zeijlstra 2007, a. o.):

(16) **Possibly** this gazebo **may** have been built by Sir Christopher Wren.

But there seem to exist morphemes with no semantic value: thematic vowels in Russian and Romance (Oltra Massuet 2000) and the so-called *interfixes*.

### 4.2. Derivational stem augmentation

Itkin 2007: Real interfixes appear in all derivational contexts.

In adjective formation the following interfixes are used productively:

• *-ik-* (e.g., *geograf-ič-esk-ij* 'geographic')
• *-at-* (e.g., *dram-at-ič-esk-ij* 'dramatic')
• *-ov-* (e.g., *orl-ov-sk-ij* 'related to the city of Orёl', cf. *orl-ov-ec* 'inhabitant of the city of Orёl')

- -*in*- (e.g., *yalt-in-sk-ij* 'related to the city of Yalta', cf. *yalt-in-ec* 'inhabitant of the city of Yalta')
- -*an*- (e.g., *amerik-ian-sk-ij* 'American')
- -*ej*- (e.g., *put'-ej-sk-ij* 'related to railway engineering', *evrop-ej-sk-ij* 'European', cf. *put'-ej-ec* 'railway engineer', *evrop-ej-ec* 'a European')

Itkin 2007: interfixes are thematic morphemes.

However, just like verbal "thematic morphemes" (Halle and Matushansky in prep.), interfixes are a heterogeneous group.

### 4.2.1.   Word-internal case

Itkin 2007:68: the markers -*ov*-, -*in*-, -*an*-, -*ej*-, etc., are **thematic morphemes**, i.e., elements fulfilling the structural function of forming from certain roots a base for further derivation.

Nobody knows why thematic suffixes are necessary, as they do not seem to be motivated by phonology (or semantics).

**Proposal: thematic suffixes are word-internal case-markers**.

Observation: some denominal "interfixes" are homophonous with case endings:

- -*ej*- and -*ov*- are genitive plural (II and III declension, II declension; note that -*Ø*- is also an allomorph for genitive plural)

- -*in*- is a possessive suffix (III declension; note that this is anomalous – declension classes do not normally affect derivation)

- -*an*- is unattested in inflection, but attaches to Latinate vocabulary

In **adjectives derived from NPs containing cardinals**, the cardinal is marked with genitive (or a reasonable approximation thereof).

Most simplex cardinals appear in genitive:

(17) a.  pjati-      nog-  ij                          all III declension cardinals
         five-GEN   leg   φ
         *five-legged*

     b.  soroka-     nog-  ij                          unique
         forty-GEN  leg   φ
         *forty-legged*

     c.  trëx-       nog-  ij              also *four* and *two*, though see below
         three-GEN  leg   φ
         *three-legged*

Several cardinals recognizably deviate from genitive.

Optional truncation (depending on the following word):

(18) a.  dvu-        nog-  ij
         two-GEN_X  leg   φ
         *two-legged*

     b.  dvux-       os-   n-   yj
         two-GEN    axle  ADJ  φ
         *bi-axial*

Graphic *e* and *o* corresponding to nominative neuter or the connecting morpheme, but which could potentially be due to the hypercorrection, respectively, of the genitive singular -*i*- (I declension) or -*a*- (II declension) due to Russian unstressed vowel neutralization rules:

(19) a.  st-o-          nog-  ij              (cf. *sta* 'hundred-GEN')
         hundred-NOM?  leg   φ
         *hundred-legged*

     b.  tysjač-e-      nog-  ij             (cf. *tysjači* 'thousand-GEN')
         thousand-CN?  leg   φ
         *thousand-legged*

     c.  million-o-     nog-  ij            (cf. *milliona* 'million-GEN')
         million-CN?   leg   φ
         *million-legged*

Conclusion: all word-internal cardinals could be marked genitive.

Pesetsky 2008: in Russian genitive is the default case assigned to NPs in the absence of other structure.

Thus the "interfixes"/"thematic suffixes" -*ov*-, -*in*-, -*an*- and -*ej*- could be word-internal case-markers, assigned by derivational morphology. The surface realization of such case is then not unexpectedly dependent on the given stem.

NB: Some derivation from proper names (*elizavet-in-skij* 'Elizabethan', *kant-ov-skij* 'Kantian') could involve the actual formation of the possessive (cf. *things Elizabethan*) with subsequent locative affixation to a genitive NP.

Problem: "interfixes" and "thematic morphemes" do not appear only in denominal derivation.

But does case have to be nominal?

### 4.2.2.   -*t*-truncation

The "interfix" -*at*- appears in denominal derivation from nouns in -*ma* borrowed from Greek (Yanko-Trinickaja 1969, Itkin 2007)

(20) a.  *tema* 'theme' → *tematika* 'theme range', *tematičeskij* 'thematic', *tematizirovat'* 'to distribute theme-wise'

     b.  *problema* 'problem' → *problematika* 'problem range', *problematičnyj* 'problematic', *problematičeskij* 'problematic'

     c.  *luna* 'moon' → *lunatik* 'somnambula', *lunatizm* 'somnambulism' (exceptional, only for this semantic range)

Hypothesis: in synchronic Russian these roots actually contain the final [t] in the underlying representation. The nominalizing suffix $n^0$ is a truncating morph, deleting the last consonant of the stem. The now-final [a] is then removed by Jakobson's vowel-before-vowel truncation rule (Jakobson 1948).

Confirmation: alternation -*izm*-/-*ist*-:

(21) a.  *idealizm* 'idealism' vs. *idealist* 'idealist' → *idealist-ič-esk-ij* 'idealistic'
     b.  *realizm* 'realism' vs. *realist* 'realist' → *realist-ič-esk-ij* 'realistic'
     c.  *kommunizm* 'communism' vs. *kommunist* 'communist' → *kommunist-ič-esk-ij* 'communistic'

Semantically the abstract noun in -*izm*- is clearly the source for both the [+ human] noun and the adjective in -*ist*-.

NB: This may not be correct for English, where, as noted by Dressman 1985, there exist [+human] nouns in -*ist* without corresponding abstract nouns in -*ism* (e.g., *violinist*).

Hypothesis: the underlying form of the morpheme is *-izmt-*. [m] is deleted before a consonant by Jakobson's glide-truncation rule (Jakobson 1948), yielding [izt] (which then undergoes voicing assimilation), except in the abstract noun, where the same truncating n$^0$ is used as for nouns in *-at-*, yielding [izm].

This means that the agentive suffix can be realized as a phonological zero.

Confirmation:

(22) a.  iskusstv-o-ved-Ø 'art historian' (cf. *iskusstvovedenie* 'art history')
     b.  èkskurs-o-vod-Ø 'tour guide'
     c.  led-o-kol 'ice-breaker'

This hypothesis partially resolves another bracketing paradox (Pesetsky 1979:22)

(23) a.  muč-i-t' 'to torture'
     b.  muč-i-tel' 'torturer'
     c.  muč-i-tel'-n-yj 'excruciating, agonizing'
     d.  muč-i-tel'-sk-ij 'of a torturer'

Pesetsky 1979:22: "In general, the meaning of adjectives in *-ĭn-* seems to be derivable, when not idiosyncratic, from the meaning *-ĭn-* and of the innermost, root morpheme, with a total disregard of what meaning may be associated with intervening suffixes."

If the agentive suffix is Ø, *-tel'-* has a different role (possibly related to the presence of the infinitival suffix *-t'-*) and the paradox disappears: *-ĭn-* attaches after *-tel'-*, *-ĭsk-* attaches after the zero agentive suffix:

(24) a. stara-t'-sja 'to try'
     b. stara-tel' 'prospector'
     c. stara-tel'-n-yj 'assiduous, painstaking'
     d. stara-tel'-sk-ij 'of a prospector'

Therefore, *-at-* need not be an interfix.

## 4.3. Summary

Three cases of the meaning/form mismatch:
(i)  **Thematic morphemes**: hopefully, a grab-bag that reduces to (ii) and (iii)
(ii)  **Affix doubling**: can be resolved by appealing to semantic haplology
(iii)  Word-internal **case**: to investigate

NB: The list is probably incomplete. For example, the fact that singular/plural forms may contain extra suffixes (e.g., *angličanin* 'Englishman' vs. *angličane* 'Englishmen', *syn* 'son' vs. *synovja* 'sons') or different suffixes (e.g., *kotjonok* 'kitten' vs. *kotjata* 'kittens', etc.) does not readily fit into the three cases above.

## 5. CONCLUSION

The hypothesis of "Syntax All The Way Down", while correctly predicting that items larger than roots or stems can serve as input to derivation, doesn't explain the **apparent linearity of c-selection**, **affix multiplication** or the existence of **bound forms**.

Conversely, some idiosyncrasies of morphological derivation (OT effects in affix choice, see Itkin 2005, 2007) are actually predicted to exist: just like in syntactic composition, pragmatic and phonological (phonotactic) factors affect the "wording".

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