Can Complementary Distribution be a Gradient Phenomenon?
Near-Allomorphy among Russian Verbs Meaning ‘do X once’

Laura A. Janda
laura.janda@uit.no
http://hum.uit.no/lajanda
My problem

• In Janda 2007 I presented my “cluster model” of Russian aspect as an alternative to the traditional “pair model”.

• The cluster model claims that semelfactive verbs with the suffix -nu (like čixnut’ ‘sneeze once’) and with the prefix s- (primarily formed from motion verbs, such as sxodit’ ‘walk someplace and come back once’) form a single group of perfective verbs which I call “Single Act Perfectives”.

Čixnet
‘She’ll sneeze once’
But...

- This is a strange distribution between *-nu* and *s-*, and there isn’t much in the scholarly works on Russian aspect about a relationship between these two morphemes.
My solution

• Allomorphy hypothesis:
  --nu and s- serve (approximately) as allomorphs in the formation of semelfactive verbs in Russian
Allomorphy

- Allomorphs are traditionally defined as a group of two (or more) morphemes that have the same function, yet are in complementary distribution (Bloomfield 1935: Chapters 10 & 13; Matthews 1974: Chapter V)

- (usually these are morphemes that are etymologically related but have undergone sound changes in complementary environments)
Examples of allomorphy

• allomorphs of the root *knig*- ‘book’ in the following forms which differ in their final consonants: *kniga* [kn’ig-] (Nsg), *knige* [kn’ig’-] (Lsg), *knig* [kn’ik-] (Gpl), *knižka* [kn’iš- ] (dim Nsg), *knižek* [kn’iž-] (dim Gpl)
  – final segment of morpheme can be g, g’, k, š or ź

• allomorphs of past tense marker: *pisal* [l] , *pisala* [l] , *pisali* [l’] ‘he, she, they wrote’; *nes* [Ø] , *nesla* [l] , *nesli* [l’] ‘he, she, they carried’
  – morpheme can be l, l’ or Ø
My desire to escape from that corner and confirm the cluster model led me to a larger theoretical question:

**What is allomorphy?**

...which led me to an even larger question:

**How do we deal with gradient realities when our linguistic definitions are stated in absolute terms?**
Reality is messy

• Though our textbooks and theories often give us clear definitions, if we look at the phenomena they are meant to describe in corpus data, we are often faced with fuzzy gradience.

• Does this mean that our definitions must dissolve into relativity?

• No, but we do need to establish standards that account for messy reality.
Overview

• Cluster model and Single Act Perfectives
• Database of Single Act Perfectives with -nu and s-
• Testing the allomorphy hypothesis
  – Are -nu and s- in complementary distribution?
  – Do -nu and s- have the same function?
The cluster model distinguishes four types of perfectives:

– Natural Perfectives
  • *pisat* ‘write’ > *napisat* ‘write’

– Specialized Perfectives
  • *rabotat* ‘work’ > *pererabotat* ‘rework, edit’

– Complex Act Perfectives
  • *stonat* ‘moan’ > *postonat* ‘moan for a while’

– Single Act Perfectives
  • *dut* ‘blow’ > *dunut* ‘blow once’
-nu database

- 296 Imperfective verbs that form -nu semelfactives
  - collected by Anastasia Makarova
  - includes both -nu and -anu semelfactives like pleskat’ ‘splash’ which forms plesnut’ and pleskanut’‘splash once’
  - includes both reflexive and non-reflexive verbs like kačat’/kačnut’, kačat’sja/kačnut’sja ‘rock/rock once’
s- database

- 105 Imperfective verbs that form s- semelfactives
  - collected by Laura Janda with help from Anastasia Makarova
  - includes eleven motion verbs such as xodit’/sxodit’ ‘walk/ walk someplace and come back once’
  - inkludes both reflexive and non-reflexive verbs such as lovčit’/slovčit’, lovčit’sja/slovčit’sja ‘be cunning/do something cunning’
Comparison of the databases

- 3 times more -nu than s- semelfactives
- -nu semelfactives tend to have higher frequency than s- semelfactives
- s- semelfactives are dominated by 4 motion verbs with high frequency: sxodit’, s”ezdit’, sbegat’, sletat’ ‘walk, ride, run, fly someplace and come back once’

- It is almost impossible to analyze frequency because
  - some -nu and s- verbs can be resultative instead of semelfactive
  - most s- prefixed motion verbs have imperfective homonyms like sxodit’ (s uma) ‘walk down (go crazy), snosit’ ‘carry down, wear out, tear down’, sbegat’ ‘run down’, svodit’ ‘lead down, seduce’
- For this reason we will look at verb types rather than at corpus examples

Sxodit’ s uma
‘Go crazy’
Are -nu and s- allomorphs?

• Are -nu and s- in complementary distribution?
  – Almost: verb classes largely determine the distribution of -nu and s-

• Do -nu and s- have the same function?
  – Almost: there are some verbs that use the two morphemes synonymously and Isačenko (1960) describes semelfactives formed with -nu and s- with the same term: odnokratnye ‘one-time’
Are -\textit{nu} and s- in complementary distribution?

- See handout
- The distribution of verb classes of imperfectives that form semelfactives with -\textit{nu} vs. s- was analyzed by means of a chi-square test, and the results are statistically significant:
  - the chi-square value is 257.3 with 5 df
  - the probability that this distribution is the result of mere chance is < 2.2e-16 (statistically = 0)
  - Cramer’s V (effect size) = 0.8 (enormous)
Verb classes that prefer -nu
• -aj
• non-productive 1. conjugation
• -*ě

Verb classes that prefer s-
• -ova
• -i
• -*ěj
-nu: -aj

– 62% of verbs that use -nu: zevat’/zevnut’ ‘yawn/yawn once’
– only 6 verbs use s-: 5 are motion verbs like begat’/sbegat’ ‘run/run someplace and come back once’, plus xvastat’/sxvastat’ ‘boast/boast once’

Zevnul
He yawned once
**-nu:** non-productive 1. conjugation

- all use *-nu*
- most have suffix *-a*, like *lizat’*/liznut’* ‘lick/lick once’
- some are unsuffixed, like *seč’*/sekanut’* ‘cut, whip/cut, whip once’ and *dut’*/dunut’* ‘blow/blow once’
- one verb has suffix *-o*,
  *kolot’*/kol’nut’* ‘prick/prick once’

Liznula
‘She licked once’
-nu:  -*ě

- With one exception, all -*ě verbs use -nu
- some involve no palatalization, like svistet’/svistnut’ ‘whistle/whistle once’
- some involve palatalization, like kričat’/kriknut’ ‘yell/yell once’
- one verb uses s-, videt’sja/svidet’sja ‘see each other /see each other once’
s-: -ova

- 18 (17%) verbs with s-, like malodušestvovat’/smalodušestvovat’ ‘act cowardly/do one cowardly thing’

- 17 (6%) verbs with -nu, like riskovat’/risknut’ ‘risk/take one risk’, including 4 like klevat’/kljunut’ ‘peck/peck once’
s-: -i

- 44 (42%) verbs with s-, like grubit’/sgrubit’ ‘be rude/do one rude thing’, including 6 motion verbs like xodit’/sxodit’ ‘walk/walk someplace and come back once’

- 17 (6%) verbs with -nu, like tormozit’/tormoznut’ ‘brake/brake once’
s-ː -*ěj

- all use s-
- one verb with -ej, 
  *robet’t/srobet’t ‘be shy/be shy once’
- two verbs with 
  palatalization, like 
  *plošat’t/splošat’t ‘make a mistake/make a single mistake’
- 33 verbs with -ničaj: 
  *original’ničat’t/ *soriginal’ničat’t ‘be original/do one original thing’
Complementary distribution: summary

- The distribution is not perfect, but statistically it is pretty close.
- For two suffixes there is a perfect distribution: verbs in the non-productive 1. conjugation use only -nu, and verbs with -*ěj use only s-
- For the other suffixes we see strong tendencies, but there is overlap, especially for verbs with the suffixes -ova and -i
Semantic classes in RNC: Another measure of complementary distribution?

– Only 269 base verbs that form semelfactives with -nu and 37 with s- are tagged (see handout)
– We see clear tendencies, but lack enough s- data for a statistical analysis
– Morphological and semantic classes are not entirely independent factors
Morphological and Semantic Classes

• sound verbs often have the suffixes -aj (kvakat’/kvaknut’ ‘croak/croak once’), -a (lajat’/lajnut’ ‘bark/bark once’), or -*ě (xrapet’/xrapnut’ ‘snore/snore once’)

• verbs that denote behaviors are often suffixed in -i (glupit’/sglupit’ ‘be dumb/be dumb once’) or -*ěj (licemerničat’/slicemerničat’ ‘be hypocritical/be hypocritical once’)

Do \(-nu\) and \(s\)- have the same function?

- Both can mean ‘do X once’
- One verb forms synonyms with both \(-nu\) and \(s\)-:
  \(xvastat’/xvastnut’/sxvasat’\)
  ‘boast/boast once’
- A couple of verbs can use both \(-nu\) and \(s\)- simultaneously:
  \(metat’(sja)/smetnut’(sja)\), ‘leap sideways/leap sideways once’,
  \(trusit’/struxnut’\), ‘be a coward/be a coward once’

\(Xvastnul ili sxvastal?\)
‘Did he boast once?’
-nu and s- are not identical in function

• With -nu we usually have one cycle from a series of repeated events: čixat’/čixnut’ ‘sneeze/sneeze once’, lizat’/liznut’ ‘lick/lick once’

• With s- we often have something that only happened once malodušehstvovat’/smalodušhestvovat’ ‘act like a coward/act like a coward once’
Evaluation of the allomorphy hypothesis

- Are -nu and s- in complementary distribution?
- Do -nu and s- have the same function?
- Is the allomorphy hypothesis confirmed?
- Is the cluster model confirmed?

- Almost.
- Almost.
- Pretty much.
Back to the big questions...

• What constitutes allomorphy?
• Complementary distribution is traditionally considered an all-or-nothing criterion for allomorphy.
• But is this expectation realistic given that language phenomena often exhibit scalar characteristics?
The traditional definition...

- was proposed long before the advent of electronic corpora and statistical software
- perhaps should be re-evaluated as a prototype rather than as an absolute criterion
- statistical methods make it possible to establish standards for evaluation of gradient phenomena
- similar considerations might be appropriate for other definitions, such as those of allophony, markedness, and neutralization