Semantically-conditioned two-suffix constructions in Bulgarian and English

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Goals

- to study two-suffix combinations in Bulgarian and English
- to uncover relevant, specific semantic factors in affix ordering
- to establish whether two-suffix combinations constitute sublexical, morphological constructions
Structure of the talk

- Preliminaries
- Languages analyzed and sources of data
- The current proposal
- Illustrations from Bulgarian and English
- Morphological constructions
- Discussion
- Conclusions
Preliminaries I

- Of the numerous possible combinations of affixes in a language a few are realized. Why?

- Numerous answers provided (for English and Bulgarian)
No consensus as to what the mechanisms that govern these restricting processes are and what can exhaustively explain the linguistic facts.

Numerous factors have been identified:

1) phonological
2) morphological
3) syntactic
4) semantic
5) parsability/processing
6) base/affix selectional restrictions
In the traditional view affixes as morphemes are the smallest meaningful elements in language (Bloomfield 1933; Hocket 1947).

Theories such as Split morphology (Beard 1987, 1995), Realizational morphology (Anderson 1992; Aronoff 1994, Stump 2001) & Construction morphology (Booij 2010) view affixes as lacking semantics. Affixes get semantically interpreted in words and/or constructions.
Preliminaries IV

- General lack of attention to affixal semantics and the semantics of affix stacking in the literature, especially on the languages of Europe (see the discussion in Lieber 2005).

- Nevertheless, there are exceptions: Zimmer (1964) on negative prefixes; Aronoff and Cho (2001) on -ship suffixation and Lieber on principles of the combinations of bases and derivational affixes (2005).
The relevance of semantics to affix ordering has been frequently noticed (Plag 1996, 1999; Zirkel 2010, etc.) but the specific semantic factors remain vague.

*–ship–ess; *–ness–ess

General semantic principles in explaining affixation models:

◦ Relevance model (Bybee 1985)
◦ Scopal model (Rice 2000)
◦ Redundancy Restriction (Lieber 2005, based on Plag 1999).
◦ Blocking (Aronoff 1976, Rainer 1988)
Languages studied and sources of data

- English and Bulgarian
- A lot of research on English affix ordering; very little research on Bulgarian.

The data for Bulgarian have been extracted from:
- Bulgarian National Corpus
- Bulgarian Reverse Dictionary (2011)
- Dictionary of New Words in Bulgarian (2010)

The data for English have been extracted from:
- British National Corpus
The current proposal I

- Bottom-up, data-driven approach, analysis in terms of two suffix combinations (with no reference to a lexical base)

- Studying SUFF1–SUFF2 in terms of salient semantic factors
The current proposal II

1) only non-evaluative derivational suffixes considered (significant differences in the behaviour of evaluative and non-evaluative suffixes in Bulgarian, only evaluative suffixes can be repeated on adjacent cycles, Manova 2010)

2) affix ordering is lexical category sensitive

\[
\text{SUFF1} \rightarrow \text{SUFF2}_{N} \rightarrow \text{SUFF2}_{V} \rightarrow \text{SUFF2}_{ADJ}
\]

(Manova 2011a)
The current proposal III

- **SUFF1** (person) – **SUFF2** (possessive/relational adjective)
- **SUFF1** (person) – **SUFF2** (abstract and collective noun)

**Bulgarian:** SUFF1 –\(a\)čSUFF2 –eski; SUFF1 –\(a\)č SUFF2 –estvo
zubr–\(a\)č, zubr–\(a\)č–eski, zubr–\(a\)č–estvo
‘crammer, crammer's, being a crammer, crammers’ (coll.)

**English:** SUFF1 –orSUFF2 –y; SUFF1 –orSUFF2 –ship
advis–or, advis–or–y; advis–or–ship
The current proposal IV

- **SUFF1** (object) – **SUFF2** (relational/qualitative adjective)
  
  **Bulgarian:** SUFF1 –ač SUFF2 –en
  prekusv–ač –en ‘switch, circuit-breaker’
  
  **English:** SUFF1–ary SUFF2–ian
  abeced–ary, abeced–ar–ian
<table>
<thead>
<tr>
<th>No</th>
<th>SUFF1</th>
<th>SUFF2 according to lexical category</th>
<th>Examples</th>
<th>Translations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>- tel₁</td>
<td>ADJ: -ski</td>
<td>uči- <em>tel</em>; uči- <em>tel-ski</em></td>
<td>teacher; teacher’s being a teacher, teachers (collect.)</td>
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<tr>
<td></td>
<td></td>
<td>N: -stvo</td>
<td>uči- <em>tel-stvo</em></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>- ar₁</td>
<td>ADJ: -ski</td>
<td>sladk- <em>ar</em>; sladk- <em>ar-ski</em></td>
<td>confectioner; confectionary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N: -stvo; N: - nica</td>
<td>sladk- <em>ar-stvo</em></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>- ak₁</td>
<td>ADJ: -ski</td>
<td>div- <em>ak</em>; div- <em>aš-ki</em></td>
<td>savage; savage’s; like a savage; savagery; being a savage; savages (collect.)</td>
</tr>
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<td></td>
<td></td>
<td>N: -ina</td>
<td>div- <em>aš-ina</em>; div- <em>ač-estvo</em></td>
<td></td>
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<tr>
<td>4.</td>
<td>- er₁</td>
<td>ADJ: -ski</td>
<td>bank- <em>er</em>; bank- <em>er-ski</em></td>
<td>banker; banker’s being a banker; bankers (collect.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N: -stvo</td>
<td>bank- <em>er-stvo</em></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>- or₁</td>
<td>ADJ: -ski</td>
<td>instrukt- <em>or</em>; instrukt- <em>or-ski</em>; instrukt- <em>or-stvo</em></td>
<td>instructor; instructor’s being an instructor; instructors (collect.);</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N: -stvo</td>
<td></td>
<td></td>
</tr>
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</tbody>
</table>
| 6. | -дžija/čija | ADJ: -ski  
N: -stvo  
N: -nica | sladoled-čija  
sladoled-čij-ski  
ladoled-čij-nica  
han-džija; han-džij-ski; han-džij-stvo | ice-cream maker/seller  
being an ice-cream maker/seller; ice-cream makers/sellers (collect.); place where ice-cream is made/sold |
| 7. | -an₁ | ADJ: -ski  
N: -stvo | velik-an; velik-an-ski  
velik-an-stvo  
slad-ur-an-ski  
slad-ur-an-stvo | giant  
being a giant; giants (collect.) |
| 8. | -ant₁ | ADJ: -ski  
N: -stvo | proekt-ant  
proekt -ant-ski  
proekt -ant-stvo | designer; designer’s  
being a designer; designers (collect.) |
| 9. | -ur₁ | ADJ: -ski  
N: -stvo | slad-ur; slad-ur-ski  
slad-ur-stvo | cutie; cutie’s  
being a cutie; cuties (collect.) |
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<tr>
<td>1.</td>
<td>-tel₂</td>
<td>ADJ: -en</td>
<td>udalži-tel</td>
<td>extension</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>udalži-tel-en</td>
<td></td>
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<tr>
<td>2.</td>
<td>- ar₂</td>
<td>ADJ: -en</td>
<td>barzov-ar</td>
<td>immersion heater</td>
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<td></td>
<td></td>
<td></td>
<td>barzov-ar-en</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>- ant₂</td>
<td>ADJ: -en</td>
<td>relaks-ant</td>
<td>relaxing agent/medicine</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>relaks-ant-en</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>- ač₂</td>
<td>ADJ: -en</td>
<td>vlek-ač</td>
<td>tug, tow-boat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>vlek-ač-en</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>-(t)or₂</td>
<td>ADJ: -en</td>
<td>separa-tor</td>
<td>separator</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>separa-tor-en</td>
<td></td>
</tr>
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<tr>
<td>1.</td>
<td>- er₁/-or₁/-ar₁</td>
<td>ADJ: - y; -ly; -ish; N: -ship; -dom; -ism; -age</td>
<td>assess-or-y; assess-or-ship; digger-dom; dapp-er-ism; bugg-er-age</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>- ant₁/-ent₁</td>
<td>ADJ: ish N: -ship</td>
<td>account-ant account-ant-ship</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>- ian₁</td>
<td>ADJ: ic N: -ship; -dom</td>
<td>pre-Christ-ian-ic custod-ian-ship; Christ-ian-dom</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>- man₁</td>
<td>ADJ: -ish N: -ship</td>
<td>police-man-ish; air-man-ship</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>- ary₁</td>
<td>N: -ness</td>
<td>access-ari-ness</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>- ist₁</td>
<td>ADJ: -ic; -y N: -dom; -ship; -hood V: -ize</td>
<td>art-ist-ic; tour-ist-y art-ist-dom; tour-ist-ship; tour-ist-hood; tourist-ize</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>-ee</td>
<td>ADJ: ish N: -ship; -ism</td>
<td>group-ee-ish; group-ee-ism; employ-ee-ship;</td>
<td></td>
</tr>
</tbody>
</table>
**SUFF 1 deriving OBJECT in English**

<table>
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<tbody>
<tr>
<td>1.</td>
<td>- er₂/or₂</td>
<td>ADJ: -y</td>
<td><em>accelerat-or; accelerat-or-y</em></td>
</tr>
<tr>
<td>2.</td>
<td>- ary₂</td>
<td>ADJ: -ian</td>
<td><em>abeced-ary; abeced-ar-ian</em></td>
</tr>
<tr>
<td>3.</td>
<td>- ent₂/ant₂</td>
<td>ADJ: Ø</td>
<td><em>abrad-ant</em></td>
</tr>
<tr>
<td>4.</td>
<td>- man₂</td>
<td>ADJ: -ly</td>
<td><em>snow-man-ly</em></td>
</tr>
</tbody>
</table>
Word-formation patterns are abstract schemas that generalize over sets of existing complex words with a systematic correlation between form and meaning in a hierarchically-organized networks of constructions.

Semantically-determined two-suffix combinations in English and Bulgarian of the type \([x_v - \text{telstvo}_{N}]_N/ [x_v - \text{ership}_{N}]_N\) ‘all who V’ constitute sublexical constructions.
Person vs. Object in suffixation

- Semantic notions of general cognitive significance (Pustejovski 1995, Jackednoff 2010)

- Lexical category specification of the suffixes, along with, conceptual intensional semantics determine two–suffix combinations (Manova in press)
Sublexemic constructional idioms

- Semantically-determined two suffix combinations
  \[ \text{SUFIN}_{\text{person}}: \text{Bulgarian } [-\text{tel}][-\text{ski}]; [-\text{tel}][-\text{stvo}] \]
  \[ \text{English } [-\text{ee}][-\text{ish}]; [-\text{ee}][-\text{ism}] \]
  \[ \text{SUFIN}_{\text{object}}: \text{Bulgarian } [-\text{tel}][-\text{en}]; X \]
  \[ \text{English } [-\text{ary}][-\text{ian}]; X \]

- Schema unification – sublexemic affix constructional idioms in Bulgarian
  \[ [X [-\text{telen}]_{\text{Aobject}}]_{\text{Aobject}} \rightarrow [X [-\text{tel}_N][-\text{en}]_{\text{Aobject}}]_{\text{Aobject}} \text{ or } [-\text{telen}] \]
  \[ [X [-\text{telski}]_{\text{Aperson}}]_{\text{Aperson}} \rightarrow [X [-\text{tel}_N][-\text{ski}]_{\text{Aperson}}]_{\text{Aperson}} \text{ or } [-\text{telski}] \]

and in English – semantically specified constructional schemas (with variability of exponence > 10)
Discussion I: Strength of the SUFF1–SUFF2 combinations

If discernible object $\rightarrow [\text{tel}] [\text{en}]$, if not $[\text{telen}]$

udalži $\rightarrow [\text{udalži– [tel]}] \rightarrow [\text{udalži–[tel][en]}]$
‘extend/ extension cord /extension’

uča $\rightarrow [[\text{po–}][\text{uča–}]] \rightarrow *\text{poučitel} [[\text{po–}][\text{uči–}][\text{telen}]]$
‘learn, instruct, instructive /educational’

$\text{–ist and –istic}$ in English as allomorphs (Aronoff 1976; Lieber 2005). The complex network of $\text{–ist}$ and $\text{–ic}$ combinations ($\text{art, art–ist, art–ist–ic vs. sadist–ic vs. totemistic}$)
Domain specific representations of Person and Object in the mental lexicon
(Barsalou et al. 2003; Damasio et al. 2004)

Face recognition vs. object recognition
(Eysenck and Keane 2010)
Interestingly, *lice* ‘face’ in Bulgarian means both ‘face’ and ‘person’
Newly borrowed words in Bulgarian from English subscribe to the established stacking pattern:

\[ \text{asistent–ski; asitent–stvo} \]
\[ \text{repelent–en; repelent–Ø} \]

\[ [–en] \] on a new, unfamiliar word indicates object status

\[ [–ski] \] on a new, unfamiliar word indicates person status
Discussion IV
Relevance of argument accounts for SUFF1–SUFF2 constructions

- *er vs. *ee
  Uniform behaviour in subsequent suffixation:
  - [[*er]–ship] and [[*ee]–ship] – *readership, *traineeship

- Argument–based accounts of SUFF1–SUFF2 constructions seem irrelevant
The behaviour of suffixes in further suffixation processes indicates homonymous rather than polysemous nature of the formal identity between \(-tel_1\) and \(-tel_2\); \(-er_1\) and \(-er_2\), etc.

(see Manova in press; on behavioural profiles in cognitive semantics see Gries and Divjak 2009; contra Booij 2010; Rainer 2005)
Conclusions

- In English and Bulgarian up to 85% of the two suffix combinations reported in the different studies have constructional nature. In the constructions, a SUFF1 combines with only one SUFF2 of a particular word class, N, ADJ or V (Manova 2011a) and the constructions are either fixed or predictable (Manova 2011b).
- The behavioural profile of SUFF1 in further combinability can be used to diagnose the distinction between polysemous and homonymous status of formally identical suffixes (cf. Manova, in press).
- Suffixes seem to be minimally semantically specified in the lexicon for Person and Object.
References I

References II

References III

References IV

References V


- Zimmer, K. (1964) *Affixal Negation in English and Other Languages*. Supplement to Word, Monograph No. 5.