Semantic predictability in derived nouns

Psych verbs as bases for –ment

Lea Kawaletz & Ingo Plag

Heinrich-Heine-Universität

Workshop ‘Semantics of derivational morphology: Empirical evidence and theoretical modeling’
Heinrich-Heine-Universität Düsseldorf, June 30 - July 01, 2014
Affix polysemy: -ment

- Nominal suffix attaching to verbal (and other) bases

- Very productive in Early Modern English (15th-17th c.)

- Various readings (BLP, ch. 10)
  - event: assessment
  - result: containment
  - state: contentment
  - product: pavement
  - instrument: entertainment
  - location: embankment
How do we get such readings?

• Certain base verbs evoke certain readings (BLP, 212)
  • Verb requires instrument → Instrument nominalization
  • \textit{to wrap} → \textit{wrap}; \textit{to refresh} → \textit{refreshment}

• Shift to a syntactic argument of the verb

  \textit{John purchased a car. His wife approves of this purchase.}

• Not restricted to syntactic arguments though

  \textit{My granny used to \textit{embroider pillowcases}. I love the \textit{embroidery} on this one.}
An interplay of verb and suffix

<table>
<thead>
<tr>
<th>Verb semantics</th>
<th>-ment</th>
<th>Noun semantics</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td>?</td>
</tr>
</tbody>
</table>
Issues concerning -ment data

• Many (often highly lexicalized) derivatives
  
  government  1484
  development  1756
  department  c. 1450

• Nowadays still somewhat productive (BLP, 199)

• Aim: synchronic analysis of the productive process
  Neologisms (1900-today)
Method

• Neologisms (*Oxford English Dictionary*)

• Hapax Legomena (*Corpus of Contemporary American English*)

• 86 -ment derivatives from 24 verb classes (Levin 1993)

• Largest class: PSYCH verbs (N=16)

• Attestations from other corpora (GloWbE, WebCorp, Google)
Definition of PSYCH verbs

- Typically two arguments: STIMULUS & EXPERIENCER
- Traditional categories (Pesetsky 1995): Object Experiencer & Subject Experiencer
- Four subcategories following Levin (1993) / VerbNet (Kipper et al. 2008):

<table>
<thead>
<tr>
<th>Transitive Verbs</th>
<th>Subject Experiencer</th>
<th>Object Experiencer</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMIRE verbs</td>
<td>The tourists <em>admired</em> the paintings</td>
<td>AMUSE verbs</td>
</tr>
<tr>
<td>The clown <em>amused</em> the children</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intransitive Verbs with PP</th>
<th>Subject Experiencer</th>
<th>Object Experiencer</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARVEL verbs</td>
<td>Megan <em>marveled at</em> the beauty of the Grand Canyon</td>
<td>APPEAL verbs</td>
</tr>
<tr>
<td>This painting <em>appeals to</em> Malinda</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Semantic coding of derivatives

Traditional semantic categories

(Beard 1995; Spencer 2010; Sil et al. 2010; Osswald 2005; Brandtner 2011; Ehrich & Rapp 2000, cf. also VerbNet semantic annotation)

- EVENT
- STATE
- EXPERIENCER
- STIMULUS
- RESULT STATE
- ...
- ‘transposition’
Some examples

• EVENT

Medicine’s and my great problem and great fault consist of what might be called the intellectualization – the enrapturement with science and technology – by which that legion of men and women who are today’s doctors have allowed themselves to become besotted. (Webcorp_BLOG_1998)

• RESULT STATE

I know a lot of our compatriots also feel the same angst, consternation and confoundment. (GloWbE_ART_2012)

• STIMULUS

The Education Secretary arrived having just made her first big policy declaration - dressed up as a reassurement to Middle England that A-levels will be retained and that other exams may be made harder. (OED_NEWS_2005)
### Types in our dataset (N=16)

<table>
<thead>
<tr>
<th>Affrightment</th>
<th>Nonplusment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approvement</td>
<td>Perturbment</td>
</tr>
<tr>
<td>Bumfuzzlement</td>
<td>Reassurement</td>
</tr>
<tr>
<td>Confoundment</td>
<td>Upsetment</td>
</tr>
<tr>
<td>Dumbfoundment</td>
<td>Soothement</td>
</tr>
<tr>
<td>Endullment</td>
<td>Staggerment</td>
</tr>
<tr>
<td>Enragement</td>
<td>Marvelment</td>
</tr>
<tr>
<td>Enrapturement</td>
<td>Worriment</td>
</tr>
</tbody>
</table>
Results

Base selection and output semantics
## Base selection

- **-ment** selects only two subcategories of PSYCH verbs

<table>
<thead>
<tr>
<th>No APPEAL verbs, no ADMIRE verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 AMUSE verbs</td>
</tr>
<tr>
<td>afright, bumfuzzle, confound, dumbfound, endull, enrage, enrapture, nonplus, perturb, reassure, upset, soothe, stagger</td>
</tr>
<tr>
<td>2 MARVEL verbs</td>
</tr>
<tr>
<td>approve (of), marvel (over)</td>
</tr>
<tr>
<td>1 AMUSE &amp; MARVEL verb</td>
</tr>
<tr>
<td>worry</td>
</tr>
</tbody>
</table>
Base selection

• Preference for AMUSE verbs seems to be a general tendency
Why prefer AMUSE verbs?

• Artefact of lexical distribution: Only five verbs in APPEAL verb class, three of which are very infrequent

• Preference for other derivational processes
  • MARVEL verbs: conversion (sorrow, freakout)
  • ADMIRE verbs: -ation (reaffirmation, adoration) and conversion (mistrust, grudge)
Output semantics

<table>
<thead>
<tr>
<th>Transposition (EVENT/STATE)</th>
<th>STIMULUS</th>
<th>RESULT STATE</th>
<th>EXPERIENCER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMUSE verbs</td>
<td>+</td>
<td>+</td>
<td>Dominance</td>
</tr>
<tr>
<td>MARVEL verbs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>approve of</td>
<td>+</td>
<td>diverse types of behavior</td>
<td></td>
</tr>
<tr>
<td>muse over</td>
<td>+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No attestations
Output semantics: AMUSE verbs

• RESULT STATE is dominant: not surprising
• STIMULUS & EVENT nominalizations should be impossible (Pesetsky 1995, 71):

Now consider the nominalizations that are related to causative ObjExp verbs like *annoy*. These nominalizations uniformly lack all causative force (as observed first, perhaps, by Lakoff (1970:126)). The present analysis is allows an interesting alternative description of this fact, in morphological

...surprise. Rather, they are nominalizations of corresponding noncausative predicates. Thus, *annoyance* does not mean ‘the process of making annoyed’, but ‘the state of being annoyed’. *Amusement* does not refer to something amusing someone, but to the state of being amused.

• Our data provide counter-evidence to these views
Output semantics: MARVEL verbs

*Approvement* is attested as STIMULUS, *musement* isn’t:
Not surprising

- Artefact of the data: only two types in the dataset
- Verb class is heterogeneous in the first place:
  - Static vs. dynamic (e.g. *muse over*: ‘to be pensive’ vs. ‘to ponder’)
  - Different degrees of implied causation (e.g. *mourn over* vs. *approve of*)
- Enlarge the dataset!
Output semantics: *EXPERIENCER

EXPERIENCER is not attested in PSYCH verb + -ment combinations

- Affix rivalry
  - Suffix for EXPERIENCER and PATIENT: –ee (or –er)

- Verb class might disallow it
  - Not convincing, cf. soothee and sufferer

- -ment might disallow it
  - EXPERIENCER isn’t mentioned in the pertinent literature
  - Data set: no [+animate] readings (except, maybe, STIMULUS)
  - At least a preference for [-animate]!
A frame-based analysis: Introduction

• Frames are recursive attribute-value structures
• They serve to model mental representations of concepts
• They are applicable to linguistic phenomena
• They can be depicted as graphs or matrices

(e.g. Barsalou 1992a,b; Löbner 2013)
Modeling semantics in frames

Frame matrix of the verb *walk*

Frame graph of the verb *walk*
Modeling psych causation (cf. Löbner 2013, Naumann 2013, Osswald & Van Valin 2014)
Modeling affix polysemy
Summary

- *-ment* has clear preferences for certain types of base verb.
- Resulting derivatives show a well restricted set of possible readings (transposition, RESULT STATE, STIMULUS; no EXPERIENCER).
- Shifts can target argumental and non-argumental components of the semantic representation.
- Attested readings result from clearly defined shifts in the semantic structure of the respective base verbs.
- The differences between different (sub-)classes of verbs arise naturally from the differences in the verbal frames.
Conclusion

• Possible readings of –ment nominalizations emerge from the predictable interaction of base semantics with affix semantics.

• Affix semantics:
  
  The potential to induce particular kinds of shift in the semantic structure of the base
Thank you very much for your attention!
References


