Absolutely fantastic!

Adjective amplification in English

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R code upon request
Introduction to Amplification

A Usage-Based Classification of Amplifiers

Amplification in L1-acquisition

Amplification in SLA

Amplification within and across varieties
Aims of this talk

- Tell you something about adjective amplification
- Introduce basic concepts of CxG/ Usage-Based approaches
- Exemplify how quantitative, statistical methods can be used fruitfully in Linguistics and SLA research
Introduction to Amplification

What is Amplification?
Phenomenon: Adjective Amplification

(1) And you just have to hint well then it’s a very good hint (ICE-AUS:S1A-012$A)

(2) They’re all really cheap <#> They’re all really nice, the t-shirts in there (ICE-AUS:S1A-009$B)

(3) It was so bad (ICE-AUS:S1A-044$B)
Intensification and Amplification

Intensification is related to the semantic category of degree (degree adverbs) and ranges from low (downtoning) to high (amplifiers) (Quirk et al. 1985: 589–590)

- Amplifiers
  - Boosters, e.g. *very*
  - Maximizers, e.g. *completely*

- Downtoners
  - Approximaters, e.g. *almost*
  - Compromisers, e.g. *more or less*
  - Diminishers, e.g. *partly*
  - Minimizers, e.g. *hardly*
Forms of Amplification

(4) Lexical

*very, real(ly), extremely, totally, etc.*

(5) Morphological

*{uber#}, {super#}, {hyper#}, {mega#},*

Syntactic function of adjective

(6) Attributive

The *very/so* hungry caterpillar is nice.

(7) Predicative

The nice caterpillar is *very/so* hungry.

*very vs. really*: no meaning change → interchangeable

*very vs. hardly*: meaning change → not interchangeable
Motivation for Studying Amplification

Amplification

- Major area of gramm. change (cf. Brinton and Arnovick 2006: 441)
- Crucial for “social and emotional expression of speakers”
  (Ito and Tagliamonte 2003: 258)
- Linguistic subsystem which allows precise circumscription of a variable context (Labov 1972, 1966: 49)
- Ideal case for testing mechanisms underlying language change!
Previous research

- Extensive history of research on intensifiers (e.g. Borst 1902; Bolinger 1972)

- Intensification is considered a major area of grammatical change in English (cf. Brinton and Arnovick 2006: 441)

- Growing amount of variationist and historical research (e.g. Ito and Tagliamonte 2003; Tagliamonte and Roberts 2005; Macaulay 2006; Tagliamonte 2006)

- Very little research on the acquisition of intensification(!); an exception is Gülzow (2006)

(8) The queen herself welcomed the soldiers
A Usage-Based Classification of Amplifiers
Usage-Based/Data-Driven Classification

General idea

▸ Semantic Vector Space Modeling based on co-occurrence profiles of adjectives and amplifiers
▸ Amplifiers that co-occur with the same adjectives are semantically similar and thus interchangeable

Advantages

▸ Relatively easy and can take variety specific differences and changes in use/meaning into account
▸ Does not rely on any theoretical framework
▸ Can provide a more fine-grained classification (different groups/clusters) that also informs about statistical significance
How data-driven classification works

<table>
<thead>
<tr>
<th></th>
<th>get</th>
<th>see</th>
<th>use</th>
<th>hear</th>
<th>eat</th>
<th>kill</th>
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<td>16</td>
<td>69</td>
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<td>28</td>
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<td>46</td>
<td>21</td>
<td>17</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>cup</td>
<td>59</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>pig</td>
<td>4</td>
<td>15</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>banana</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1: Co-occurrences of selected nouns and verbs in the British National Corpus.
How data-driven classification works

<table>
<thead>
<tr>
<th></th>
<th>knife</th>
<th>cat</th>
<th>???</th>
<th>boat</th>
<th>cup</th>
<th>pig</th>
</tr>
</thead>
<tbody>
<tr>
<td>cat</td>
<td>.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>???</td>
<td>.60</td>
<td>.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>boat</td>
<td>.48</td>
<td>.33</td>
<td>.32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cup</td>
<td>.76</td>
<td>.59</td>
<td>.58</td>
<td>.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pig</td>
<td>.72</td>
<td>.36</td>
<td>.45</td>
<td>.64</td>
<td>.88</td>
<td></td>
</tr>
<tr>
<td>banana</td>
<td>.71</td>
<td>.57</td>
<td>.47</td>
<td>.60</td>
<td>.72</td>
<td>.64</td>
</tr>
</tbody>
</table>

Table 2: Distance matrix based on co-occurrences of selected nouns and verbs in the British National Corpus.
Q₁

Does a data driven classification reflect the classification proposed in the literature?

→ Are there meaningful clusters of amplifiers?
International Corpus of English (ICE)

- Australian ICE component
- One million words (600,000 spoken and 400,000 written) from diverse spoken and written text types (cf. next slide) with each file containing app. 2,000 words.
- Accompanied by metadata and biodata of speakers
- For the semantic vector space modeling $\rightarrow$ only spoken data!
Corpus data: International Corpus of English (ICE)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Conversation type</th>
<th>Register</th>
<th>Text type</th>
<th>Number of text files</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPOKEN (300)</td>
<td>Dialogues (180)</td>
<td>Private (100)</td>
<td>Face-to-face conversations</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Phonecalls</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Classroom Lessons</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Broadcast Discussions</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Broadcast Interviews</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Public (80)</td>
<td>Parliamentary Debates</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Legal cross-examinations</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Business Transactions</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Monologues (120)</td>
<td>Unscripted (70)</td>
<td>Spontaneous commentaries</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Unscripted Speeches</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Demonstrations</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Legal Presentations</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Broadcast News</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scripted (50)</td>
<td>Broadcast Talks</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non-broadcast Talks</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3: Schematic overview of the common design shared by all ICE components.
Data Processing

- POS-tagged all utterances
- Extraction of all adjectives and subsequently identifying adj. preceded by an amplifier
- Removed
  - Adj. that did not occur before a full stop or before a noun (to determine syn. function; predicative vs attributive)
  - Adj. that were not intensified by at least two different amplifier types (e.g. *right honorable*)
  - Adj. that were preceded by downtoners
  - Adj. preceded by strange forms (e.g. *much*)
  - Adj. that were negated (e.g. *not good* or *not very nice*)
  - Comparative and superlative forms (e.g. *better* or *strongest*)
Figure 1: Rooted dendrogram showing the clustering of amplifiers in Australian English based on the semantic vector space model.
Figure 2: Unrooted dendrogram showing the clustering of amplifiers in Australian English based on the semantic vector space model.
Figure 3: Results of a correspondence analysis based on amplifiers and their co-occurrences with adjectives in Australian English.
Amplification in L1-acquisition
Q$_2$

How do children acquire amplification?

→ How does the use of amplifiers pattern among children?
Data

*Home–School Study of Language and Literacy Development* (part of CHILDES: *Child Language Data Exchange System*)

- Longitudinal data of English-speaking children from low-income families growing up in the Boston area.
- Transcripts collected during 5 home visits
- Visits took place at ages 3 (hv1), 4 (hv2), 5 (hv3), 2nd grade (hv4) and 4th grade (hv5)
- During visits children performed different tasks: book reading, toy play, child narratives, elicited report, and experimental tasks.

Data processing as described before.
Data Summary: HSLLD (Children only)

<table>
<thead>
<tr>
<th>Amplifier</th>
<th>N</th>
<th>%</th>
<th>Amp. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>∅</td>
<td>4,776</td>
<td>95.16</td>
<td></td>
</tr>
<tr>
<td>so</td>
<td>77</td>
<td>1.53</td>
<td>31.69</td>
</tr>
<tr>
<td>very</td>
<td>63</td>
<td>1.26</td>
<td>25.93</td>
</tr>
<tr>
<td>real</td>
<td>34</td>
<td>0.68</td>
<td>13.99</td>
</tr>
<tr>
<td>pretty</td>
<td>27</td>
<td>0.54</td>
<td>11.11</td>
</tr>
<tr>
<td>really</td>
<td>24</td>
<td>0.48</td>
<td>9.88</td>
</tr>
<tr>
<td>wicked</td>
<td>9</td>
<td>0.18</td>
<td>3.70</td>
</tr>
<tr>
<td>totally</td>
<td>5</td>
<td>0.10</td>
<td>2.06</td>
</tr>
<tr>
<td>completely</td>
<td>2</td>
<td>0.04</td>
<td>0.82</td>
</tr>
<tr>
<td>extra</td>
<td>1</td>
<td>0.02</td>
<td>0.41</td>
</tr>
<tr>
<td>fucking</td>
<td>1</td>
<td>0.02</td>
<td>0.41</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,019</strong></td>
<td><strong>4.84</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 4: Frequencies and percentages of amplifiers in variable contexts in the HSDDL.
Figure 4: Percent of amplified adjectives by age (HSLLD)
Figure 5: Amplifier types by age (HSLLD)
Figure 6: Percentages of amplification by age and situation type (HSLLD)
Interim synopsis

- Overall frequency
  Stability among younger speakers, increase in amplification among children aged 9 and 10

- Type frequency
  Chaotic use among younger children, patterning emerges after an age of 5 (so outperforms rival variants)

- Extra-ling. constraints
  - Similarity among children aged 3 and 4, situational differentiation emerges at age 5
  - Differentiation in use: freq. increase in meal time conversations but substantial decrease in book reading situations.
Q₃

How does the input of the mother pattern?
Figure 7: Percent of amplified slots in mother's CDS by age of child (HSLLD)
Figure 8: Mothers’ amplifier types by child’s age (HSLLD)
Figure 9: Percentages of amplification in mother’s CDS by child’s age and situation type (HSLLD)
Q₄

What causes the obs. stratification if not the CDS input?

→ How does the use of women in non-CDS pattern?
Data and Data Processing

*Santa Barbara Corpus of Spoken American English* (SBC) (part of the American component of the *International Corpus of English* compiled between 2000 and 2005)

- Same processing as for HSLLD data
- Only speech of women between 19 and 50 years of age
Figure 10: Percent of amplified adjectives by women against age (SBC)
Figure 11: Women’s amplifier types by age (SBC)
Interim recapitulation

![Graphs showing percent distribution of adjective amplification by age for Children, Mothers, and Women.](image-url)
Interim synopsis

- Overall frequency
  Substantially higher compared to both children and CDS

- Type frequency
  Youngest group similar patterning to children
  \((so > really > very)\)

- Extra-ling. constraints
  SBC represents private dialogue data: cannot test for effects of situation type (register)
Summary, Discussion & Problems
Summary

Main points (with pinches of salt)

▶ Frequency of children’s use of amplifiers mirrors the frequency of CDS but not that of women of child bearing age (frequencies of youngest cohort in SBC much higher)

▶ Patterning of children’s use of amplifier types mirrors the use of women of child bearing age (youngest cohort in SBC) but not CDS

▶ CDS very conservative(!) in terms of amplifier use

▶ Little register stratification in the speech of children aged 3-4 (similar to CDS)

▶ Drastic register differences are observable from age 5 onward (extra-ling. constraints!)
Discussion

- Results indicate that the children model their use based on non-CDS input rather than CDS (true for type patterning but not with respect to frequency).
- Frequency of amplification differs across situation types
  - extra-ling. constraints are acquired very early on.
  - extra-linguistic constraints seem to be acquired alongside linguistic forms rather than separate from linguistic forms as previously suggested (Labov 1964; Nardy et al. 2013: 258-260).
Discussion

L1-Acquisition from a usage-based CxG perspective

- Children are thought to start out with concrete pieces of language and gradually develop more schematic constructions. ... Constructivists see these early constructions as the building blocks for later development. ... (Lieven 2006: 84–85)

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holophrases</td>
<td>Pivot schemas</td>
<td>Schematic constructions</td>
</tr>
<tr>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>It’s daddy!</td>
<td>It’s XNN</td>
<td>[Y Dem./Existential/Dummy + XNN]</td>
</tr>
<tr>
<td>It’s mommy!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It’s Elmo!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>very busy</td>
<td>very XAdjective</td>
<td>[Y Intensifier + XAdjective] Int. Construction</td>
</tr>
<tr>
<td>very wet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>very hungry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Discussion

Social Grounding of L1-Acquisition

- Children “acquire language in a socially grounded fashion. On the constructional view, the item-based schemas that children acquire are ... tied to specific situations and situation types” (Hilpert 2014: 159)

- The patterning of amplifiers produced by children aged 5 and older supports predictions of usage-based approaches of language acquisition (cf. Tomasello 2003)
Remaining Issues

▶ Data set too small to warrant reliable/conclusive conclusions
▶ Situation types not across all age groups (data compilation not optimal; D’Arcy is compiling better data)
▶ SBC and HSLLD not fully comparable (SBC compiled later (2000-2005) than HSLLD (1987-1991) and regional difference: California vs Boston)
Amplification in SLA
Q₅

How and where do learners of English (NNS) differ from native speakers (NS) with respect to adjective amplification?
Data

- *International Corpus of Learners of English* (ICLE)
  - 2.5 mil. words representing argumentative writing by intermediate to advanced Bulgarian, Czech, Dutch, Finnish, French, German, Italian, Japanese, Norwegian, Polish, Russian, Spanish, and Swedish learners of English

- *Louvain Corpus of Native English Essays* (LOCNESS)
  - 290,000 words of argumentative essays by American and British university students and British A-level students
  - LOCNESS was specifically designed to allow meaningful comparisons between the learner data represented in the ICLE.

- Processing as described above.
Figure 15: Percent of amplified slots across L1-backgrounds by syn. function in descending order.
Figure 16: Percentages of amplifiers by L1-background.
Figure 17: Bar graphs showing the difference to expected frequencies of amplifier types based on NS use.
Statistical Analysis

Covarying Collexeme Analysis (CCA)  
(Stefanowitsch and Gries 2005)

- Extension of Fisher’s Exact test
- Evaluate attraction between elements that occur in two distinct slots within a specified construction
- How does a variant in a first slot affect the likelihood of another variant from another set in a second slot?
- Values below 0 indicate rejection while values above 0 indicate attraction

- Advantage of CCA
  - very robust(!)
  - does not rely on distributional assumptions
    (unlike the $\chi^2$-family of tests)
Figure 18: Results of the covarying collexeme analysis by L1-background and adjective.
Summary

- NS amplify more than NNS
- Patterning of amplification varies substantially across L1-backgrounds
- Common trends among NNS
  - Overuse of *completely* and *really*
  - Overuse of *completely* with *different*
  - Overuse of *really* with *necessary*
  - Overuse of *extremely* with *difficult*
Discussion

- Results indicate that the NNS use collocational patterns that are typical of informal speech
- Lack of pragmatic/stylistic awareness (poverty of input)
- Language teachers can profit from learning about such systematic divergences among NNS
- NNS can profit from learning about stylistic constraints (pragmatic competence)
Discussion
Statistical Learning and SLA from a usage-based CxG perspective

- Children overgeneralize and form default Cxs while ignoring (systematic) variability/variation.

Input (by mother/later: peers) → Output (by child)
Discussion

Statistical Learning and SLA from a usage-based CxG perspective

- Children overgeneralize and form default Cxs while ignoring (systematic) variability/variation.

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner (Holophrases)</td>
<td>Advanced learner (Overgeneralization)</td>
<td>Near native-like (Stylistic variability)</td>
</tr>
<tr>
<td>very good</td>
<td>really good</td>
<td>really good</td>
</tr>
<tr>
<td>very difficult</td>
<td>extremely difficult</td>
<td>very difficult</td>
</tr>
<tr>
<td>very different</td>
<td>completely different</td>
<td>completely different</td>
</tr>
</tbody>
</table>
| very $X_{\text{Adjective}}$ fixed $[Y_{\text{Intensifier}} + X_{\text{Adjective}}]$ | $[Y_{\text{Intensifier}}] + [X_{\text{Adjective}}]$ | }
Amplification within and across varieties
Previous Research

Amplification

- substantial amount of corpus-based research on intensification (e.g. Aijmer 2011, 2018; Fuchs 2016, 2017; Núñez Pertejo and Palacios 2014; Palacios and Núñez Pertejo 2012)
  → but mostly either focused on individual intensifiers or without regard to the intensified adjectives
- recently amplifier-adjective bigrams have come more into focus (e.g. Schweinberger 2017; Wagner 2017a,b)
- associated with teenage talk and young(ish) (female) speakers
  (Bauer and Bauer 2002; D’Arcy 2015; Macaulay 2006; Tagliamonte 2006, 2008)
Focus

- Amplifying *really* replaces *very* (lexical replacement)

  (see D’Arcy (2015) for NZE; see Ito and Tagliamonte (2003) and Barnfield and Buchstaller (2010) for North East British English, Tagliamonte (2008) and Tagliamonte and Denis (2014) for Toronto English; see Tagliamonte and Denis (2014) for South Eastern Ontario English)

![Graph showing the frequency of different adjectives over time.](image)

*Figure 21: Adapted from D’Arcy (2015: 468)*
Variationist Sociolinguistics

- Language is not homogeneous: variation is ubiquitous
  - Social factors: language use
  - Linguistic variation not random
  - Systematic correlation between certain social factors (age, gender, class, ethnicity, etc.) and language use
- Linguistic differentiation ↔ social stratification
Diffusion of Innovations

young ←→ old

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Diffusion of Innovations

- young ↔ old
- upper
- working

![Diagram showing the diffusion of innovations between young and old, with emotional and non-emotional lexical categories.](image)
Diffusion of Innovations

young ↔ old

upper

working

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Diffusion of Innovations

young $\longleftrightarrow$ old

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Diffusion of Innovations

young ←→ old

Diffusion of Innovations

young ←→ old

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Diffusion of Innovations

young ↔ old

upper

working

young ↔ old

high

%

low

innovative

traditional

construct - i - con | lexicon

emotional attributive ↔ non-emotional predicative
Diffusion of Innovations

- Young ↔ Old
- Upper ↔ Working

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Diffusion of Innovations

young ↔ old

upper

working

young ↔ old

high

%

low

innovative

traditional

Construct - i-con | Lexicon

emotional

attributive

←→

non-emotional

predicative

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Diffusion of Innovations

Young $\leftarrow \rightarrow$ Old

Upper $\leftrightarrow$ Working

Construct - i - con | Lexicon
Emotional attributive $\leftrightarrow$ Non-emotional predicative

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Diffusion of Innovations

young $\leftrightarrow$ old

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Diffusion of Innovations

young ←→ old

upper

working

young ←→ old

high

%

glow

innovative

traditional

Construct - i - con | Lexicon

emotional
attributive

non-emotional
predicative

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Diffusion of Innovations

The diagram illustrates the diffusion of innovative and traditional linguistic features across different social strata. The vertical axis represents social strata, ranging from 'upper' to 'working', and the horizontal axis shows a spectrum from 'young' to 'old' age groups. The color gradient indicates the extent of diffusion, with darker shades representing higher diffusion rates.

Innovative features are shown by the red line, indicating an increasing usage from 'young' to 'old' and from 'upper' to 'working'. Traditional features are represented by the blue dotted line, showing the opposite trend. The diagram suggests that innovative linguistic features diffuse more quickly than traditional ones, especially among younger age groups and higher social strata.
Diffusion of Innovations

Adjective amplification in English

Amplification within and across varieties

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Diffusion of Innovations
Diffusion of Innovations

young ←→ old
Diffusion of Innovations

- young ↔ old

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Diffusion of Innovations

Young $\leftrightarrow$ Old

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Diffusion of Innovations

young $\leftrightarrow$ old

upper

working

young $\leftrightarrow$ old

high

low

% 

innovative

cultural

traditional

Construct - i - con | Lexicon

emotional attributive $\leftrightarrow$ non-emotional predicative

Dr. Martin Schweinberger, slides available at, www.martinschweinberger.de, R code upon request
Diffusion of Innovations

young ←→ old

upper

working

low

high

%

innovative

traditional

Construct - i - con | Lexicon

emotional attributive ←→ non-emotional predicative

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Diffusion of Innovations

young ←→ old

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Diffusion of Innovations

young ↔ old

upper

working

high

%

low

innovative

traditional

Construct - i - con | Lexicon

emotional
attributive ↔ non-emotional
predicative

Dr. Martin Schweinberger, slides available at, www.martinschweinberger.de, R code upon request
Diffusion of Innovations

young ↔ old

upper

working

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Q₆

Why is very replaced by really and not by any other variant (e.g. so, quite, pretty)?

→ What mechanisms underlie lexical replacement?
Scenario 1 (Broadening)

Really associate with many (but infrequent) adj. types

(Mair 2004: “delayed increase of discourse frequency” hypothesis)

Argument

→ co-occurrence with many different adj. types
→ frequent use
→ deeper cognitive entrenchment
→ easier retrieval from memory
→ dominance within the amplifier system.

Prediction

Co-occurrence with many different adjective types
→ high lexical diversity
→ weak coll. attraction with specific adj. types
Scenario 2 (Specialization)

Really associate with few but frequent adj. types (HFAs)

(Lorenz 2002: 144; Méndez-Naya 2003: 375; Tagliamonte and Roberts 2005: 285)

Argument

→ co-occurrence with high-freq. adj. types

→ frequent use

→ deeper cognitive entrenchment

→ easier retrieval from memory

→ dominance within the amplifier system.

Prediction

Co-occurrence with few high frequency adjectives

→ low lexical diversity

→ strong coll. attraction with high-freq. adj. types
Scenario 3 (Randomness)

Really associate with random adj. types
→ We cannot predict which variants become successful based on their coll. profile.
H_1

If *really* is successful because of specialization on HFAs

→ sig. pos. correlation with adjective frequency

If broadening → neg. correlation with adj. freq.
If random → no correlation with adj. freq.
Data and Methodology
International Corpus of English (ICE)

- Australian, British, Canadian, Irish, and New Zealand ICE components
- Shared design (allows meaningful comparisons between varieties of English)
- One million words (600,000 spoken and 400,000 written) from diverse spoken and written text types (cf. next slide) with each file containing app. 2,000 words.
- Accompanied by metadata and biodata of speaker (extremely interesting resource for variationist analyses)
Data Processing

- As described before (but only private dialogues)
- Sentiment Analysis of adjective types (Jockers 2017)
- Determined if the same amplifier type had occurred within a span of three adjective slots previously (priming)
- Token freq. of adjective type by age group (Tagliamonte and Roberts 2005)
- Semantic classification of adjective (simplified version of Dixon (1977), cf. also D’Arcy (2015); Tagliamonte (2008))
- Manual cross–evaluation of automated classification
- Addition of demographic info. about speakers
### Variable Coding

#### Dependent Variable(s)
- **really**: nominal, yes/no occurrence of pre-adjectival *really*

#### Independent Variable(s)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>ordinal</td>
<td>min. young</td>
</tr>
<tr>
<td>AudienceSize</td>
<td>nominal</td>
<td>Dyad</td>
</tr>
<tr>
<td>ConversationType</td>
<td>nominal</td>
<td>MixedSex</td>
</tr>
<tr>
<td>Gender</td>
<td>nominal</td>
<td>Female</td>
</tr>
<tr>
<td>(Education)</td>
<td>nominal</td>
<td>College</td>
</tr>
<tr>
<td>Priming</td>
<td>nominal</td>
<td>prime</td>
</tr>
<tr>
<td>Emotionality</td>
<td>categorical</td>
<td>negative</td>
</tr>
<tr>
<td>Function</td>
<td>nominal</td>
<td>attributive</td>
</tr>
<tr>
<td>SemanticCategory</td>
<td>categorical</td>
<td>semantic category of adj.</td>
</tr>
<tr>
<td>Gradability</td>
<td>nominal</td>
<td>gradable</td>
</tr>
<tr>
<td>Adjective</td>
<td>categorical</td>
<td>bad</td>
</tr>
<tr>
<td>Frequency</td>
<td>numeric</td>
<td>Frequency of adj. by age group</td>
</tr>
</tbody>
</table>
Statistical Analysis

Mixed-Effects Binomial Logistic Regression
(Baayen 2008; Faraway 2016)

- Standard models for multivariate analyses
- Can handle nested/grouped data structure
- Easy multicollinearity detection
- Problems of MEBLoR
  - Cannot handle small data sets (well)
  - Extremely high $\beta$-error rate (Johnson 2009)
    - if sig. effect:
    - if no sig. effect: ???
Statistical Analysis

Boruta Analysis (Kursa et al. 2010)

- Alternative to regressions that can handle small data sets
- Variable selection procedure
- Extension/improvement of random forest analysis
- Hundreds of forests are grown → distribution of parameters rather than single values (higher reliability)

Problems of Boruta
- Ignores multicollinearity(!)
- Does not model nested/grouped data structure
Results
Results AusE: Observed, Boruta, and MEBLoR

Figure 22: % Variants in AusE.

Figure 23: Boruta results for really in AusE.

Figure 24: Prob. really in AusE by adj. freq.

Figure 25: Prob. really in AusE across age.
Summary AusE Results

<table>
<thead>
<tr>
<th>Variety</th>
<th>Age</th>
<th>Frequency</th>
<th>$H_1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AusE</td>
<td>✗</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Adjective amplification in English Amplification within and across varieties

Results BrE: Observed, Boruta, and MEBLoR

Figure 26: % Variants in BrE.

Figure 27: Boruta results for really in BrE.

Figure 28: Prob. really in BrE by adj. freq.

Figure 29: Prob. really in BrE across age.
### Summary BrE Results

<table>
<thead>
<tr>
<th>Variety</th>
<th>Boruta Age</th>
<th>Frequency</th>
<th>$H_1$?</th>
</tr>
</thead>
<tbody>
<tr>
<td>AusE</td>
<td>×</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BrE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Dr. Martin Schweinberger, slides available at, [www.martinschweinberger.de](http://www.martinschweinberger.de), R code upon request.
Results IrE: Observed, Boruta, and MEBLoR

Figure 30: % Variants in IrE.

Figure 31: Boruta results for really in IrE.

Figure 32: Prob. really in IrE by adj. freq.

Figure 33: Prob. really in IrE across age.
Summary IrE Results

<table>
<thead>
<tr>
<th>Variety</th>
<th>Boruta</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age</td>
<td>Frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AusE</td>
<td>✗</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BrE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IrE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Dr. Martin Schweinberger, slides available at, www.martinschweinberger.de, R code upon request
Results NZE: Observed, Boruta, and MEBLoR

Figure 34: % Variants in NZE.

Figure 35: Boruta results for really in NZE.

Figure 36: Prob. really in NZE by adj. freq.

Figure 37: Prob. really in NZE across age.
### Summary NZE Results

<table>
<thead>
<tr>
<th>Variety</th>
<th>Boruta Age</th>
<th>Boruta Frequency</th>
<th>H₁?</th>
</tr>
</thead>
<tbody>
<tr>
<td>AusE</td>
<td>✗</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BrE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IrE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NZE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Results CanE: Observed, Boruta, and MEBLoR

Figure 38: % Variants in CanE.

Figure 39: Boruta results for really in CanE.

Figure 40: Prob. really in CanE by adj. freq.

Figure 41: Prob. really in CanE across age.
Summary CanE Results

<table>
<thead>
<tr>
<th>Variety</th>
<th>Boruta Age</th>
<th>Boruta Frequency</th>
<th>H₁?</th>
</tr>
</thead>
<tbody>
<tr>
<td>AusE</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>BrE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IrE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NZE</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CanE</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Summary Results

<table>
<thead>
<tr>
<th>Variety</th>
<th>Boruta</th>
<th>H₁?</th>
</tr>
</thead>
<tbody>
<tr>
<td>AusE</td>
<td>![X]</td>
<td>✓</td>
</tr>
<tr>
<td>BrE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IrE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NZE</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>CanE</td>
<td>![X]</td>
<td>✓</td>
</tr>
</tbody>
</table>
Discussion & Outlook
Summary

Results . . .

- confirm that really correlates with adj. freq.
  (positive correlation between the use of really and adjective frequency)
- suggest that lexical replacement is accompanied by
  (functional) re-organization in addition to diffusion
  through the speech community (absence of age effects)
  (see D’Arcy 2015)
- show that complementing mixed-modeling with Boruta is
  useful to avoid overlooking significant effects
  (avoidance of β-errors)
Discussion

- *Really* successfully replaced the dominant form *very* because it collocated with HFAs.
- No signs that *really* of broadening before taking over the system.
- Broadening once dominant (substantiates Tagliamonte and Denis 2014)
Argument

1. The co-occurrence with HFAs lead to the innovative variant being used as a more expressive variant to amplify certain HFAs.
2. The frequency of the innovative form increased because it piggybacked on the frequency of the HFA.
3. Increase in use $\rightarrow$ more deeply entrenched.
4. Deeper entrenchment $\rightarrow$ increased ease of retrieval.
5. Higher ease of retrieval $\rightarrow$ advantage over rival variants.
6. Innovative variant broadens because it increasingly co-occurs with more adj. types.
Discussion

Lexical replacement from a usage-based CxG perspective

- A default Cx loses its default status and is being replaced with a new default Cx.

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional stage</td>
<td>Rivaling stage</td>
<td>New stage</td>
</tr>
<tr>
<td>(very dominant)</td>
<td>(no variant dominant)</td>
<td>(really dominant)</td>
</tr>
<tr>
<td>very good</td>
<td>really good</td>
<td>really good</td>
</tr>
<tr>
<td>very nice</td>
<td>very nice</td>
<td>really nice</td>
</tr>
<tr>
<td>very new</td>
<td>pretty new</td>
<td>really new</td>
</tr>
</tbody>
</table>

\[\text{very } X_{\text{Adjective}} \] \[Y_{\text{Intensifier}} + X_{\text{Adjective}} \] \[\text{really } X_{\text{Adjective}} \]
Interim outlook

Could this be a universal mechanism?

Test if the mechanisms... 
- can be shown to have worked in analogous changes in English, e.g. 3rd p. sg. ind. morpheme: <eth> → <(e)s>
- can be shown to have worked in analogous changes in languages other than English
REFERENCES


Palacios, I. and P. Núñez Pertejo (2012). He’s absolutely massive. it’s a super day. madonna, she is a wicked singer. youth language and intensification: A corpus-based study. *Text and Talk 32*(6), 773–796.


THANK YOU SO, REALLY, VERY MUCH!

ACKNOWLEDGEMENTS

I WOULD LIKE TO THANK...

ALL ICE TEAMS(!), IN PARTICULAR, PAM PETERS AND ADAM SMITH FOR PROVIDING ME WITH A PRELIMINARY VERSION OF ICE-AUS (WITHOUT THEM THE CURRENT STUDY WOULD NOT HAVE BEEN POSSIBLE)

MY COLLEAGUES AT UQ

FOR COMMENTS AND THEIR FEEDBACK ON EARLIER VERSIONS OF THIS TALK
Absolutely fantastic!
Adjective amplification in English

Dr. Martin Schweinberger
slides available at
www.martinschweinberger.de
R code upon request
Mixed-Effects Binomial Logistic Regression

(Baayen 2008; Faraway 2016)

Figure 42: Difference between models without grouping/nesting and mixed-effects models (with grouping/nesting).