Grammars compete late: Evidence from embedded passives

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Syntactic Variation

- What are our assumptions about variation and syntax?
Variationist assumptions:

- Variants are different ways of saying the same thing
- Community-wide variability reflects learned grammar
- Grammar generates variants
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/ruf/, /rʊf/
soda, pop
Syntactic Variation

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- Language-internal factors can condition variation
- Grammar generates variants

/ruf/, /rʊf/
soda, pop
Different syntactic structures? (Robinson and MacKenzie 2017)
Syntactic Variation

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◦ Language–internal factors can condition variation
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Generativist assumptions:
◦ Rules and operations are categorical
◦ Single output of derivation (Embick 2008)
◦ Bottom–up derivation
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Syntactic Variation

- Reconciling variationist and generativist approaches
Syntactic Variation

- Reconciling variationist and generativist approaches

- Competing Grammars (Kroch 1994):
  - Different grammars yield different variants
  - Probabilistic variation as probabilistic grammar selection
  - Rules/operations are categorical, yield single output
Syntactic Variation

- Ex. *Do*-support vs. *V*-to-*T* movement in Early Modern English
This talk

- Motivate and test prediction—only material below variable can condition variation—of CG framework

- The prediction
- The variable—embedded passives
- Methods
- Results
- Implications
The Prediction

- Competing Grammars:
  - Different grammars—feature specification, structure, etc.
  - Ex. *Do*-support vs. *V*-to-*T* movement in English
The Prediction

- Locating the decision point (Wallenberg 2013)
- Grammar selection at divergence (Fruehwald 2012)
  - A. Build structure to decision point
The Prediction

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```
NegP
  Neg
    not
  VP
    V
      like
    DP
      green eggs and ham
```
The Prediction

- Locating the decision point (Wallenberg 2013)
- Grammar selection at divergence (Fruehwald 2012)
  - A. Build structure to decision point
    - NegP
      - Neg
        - not
        - V
          - like
          - DP
            - green eggs and ham
  - B. Select grammar to proceed
  - C. Build rest of structure
The Prediction

- After decision point, derivation is locked into variant
  - Material above variant not yet derived—not yet visible to syntax

- Language–internal conditioning
  - Material that favors one variant over other
  - Influence on variant selection
  - No language–internal factors condition variation above the variable

- Ex. Clause type have shouldn’t influence do–support/V–toT variation
The Prediction

- Testing it:
- Need a variable where variants have different structures
- Look for evidence of language–internal conditioning
The Variable

- Embedded passives
  - The car needs to be washed. (EP)
  - The car needs washed. (AEP)
- Found in Midwest US (Murray et al. 1996, ANAE)
- Associated with Pittsburgh (Tenny 1998)
The Variable

Variable within utterances:

1. I also think Lambo *needs swapped* with Lombardozzi, who then *needs to be given* spots starts here and there to spell people.
2. Our downstairs as I said earlier just doesn't need cooled, its cool even on super hot days with a fan going since its under ground for the most part. (Negation)

3. There are issues there that need addressed. (Relative clause)

4. Bonino, Dumo, and Daley may need picked up next year. (Preceded by auxiliary)

5. I have been saying for a while that I think Correia needs removed from the rotation and replaced by either Lincoln or DCutch if they don't want to make any corresponding moves. (Subordinate clause)

6. Did he need extracted from something? (Question)
Deletion of *to be* or structurally different?

**Difference 1:** EP takes eventive or stative passives, AEP only takes eventive passives

7. The door needs *(to be) open.
8. You need *(to be) hammered to enjoy this movie.
Deletion of *to be* or structurally different?
Difference 2: EP can have negation inside, AEP can’t

9. That car needs to not be washed.
10. *That car needs not washed.*
The Variable

- Deletion of *to be* or structurally different?
- Edelstein (2014): these are different syntactic structures
- AEP as Restructuring—acts monoclausal, but takes do-support, and *need* isn’t auxiliary
The Variable

The syntax tree for the sentence "the cat wants the cat fed" is shown:

- **TP**
  - **DP**
    - the cat
  - **TP**
    - **T**
    - **VP**
      - **V**
      - wants
      - **AspP**
        - **Asp**
        - **vp**
          - the cat fed
The Variable

- Deriving in CG Framework:
  - A. Build up to eventive passive
    
    ![Diagram of VP structure with the car washed]

  - B. Decision point: Merge AspP and V or intervening TP/CP material
  - C. Build rest of structure
The Variable

- Prediction: Anything above *need* shouldn’t condition variation
The Variable

- Prediction: Anything above *need* shouldn’t condition variation
- Intuition: Feels like AEP appears more in ‘non–canonical’ form—irregular participle or relative clause, for example

- Let me know when you need let in.
- This is the book that needs read.
Variationist analysis
  ◦ Need a corpus, but it’s rare (~1/Sociolinguistic Interview)
  ◦ Regional, so things like COCA are no help
Methods

- Solution: Sports fan forum
  - Fandom is regional

(Facebook 2015)
Fans of Pittsburgh sports teams likely from Pittsburgh area

Fans of other teams likely don’t care enough to post

‘Armchair GM’—that player needs traded, the manager needs fired, etc.
Methods

- Two fan forums
  - Unofficial Pittsburgh Pirates Message Board (UPPMB, baseball)
  - Fifth Avenue Forum (5AF, hockey)
- Focus on *need* only
Methods

- Searched forums for *need* (Feb 2–4, 2017)
  - UPPMB: *needing, needed, needs*
  - 5AF: *need*
  - 17,504 total hits, 525 tokens

- Coded for material higher than *need*
  - Preceding auxiliary (yes/no)
  - Preceding negation (yes/no)
  - Sentence Type (Declarative/Interrogative)
  - Clause Type
    (adjunct/conjunct/matrix/embedded/relative, later relative/other)
Results

- AEP quite uncommon (97 tokens, 18.48%)
Results

- No difference in forums (same register, sample of same speech community)
Results

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- Prediction: all null effects
  - No effect of auxiliary presence
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  - No effect of sentence type
Results

- No difference in forums (same register, sample of same speech community)
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  - No effect of auxiliary presence
  - No effect of sentence type
  - Possible effect of negation presence
Rate of AEP Use by Negation Presence

Percent Tokens as AEP

Presence of Negation
- Negation
- None

Negation

None
# Results

<table>
<thead>
<tr>
<th></th>
<th>Negation</th>
<th>No negation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEP</td>
<td>5</td>
<td>92</td>
</tr>
<tr>
<td>EP</td>
<td>40</td>
<td>388</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>470</td>
</tr>
</tbody>
</table>

Chi-square test: $p=0.2583$
Results

- No difference in forums (same register, sample of same speech community)

- Prediction: all null effects
  - No effect of auxiliary presence
  - No effect of sentence type
  - Possible effect of negation presence (n.s.)
  - Possible effect of clause type (relatives vs. other)
<table>
<thead>
<tr>
<th></th>
<th>Relative Clause</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEP</td>
<td>24</td>
<td>73</td>
</tr>
<tr>
<td>EP</td>
<td>67</td>
<td>361</td>
</tr>
<tr>
<td>Total</td>
<td>91</td>
<td>434</td>
</tr>
</tbody>
</table>

Chi-square test: p=0.0470
Results

- No difference in forums (same register, sample of same speech community)
- Prediction: all null effects
  - No effect of auxiliary presence
  - No effect of sentence type
  - Possible effect of negation presence (n.s.)
  - Significant effect of clause type (relatives vs. other)
Implications

- CG predicts no conditioning by factors above variant
- Clause type is and does
- Look-ahead problem: how can material not yet built into syntactic structure condition variation?
- How to resolve?
- More data needed on variable
- Similar studies on other variables
Implications

Other variable:

- Verbal –s (–s on verbs w/ plural subjects, Adger 2014)
- Buckie, Scotland: more frequent in subject relatives than non-relatives
- Same effect we found: non-standard variant more common in relatives
Implications

- How to account for data and keep to generativist principles?
  - Rules/Operations are categorical
  - Single output of derivation
Implications

- How to account for data and keep to generativist principles?
  - Rules/Operations are categorical
  - Single output of derivation

- Re-derive stigmatized feature?
- Abandon bottom-up derivation?
- Select variant later?
Selecting variant in Spell–Out

For CG Framework: Decision point is late
- Requires derivations of both variants available at Spell–Out
- Derivation selected probabilistically and transferred to LF/PF
- Material in derivation can influence variant selection regardless of position
Selecting variant in Spell–Out

- Rules/Operations are categorical?
  - Yes—they apply categorically in each derivation
- Single output of derivation?
  - Yes—only one derivation transferred to LF/PF, and it has single output

Hold to generativist assumptions while allowing observed language–internal conditioning
Selecting variant in Spell–Out

- Single tweak to CG framework, as opposed to added stipulations (re–deriving) or reworking all of syntax (dropping bottom–up derivation)
- CG is surface–identical to probabilistic grammars (Embick 2008)—this goes some way toward uniting them theoretically

Again, more data on more variables is needed
References

- Facebook. 2015. *Facebook fandom map: Major League Baseball*.
Thanks!

- Laurel MacKenzie
- Mary Robinson
- NYU Syntax Brown Bag audience
- dad463@nyu.edu
The Prediction

- Locating the decision point (Wallenberg 2013)
- Possibility 1: Grammar selected prior to derivation
  - A. Select grammar
  - B. Build structure
The Prediction

- Locating the decision point (Wallenberg 2013)
- Possibility 1: Grammar selected prior to derivation
  - A. Select grammar
  - B. Build structure

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DP   T   NegP  VP
  do   Neg   V
     not  DP
       like  green eggs and ham
```

```
DP   T   NegP  VP
  like  Neg  V
     not  DP
```

Results

- Logistic mixed effects regression
  - Fixed factors: modal presence, negation presence, sentence type, clause type
  - Random factor: Forum

- Clause type still significantly predicts variant ($\beta=-0.5476$, $p=0.0438$, Intercept=2.1495)
Implications

- Re-deriving stigmatized feature?
  - A. Build structure to decision point
  - B. Choose structure that yields AEP
  - C. Continue building structure and send to PF
  - D. Realize AEP was built, evaluate negatively

- Could speaker then
  - E. Give up on utterance
  - F. Build structure to decision point
  - G. Choose a variant
  - H. Continue building structure, send to PF
Implications

- Re–deriving stigmatized feature?
  - If same variable process re–applies to subset of AEP derivations, should resemble exponential process (Guy 1991)
  - Math doesn’t work: $26.37\%^2$ is $6.95\%$
  - If not same variable process, need to have arbitrary rate of noticing feature and categorically building other variant

- Rather unsatisfying—requires feature to be socially evaluated (is it? See Murray et al. 1996, Robinson and MacKenzie 2017) and arbitrary stipulations
Abandon bottom-up derivation?
  ◦ If top-down derivation (cf. Chesi 2015), our results are unproblematic
  ◦ Prediction now in opposite direction: material lower than variable can’t condition variation

Most likely, we want approach that allows material above/below variable to condition variation