variation won’t give up the ghost: the verb-particle ‘alternation’ in and out of grammar

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• Thanks to:
  – Bill Haddican
  – Kyle Gorman, Laurel MacKenzie, Joel Wallenberg
a variationist’s view of the world
## syntactic variation

<table>
<thead>
<tr>
<th></th>
<th>stable synchronic</th>
<th>unstable synchronic</th>
<th>diachronic cross-linguistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>parametric variation</td>
<td>no</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>other source (e.g. optional rules?)</td>
<td>yes?</td>
<td>yes?</td>
<td></td>
</tr>
</tbody>
</table>
the interface between syntax and discourse / information structure / phon. context / pragmatics / processing / prosody / recency / sociolinguistics / style

• Kroch: shifts the balance of grammars’ output
• Taylor: applies separately to grammars’ output

• can we use a surface analysis to help identify syntactic structures and processes?
• can we tell if variation comes from one or two grammars (without waiting centuries)
the particle verb… not so fast

• What is an alternation? (meaning and structure)

• dative, genitive, locative, (passive, causative)
the particle verb variable

- Bert threw the wrapper away (VOP)
- Bert threw away the wrapper (VPO)
- Bert kept (on) his shirt (on). VOP can be idiom
- Bert threw (away) the key (away). VPO can be idiom
- Bert gave (up) the ghost (up). VPO idiom, VPO semi
- Bert closed (up) shop (*up). VPO idiom, VOP bad
- Bert put (on) the kettle (on). discourse, UK vs USA
- can classify by whether VP entails V and/or P
- meaning: no referential difference, little ‘social’
1) Bert rolled (in) the beer keg (in).
2a) Bert rolled (*in) the beer keg (in) the room.
2b) Bert rolled (?in the room) the beer keg (in the room).
• neighbors: not part of the alternation, but you wouldn’t want to treat them totally differently.
• similarly, as we will see, information structure affects the variable: old/topic before new/focus
• with a pattern found generally across languages, we don’t want a particle-verb-specific solution…
a particle-verb-specific solution

Head raising of the particle

Old information object contexts

cut [TopicP [DP the tree] [TOPIC] [Topic' Topic] [PredP [DP the tree] down]]

Narrow object focus contexts

cut [TopicP down [TOPIC] [Topic' Topic] [PredP the tree down]]
the effects

• ‘social’: time, register/style, variety: US vs. UK
• ‘individual’: interacts with all the below
• prosodic: object weight
  – affected by processing constraints
  – never represented in syntax
• information-structural: old/new, topic/focus
  – affected by processing constraints
  – sometimes represented in syntax
• lexical: v, p, v-p pair, frequency, idiomaticity, …
tools and proposals

• Tool 1:
  As well as reporting average effect coefficients, observe correlations by subject (and by stimulus)

• Tool 2:
  As well as reporting average effect coefficients, observe interactions (effect of X depends on Y)

• Proposal 1:
  if effects correlate, may be reflexes of same thing

• Proposal 2:
  if effects interact, must be on a par structurally
experiment 1

- two acceptability judgment experiments
- subjects judged sentences ‘bad’ (0) to ‘good’ (10)
- object weight: ‘the (lumpy 10-pound) pumpkin’
- object oldness: via cataphoric pronoun
  Because she had no money… vs. Because it tasted funny…
  … Susan spit the conference dinner out.
- 32 stimuli, all compositional (Lohse et al. 2004)
- 32 fillers/normalizers – treated as fillers here
- able to look at VPO and VOP separately
the predictions

• ~100 years of research from…
  – corpora that must treat VOP/VPO as a choice
  – experiments that treat VOP/VPO as a choice

• a heavy object should…
  – make VOP order worse
  – have no effect on VPO order (make slightly worse?)

• a discourse-old object should…
  – make VOP order better
  – make VPO order worse (probably both?)
Experiment 1: object weight

response ~ order * weight + (order * weight | subject) + (order * weight | stimulus)

- VOP - light: 8.21
- VOP - heavy: 7.97
- VPO - light: 8.05
- VPO - heavy: 8.21

-0.24

p = .002

+0.17

p = .02
experiment 1: object weight

response ~ order * weight + (order * weight | subject) + (order * weight | stimulus)

b = -0.096
r = -0.497
p ~= 0
experiment 1: object weight

response ~ order * weight + (order * weight | subject) + (order * weight | stimulus)

b = -0.096
r = -.497
p ~= 0

UK / IRL (152)
Canada (32)
USA (113)
experiment 1: country

response ~ country * order + (order | subject) + (order | stimulus)

overall p = .000035

<table>
<thead>
<tr>
<th>Country</th>
<th>Sample Size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA (113)</td>
<td></td>
<td>8.18</td>
<td>0.34</td>
</tr>
<tr>
<td>Canada (32)</td>
<td></td>
<td>8.27</td>
<td>0.01</td>
</tr>
<tr>
<td>UK / IRL (152)</td>
<td></td>
<td>8.06</td>
<td>0.17</td>
</tr>
</tbody>
</table>
experiment 1: country

response ~ country * order + (order | subject) + (order | stimulus)
experiment 1: object newness

response ~ order * focus + (order * focus | subject) + (order * focus | stimulus)

- VOP - old: 7.91, +0.36, p = .12
- VOP - new: 8.27
- VPO - old: 7.89
- VPO - new: 8.37, +0.49

VOP - old
VOP - new
VPO - old
VPO - new
experiment 1: object newness

response ~ country * order * focus + (order * focus | subject) + (order * focus | stimulus)

UK / IRL (152)
USA (113)

8.07 +0.32 8.39 +.07 7.87 +0.39 8.26
7.62 +0.45 8.07 +.18 7.87 +0.63 8.50
experiment 1: object newness

response ~ country * order * focus + (order * focus | subject) + (order * focus | stimulus)

UK / IRL (152)
USA (113)
experiment 2

• experiment 2: 125 subjects from USA
• object length is now fixed
• four topic/focus conditions via question prompt
  – Q1. What did the friends do? (VP focus)
  – Q2. What did the friends pass around? (object focus)
  – Q3. What happened? (wide focus)
  – Q4. What happened to the beer? (object topic)
  – A1-4. The friends passed the beer around.
• worked much better than the cataphoric pronoun
• again, able to observe VPO and VOP separately
experiment 2

• *What did the friends do?* (VP focus) is the baseline for *What did the friends pass around?* (object focus)

• *What happened?* (wide focus) is the baseline for *What happened to the beer?* (object topic)

• a focused object should…
  – make VPO order better
  – make VOP order worse (probably both)

• a topic object should…
  – make VOP order better
  – make VPO order worse (probably both)
experiment 2: object focus effect

response ~ order * focus + (order * focus | subject) + (order * focus | stimulus)
experiment 2: object topic effect

response ~ order * topic + (order * topic | subject) + (order * topic | stimulus)

VOP - baseline: 8.20
VOP - obj. topic: 7.85
VPO - baseline: 7.95
VPO - obj. topic: 7.11

p = .01
experiments: effects on each order

<table>
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<tbody>
<tr>
<td>exp. 1: obj. heavy vs. light</td>
<td>- 0.24</td>
</tr>
<tr>
<td>exp. 1: obj. new vs. old</td>
<td>+0.36</td>
</tr>
<tr>
<td>exp. 2: obj. focus vs. baseline</td>
<td>- 0.10</td>
</tr>
<tr>
<td>exp. 2: obj. topic vs. baseline</td>
<td>- 0.35</td>
</tr>
</tbody>
</table>

• all VOP-VPO interactions in correct order but…
exp’s: interactions v. main effects

new vs. old object
obj. focus vs. baseline
obj. topic vs. baseline
experiments: conclusions

• prosodic and information-structural effects on word order variation can be elicited experimentally
• measuring acceptability on 11-point Likert scale, gave better results than attempts at normalization
• subjects vary along every dimension you measure
• subject random effects are very valuable data
• two ‘alternants’ can be linked or ‘yoked’ together
• object weight and information status may interact
• obj weight affected VOP more, VPO more regularly
• obj information structure affected VPO order more
Brown Corpus Family

• 7 corpora: USA ’61, ’91, ’06, UK ’31, ’61, ’91, ’06
• 2557 tokens (unparsed corpus paradox)
• controlled for object length: D + N
• did not control for information structure
• looking at changes by country and over time
• looking at “lexical effects”
  – not necessarily lexically idiosyncratic effects
  – did not (yet) control for transparency, frequency, etc.
Brown Corpus Family

American (circles) and British (squares)

proportion of VOP order

1931: B-LOB
1961: Brown/LOB
1991: Frown/F-LOB
2006
Brown Corpus Family \((N = 2557)\)
object = D + N, VP transparency not controlled
Brown Corpus Family \((N = 2557)\)

object = D + N, VP transparency not controlled
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Brown Corpus Family \((N = 2557)\)

object = D + N, VP transparency not controlled
Twitter Corpus \((N = 2001)\)

V, P, and O are basically held constant

US/UK, off/on, lights/light (UK), turned/turn/turns

are some just proxies for discourse/contextual effects?
Other 20th century corpora

British (squares) and American (circles), spoken (green) and written (orange)

DPCSE-60s: raw, N = 117
DPCSE-70s: raw, N = 191
DPCSE-90s: raw, N = 293
BNC: turn* (on|off) the light* (on|off), N = 93
COCA: turn* (on|off) the light* (on|off), N = 992
Corpus of Historical American English

- put (out) the fire (out), $N = 181$
- put (out) a hand (out), $N = 151$
- put (out) the light (out), $N = 149$
- brought (up) the subject (up), $N = 131$
- bring (up) the subject (out), $N = 73$
Penn Corpora of Historical English

proportion of VOP order

PCEEC (392)
core PCHE (498)
conclusions / confusions

• weight and information structure effects
  – traditionally apply to a choice between forms

• object weight effect
  – by applying to VPO as well as VOP, fit this concept

• information-structure effects
  – by applying to VPO more than VOP, question it

• diachronic change
  – suggests parametric variation (grammar competition)

• lexical effects
  – suggest no simple functional parametric variation
references (1)


