The cost of unexpected contrast: Processing let alone

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Introduction
Corrective structures show a bias towards the constituent in default focus, modulated by (a) biasing context or (b) focus sensitive operators (FSOs) like only.

(1) Jane passed (only) the salt to (only) her father, but not . . .
   a. her mother
   b. the pepper (Paterson et al., 2007)

Research questions: What is the preference for let alone structures? Is this preference impacted by the FSO even as other structures are by only?

The let alone construction
Syntax. Licensed by negative contexts e.g., negation and negative adverbs.

Assume that let alone is a coordinate structure with required ellipsis (Toosarvandani, 2010), sensitive to contrastive focus between the correlate and the remnant.

(2) M. (didn’t eat | never ate)
   dinner, let alone dessert.
   (correlate) (remnant)

Semantics. Presupposes a contextually salient scalar relation between correlate and remnant: dessert <.< dinner.

Processing let alone
Two potentially costly processes:

P1 Recover material from ellipsis site.
   E1. Expect preference for minimal remnants: DP over VP.
      a. Pat didn’t (even) skim the article, let alone [v read it].
      b. Pat didn’t [v skim] the article, let alone [v read] it.
   E2. Cues for focus, like FSOs, should guide remnant expectations (e.g., Paterson et al., 2007; Carlson, 2013).

P2 Determine contextually salient scale relation between correlate and remnant.

Focus sensitive operators
- Operators like only, also, and even associate with focus (Rooth, 1985).
- FSO even adds the presupposition that the focused element is the lowest element on a contextually salient scale (Horn, 1969; Kadmon, 2000).

(3) John even introduced . . .
   a. [Bill]: To Sue
      (Bill was an unexpected person for John to introduce to Sue)
   b. Bill to [Sue]:
      (Sue was an unexpected person for John to introduce Bill to)

Expected costs (+) given previous literature:

E1 Minimal structure. ©
   DP « VP
E2a Even attracts narrow focus. ©
   VP « DP after even.
E2b Even attracts broad focus. ©
   VP « DP after even.
E3 Even facilitates scalar meaning. ©
   even « bare.

Experiment 1: Completion
28 subjects recruited from Amazon Mechanical Turk (AMT) instructed to complete the sentence. 16 items with and without even.

(4) Pat didn’t (even) skim the article, let alone ______

Even 65%
Bare 63%

Completions were overwhelmingly of the VP or DP type.
Overall bias towards VP.
No effect of even.

VP preference unexpected given other findings for ellipsis structures. Lack of effect for even also surprising.

Experiment 2: Choice
24 AMT subjects instructed to complete the sentence with one of the two responses provided. 3 conditions manipulating the placement of even: absent, VP or DP narrow scope.

(5) Pat didn’t (even) skim the article, let alone ______

before his class last week.
   a. the book
   b. read it

skim the article 62%
 didn’t even skim the article 61%
 didn’t even skim the article 52%

Bias towards VP remnant as in Exp 1.
Marginally more DP remnants when even adjacent to DP, $p < 0.1$.

Replicated VP preference, but found surprising result that VP bias persisted even in narrow scope of even. Subjects may ignore specific placement of even.

Experiment 3: Eye movements
36 subjects from the Claremont Colleges; 16 items in a 2 x 2 design, crossing Particle (Even vs. Bare) with Remnant (DP vs. VP, matched for length).

Remnant type tradeoff
- Slower first pass times for VP than DP remnant.
- First pass VP cost eliminated in presence of even.
- Increase in regressions out for DP reduced in presence of even.

Facilitatory effect of even
- Shorter second pass times when even present for Regions 1, 3, and 4.
- Shorter go past times when even present for Region 5.
- Fewer regressions in to remnant region.
- But no additional benefit for VP or DP remnants.

Summary of findings
F1 Some evidence for slight DP advantage for early syntactic parse, although also evidence of processing tradeoff.
F2 No evidence for strong online VP preference despite offline bias.
F3 Presence of even facilitates VP remnant, but does not penalize DP remnant.
F4 Re-reading advantage when even present; aided scalar semantics of let alone.

Experiment 4: Completion in context
36 AMT subjects completed the blanks as before. Three conditions manipulating the placement of contextual bias: neutral, VP or DP bias. All items contained even.

Neutral 66%
VP-Bias 86%
DP-Bias 58%

a. Patrick isn’t a very good student.
b. Patrick is supposed to read the book for class ahead of time.
c. Patrick is supposed to look over the article and the book.

- General bias towards VP regardless of context.
- Significant increase in VP remnants in VP-biasing contexts.
- Small but significant increase in DP remnants in DP-biasing contexts.

Conclusions
General failure to conform to expectations, but provides novel patterns to consider. Possible hypotheses to pursue:
- VP preference due to frequency; idiomatic and construction-based (Fillmore et al., 1998).
- VP preference guided by accessibility of scales: article < book undetermined S whereas skim article < read article is more constrained.
- VP preference reflects preference for broad focus projecting under negation (see Bader 1994; Birch & Clifton, 1995; Stolterfoht et al., 2007 for evidence of broad focus preference).
- Position of even not predictive of focal accent; presence could be minor compared to only (see also Filik et al., 2009 for delay of even).

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