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 mother, but not …

    a. her father

    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 S between correlate and remnant: DESSERT $<_S$ 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 skim [DP the article], *let alone* [DP the book].

   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]F to Sue

     (Bill was an unexpected person for John to introduce to Sue)

   b. Bill to [SUE]F

   (Sue was an unexpected person for John to introduce Bill to)

Expectations

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%
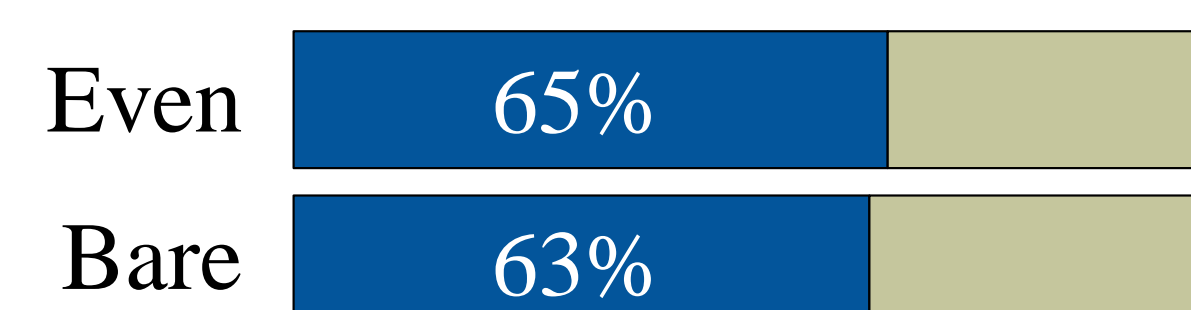
☞ Completions were overwhelmingly of the VP or DP type.

☞ 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.

(6)   Pat didn't

    { skim the article

    even skim the article

    skim **even** 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 skim even the article	52%
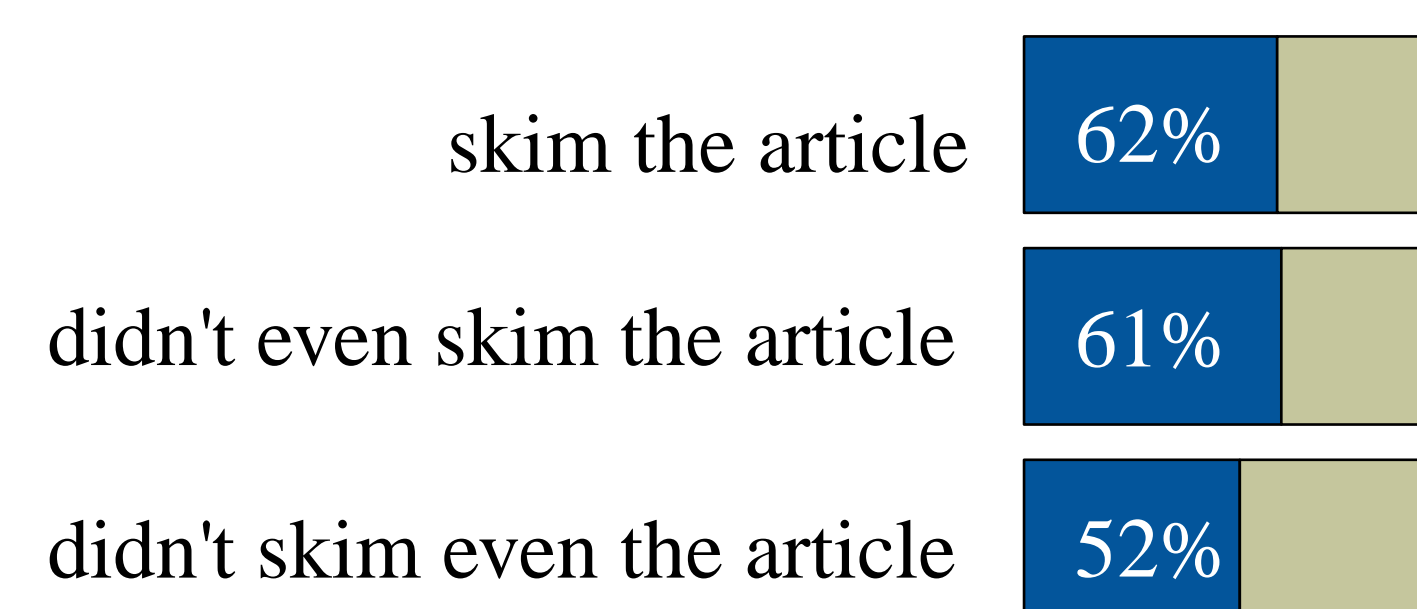
☞ Bias towards VP remnant as in Exp 1.

☞ 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 2×2 design, crossing *Particle* (*Even* vs. *Bare*) with *Remnant* (DP vs. VP, matched for length).

(5) |1 Pat didn't |2 (**even**) skim the article,|3 let alone |4 { the book / read it } |5 before his class |6 last week.

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**.

First pass times, with first pass regressions removed

Regressions out of remnant region
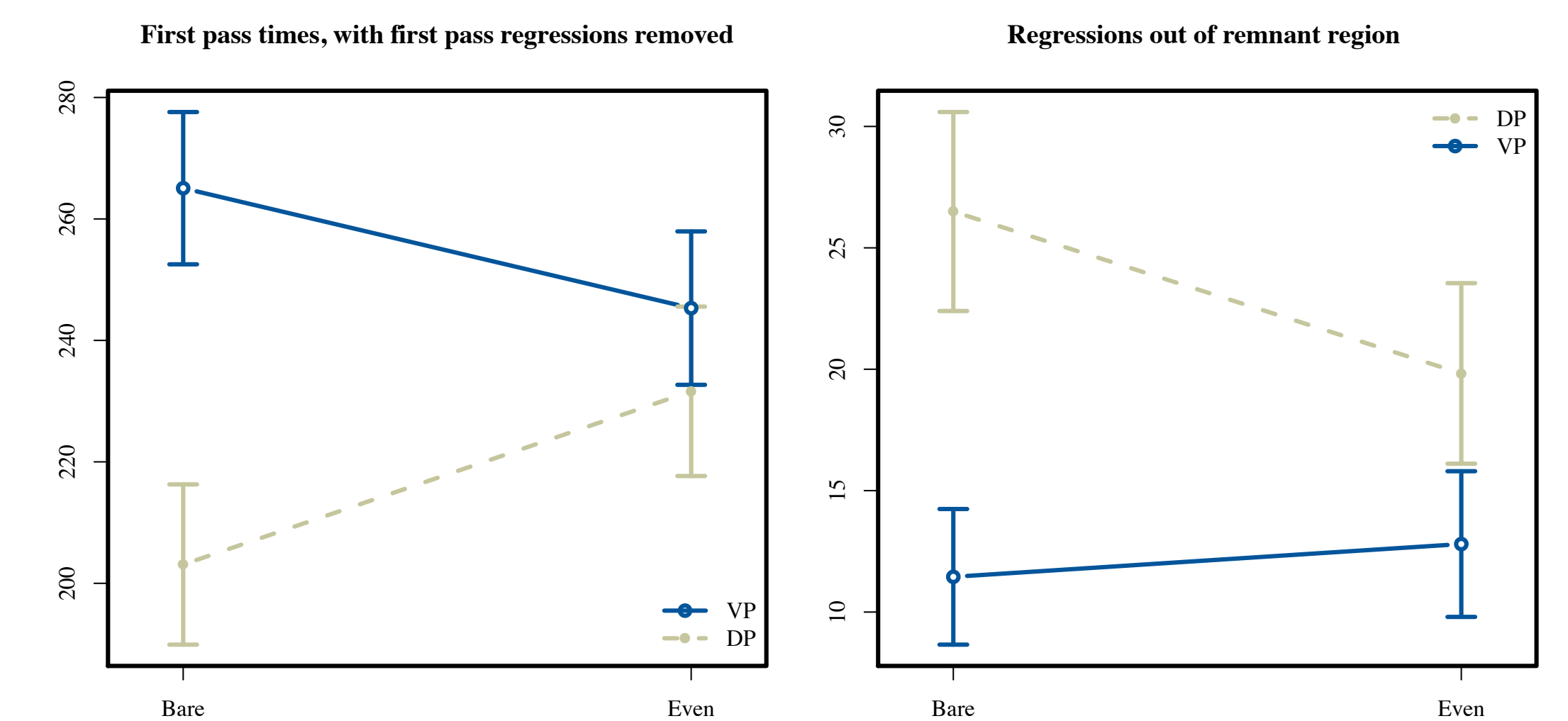
Facilitatory effect of even

☞ 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.

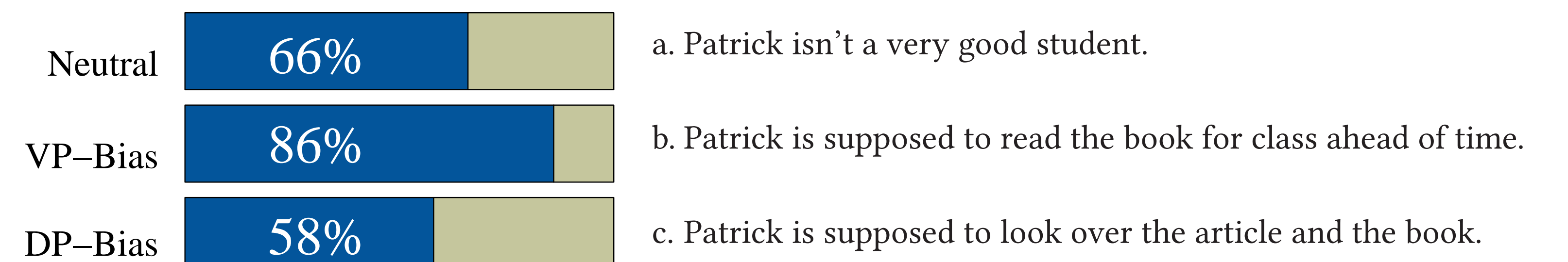Second pass time through remnant
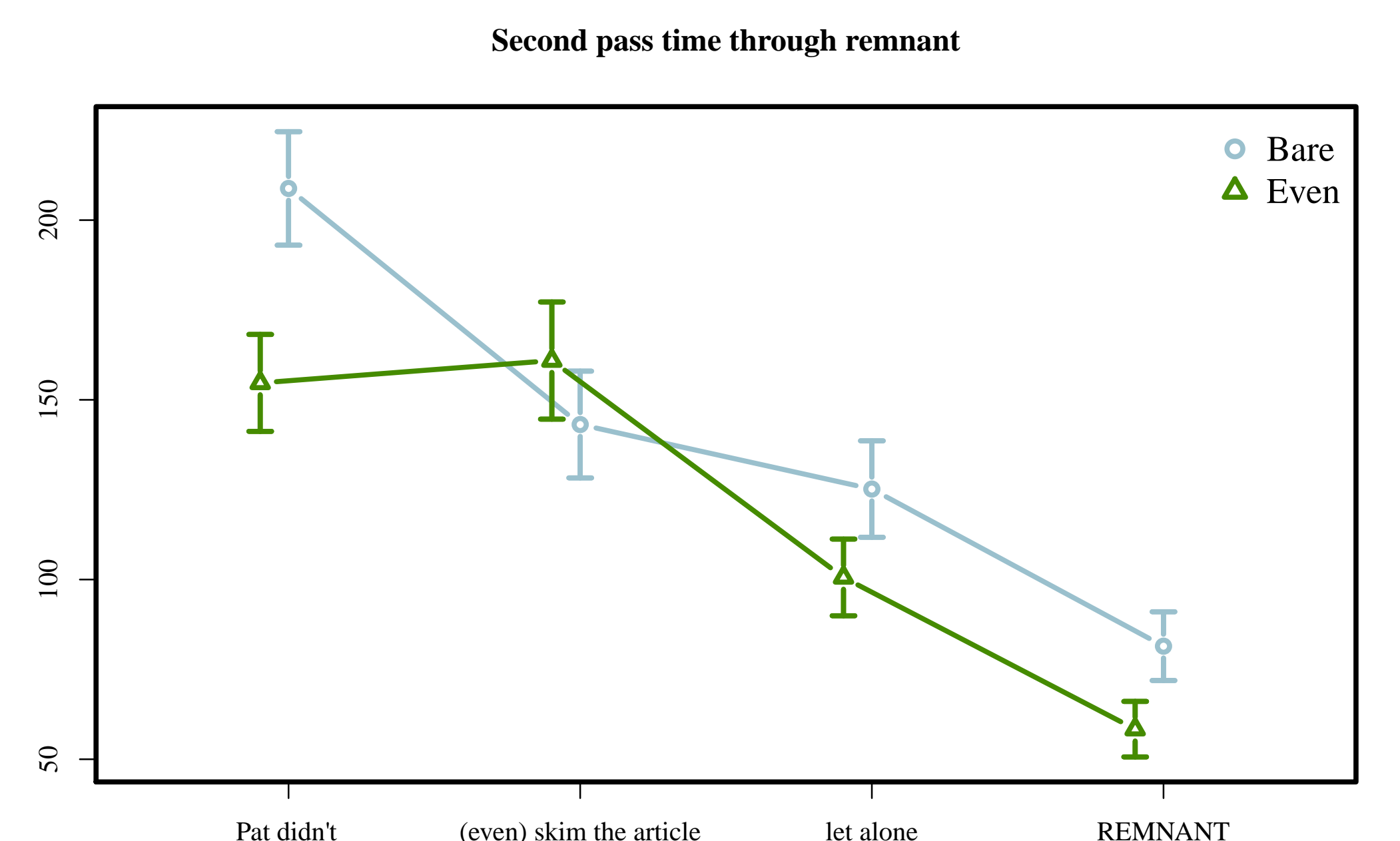
Summary of findings

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%	a. Patrick isn't a very good student.
VP–Bias	86%	b. Patrick is supposed to read the book for class ahead of time.
DP–Bias	58%	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* $<_S$ *book* underdetermines S whereas *skim article* $<_S$ *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**).