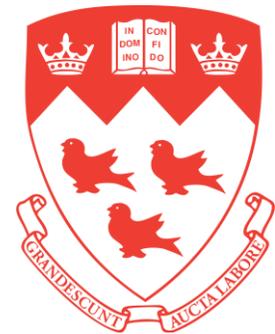


Representing Discourse Context: Presupposition Triggers and Focus-sensitivity

LANGUAGE & COGNITION @ HARVARD – OCTOBER 6TH, 2020

ALEX GÖBEL (MCGILL)



Introduction: The Big Picture

- Natural language is full of expressions that are sensitive to context:

- pronouns
- modals (Kratzer 1977)
- (gradable) adjectives (Bartsch & Vennemann 1972)
- quantifiers (von Stechow 1994)
- ...

- ❖ *From psycholinguistic perspective:*
need for mental representations of context!

- *Goal of this presentation:*
address question how discourse context is accessed & represented
via case study on presuppositions

Introduction: Presuppositions

- *Presuppositions* (PSPs): what's taken for granted or backgrounded
- FORMALLY: part of the Common Ground (Stalnaker 1978, ff.)
- STANDARD DIAGNOSTIC: projection behavior
 - (1) Gretchen (didn't) took Jimmy's car **again**.
~> *Gretchen took Jimmy's car before*
- ⚡ PSP expressions (=triggers) are heterogeneous class, e.g. Abusch (2010):
 - (2a) Lindsay didn't **stop** smoking – she never even started!
 - (2b) ??Edgar didn't start smoking **again** – he never even started!

Introduction: Assumptions on Presuppositions

- Direct Targetability (Tonhauser 2012)

(3) A: Gordon grew a beard **again**.

B₁: That's not true, I saw him clean-shaven this morning.

B₂: #That's not true, he's never had a beard before.

- Defeasibility (Grice 1975)

(4) Gordon grew a beard **again**.

#In fact, he never had a beard before.

- Obligatory Local Effect (Tonhauser et al. 2013)

(5) #Jane believes that Bill is smoking **again** and that he has never been a smoker.

(6) Jane believes that Bill, **who is Sue's cousin**, is Sue's brother.

Introduction: Empirical Scope

➤ Present work investigates role of Focus-sensitivity

■ *Assumptions on Focus* (mostly Rooth 1985, 1992):

- evokes alternatives (= set of propositions)
- marked prosodically in English
- represented as syntactic F-feature
- indicates explicit or implicit question (Roberts 1996/2012)

■ STANDARD DIAGNOSTIC: stress-placement

(7a) Gretchen **also** met [JIMMY]_F at a wedding.

(7b) Gretchen **also** met Jimmy [at a WEDDING]_F.

→ PSP of *also* varies with Focus = *Focus-sensitive*

(8a) Gretchen met [JIMMY]_F at a wedding **again**.

(8b) Gretchen met Jimmy [at a WEDDING]_F **again**.

→ PSP of *again* doesn't vary with Focus ≠ *Focus-sensitive*

Introduction: Hypothesis & Predictions

(9) Focus Presupposition Antecedent Hypothesis (FoPAH)

-FOCUS-sensitive: *Common Ground entailment (à la Stalnaker)*

+FOCUS-sensitive: *Antecedent in Discourse Model*

■ *Some clarifications, I:*

- COMMON GROUND: set of mutually accepted propositions

- DISCOURSE MODEL: record of linguistic representations

- ANTECEDENT: semantic rather than syntactic

→ *PSP can be satisfied non-linguistically**, unlike ellipsis (Hankamer & Sag 1976)

(10) Context: *Lindsay sees Edgar use cilantro while making breakfast nachos and says:*

Paul **ALSO** uses cilantro for making nachos.

*NOTE: *The same is true for triggers lacking Focus-sensitivity.*

Introduction: Hypothesis & Predictions

(9) Focus Presupposition Antecedent Hypothesis (FoPAH)

-FOCUS-sensitive: *Common Ground entailment (à la Stalnaker)*

+FOCUS-sensitive: *Antecedent in Discourse Model*

■ *Some clarifications, II:*

→ two semantic representations may still be distinct (Heim 1982)

(11a) Exactly one of the ten balls is not in the bag.
It is under the sofa.

(11b) Exactly nine of the ten balls are in the bag.
#It is under the sofa.

Prediction #1

+FOCUS: subject to QUD-salience
-FOCUS: indifferent to QUD-salience

Prediction #2

+FOCUS: hard to accommodate
-FOCUS: easy to accommodate

Prediction #1: Background

❖ *Prediction #1, rep.:*

- +FOCUS: subject to QUD-salience
- FOCUS: indifferent to QUD-salience

■ *Motivation/Analogies:*

- +FOCUS: similar to how salience affects pronoun resolution
- FOCUS: analogous to how order of premises is irrelevant in syllogism

➤ Salience operationalized relative to the *QUD* (Roberts 1996/2012)

■ *On QUDs:*

- discourse structure of – often implicit – set of questions
- relevant for language comprehension (e.g. Clifton & Frazier 2012)
- discourse structuring aspect less studied

Prediction #1: Experiment 1 - Design

(12) Sample Item (16 items, plus 12 fillers; N=35), 2x2

a. *no intervener* + **also**

A: Where did Amber stay when she was in LA?

B: She stayed at a motel.

A: Where did she stay when she was in Boston?

B: She **also** stayed at a motel in Boston.

b. *no intervener* + **again**

A: Where did Amber stay when she was in LA?

B: She stayed at a motel.

A: Where did she stay when she was in Boston?

B: She stayed at a motel **again** in Boston.

Prediction #1: Experiment 1 - Design

(12) Sample Item (16 items, plus 12 fillers; N=35), 2x2

c./d. *intervener* + **also/again**

A: Where did Amber stay when she was in LA?

B: She stayed at a motel.

A: *Where did she stay when she was in Chicago?*

B: *She crashed at a friend's house.*

A: Where did she stay when she was in Boston?

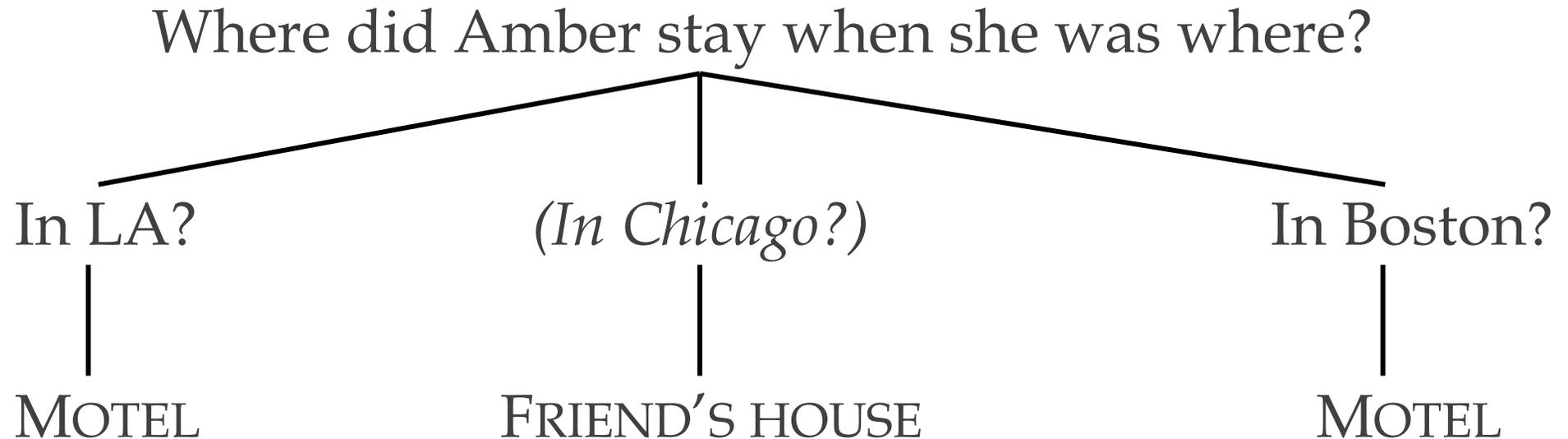
B: She (**also**) stayed at a motel (**again**) in Boston.

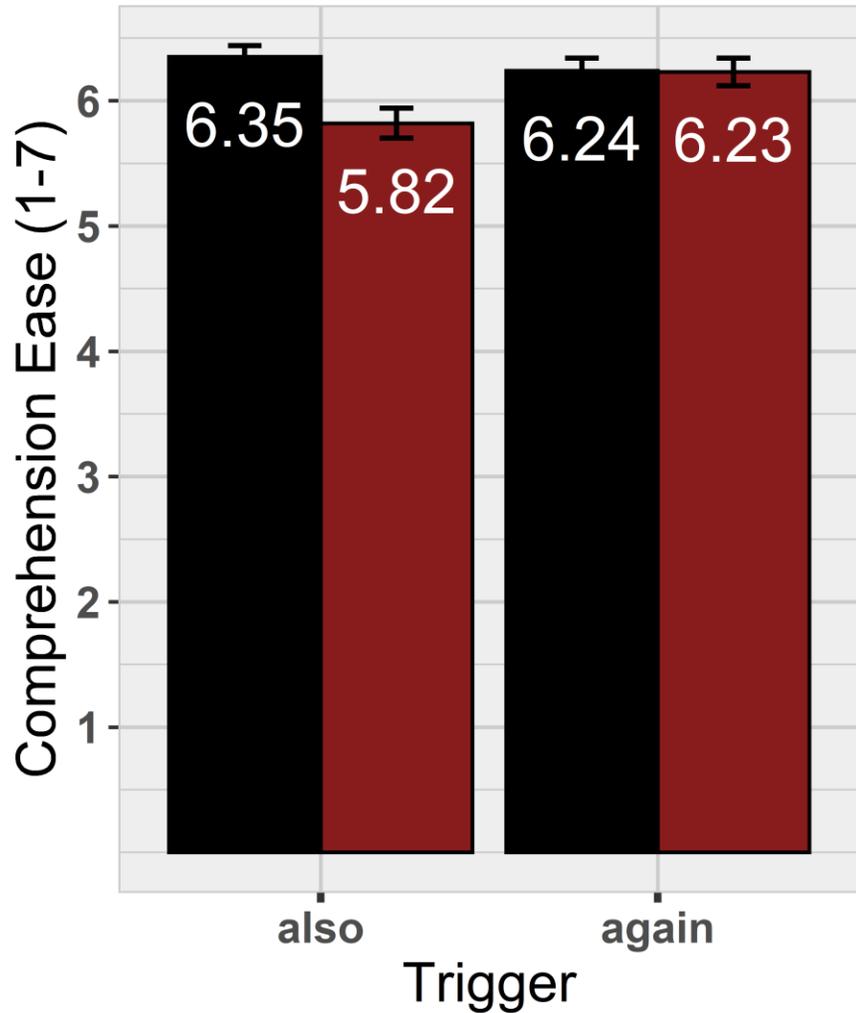
■ Method:

- each sentence presented on its own and read in self-paced fashion
- after final sentence, asked to rate comprehension difficulty on 7-point scale

Prediction #1: Experiment 1 - Design

(13) Assumed QUD-Structure



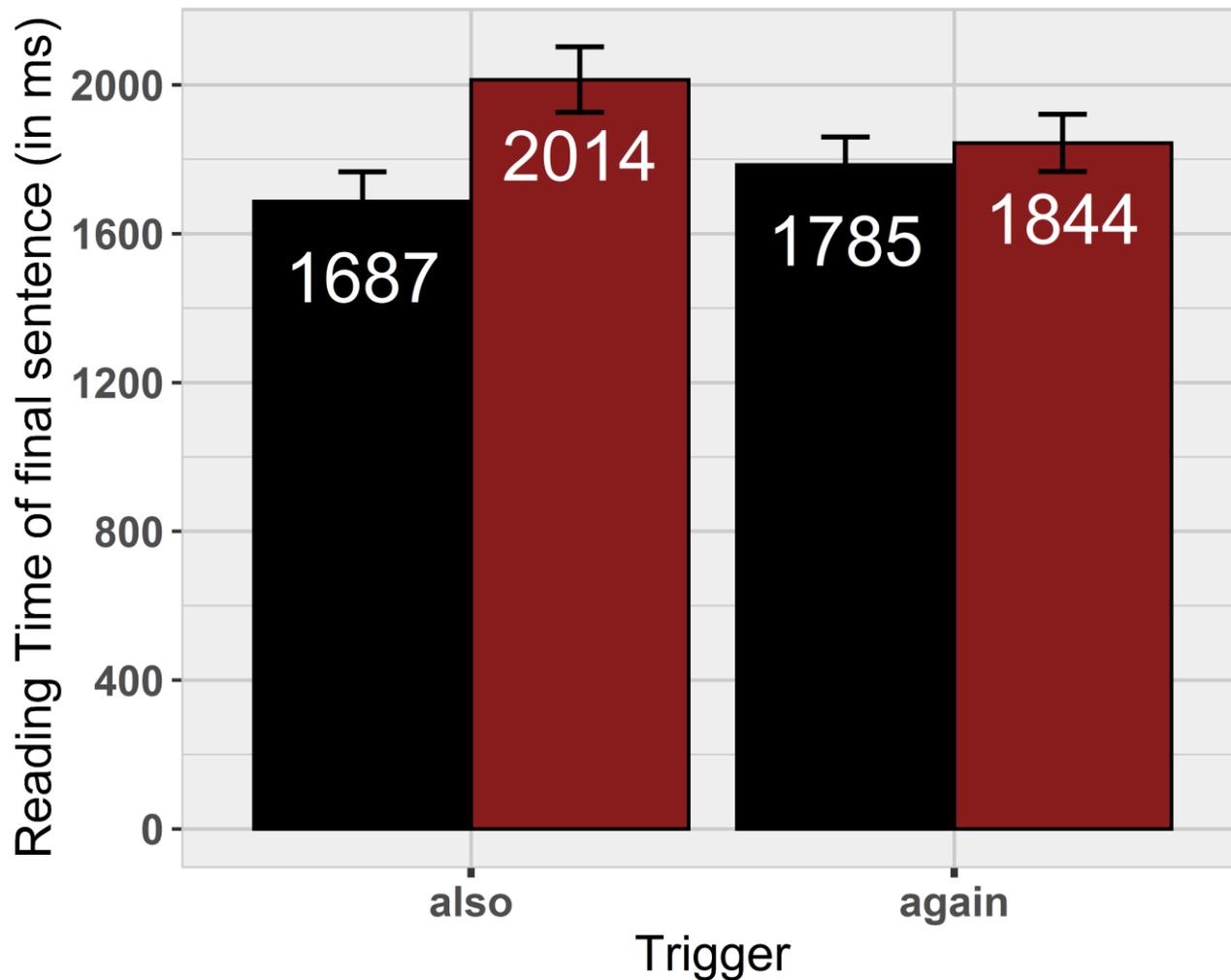


+/- Intervener
■ *no Intervener*
■ *Intervener*

Experiment 2: Rating Results

ordinal mixed effects models

- **significant effect of INTERVENER:**
intervening material decreased ratings ($z = 3.04, p < .01^{**}$)
- **no effect of TRIGGER:**
($z = -1.54, p = .12$)
- **significant INTERACTION:**
effect of INTERVENER driven by decrease for *also*
($z = -2.47, p < .05^*$)



Experiment 2: RT Results

linear mixed effects models

- **significant effect of INTERVENER:**
intervening material leads to slower RT ($t = 2.9, p < .01^{**}$)
- **no effect of TRIGGER:**
($t = 0.05, p = .96$)
- **significant INTERACTION:**
effect of INTERVENER driven by slowdown for *also*
($t = 2.66, p < .05^*$)

Prediction #1: Discussion

➤ *Prediction borne out:*

intervener yields penalty in ratings & RTs for *also*, not *again*

■ *Some caveats:*

- difference in syntactic position
- uncertainty about implicit prosody
- results compatible with plain recency account

→ *Contra recency:*

- (14) You know, before I came here, I had been in a cage. It was a nice cage;
I can't complain. Being in Russia in the 1970s and 1980s was great. But of course I wanted to breathe the air of the free world. Everything I recorded up to Radio Silence was basically a bridge between Russia and the West. When I got to the West, I felt the need to build a bridge back.
A lot of people are arguing right now that contemporary Russia is **also** a cage,
comparing it to the Soviet times. (COCA)

Prediction #1: Discussion

➤ *Prediction borne out:*

intervener yields penalty in ratings & RTs for *also*, not *again*

■ *Relation to previous research:*

- findings in line with role of QUD for finding Focus-alternatives (Kim 2015)

- “distance” effect compatible with different kinds of memory access mechanisms (Chen & Husband 2018)

→ *relevant clue*: trend that kind of intervening material mattered:

(15) A: What did Derek do on Thanksgiving?

B: He visited his parents in Idaho.

A: *What did he do for Christmas?*

B: *He stayed home because his flight got cancelled.*

A: What did he do for Easter?

B: She (**also**) visited his parents (**again**) for Easter.

Prediction #2: Background

❖ *Prediction #2, rep.:*

+FOCUS harder to accommodate than -FOCUS

■ *(Global) Accommodation* (e.g. Lewis 1979): felicity of trigger when PSP isn't met

➤ *Accommodation varies by trigger* (e.g. Kripke 2009):

(16) # $[SAM]_F$ is having dinner in New York tonight **too**.

(17) Jill has **stopped** smoking.

■ *Motivation for prediction:*

- Common Ground subject to cooperative principles (Stalnaker 1998)

→ if PSP is not entailed by CG, hearer can adjust CG

- in contrast, missing material in discourse model requires supplementation as costly repair process

Prediction #2: Experiment 2 - Design

(18) Sample Item (18 items split across trigger pairs, plus 62 fillers; N=48)

A: Who is having dinner in New York tomorrow?

- | | | |
|----|---|---------|
| a. | B: Saul is having dinner in New York. | CONTROL |
| b. | B: Saul is having dinner in New York again . | -FOCUS |
| c. | B: Saul is having dinner in New York too . | +FOCUS |

(19) a. A: What's Mary been up to recently?

B: She's (**still**/**even**) on vacation.

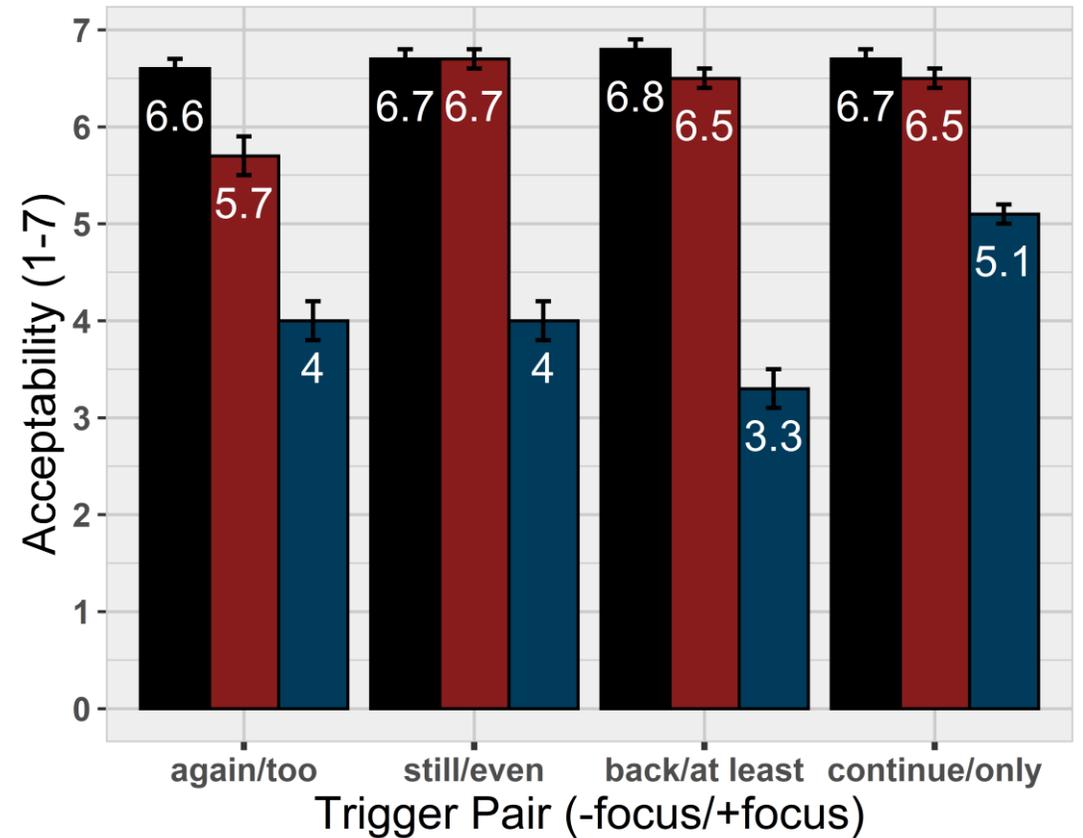
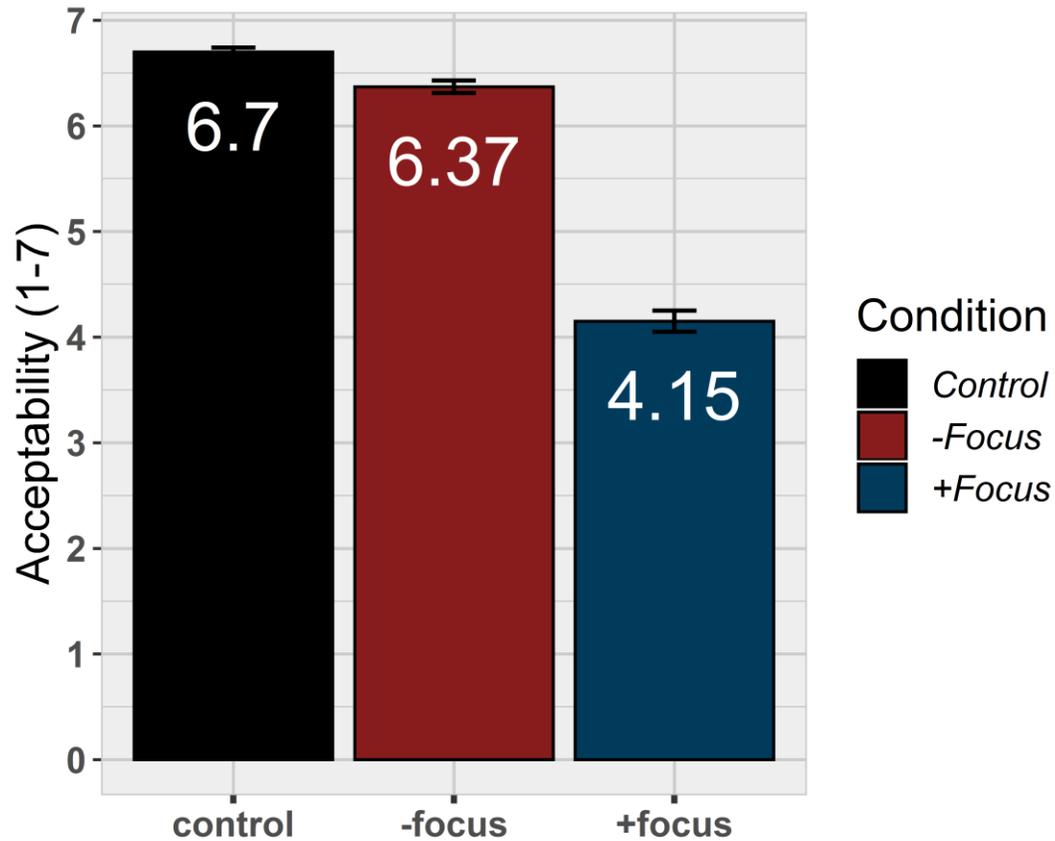
b. A: What did Jack do last winter?

B: (**At least**) he flew (**back**) to Chicago for Christmas.

c. A: What did Sue do yesterday?

B: She (**continued** building/**only** built/∅ built) a tree house.

- Method:
 - A-sentence presented first, then full item after button press
 - after presentation, asked to rate acceptability on 7-point scale



Experiment 2: Total & Split Rating Results

simple effects:

-/+FOC < CON ($z=-3.0^{**}$, $z=-9.9^{***}$)

Helmert contrasts:

CON < (-/+)*FOC* ($z=-3.0^{**}$), -FOC < +FOC ($z=-10.5^{***}$)

Prediction #2: Interim Discussion

➤ *Prediction again borne out:*

+FOCUS rated lower than -FOCUS triggers when PSP wasn't met

■ *Elaborations on some of within-class variation:*

(i) *again*: only -FOCUS triggers with notable penalty

→ in line with claims that both *again* & *too* are hard^(Kripke 2009),
but evidence against mere binary distinction

- possible explanation in terms of event-structure:

(20) Mr Miyagi fell asleep at 2am and woke up at 2pm.

a. Five minutes later, he was asleep **again**.

b. #Five minutes later, he was **still** asleep.

(ii) *only* slightly better than rest of +FOCUS triggers

→ might be due to exhaustive inference being at-issue

Prediction #2: Interim Discussion

➤ *Prediction again borne out:*

+FOCUS rated lower than -FOCUS triggers when PSP wasn't met

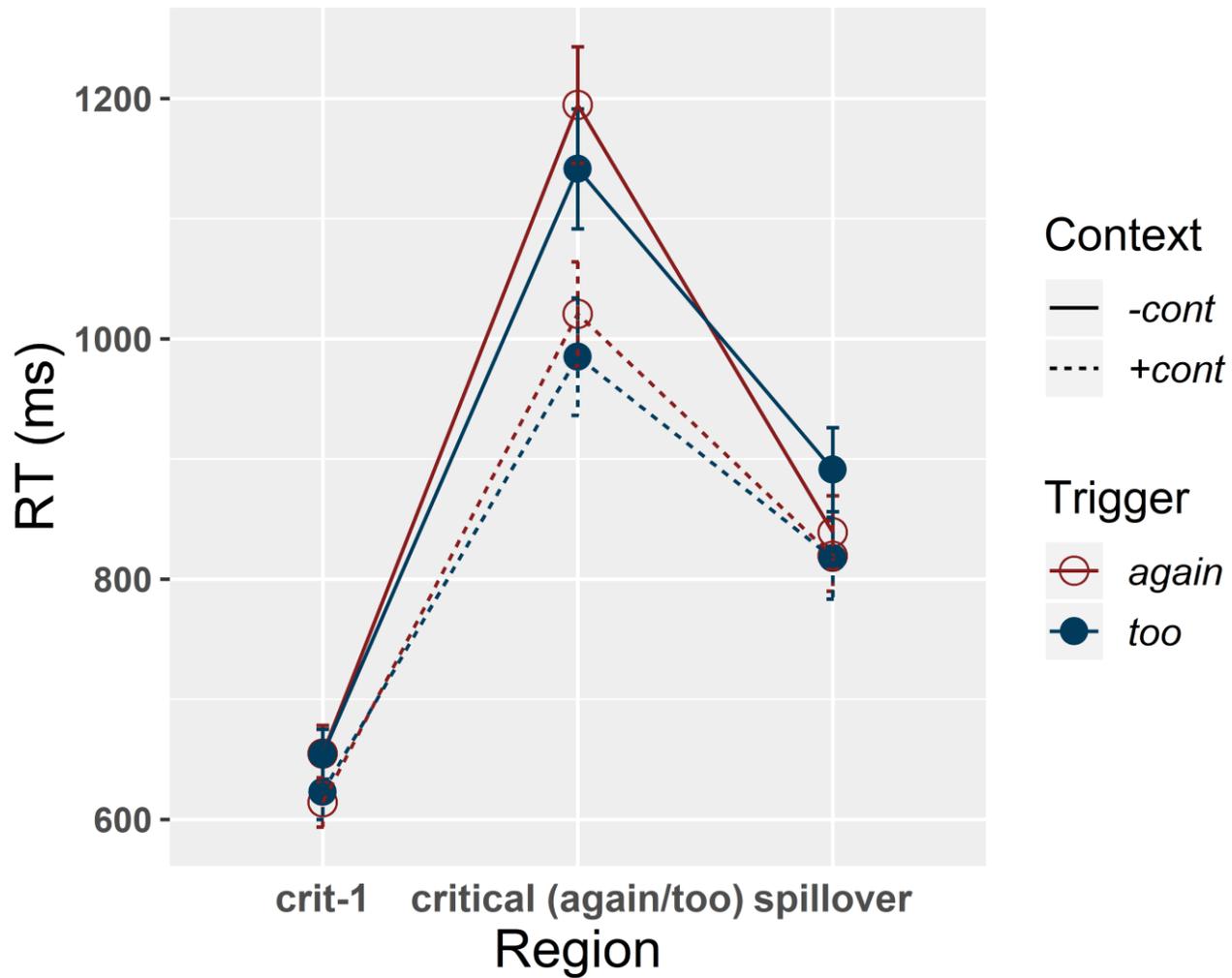
■ *Relation to previous research:*

- support for *again & too* being hard to accommodate... (Kripke 2009)

...but evidence for more fine-grained differences

- design more closely captures reported judgments (contra Tiemann et al. 2011)

→ *open question whether results extend to online processing* (Schwarz 2007, Tiemann 2014)

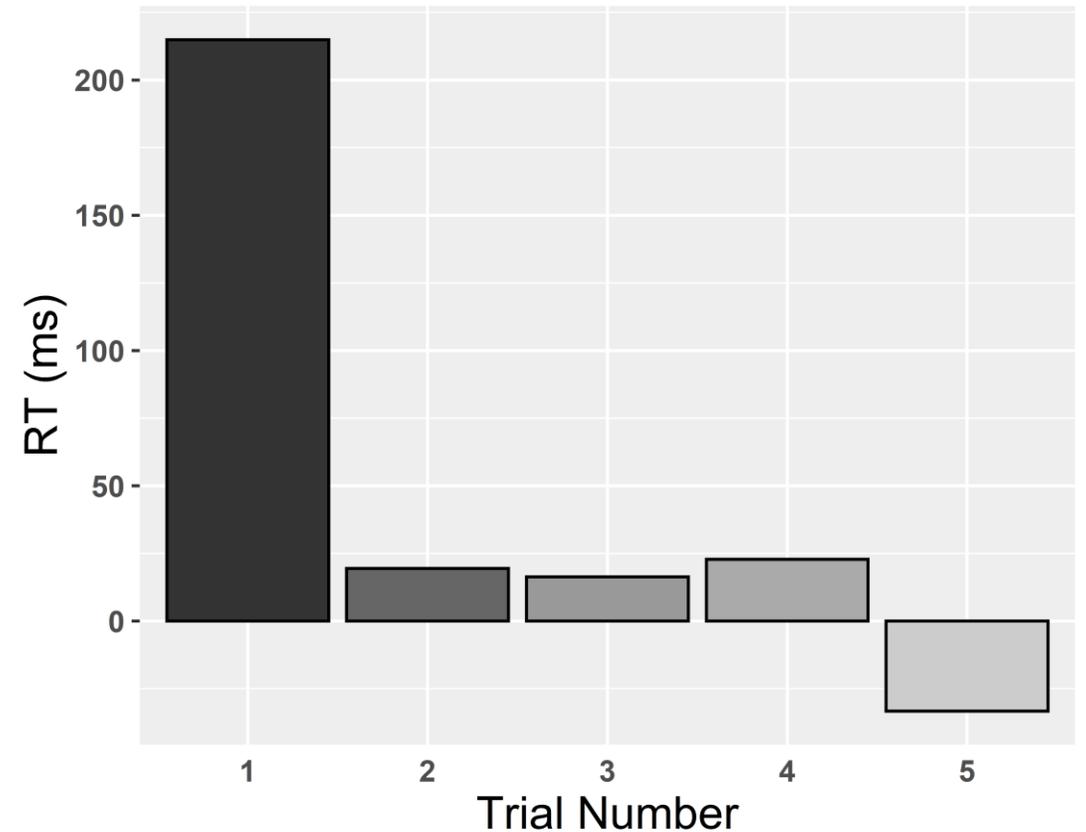
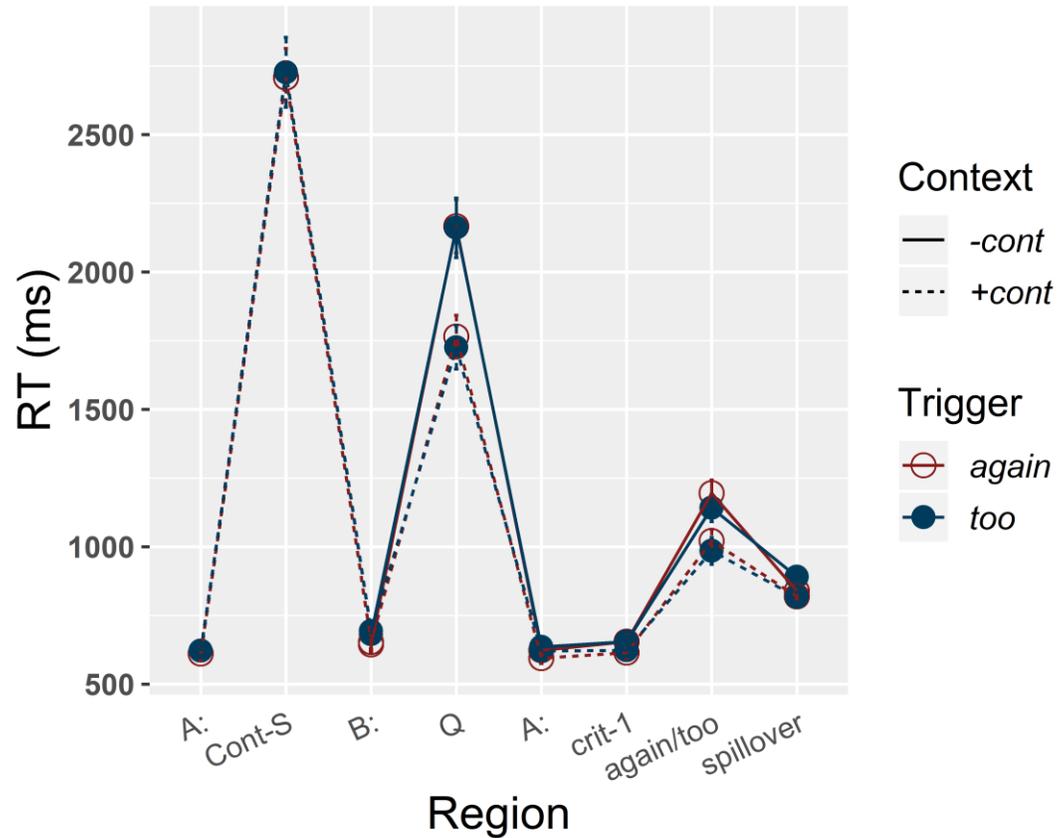


Experiment 3: Main Results

linear mixed effects models

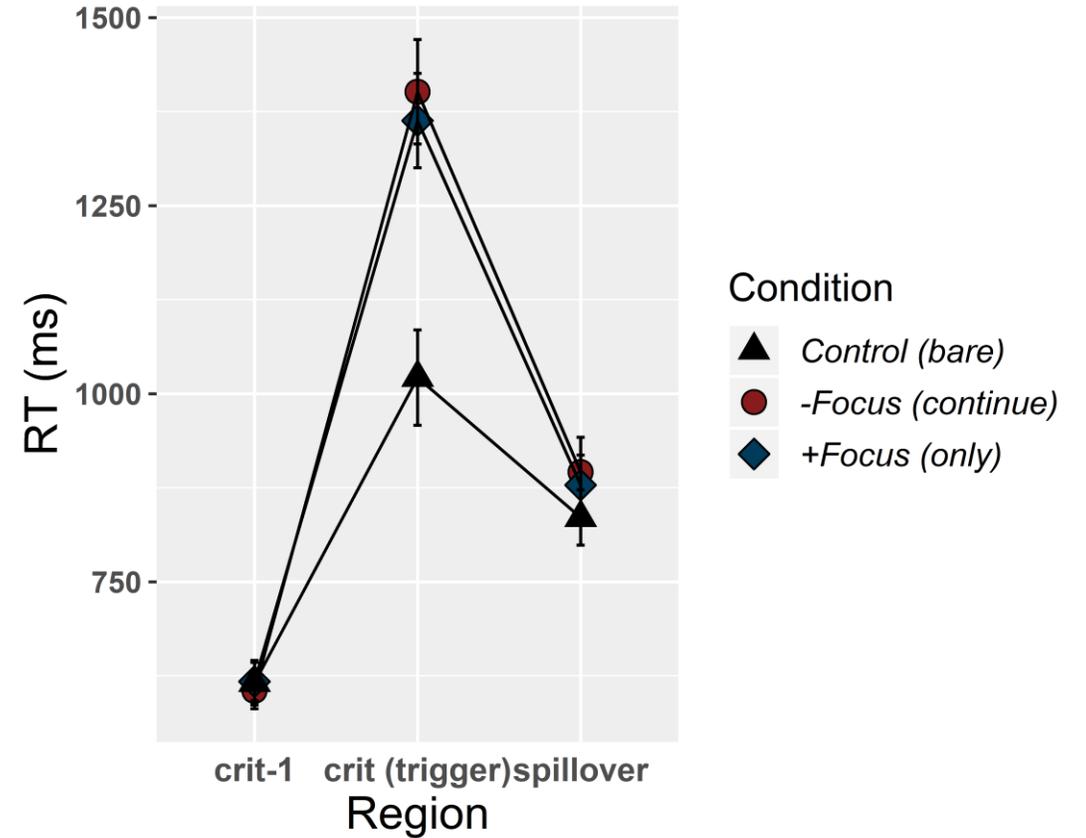
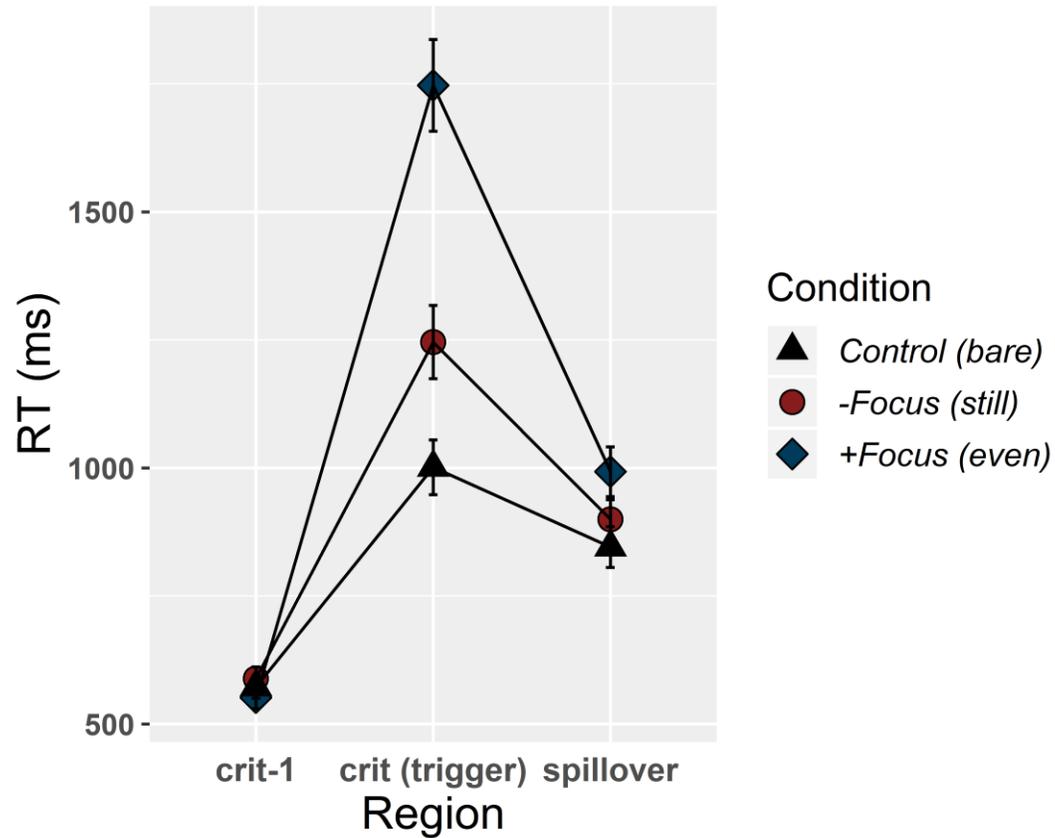
(i) critical region
 - significant effect of CONTEXT
 - significant effect of TRIGGER
 - non-significant INTERACTION

(ii) spillover region
 - significant effect of CONTEXT
 - no effect of TRIGGER
 - non-significant INTERACTION



Experiment 3: Main Results

model with TRIAL ORDER as binary factor (early = trials 1-2, late = trials 3-5):
 significant INTERACTION of CONTEXT*TRIGGER($t=2.04^*$)



Experiment 3: Filler Results

CONTROL, STILL < EVEN

NO SIGNIFICANT DIFFERENCES

Prediction #2: Discussion

- *Tentative support for FoPAH:*
 - *too > again*, but only in early trial(s)
 - rating pattern from Exp2 replicated for *still-even*, but not *only-continue*
- *Whence difference between ratings and RTs for again-too?*
 - Exp 2 & 3 differed in position of Focus:
 - (23) Experiment 2 Sample
 - A: Who is having dinner in New York tomorrow?
 - B: [Saul]_F is having dinner in New York (**again/too**).
 - (24) Experiment 3 Sample
 - A: What did Mary do on Monday?
 - B: She went [swimming]_F (**again**) on Monday (**too**) ...

Conclusions

- *Evidence for role of Focus-sensitivity for PSP triggers:*

- 1) +FOCUS subject to interference, -FOCUS is not
- 2) +FOCUS harder to accommodate than -FOCUS

- *Support for the FoPAH:*

Same kind of meaning grounded in distinct representation – Common Ground vs discourse model – depending on other property

- *Implications for Presupposition Theory:*

different triggers may require different formal treatment (e.g. Stalnaker's CG vs DRT)

Conclusions

- *On Trigger Typology*: Can current classification account for others?

	soft/hard (Abusch 2010)	+/-entailing (Sudo 2012)	+/-Focus-sensitive
<i>stop(/continue)</i>	soft	+	-
<i>again</i>	hard	-	-
<i>also/too</i>	hard	-	+
<i>even</i>	hard	-	+

- *Possible Approach for soft/hard* (Klinedinst 2016):
Projection (=Local Accommodation) \approx Global Accommodation
→ predicts intermediate status of *again* for Loc-Acc
- *Possible Approach for entailing/non-entailing* (Zehr & Schwarz 2018):
Delve deeper into event-structure of aspectual triggers

Thanks for listening!

I'M INDEBTED TO LYN FRAZIER, CHUCK CLIFTON, ANA ARREGUI AND RAJESH BHATT AS MEMBERS OF MY DISSERTATION COMMITTEE FOR FEEDBACK, AS WELL AS PETE ALRENGA, MARIA BIEZMA, BRIAN DILLON, ADRIAN STAUB, AND AUDIENCES AT CUNY2020@UMASS, COMPLANG@MIT AND ELM@UPENN.

Appendix: Extra Slides on Experiment 1

❖ *What (else) determines interference for also?*

(A1) A: What did Derek do on Thanksgiving?

B: He visited his parents in Idaho.

A: *What did he do for Christmas?*

B: *He stayed home because his flight got cancelled.*

A: What did he do for Easter?

B: He **also** visited his parents for Easter.

→ *numerical trend for larger effect*

(A2) Cameron ordered fish for dinner.

Gordon ordered steak.

Donna ordered fish **too**.

→ feels easy

(A3) Neuer played amazing in the final.

Kehrer was a complete disaster.

Kimmich played incredibly well **too**.

→ harder?

Appendix: Extra Slides on Experiment 1

➤ *Further prediction: QUD-structure should matter*

(A4) A: What did Derek do on Thanksgiving?
B: He visited his parents in Idaho.

a. { A: *What did he do for Christmas?*
B: *He stayed home because his flight got cancelled.* }

b. { A: *What did Liz do on Thanksgiving?*
B: *She stayed home because her flight got cancelled.* }

A: What did Derek do for Easter?
B: He **also** visited his parents for Easter.

❖ *Why would QUD-structure matter?*

→ QUD-Congruence determines shape of intervening proposition:
a): $\neg \text{VISIT}(d,p,C)$ vs. b): $\neg \text{VISIT}(l,p,T)$ Target: $\text{VISIT}(d,p,x)$

Appendix: Extra Slides on Experiment 1

- (Tentative) Extension to other +FOCUS triggers:
 - (A5a) At the Thai restaurant, Lucas gave a 20% tip.
At the Italian restaurant, Sammy gave a 15% tip.
At the diner, Steve (**#only/even**) gave an 18% tip.
 - (A5b) At the Thai restaurant, Lucas gave a 15% tip.
At the Italian restaurant, Sammy gave a 20% tip.
At the diner, Steve (**only/#even**) gave an 18% tip.

- (Tentative) Extension to other configurations:
 - (A6) Mary went to the gym on Monday.
On Tuesday she couldn't go,
but she went **again** on Wednesday. (cf. **#also** went on W)