

Experimenting with Trigger Contrasts: (Dis-)Entangling Presuppositions and Entailments

Workshop on Theoretical and Experimental
Perspectives on Presuppositions

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Outline

- Introduction
- Entailment contrasts:
 - Theory
 - Experiments
- Theoretical Desiderata
- An Alternative Proposal & Experimental Follow-up
- Relation to Other Contrasts and Accounts
- Conclusion
- (Bonus track: Another twist on **again**)

The Traditional View

- Core properties of **Presuppositions**:
 - Associated with **specific lexical items**
 - **Taken for granted**
 - **Project** from various embedded positions

Traditional Wrinkles

- **Deviation** from core properties:

- Informative presupposition [~~Taken for granted~~]
- Cancellation / Suspension [Projection]

- Apparent **Variation** between triggers:

Are some triggers more misbehaved than others?

- Can this variation be substantiated empirically?
- Does the theoretical picture leave room for variation?

Global Accommodation

- Sue **found out** that John is having dinner in New York tonight.
- #John is having dinner in New York tonight, **too**.
- Anaphoric nature of trigger? (Kripke 2009)
- Strong Contextual Felicity (Tonhauser et al. 2013)
- **But:** Singh et al. 2016:
No infelicity for novel **too** in plausible contexts

Ignorability

- Linda received a pink lamp again.
How many pink lamps did Linda receive? —> 1!?
(Tiemann et al 2015)
- Sharks gave up feeding on other fish long ago
Did Sharks use to feed on other fish? —> Yes
(Domaneschi et al 2013)
- **Proposals**
 - Avoid Accommodation! (Tiemann et al. 2015)
 - If you can update without presupposition, do it!
(Glanzberg 2005, Domaneschi et al. 2013)
- **But:** Bacovcin et al. 2016 -
presuppositions considered when possible

Suspension

- I don't know whether John ever played golf.
But if he played golf **again**, ...
OK But if he **stopped** playing golf, ...

- **Soft / Hard** distinction:

Again is **Hard**: Lexically encoded

Stop is **Soft**: Based on reasoning about alternatives

(Abusch 2010, a.o.)

- **But**: Jayez et al. 2015:
Suspension of hard triggers with contextual support!

Local Contribution

- Does trigger make a local contribution in embedded contexts?

John believes that Sue **stopped** eating meat.

—> John believes that Sue used to eat meat

John believes that Sue went to New York **again**.

-/-> John believes that went to New York before

- Lexical vs. Resolution triggers (Zeevat 1992)

Cf. Obligatory Local Effects (Tonhauser et al. 2013)

Theoretical Alternatives

- **Two extreme possibilities:**

- Just find the right way of cutting up the pie - one theoretical distinction fits all contrasts!
- No underlying contrast at all - account for variety of contrasts in variety of ways, based on orthogonal alternative factors
(Abrusan 2011, 2016)

- Truth may well lie somewhere in the middle, but for now:

Detailed look at one proposal for a trigger contrast

Presupposition and Entailment

- **General Notion:**

Triggers vary in **how** their **entailments** and **presuppositions** relate to one another

- **Reflected** in various **earlier proposals**

- Zeevat 1992's Lexical triggers & Tonhauser et al.'s OLE (obligatory local effect) —> based on belief-contexts
- Glanzberg 2005: obligatory accommodation

To Entail or Not Entail?

- Sudo (2012), Klinedinst (2016):

Central Claim:

some triggers entail their presupposition,
others don't

- For prior use of this very notion, see
 - Yablo 2006, Gajewski 2011: sg. vs. plural definites
 - Chierchia 2015: Italian vs. English factives

Lexical Contrast - Illustration

- John **stopped** going to the movies last month

Presupposes:

John **used to go** to the movies before last month

Entails:

John **used to go** to the movies before last month
& **didn't go** to the movies last month

- John went to the movies **again** last month

Presupposes:

John went to the movies **before last month**

Entails:

John went to the movies **last month**

Theoretical Repercussions

- This characterization assumes that **presuppositions** and **entailments** can be relatively independent
- **Option A** - Sudo (2012):
bi-dimensional semantics
- **Option B** - Klinedinst (2016):
pragmatic **assertability** as a primitive,
independent of truth/falsity (or context update)

Sudo (2012)

- Bi-dimensional system (Karttunen & Peters 1979):
 - lexical entries with two layers of representation
 - 'Binding theory' to avoid well-known problems (in particular with existentials)

Klinedinst (2016)

- **Trivalent version:**

'#' stands for pragmatic assertability

- Middle Kleene truth-table, but no commitment to truth or falsity for '#' cells

- Pragmatic assertability of complex sentences derived in standard trivalent fashion

(E.g. $p \ \& \ q$ is predicted to be pragmatically assertable only if $p \rightarrow Ps(q)$ is true)

- Parallel considerations for dynamic variant

- '#' becomes a primitive, and does not follow from lack of truth/falsity

Comments on Status of Theories

- These proposals require further exploration
- Certainly pose new challenges on explanatory front
 - > Broader theoretical space of options!
 - > Why does a given trigger fall into one category and not the other?
- **Primary aim** for now:
 - Assess empirical motivation for this approach

Empirical Impact

- Sudo (2012): Look at non-monotonic quantifiers!
- **Assumption:** Only entailed content counts for **Exactly 1** evaluation
- **Exactly one student also presented a POSTER.**

False if more than one student presented a poster, regardless of whether they presented sth. else

- **Exactly one student stopped attending class.**

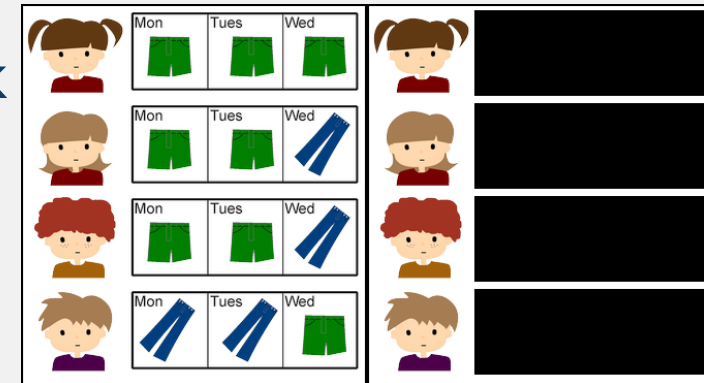
True if others continue to be absent

- **Contrast** in **whether or not** the presupposition '**counts**' for 'exactly one' evaluation

Experimental Approach

- **Covered Box** picture selection task

- **Calendar strip** paradigm:
rich space for depicting events,
suitable for many triggers



- **Alternative option** if presupposition not met

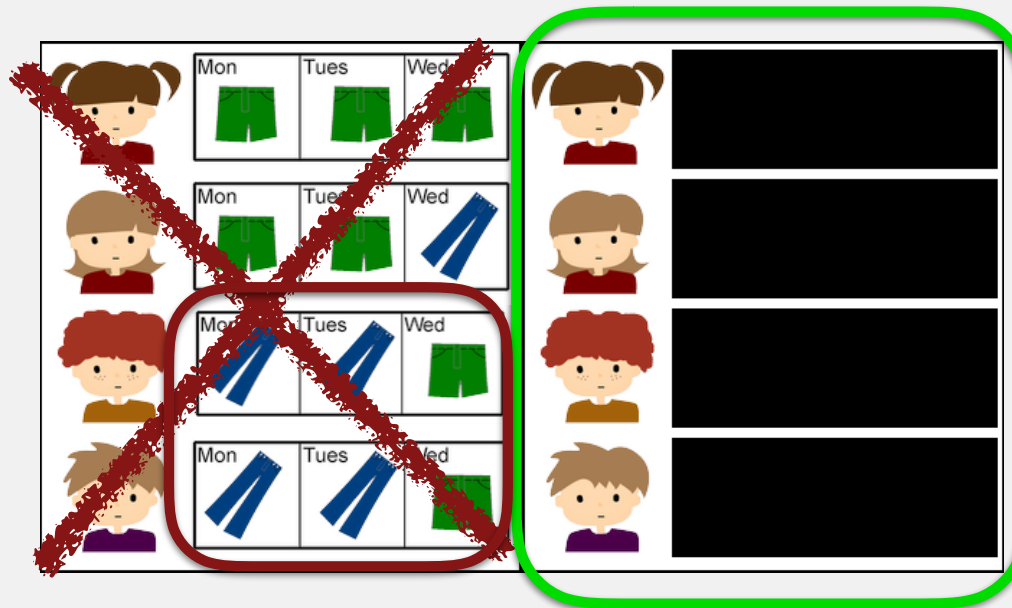
- **Details**

- Auditory stimuli
- Pictures unfolding sequentially
- Implemented on Ibex; Prolific/MTurk participants
- Fillers & controls: validation & mask manipulation

Expt 1a: False-Stop

At the beginning of the week, some kids wore pants, and some wore shorts.

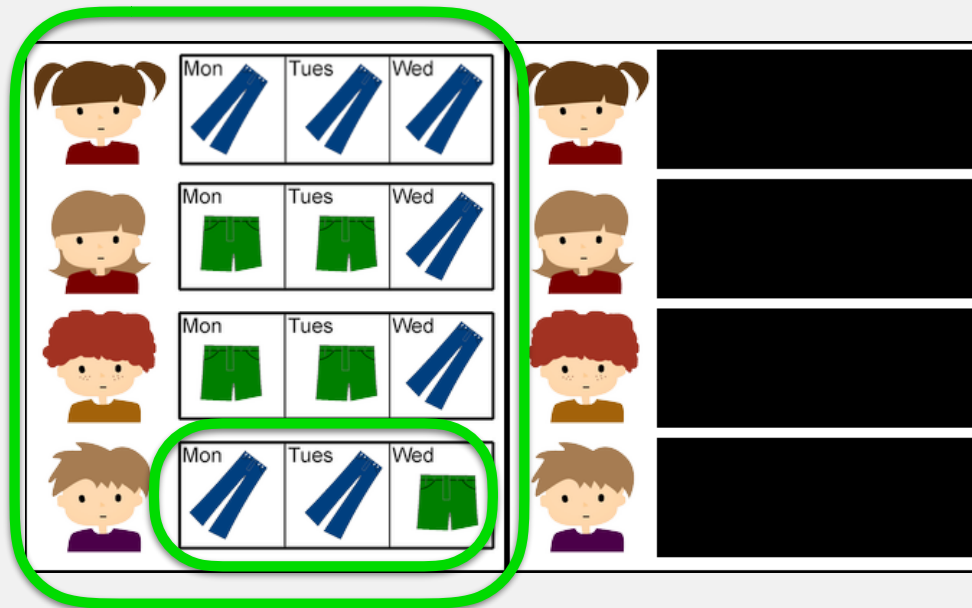
Exactly one kid **stopped** wearing pants on WEDNESDAY



Expt 1a: True-Stop

At the beginning of the week, some kids wore pants, and some wore shorts.

Exactly one kid **stopped** wearing pants on WEDNESDAY

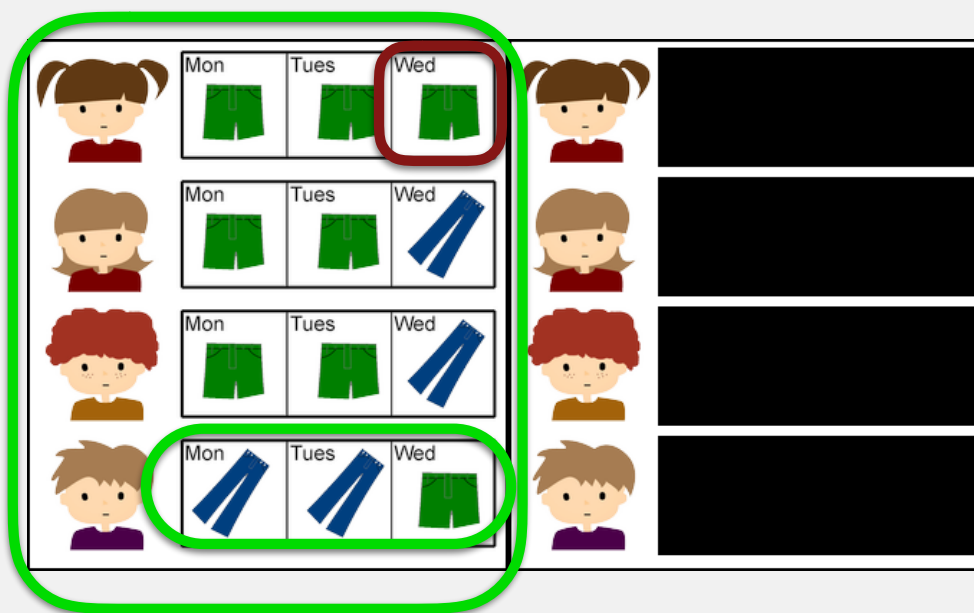


Note: Existential presupposition assumed

Expt 1a: Critical-Stop

At the beginning of the week, some kids wore pants, and some wore shorts.

Exactly one kid **stopped** wearing pants on WEDNESDAY



Prediction based on Sudo's analysis:

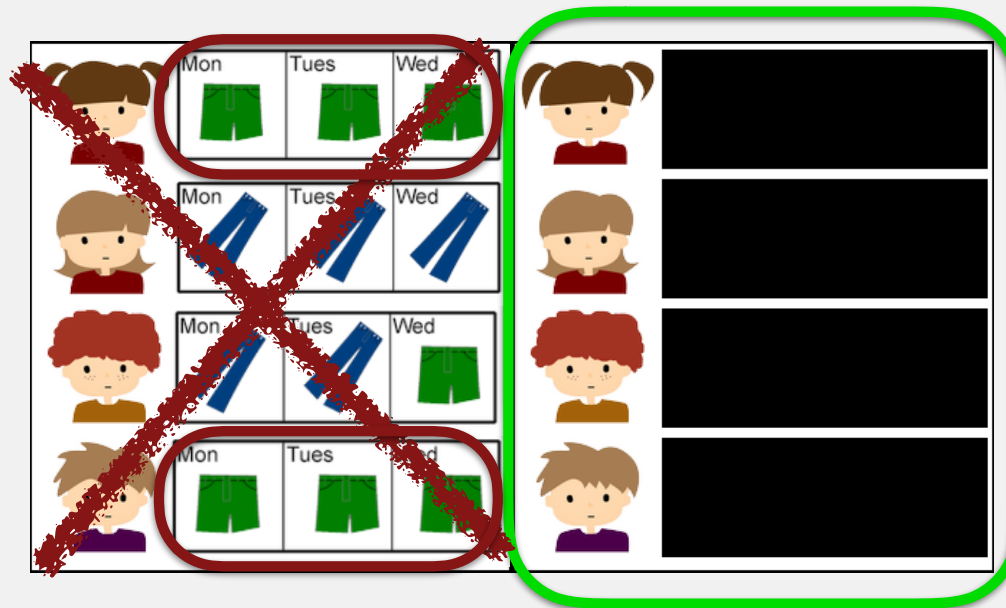
Assertion: Ex1: (pants < W & NOT pants on W)

Presupposition: At least 1: pants < W

Expt 1a: False-Also

At the beginning of the week, some kids wore pants, and some wore shorts.

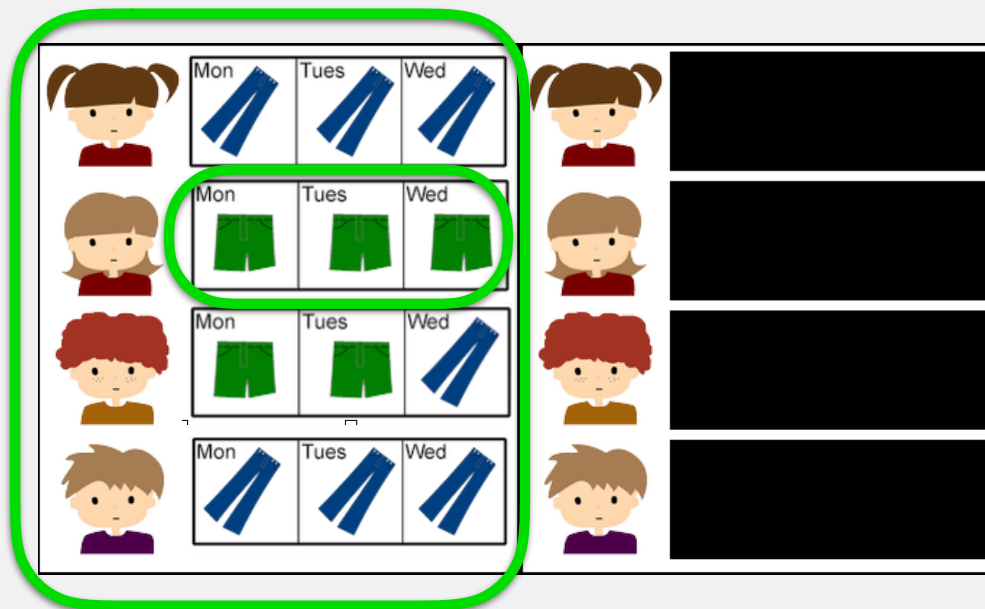
Exactly one kid **also** wore shorts on WEDNESDAY



Expt 1a: True-Also

At the beginning of the week, some kids wore pants,
and some wore shorts.

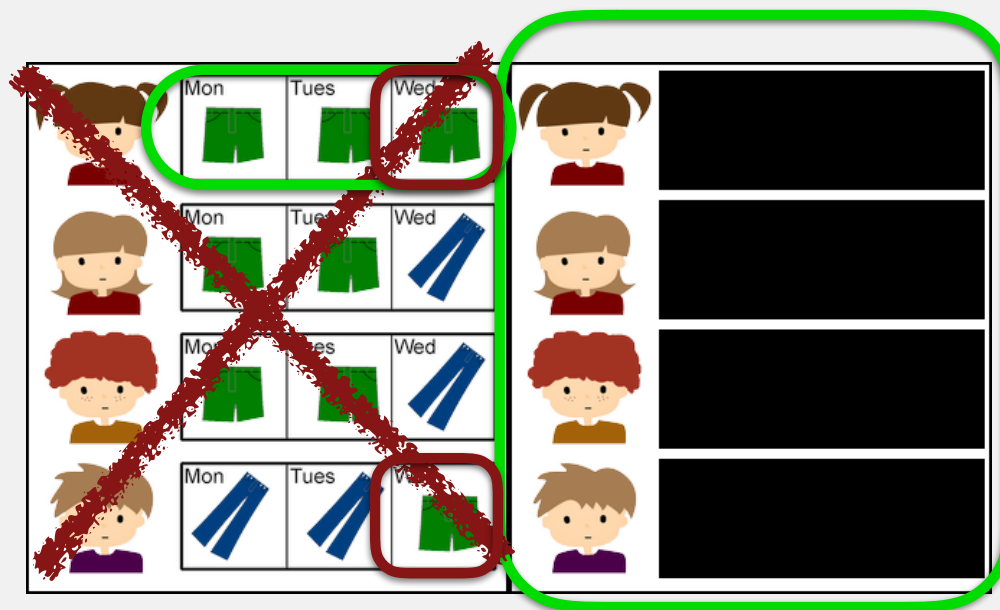
Exactly one kid **also** wore shorts on WEDNESDAY



Expt 1a: Critical-Also

At the beginning of the week, some kids wore pants,
and some wore shorts.

Exactly one kid **also** wearing shorts on WEDNESDAY



Prediction based on Sudo's analysis:

Assertion: Ex1: (shorts on W)

Presupposition: At least 1: shorts < W

















Summary of Key Predictions

At the beginning of the week,
some kids wore pants, and
some wore shorts.

Exactly one kid...

a) ...**stopped** wearing pants...

b) ... **also** wore shorts...
on WEDNESDAY

	Mon 	Tues 	Wed 
	Mon 	Tues 	Wed 
	Mon 	Tues 	Wed 
	Mon 	Tues 	Wed 

Predictions based on Sudo's analysis:

a) **Assertion:** Ex1: (pants < W & NOT pants on W)

Presupposition: At least 1: pants < W

TRUE

b) **Assertion:** Ex1: (shorts on W)

Presupposition: At least 1: shorts < W

FALSE

Expt 1a: Results

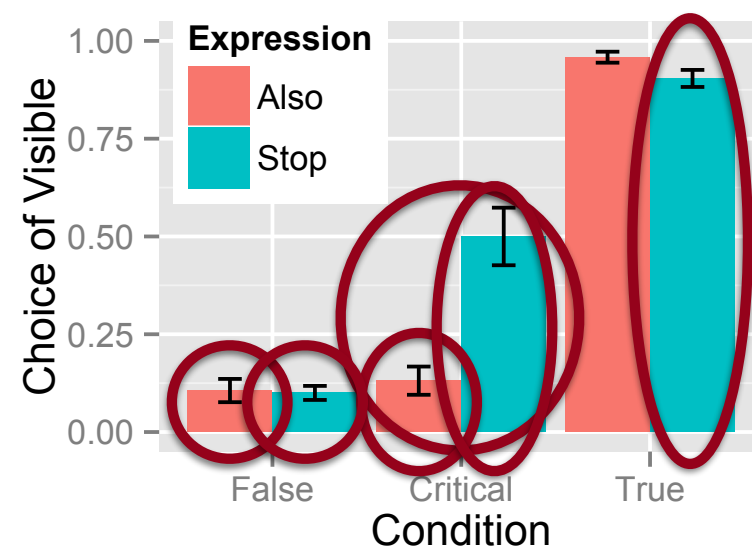
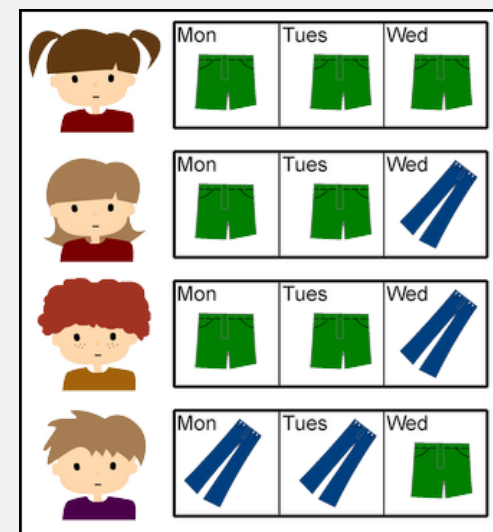
At the beginning of the week,
some kids wore pants, and
some wore shorts.

Exactly one kid...

a) ...**stopped** wearing pants...

b) ... **also** wore shorts...
on WEDNESDAY

- Clear contrast in critical condition
 - **Also**: False control = Critical
 - **Stop**: False control < Critical
- **Surprising:**
Stop Critical < True **Control**



Initial Discussion

- **Also** and **stop** DO **differ** in whether presupposition counts for **Exactly 1**, in line with Sudo's prediction
- **Also** on par with **False Control**
 - > Presupposition does NOT get considered in evaluation of Ex1 claim
- **Stop** presupposition **does** make an impact
- But still significant rate of CB choices
 - Could be due to:
 - Task effects
 - Alternative interpretation of stop

Potential Task Confound

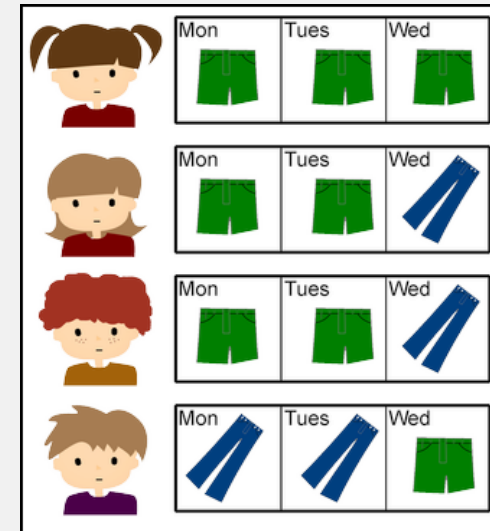
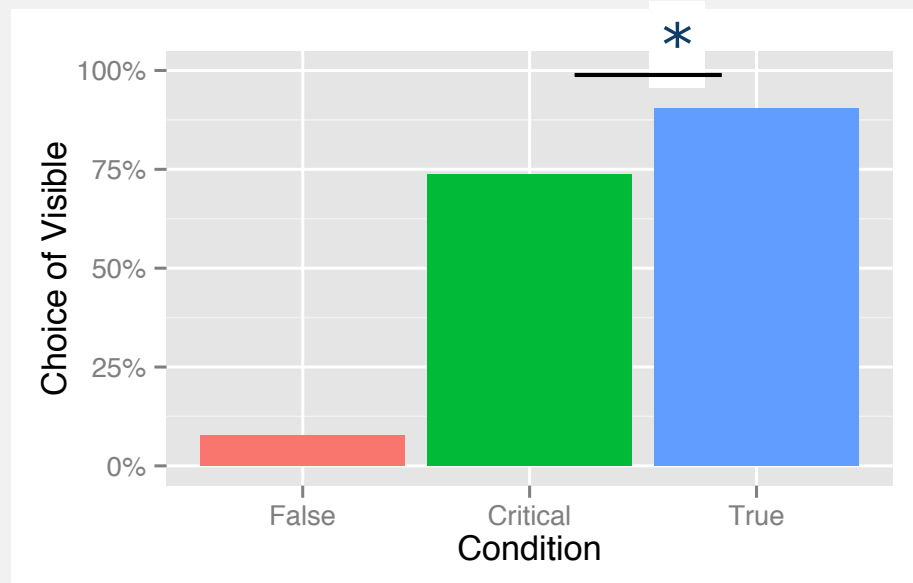
- Interpret **stop on Wednesday** as
`stopped his Wednesday-habit of doing x'?
- Not (or much less) available with fronted PP:

On Wednesday, exactly one kid stopped wearing pants

- **Expt 2: Same experiment**, except
 - Fronted **Wednesday**,
 - only included **stop** items

Expt 1b

- On Wednesday, exactly one kid stopped wearing pants
- Acceptance of **Critical-Stop** now at 75%
- But still lower than for True Control

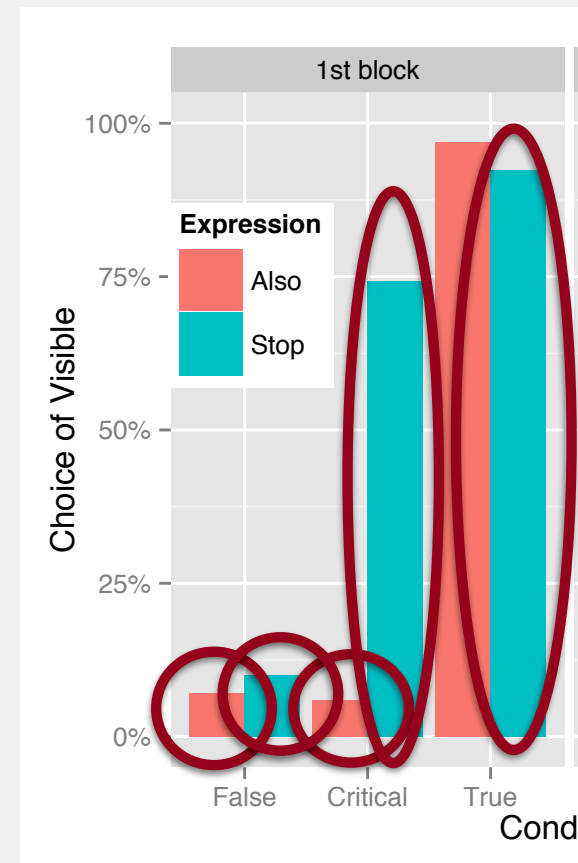


Expt 1c

- Another **difference** between Expts 1a/b:
stop mixed in with **other triggers** (also, pronouns)
vs. **on its own**
- Do **triggers** have an influence on one another?
—> **Block design**
- Same materials as in 1a, but
 - **stop** in one block, **also/her** in another
 - block order **balanced** between subjects

Expt 1c - Results

- Block 1:
 - Replication for **Also** = **False Control**
 - **Stop** critical results comparable to Expt 1b
 - Clearly different from **Also**, but again **below True Control**
 - **Mixing triggers** (as in Expt 1a) seems to **increase task difficulty**
 - > decreases stop critical acceptance!



Expt 1c

- **Block 2**

- **Stop** critical at ceiling
- Marginal interaction, of **stop** and block
- In addition:
Also acceptance shoots up in block 2
- Triggers **affect each other** across blocks!



Discussion Expts 1a-c

- Clear Contrast between **stop** and **also** throughout
- **Variation** in **stop Critical** acceptance (50-80%)
- **Variation** in **also Critical** acceptance
—> Block design

Discussion: Trigger Contrast

- Controlled experimental setup allowed for **minimal comparison**
- **No obvious** discourse-related or other **difference**
—> **same context & task**
- Suggests **lexical contrast**

(barring alternative factors to be discovered)

Discussion: **Also** Variation

- **Also** doesn't usually contribute to Ex1 evaluation
- But it apparently **can** —> Block 2, Expt 1c
- Presupposition **clearly not lexically entailed**
- **Independent process** must be responsible
—> **Local Accommodation**

Discussion: **Stop** Variation

- **Stop Critical** acceptance < **True Control**:
unexpected on entailment story:

If presupposition is entailed,
it should consistently matter for Ex1 evaluation

- **Two Options:**
 - Task effects hide the real underlying meaning
 - Real underlying meaning does
NOT involve entailed presupposition

Option 1: Task Effects

- Potential **task strategy**: focus on **last day only**
- Covered Box may **invite musing** about more prototypical matches
(in a way that doesn't apply to **True Control!**?)
- Different **configuration in images** may make **decision process harder** and more error prone
- **Easier** to get **mixed up** (—> audio, requires remembering what item was mentioned!)
- **Complexity of content** to be considered may have an **impact at processing level**.
—> Presuppositional content may take back seat even if also entailed?

Option 2: Local Acc all the way

- **Alternative:**
Stop doesn't entail its presupposition, either!
- **All cases** where the presupposition 'counts' for Ex1 evaluation **involve local accommodation**
- Any purely pragmatic characterization of the difference needs to tie in with compositional semantics so Ex1 can get a hold of the relevant proposition

—> Contrast between **stop** and **also** driven by difference in **availability of local accommodation**

Evaluating Options

- **Also** Block-priming effect could be taken to suggest local accommodation in both cases
- **But:** Could be priming at more general level of type of interpretation, not process of getting there
- Some suggestive RT effects (Critical > True Control) in line with other local Acc results, but could also fit with task effects
- Serious **downside to Option 2:**

there's no account of what's behind differences in local accommodation at this point

What's at stake

- Most **current pragmatic accounts** of presupposition
 - assume the proposition that winds up presupposed is entailed
 - **derive** the presupposed status through **conversational reasoning**
- If **no presupposition is entailed**, then such pragmatic accounts are a **non-starter**

Exploring a Different Perspective

- Starting point for another characterization of what distinguishes **stop** and **also**:
 - **Stop** contributes to the sentence's entailment **independently of its presupposition** (the 'doesn't VP now' part)
 - In contrast, the **sole contribution** of **also** is its presupposition
- Related **theoretical proposals**:
 - Update potential when **factoring out the presupposition**?
 - 'obligatory accommodation'

(Glanzberg 2005, Domaneschi et al. 2013)

Removability Hypothesis

- **Counting for Ex1 evaluation** is based on how entangled the presupposition trigger is with the entailed content
- 2 possible ways of spelling this out:
 - Does removal of the trigger yield an interpretable sentence?
(could be linguistic operation or pragmatic processing effect)
 - Does the trigger contribute independently to entailed content (and therefore can't be ignored)?

Expt 2

- Looking at 3 essentially equivalent triggers

Go back, return, and Go ... Again

- Differ with regards to removability hypothesis
 - **Return**: independent contribution to entailment
 - **Again**: clearly removable contribution of again, only present at presuppositional level
 - **Go back**: adjacent (positionally parallel to **return**) but in principle separable

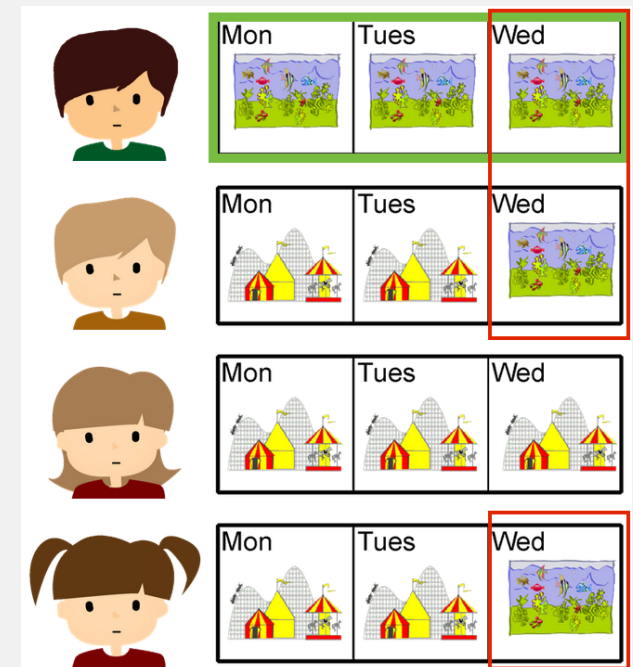
Expt 2: Design

At the beginning of the week, some kids went to the aquarium, and some to the themepark.

Exactly one kid {**returned** / **went**} (**back**) to the aquarium (again) on Wednesday

- Exactly 1 kid went to the aquarium both at beginning of week AND on Wednesday
- 3 kids went to the aquarium on Wednesday
- Removability hypothesis prediction:

Accept for **return**, reject for **again**
(**go back** might be in-between)

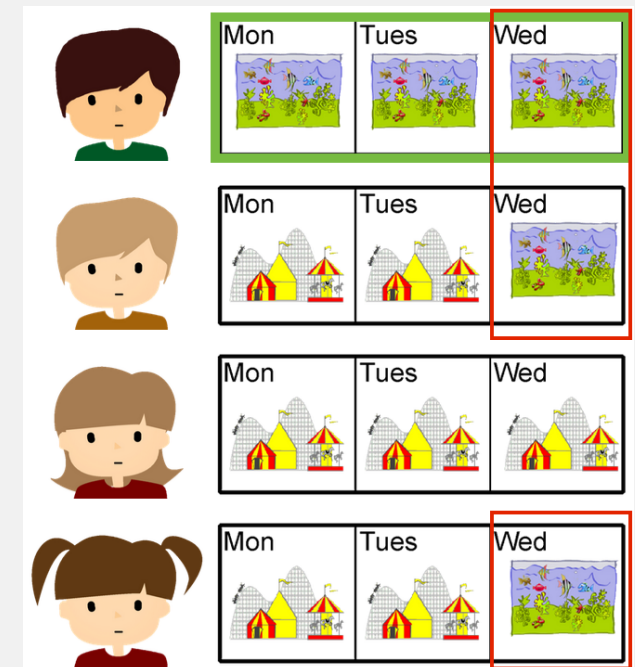


Expt 2: Also

At the beginning of the week, some kids went to the aquarium, and some to the themepark.

Exactly one kid **also** went to the aquarium on [WEDNESDAY]_F

- Same logic as for **again** etc.
- Provides **baseline** for the iterative triggers
- Ensures **replicability** of prior results with slight shift in setup



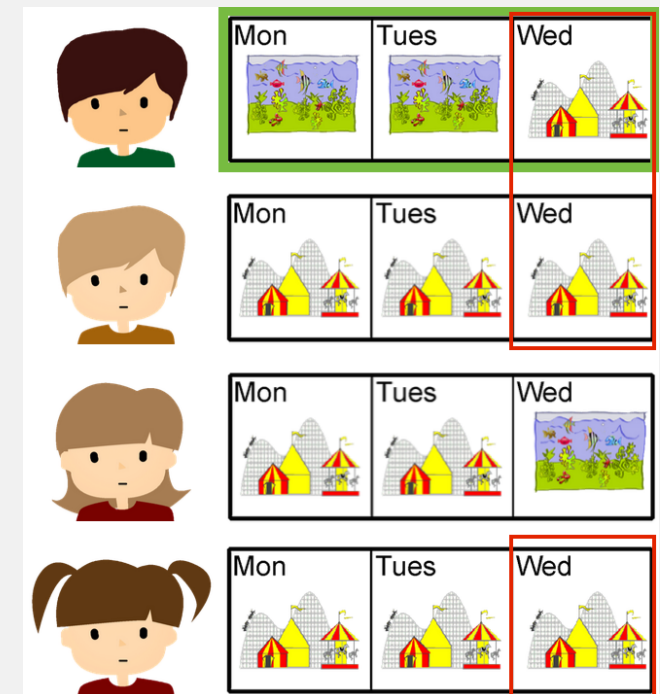
Expt 2: Stop

At the beginning of the week, some kids went to the aquarium, and some to the themepark.
Exactly one kid **stopped** going to the aquarium on Wednesday

- Parallel to previous **critical-stop**:

Accept iff both
previous aquarium-going
AND NOT-going on Wed
matters for counting

- Provides **ceiling** comparison for iterative triggers

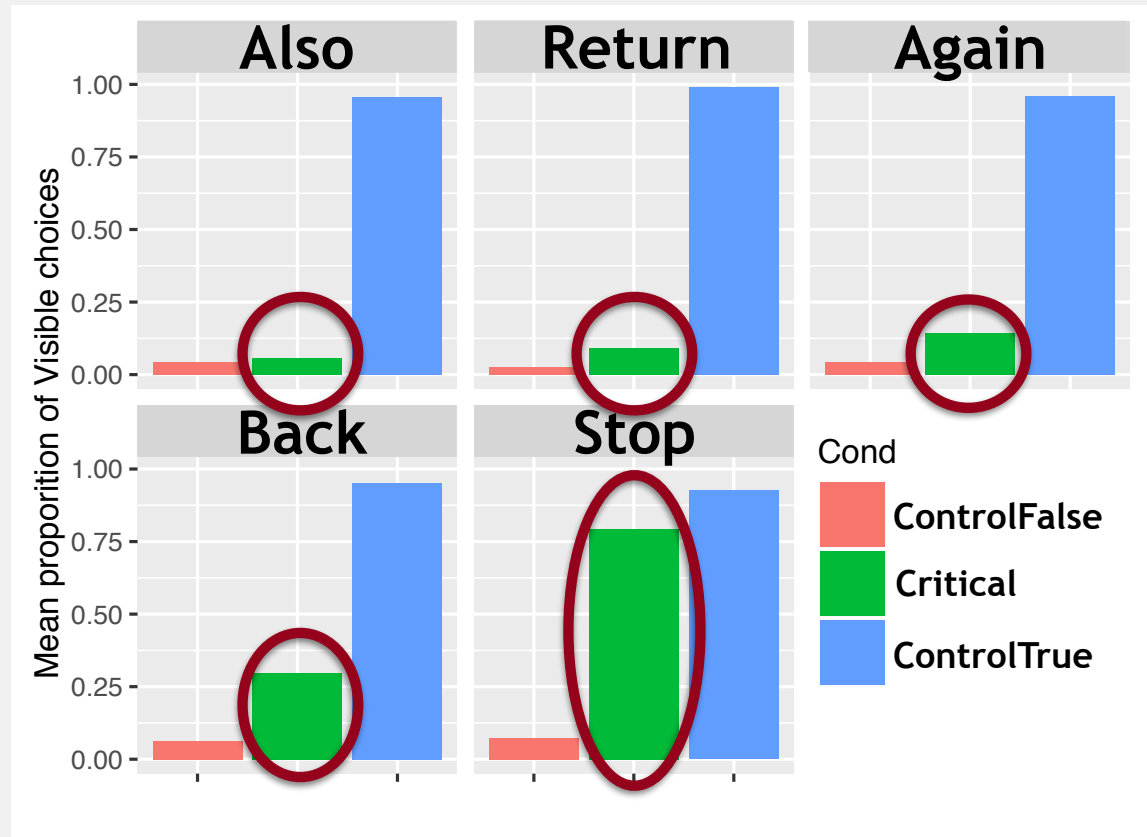


Expt 2: Methods

- For all triggers: **Control True** and **False** as before
- Trigger-type as between subject factor
(—> avoid triggers influencing one another)
- 30 subjects per trigger
- Auditory stimuli

Expt 2: Results

- Replications for **stop** & **also**
- Iteratives close to **also**
- **return** < **again**
< **go back**
- Prediction of **Removability Hypothesis**
not borne out
- **Interesting question:**
Why the **variation amongst** iteratives?



Expt 2: Explaining Variation

- A plausible factor of variation:

Prosody / effect on **at-issueness/QUd** (Simons et al)

- Post-hoc F0-measurements show that **back** has higher F0 than **again**
- This could modulate **likelihood of making it part of asserted content** by pragmatic means
- Interestingly, **return** is even higher - but it adds independently to entailed content, so prosody doesn't necessarily highlight presupposition
- **Potential upshot:** Prosody / QuD status may **modulate presuppositional status**, but likely does not drive it —> Bacovcin & Djarv (2017) on factives!

Expt 2: Summary

- Clear differentiation of triggers:
- **return, again, also** clearly acting as non-entailed
- **stop** by and large with impact on Ex 1 evaluation
- **go back** in-between, likely due to prosody
- Results **inconsistent** with **removability hypothesis**
- Fully **consistent** with **entailment-contrast** approach
(+ Local Accommodation for non-entailing triggers)

Making More of Entailment Contrasts

- If the Entailment Contrast is real, we should put it to good use!
- To what extent can Entailment Contrast **inform other apparent empirical contrasts** between types of triggers?
 - Local Contribution
 - Suspension / Local Accommodation
 - Ignorability
 - Global Accommodation

Local Contribution

- Nothing left to explain:

John believes that Sue **stopped** eating meat.

John believes that Sue went to New York **again**.

- Presupposition of **Stop** inevitably contributes to attitude
(Obligatory Local Effect, Tonhauser et al. 2013)
- Presupposition of **Again** need not do so
- Follows from entailment contrast

Suspension

- Might **explain suspension** differences as well:
(also see Klinedinst 2016)
- Entailing triggers can have their presupposition (qua presuppositions) **suspended without becoming idle**
—> Still present at entailment level
- Non-entailing triggers would **fail to make any impact**, thus simple suspension is not an option

Local Accommodation

- Local Accommodation adds **another layer**:
 - Entailment triggers **merely require suspension**.
 - **Two steps** for **non-entailment** triggers:
 - suspend global inference
 - add inference locally

Ignorability / Severability

- Tiemann et al. 2015, Domaneschi et al. 2013
- **Yes, but...** results on factives (Djarv et al. 2017) and other triggers (Cummins et al.)
 - > Independent representation of entailed content (w/o presupposition) makes it **possible to operate on that content alone** (for non-entailing triggers)

Global Accommodation

- A bit less clear how much help entailment contrast is here
- Some cases may be treated as suspension (Klinedinst 2016)
- But other factors may need to be appealed to

Relation to Other Accounts

- Similarities to Zeevat's (1992) and Glanzberg's (2005) distinctions
- In principle compatible with **pragmatic derivation** of presuppositional **status** for **entailing triggers**
—> such accounts require entailment
- But presuppositions could be entirely in the semantics as well
- Limited prosody effects
(**go back**; also factives in Bacovcin & Djarv (2017))
—> QuD-driven backgrounding is NOT all there is!

Relation to Hard-Soft distinction

- Empirically, entailment contrast is **largely consistent** with **Hard vs. Soft** distinction
- In light of evidence against prominent analyses of **Hard / Soft** (Bill et al. 2016, Kennedy et al. 2016):
 - > **Entailment contrast** is **all there is**
(in this respect; other factors may still exist)
- **Less radical** revision than **Hard vs. Soft** analyses, and **capable** of **explaining** variety of differences

Direction of Next Steps

- Assess potential task effects more directly
- Tease apart entailment vs. local accommodation predictions
- Look at **Intermediate** accommodation
 - Hard vs. Soft:
Expected to be **on par** with local accommodation
 - Entailment:
Different from local accommodation,
since **entailment factor** is only present for local

(Interim) Conclusions

- Local contribution **contrast** seems real and arguably is at play in (quite a bit of) **variation**
- **Exactly one** allows assessment of presence of proposition in **compositional derivation**
- Barring convincing alternative explanations, this speaks for a **genuine lexical contrast**
- **Non-entailing triggers** can get local reading via **Local Accommodation**
- Open questions about **variation** in entailing triggers
- Determining the nature of trigger differences requires experimental scrutiny!

Thank You!

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