Conditional Perfection in promises and threats

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(joint work with Veronika Prigorkina)

Conditional Perfection and approaches to it

Conditional Perfection is a variety of invited inferences (Geis and Zwicky 1971).

If you mow the lawn, I will give you five dollars. (If p, then q)

If you do not mow the lawn, I won't give you five dollars. (If not p, then not q)

- Strengthening approach (Atlas and Levinson 1981, Horn 2000)
- Scalar implicature approach (Van der Auwera 1997, Matsumoto 1995)
- Quantity implicature approach (Geurts 2010)
- Exhaustification approach (Von Fintel 2001, which is based on Van Rooij and Schulz 2004) among others

see overviews of these approaches in Franke (2009), Farr (2011), Moldovan (2013), Herburger (2015) a.o.

Conditional Perfection and approaches to it

Conditional Perfection is a variety of invited inferences (Geis and Zwicky 1971).

If you mow the lawn, I will give you five dollars. (If p, then q)

If you do not mow the lawn, I won't give you five dollars. (If not p, then not q)

- CP is a normally invited inference, Geis and Zwicky (1971).
- CP is a too strong inference and is not derived under normal conditions (Lilje 1972, Von Fintel 2001, Franke 2009).
- Weak inference: the speaker won't give five dollars unconditionally (cf. Van Tiel and Schaeken 2016: 10).
- The weak inference was demonstrated not to be a costly cognitive phenomenon since CP engages structurally determined alternatives (Van Tiel and Schaeken 2016).

Denial of Antecedent

Denial of Antecedent (DA)

$\underline{(If\ p,\ then\ q)\ \&\ not\ p}$

not q

Negative conclusion bias (cf. Evans and Handley 1999, Oaksford et al. 2000, Evans and Newstead 1977)

- DA rates in the negative conclusion >> DA rates in the affirmative conclusion

Double negation effect (Schroyens et al. 1999)

- In the affirmative conclusion, *not not q* is equivalent to *q*
- *not not q* in the consequent slowed reading and/or reaction times

DA and CP

Does this suggest that *negative consequent bias* is observed in CP?

- higher CP rates for the negative consequent than for the affirmative consequent?

- If p, q => If not p, **not q**; If not p, q => If not not p, **not q**   **>>**

- If p, not q => If not p, **not not q**; If not p, not q => If not not p, **not not q**

Negative consequent bias hypothesis

Does this suggest that *double negation effect* is observed in CP?

- If p, not q => If not p, **not not q**; If not p, not q => If not not p, **not not q** >>

- If p, q => If not p, **not q**; If not p, q => If not not p, **not q**

Double negation effect hypothesis

Promises and threats

- Promises and threats are inducements and commissives (cf. Searle 1979, Searle and Vanderveken 1985)

- Obligation/no obligation for the speaker, reward/punishment for the hearer, (in)felicitousness of disjunction paraphrases (cf. Fillenbaum 1975, 1976, 1977, Verbrugge et al. 2004)

- *If you pick up the kid* (p)*, I will buy you a ticket to the concert.* (q)
- * *Don't pick up the kid or I will buy you a ticket to the concert* (not p or q)
- *If you break a deal* (p)*, I will fire you.* (q)
- *Don't break a deal or I will fire you.* (not p or q)

Negation in promises/threats

Rubin and Lewicki (1973)

- affirmative and negative promises are equally effective

If you {do X / do not do Y}, I will {reward / do not punish} you.

- affirmative and negative threats are equally effective

If you {do Y / do not do X}, I will {punish / do not reward} you.

Does this suggest that affirmative and negative speech acts of the same category provide similar CP rates? Effectiveness hypothesis (contradicts the negative consequent bias hypothesis)

DA/CP in promises/threats

- Inducements (promises and threats) yield more often fallacies (Denial of Antecedent and Affirmation of Consequent) than advice (tips and warnings), cf. Newstead et al. 1977, Dieussaert et al. 2002, Evans and Twyman-Musgrove 1998

- Promises and threats invite CP, Van Canegem-Ardijns and Van Belle (2008), Franke (2009)

- CP is similarly derived in promises and threats (Fillenbaum 1975)

Does this suggest that CP is equally derived in promises and threats?

CP equality hypothesis

DA/CP in promises/threats

- DA is more typical of threats than of promises, whereas Modus Ponens is more characteristic of promises (Fillenbaum 1978, Verbrugge et al. 2004)

Does this suggest that CP is more typical of threats than of promises?

DA hypothesis

Face in conditionals

- Face as public self-esteem in the politeness theory by Brown and Levinson (1987).

- In Bonnefon et al. (2009), positive face-preserving acts received higher rates of scalar implicatures than negative face-threatening acts (83% and 58% respectively).

- Promises preserve the hearer's positive face, whereas threats threaten the hearer's negative face.

Does this suggest that CP is more typical of promises than of threats?

Face hypothesis

Compatibility of hypotheses

Derivation of CP in promises and threats

- CP equality hypothesis

- DA hypothesis

- Face hypothesis

Processing of negation in CP in promises and threats

- Negative consequent bias hypothesis

- Double negation effect hypothesis

- Effectiveness hypothesis

Clause order in conditionals

- The direct order (if p, q) is processed faster than the inverse order (q, only if p),

  Evans and Newstead (1977)

- Is the direct order basic?

- Mutual correspondence between the order of clauses and the order of events

  (Gricean maxim of manner, the principle of iconicity)

Does this suggest that the direct order of CP is processed faster than the inverse

order? Order processing hypothesis

Be as it may, the order is not expected to affect CP rates since it does not affect a

number of alternatives. Order rates hypothesis

Incentive in conditionals

Promises and threats are hierarchized with respect to lower/higher degrees of incentive.

If you mow the lawn, I will give you a luxury car.

If you mow the lawn, I will give you five dollars.

If you quit the job, I will cancel our wedding.

If you quit the job, I will ignore your request.

Does this suggest that higher Incentive provides more CP rates?

Incentive hypothesis

Incentive in conditionals

This supposed distinction between the degrees of incentive does not seem to vary in conditionals with affirmative vs. negative antecedents and consequents or with the direct vs. inverse order of antecedents and consequents.

"if not p, not q"

If you do not tell anybody about it, I won't send you to prison.

If you do not occupy the bathroom, I won't drink your tea.

the inverse order

I will pay for your vacation, if you work hard.

I will read you a book, if you turn off the radio.

Hypotheses of Experiment 1

(i)   CP equality hypothesis

(ii) DA hypothesis

(iii) face hypothesis

with respect to CP derivation
in promises and threats

(iv) Negative consequent bias hypothesis

(v) Double negation effect

(vi) effectiveness hypothesis

with respect to CP derivation and
processing in affirmative/negative
promises, in affirmative/negative threats

(i) incentive hypothesis

with respect to negation in
promises and threats

Negative consequent bias hypothesis: predictions

- If p, q => If not p, **not q**   N-negation
- If not p, q => If not not p, **not q**   A-negation

more "yes"-responses than

- If p, not q => *If not p,* **not not q**   C-negation
- If not p, not q => *If not not p,* **not not q**   A/C-negation

Double negation effect hypothesis: predictions

- If p, not q => *If not p, **not not q***　　　　　　　　C-negation
- If not p, not q => *If not not p, **not not q***　　　　A/C-negation

longer reaction times than

- If p, q => If not p, **not q**　　　　　　　　　　　　　N-negation
- If not p, q => If not not p, **not q**　　　　　　　　　A-negation

Design of Experiment 1

- 2 x 4 x 2 within-subject design

- Speech acts (2 levels: promises vs. threats) x Negation (4 levels: N-negation, A-negation, C-negation, A/C-negation) x Incentive (2 levels: low vs. high)

- If + subject + (negation) + 2 phonetic words, subject + (negation) + 3 phonetic words

- Inference, reading and reaction tasks

Procedure of Experiment 1

IbexFarm
Yandex.Toloka
148 participants

Press a space bar

Press a space bar

Press a space bar

.

Anna tells Boris

If you bring an umbrella, I will go shopping today.

Reading times are recorded

Would you infer from this that if Boris doesn't bring an umbrella, Anna won't go shopping today?

Yes (J)

No (G)

Reaction times are recorded
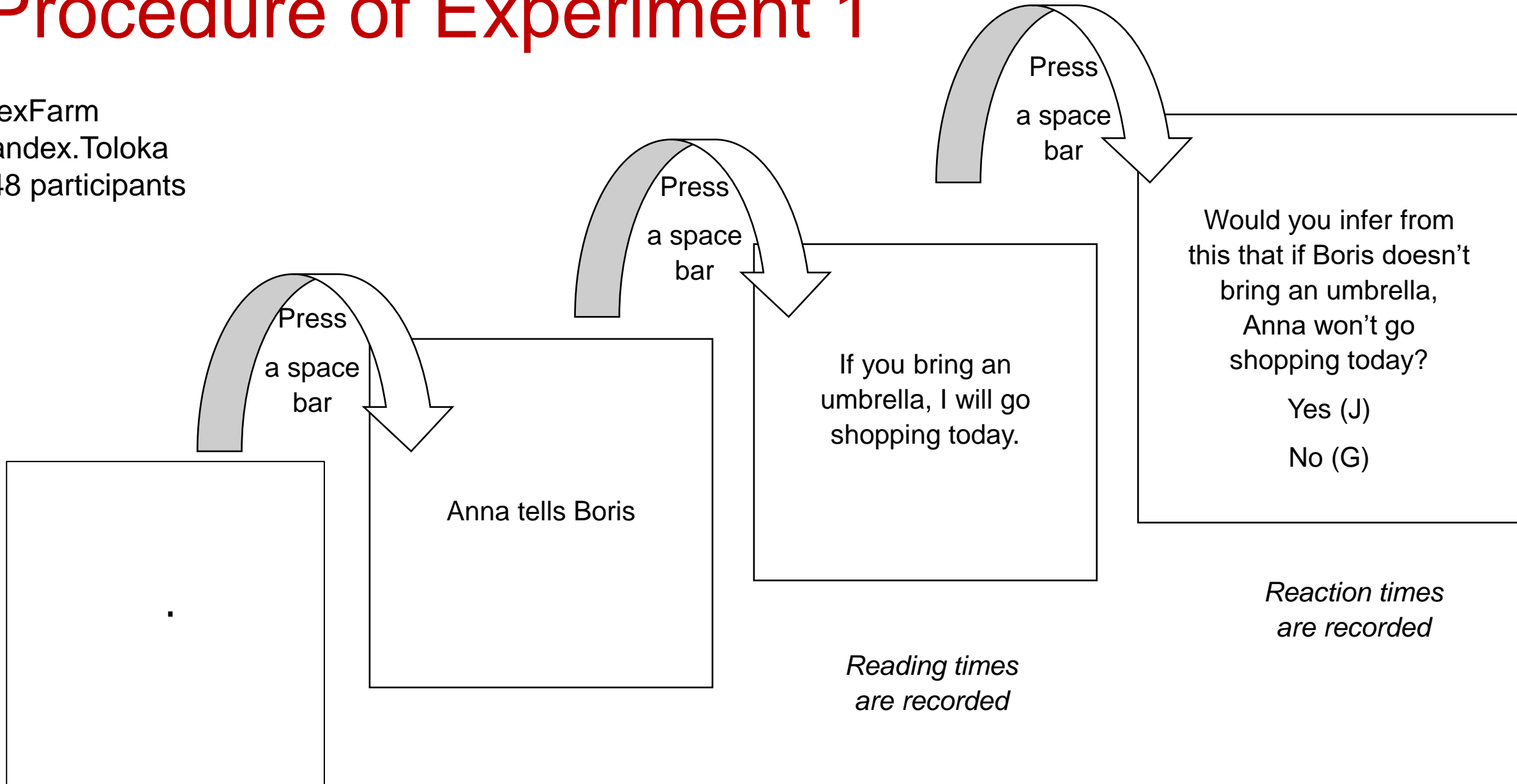
Example of a critical item

Promise (if p, then q), high Incentive

Boris govorit Anne: "Esli ty najdjoš časy, ja otdam ix tebe nasovsem."

'Boris tells Anna: "If you find my watch, I will give it to you for keeps."'

Sdelaete li vy iz etogo vyvod o tom, čto esli Anna ne najdjot časy,

Boris ne otdast ix ej nasovsem?

'Would you infer from this that if Anna does not find the watch,

Boris won't give it to her for keeps?'

Example of a critical item

Threat (if p, then q), low Incentive

Anna govorit Borisu: "Esli ty vlomišsja v kabinet, ja napišu na tebja žalobu."

'Anna tells Boris: "If you break into my study room,

I will make a complaint about you."'

Sdelaete li vy iz etogo vyvod o tom, čto esli Boris ne vlomitsja v kabinet,

Anna ne napišet na nego žalobu?

'Would you infer from this that if Boris does not break into Anna's study

room, she won't make a complaint about him?'

Results of Experiment 1
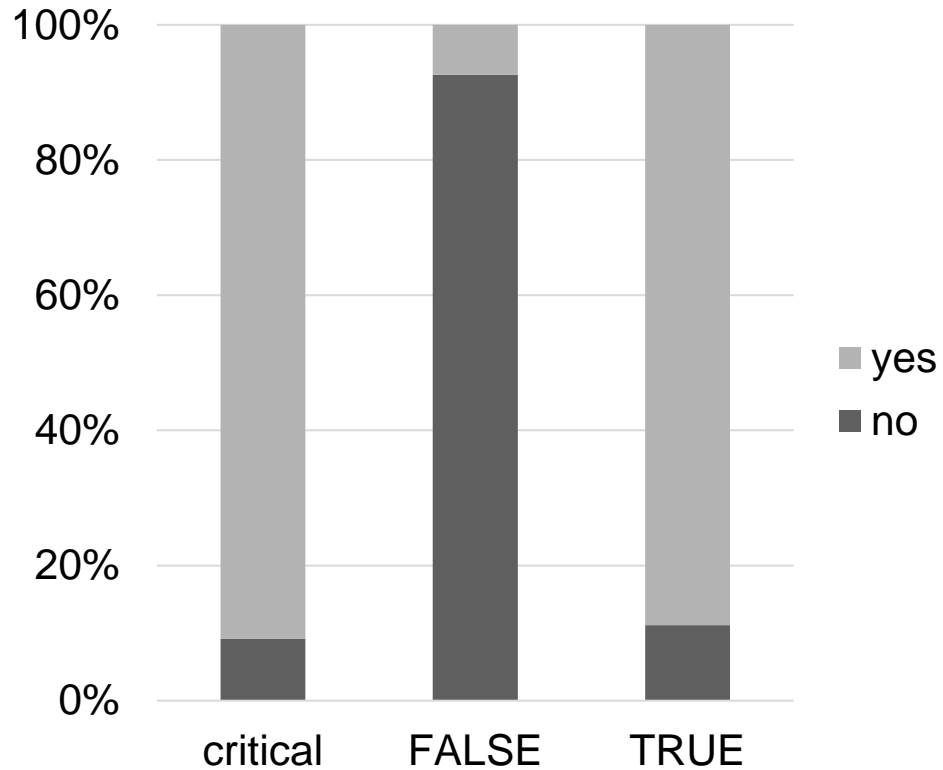
CP derivation does not seem to be
a costly cognitive phenomenon:
This result supports Van Tiel and Schaeken (2016)

Critical items vs. true control items ($p < 0.001$)

Critical items vs. false control items ($p < 0.001$)

Critical items vs. true control items ($p = 0.019$)
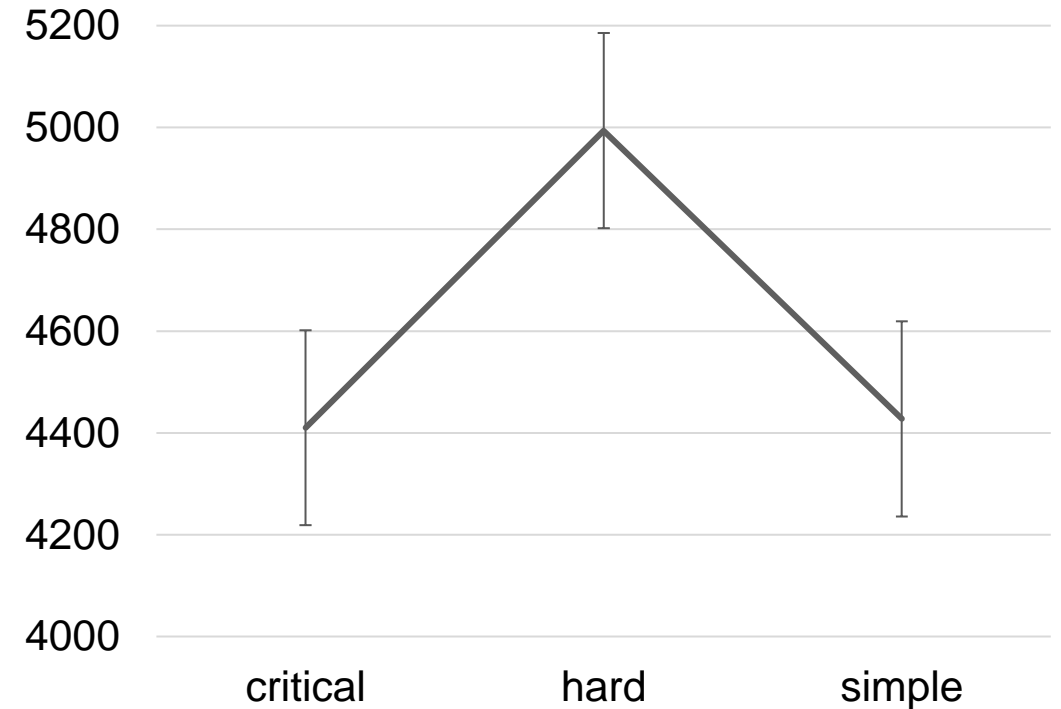
Hard control items vs. critical items ($p < 0.0001$)

Hard control items vs. simple control items ($p < 0.0001$)

Critical items vs. simple control items: non-sig.

Results of Experiment 1
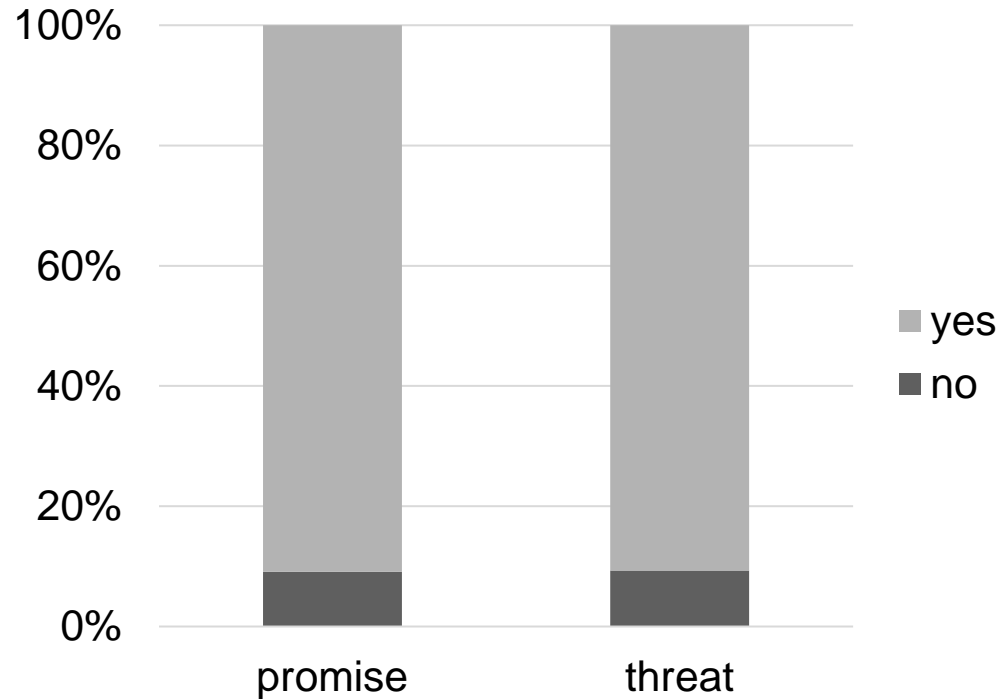
CP rates in promises and threats:
non-sig.
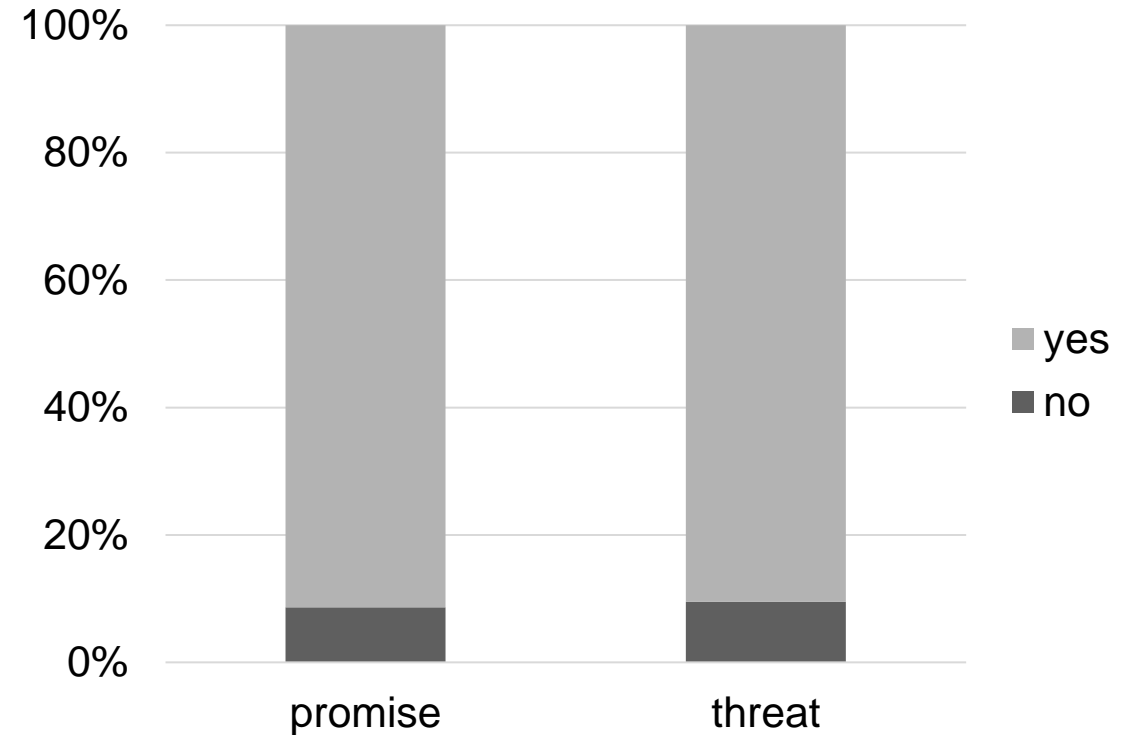
CP rates in promises and threats in N-negation:
non-sig.

Results of Experiment 1
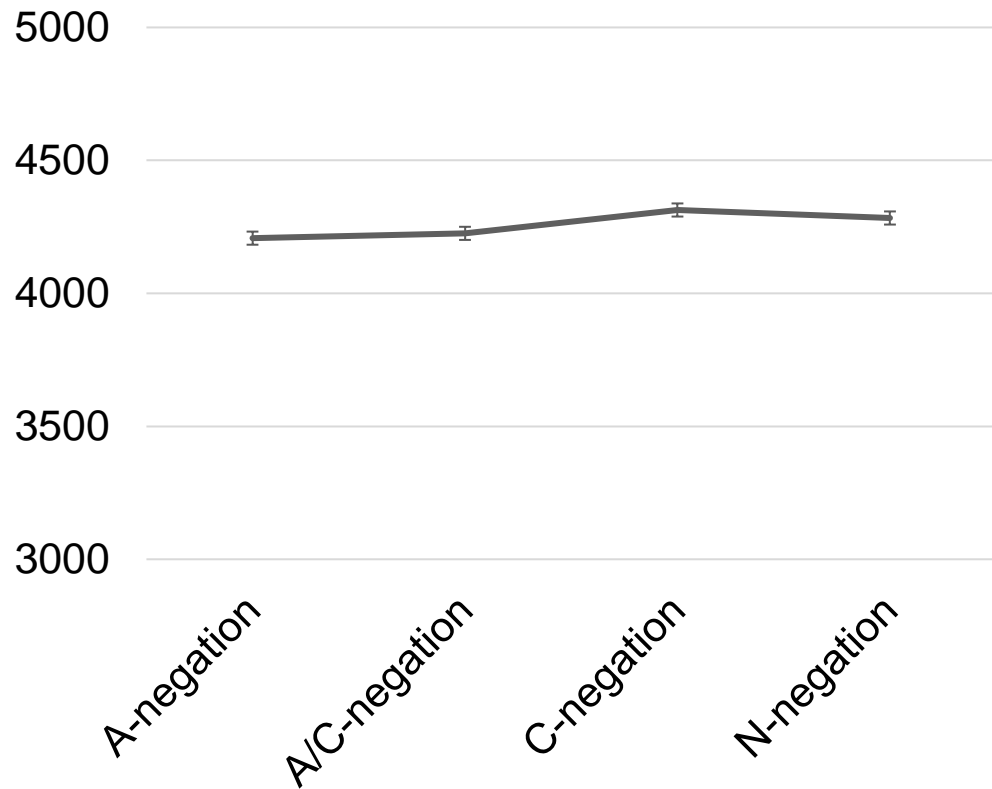
CP rates in promises:
non-sig.
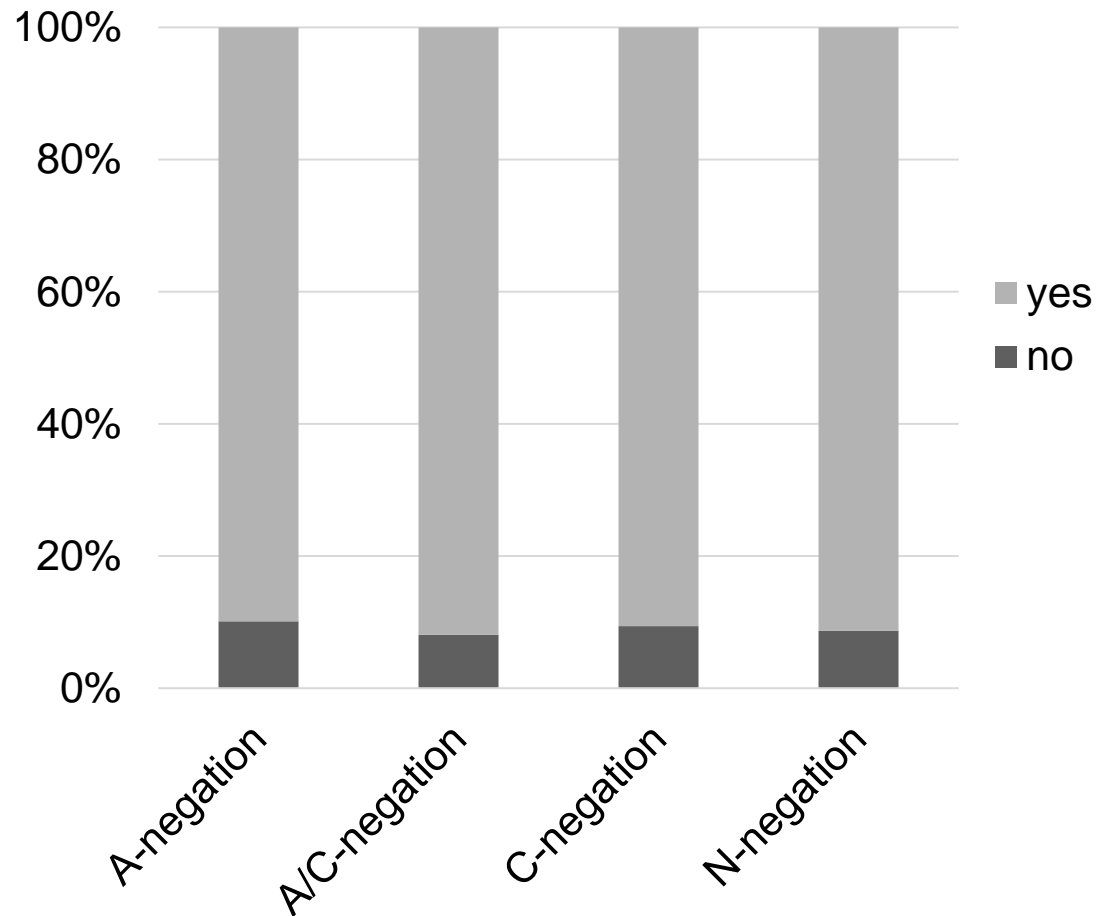
CP rates in threats:
C-negation vs. A/C-negation, A-negation and N-negation;
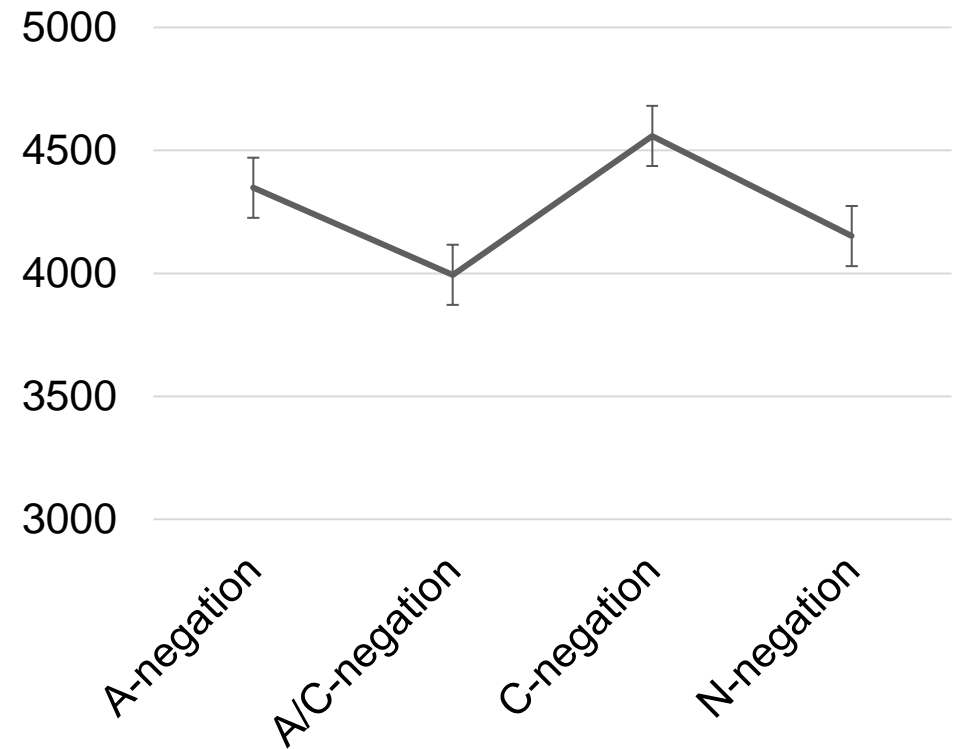A/C-negation vs. N-negation
(all p's < 0.01)
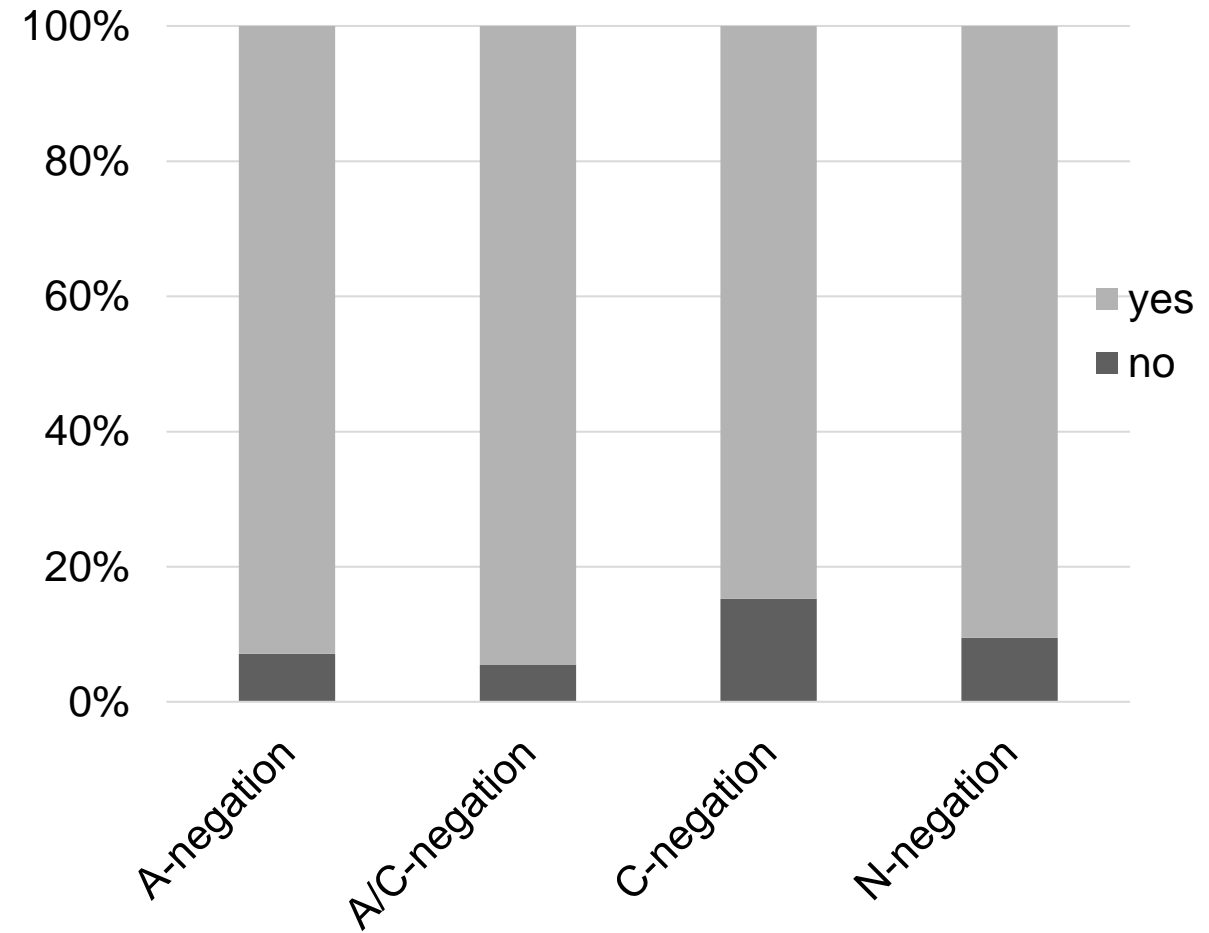
Results of Experiment 1

Double negation effect is confirmed in C-negation in threats
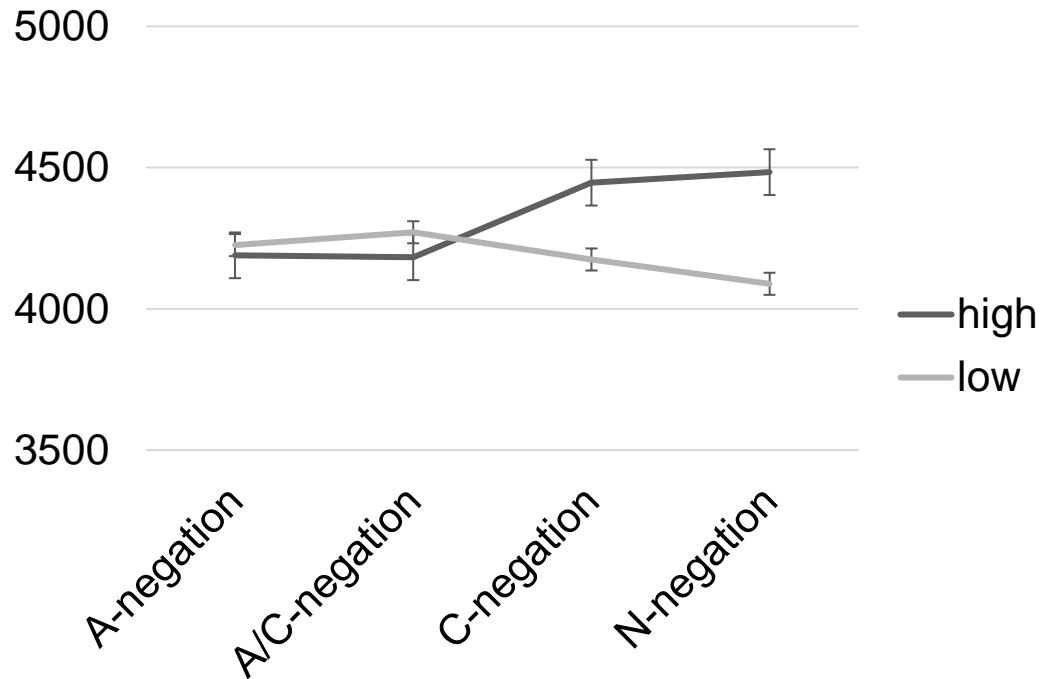
Reaction times to *yes*-responses in promises: non-sig.

Reaction times to *yes*-responses in threats:
C-negation vs. A/C-negation, A-negation, N-negation;
A/C-negation vs. A-negation
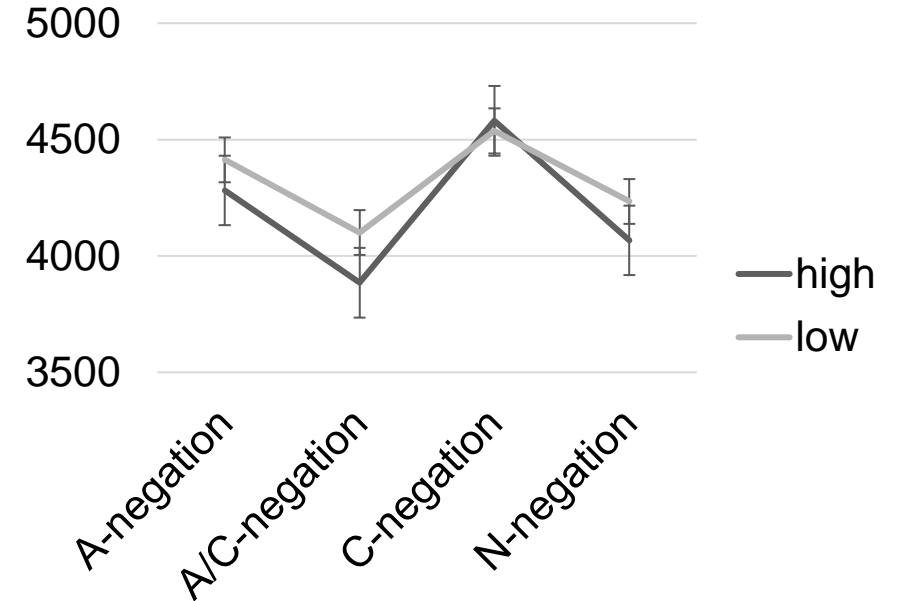(all p's <0.05)

Results of Experiment 1

The incentive hypothesis is not confirmed

Reaction times to *yes*-responses in promises: interaction between Negation vs. Incentive ($p < 0.05$)
No main effect of Incentive

CP derivation:
non-sig.
No main effect of Incentive

Reaction times to *yes*-responses in threats: non-sig.
No main effect of Incentive

Discussion of Experiment 1

- CP is relatively easily derived and processed, which supports Van Tiel and Schaeken (2016): CP is a structurally-determined (and not a time-consuming) phenomenon.

- CP derivation is not contingent upon Inducement, which supports Fillenbaum (1975).

- The role of Incentive and its interaction with Polarity is rather moderate.

Discussion of Experiment 1

- CP derivation and processing are dependent upon an inducement type and polarity.

- Promises are homogeneous in terms of CP rates and reveal no NCB.

- Threats are heterogeneous in terms of CP rates:

  - only C-negation (**If p, not q =>** *If not p, not not q*) demonstrates the *negative consequent bias* and the *double negation effect*.

  - A/C-negation (**If not p, not q =>** *If not not p, not not q*) demonstrates *parallel double negation effect*.

Hypotheses of Experiment 2

- Order rates hypothesis

- Order processing hypothesis

- Incentive hypothesis (with respect to order)

Evans and Newstead (1977): the direct order (if p, q) is processed faster than the inverse order (q, only if p)

Pekelis (2017): in Russian conditionals, the direct order is more frequent than the inverse order (86% vs. 14%).

Design and procedure of Experiment 2

- 2 x 2 x 2 within-subject design

- Speech acts (2 levels: threats vs. promises) x Order (2 levels: direct vs. inverse) x Incentive (2 levels: low vs. high)

- Inference, reading, reaction tasks

- The procedure of Exp. 2 was identical to the procedure of Exp. 1
- 71 participants

Example of a critical item

Promise (if p, then q), direct order, high Incentive

Yulia govorit Yakovu: "Esli ty zataščiš velosiped, ja oplaču tvoi kursy."

'Yulia tells Yakov: "If you bring in my bike, I will pay for your courses."'

Sdelaete li vy iz etogo vyvod o tom, čto esli Yakov ne zataščit velosiped, Yulia ne oplatit ego kursy?

'Would you infer from this that if Yakov does not bring in Yulia's bike, she won't pay for his courses?'

Example of a critical item

Threat (q, if p), inverse order, low Incentive

Anna govorit Borisu: "Ya vygonju tebja iz komnaty, esli ty budeš šumet'."

'Anna tells Boris: "I will take you away from the room, if you make noise."'

Sdelaete li vy iz etogo vyvod o tom, čto Anna ne vygonit Borisa iz komnaty, esli on ne budet šumet'?

'Would you infer from this that Anna does not take Boris away from the room, if he doesn't make noise?'
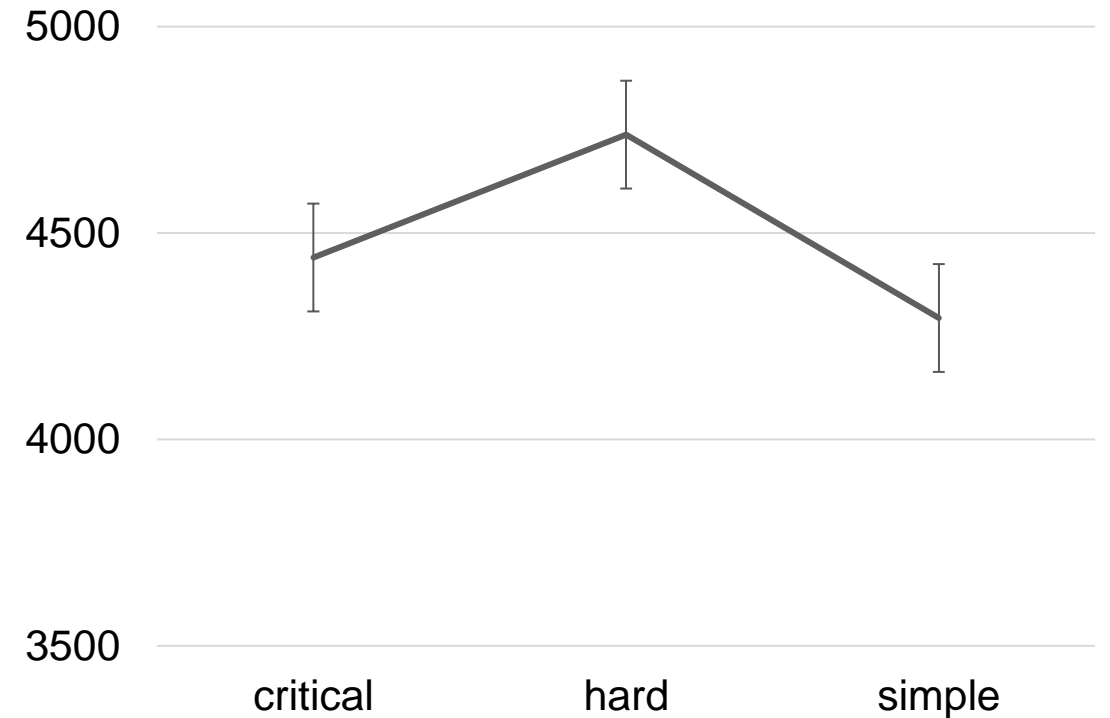
Results of Experiment 2
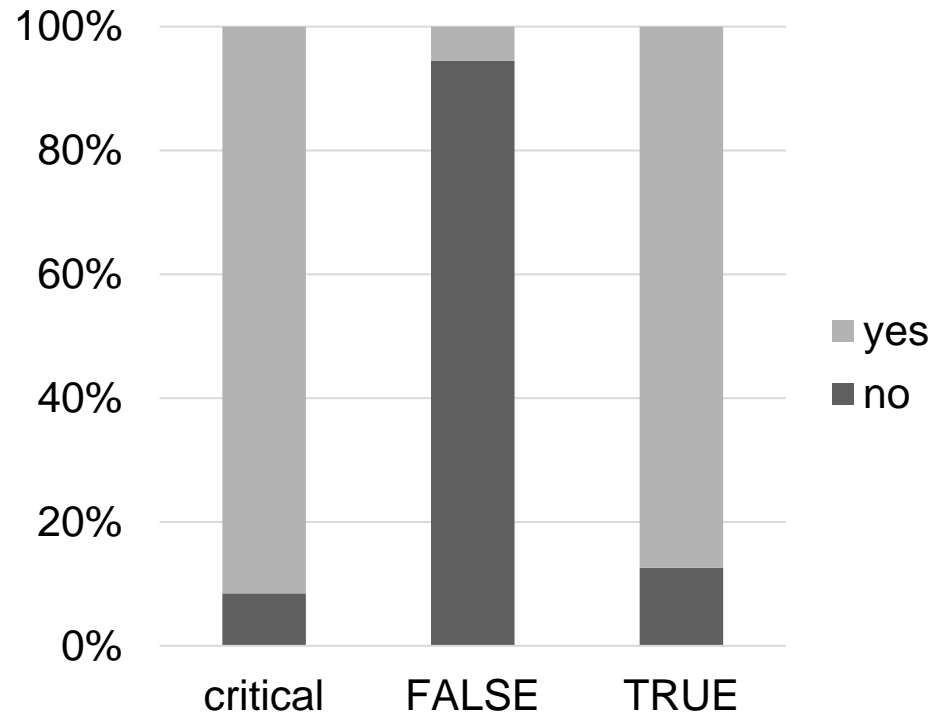
true control items vs. false control items ($p < 0.001$)

critical items vs. false control items ($p < 0.001$)

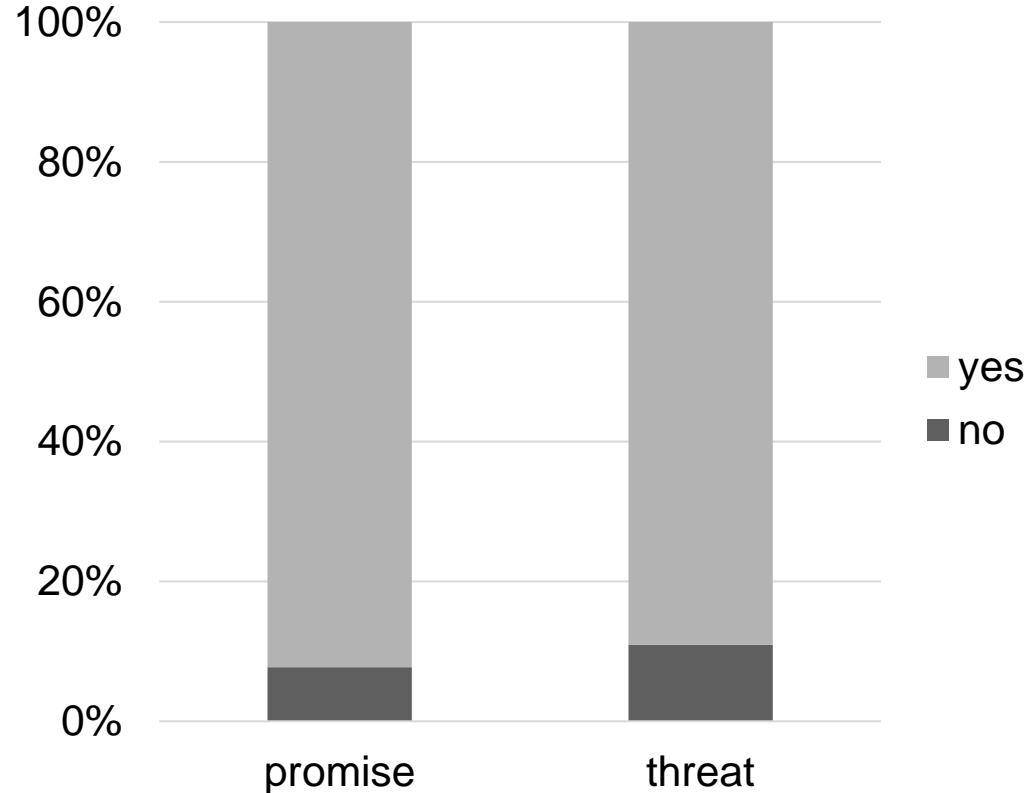critical items vs. true control items ($p < 0.001$)

hard control items vs. simple control items ($p < 0.001$)

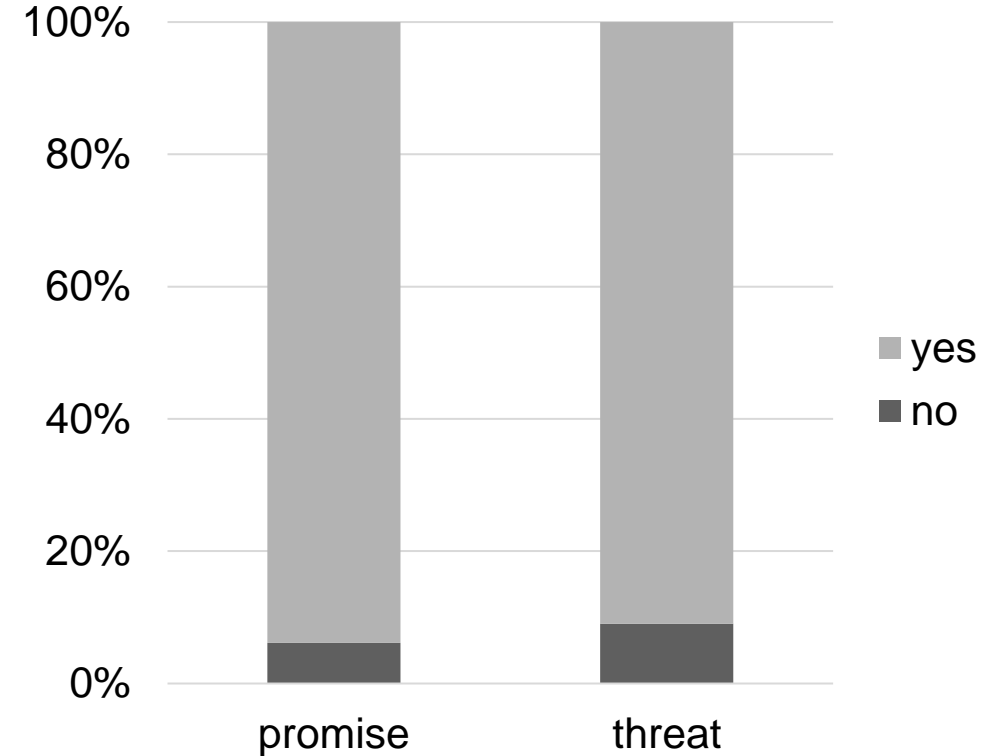hard control items vs. critical items ($p < 0.001$)

critical items vs. simple control items ($p < 0.001$)

Results of Experiment 2

CP equality hypothesis is confirmed;
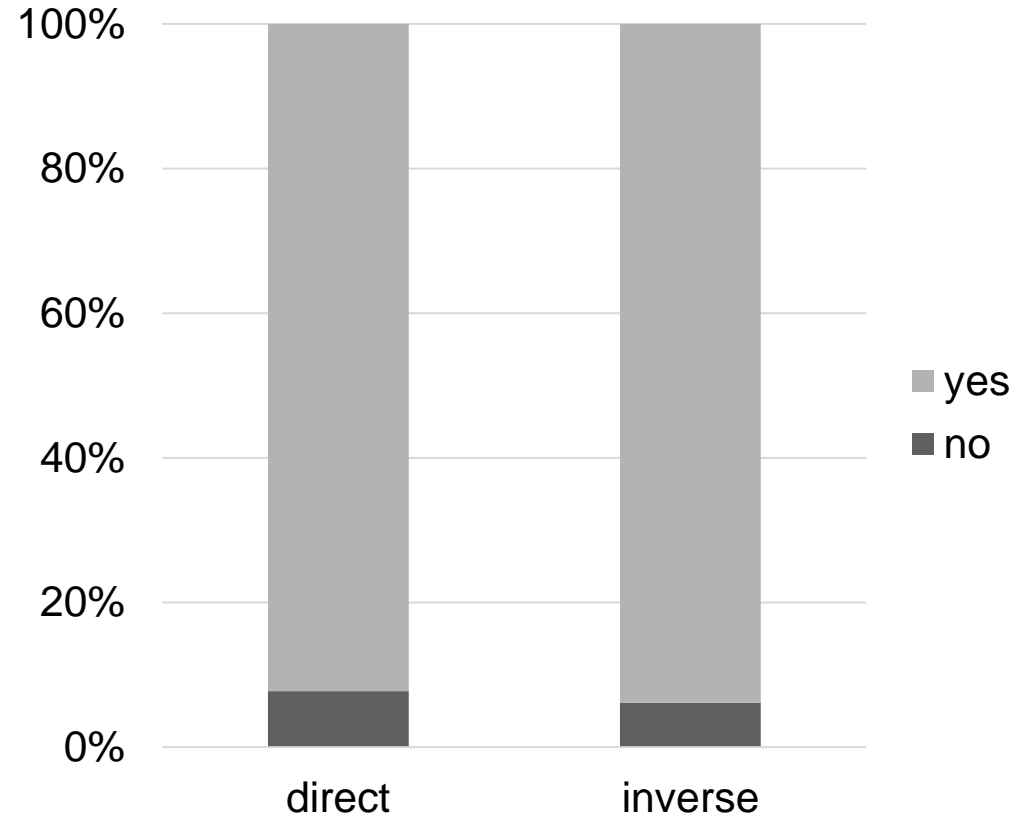
The results accord with the results of Exp. 1

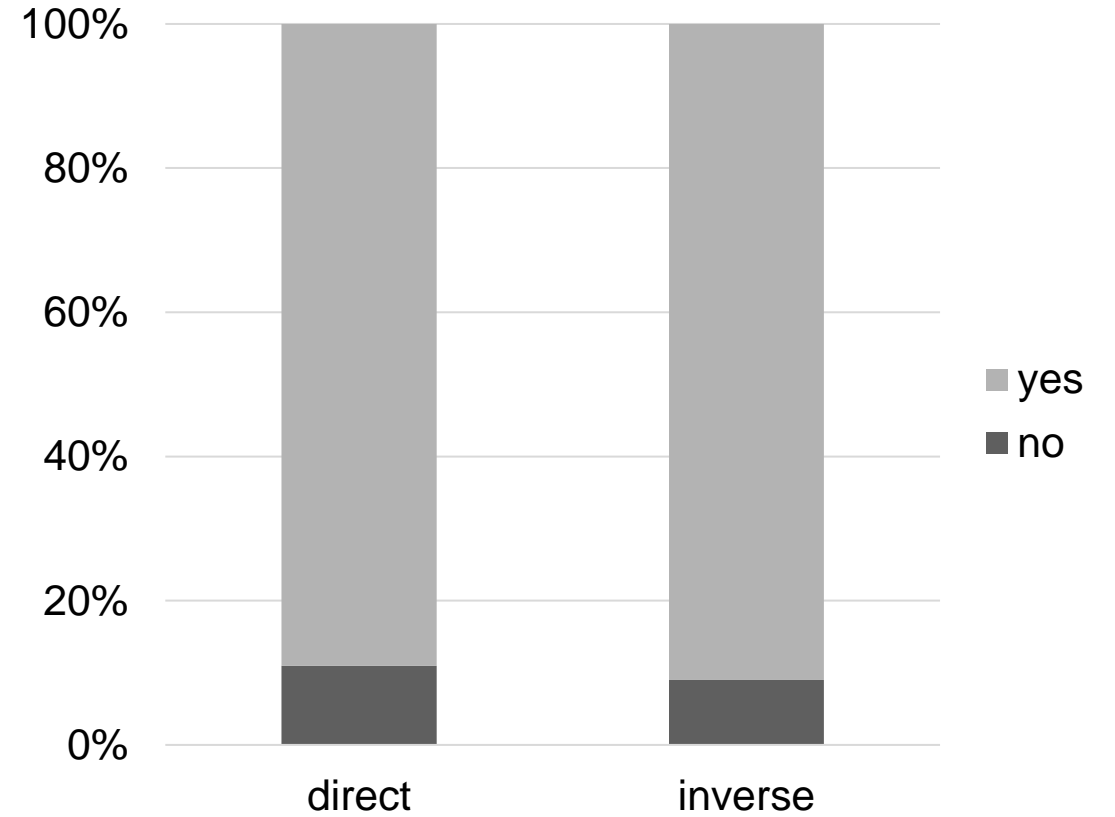Promises and threats in the direct order: non-sig.

Promises and threats in the inverse order: non-sig.

Results of Experiment 2
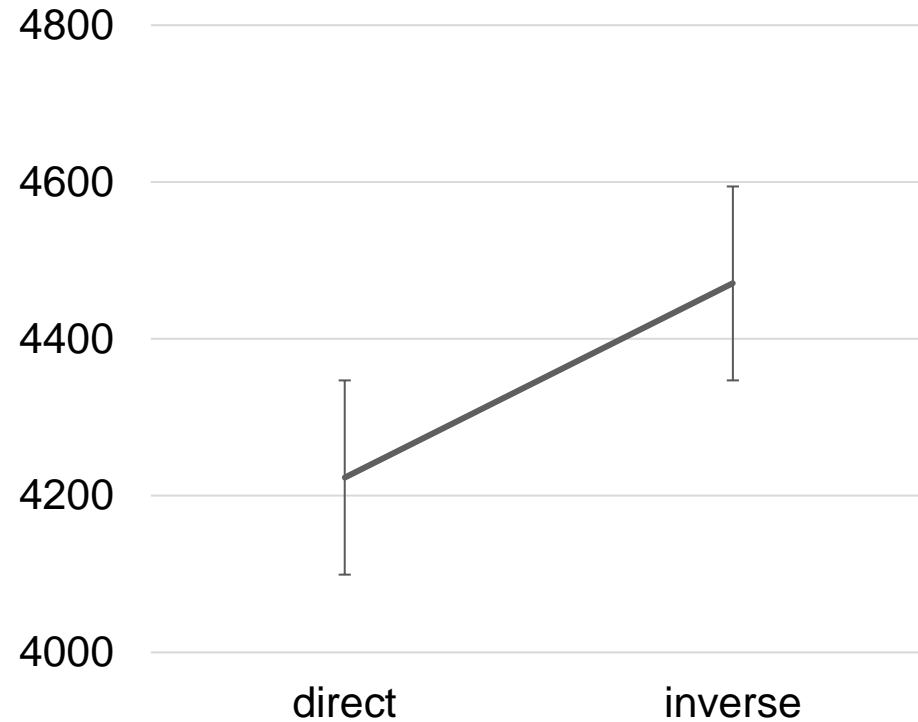
Order rates hypothesis is confirmed

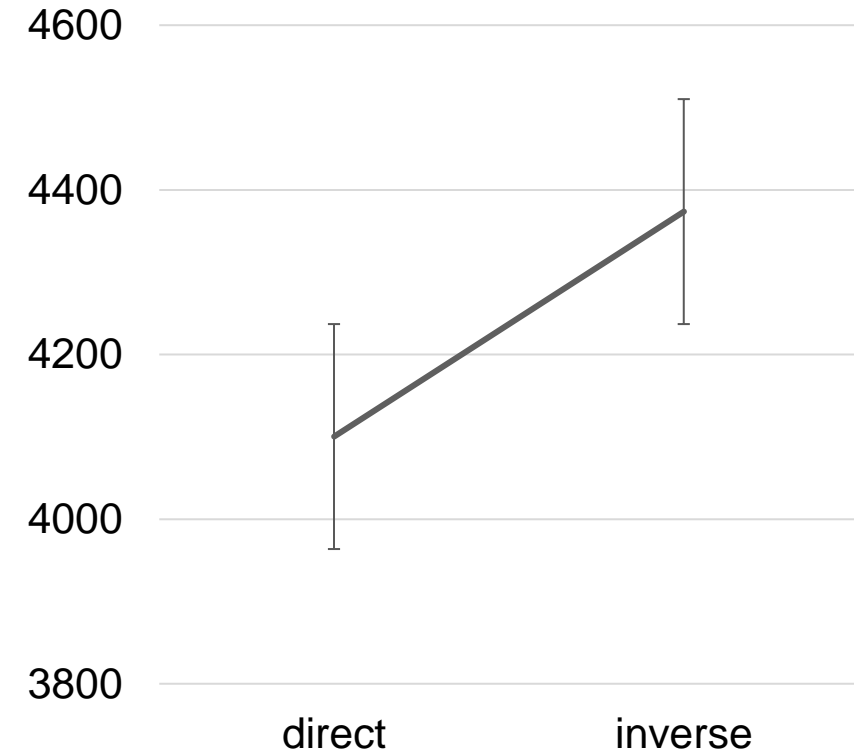Direct vs. inverse order in promises:
non-sig.

Direct vs. inverse order in threats:
non-sig.

Results of Experiment 2

Order processing hypothesis is confirmed

RTs to "yes"-responses
in promises ($p < 0.05$)

RTs to "yes"-responses
in threats ($p < 0.05$)

Results of Experiment 2

The incentive hypothesis is not confirmed
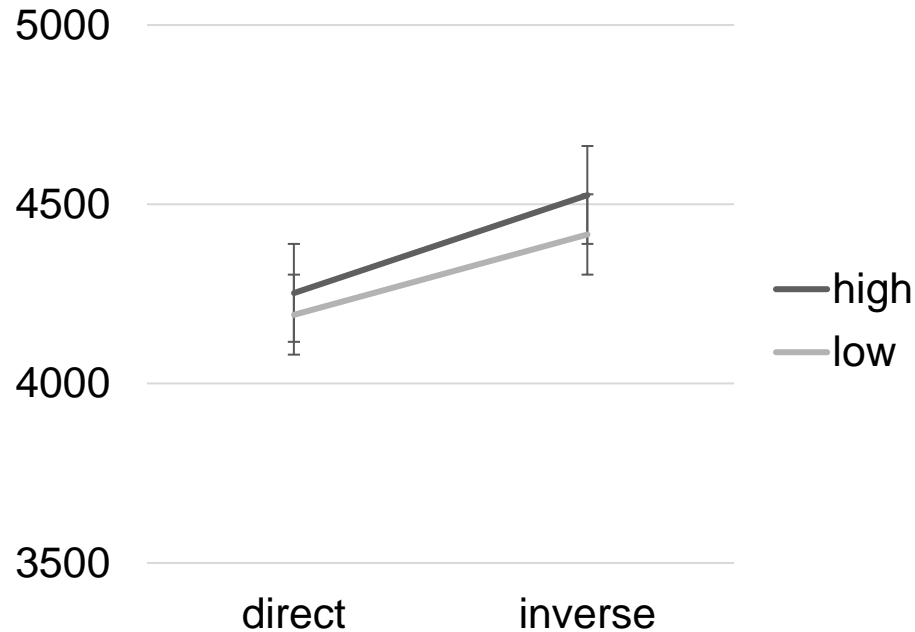
CP derivation:
non-sig.
No main effect of Incentive

Reaction times to "yes"-responses in promises:
interaction between Order vs. Incentive
non-sig.
No main effect of Incentive
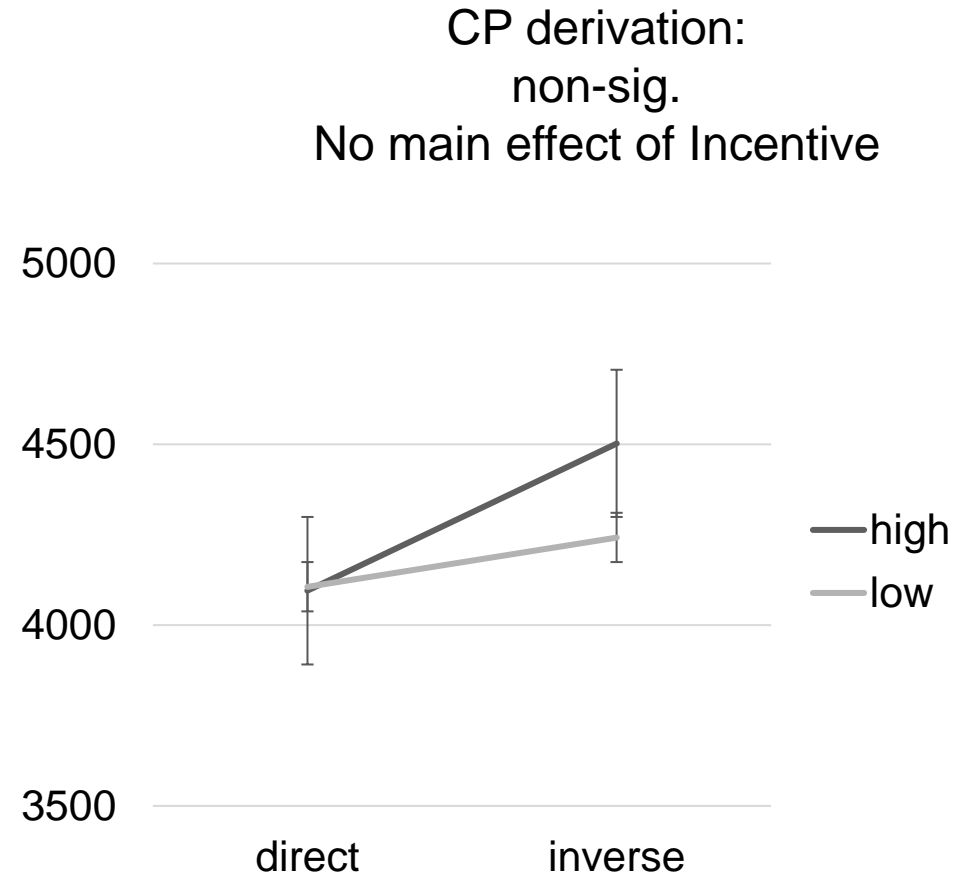
Reaction times to "yes"-responses in threats:
interaction between Order vs. Incentive
non-sig.
No main effect of Incentive

Discussion of Experiment 2

- Order does not influence CP derivation.

- The Inverse order takes more costly CP processing than the direct order, which accords with Evans and Newstead (1977).

- The role of Incentive is rather moderate.

General discussion: speech acts and face

- Threats form a heterogeneous class with respect to CP derivation.

- Promises form a homogeneous class with respect to CP derivation.

- Negative/affirmative promises and threats are not equally effective.

- Turning back to Bonnefon et al. (2009), CP vs. SI demonstrate a different behavior in face-preserving vs. face-threatening acts (+ the role of speech acts?).

General discussion: negation

Negative consequent bias and Double negation effect in CP:

- is observed to the C-negation pattern only;

- is observed in threats and is absent in promises.

Parallel double negation effect in CP:

- is observed in the A/C-negation pattern;

- is observed in threats and is absent in promises.

General discussion: all studied factors

• Polarity and Speech acts play a key role in CP derivation and processing.

• The roles of Order and Incentive are moderate in CP derivation and processing.

• In conditionals, Polarity is relevant for the consequent, whereas alternatives are relevant for the antecedent.

General discussion: on the whole

- CP derivation does not exhibit a costly cognitive phenomenon (cf. Van Tiel and Schaeken 2016): it involves structurally-based alternatives (unlike SIs that involve lexically-based alternatives).

- Von Fintel (2001): **CP**, exhaustive answers

- Herburger (2015): **CP**, SIs, exhaustive answers

- Van Tiel and Schaeken (2016): **CP**, free choice inferences, *it*-clefts vs. SIs

Thank you!

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