

French d'illusions: a case of grammatical illusion conditioned by a grammatical property

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WHY DO WE SEE GRAMMATICAL ILLUSIONS?

- Comprehenders sometimes process ungrammatical sentences as if they were acceptable [1][2]
- (1) *_[DP] A man [who had **no** beard] was **ever** thrifty.
- This may reflect a memory access error that can access features of the licenser **no** even in a structurally illicit position [2][3][4]

THE CURRENT STUDY

- Presents evidence for a novel illusion of grammaticality in French: de-NP illusions
- Not all quantifiers (Q) that license de-NPs create de-NP illusions
- Only Q's that can be independently separated from their restrictors (Quantification at a Distance; QAD) create de-NP illusions
- Simple feature matching in memory is not sufficient for a Q to intrusively license de-NPs

Claim:
Quantifiers are only accessible enough to create de-NP illusions when they independently allow long-distance quantification (QAD)

BACKGROUND

FRENCH DP'S

- (2) J'ai donné ... le livre `the book'
'I gave' un livre `a book'
des livres `some books'
*livres `books'
*de livres `de books'

QUANTIFICATION AT A DISTANCE IS ALLOWED

- (4) J'ai beaucoup donné de livres.

C-COMMAND IS REQUIRED

- (5) *L' homme [qui a beaucoup donné] a de livres.
the man who has much given has DE books

DOUBLE QUANTIFICATION IS NOT ALLOWED

- (6) *Beaucoup de gens ont donné de livres.
many DE people have given DE books

DE-NP'S ARE LICENSED BY CERTAIN Q

- (3) J'ai donné ... beaucoup de livres `many books'
'I gave' pas mal de livres `quite a few books'
suffisamment de livres `enough books'

IS DE-NP LICENSING FALLIBLE?

GRAM is grammatical:

- de gens `DE people' is licensed by the quantifier *beaucoup* `many'
- des livres `books' is an indefinite which does not need licensing

UNGRAM is ungrammatical:

- des gens `people' is an indefinite which does not need licensing
- de livres `DE books' is not licensed

INT is ungrammatical too:

- de gens `DE people' is licensed by the quantifier *beaucoup* `many'
- de livres `DE books' is not licensed
- however intuition suggests that this sentence is more acceptable than the UNGRAM one

CONDITIONS

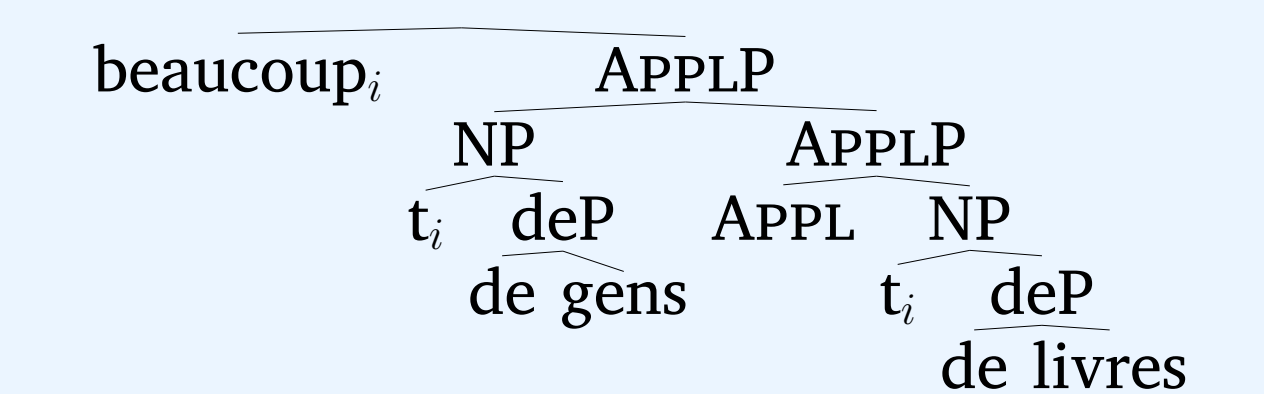
| | +QAD | -QAD |
|--------|---|--|
| GRAM | J'ai donné [à beaucoup de gens] [des livres] pour Noël. | J'ai donné [à plein de gens] [des livres] pour Noël. |
| UNGRAM | | J'ai donné [à des gens] [de livres] pour Noël. |
| INT | J'ai donné [à beaucoup de gens] [de livres] pour Noël. | J'ai donné [à plein de gens] [de livres] pour Noël. |

SUMMARY EXP. 1-4

- Presence of linearly preceding Q improves acceptability of an otherwise unlicensed de-NP
- However, this effect is only seen with +QAD Qs (*beaucoup*); linearly preceding -QAD Qs (*plein*) do not improve acceptability of unlicensed de-NP
- de-NP illusions are observed in both online speeded judgments and offline untimed judgments

FOLLOW-UP: INTERPRETATION OF INT

- Hypothesis 3: The comprehender can repair INT + QAD structures by reanalyzing their structure such that Q binds both dePs.



- Prediction: a spuriously licensed deP is interpreted as bound by Q (doubly quantified interpretation)

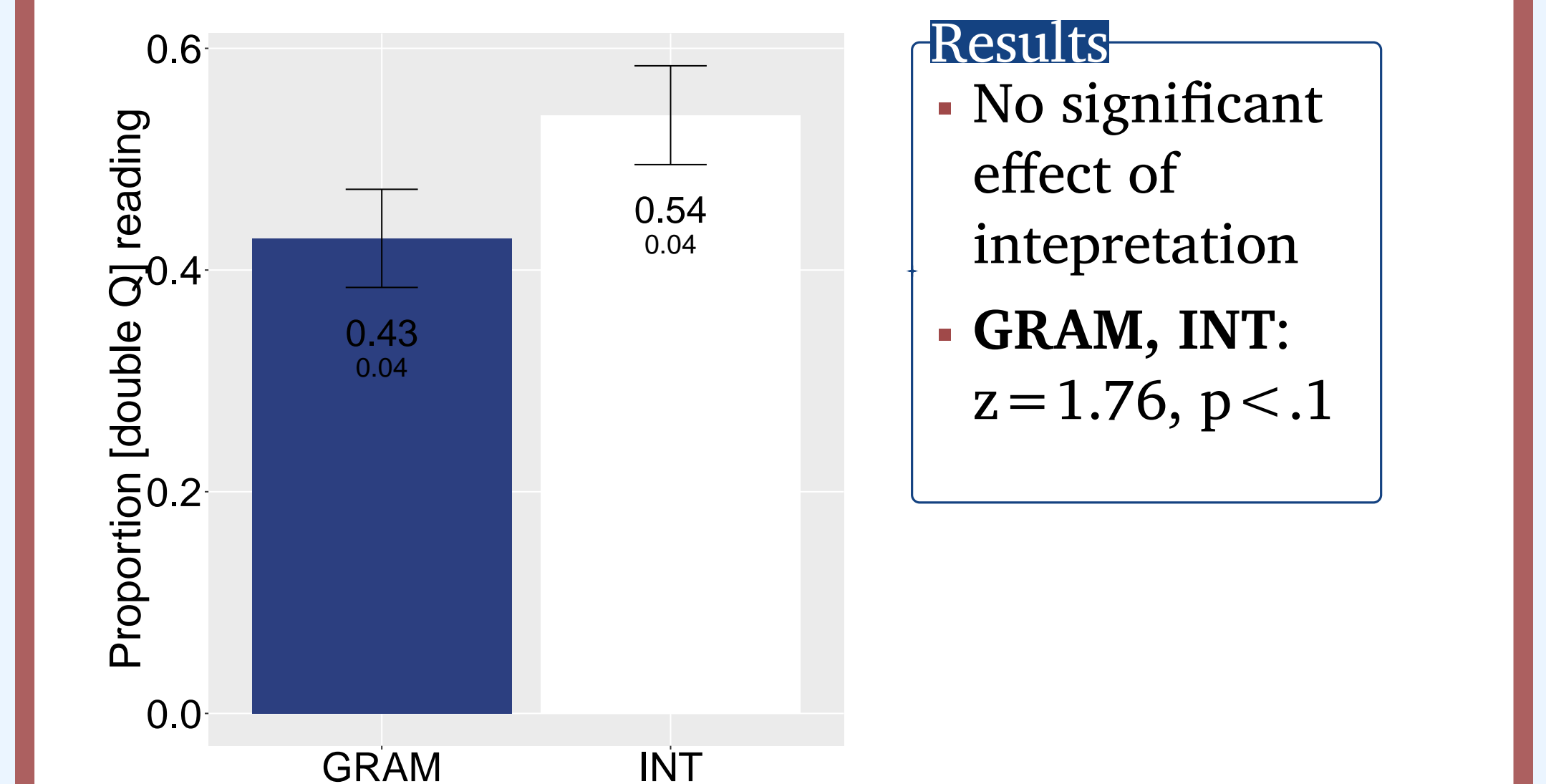
EXPERIMENT 5: SINGLE-TRIAL EXPERIMENT

- N = 126, # items = 20, # fillers = 4, each subject saw 1 item / cond
- 2 conditions: GRAM, INT, 5 +QAD Qs
- interpretation (and acceptability) judgments

- (8) GRAM: J'ai envoyé à beaucoup de gens des livres.
INT: *J'ai envoyé à beaucoup de gens de livres.

- What is the best reformulation?

- (9) A. Each person received at least one book. (simple Q)
B. Each person received many books. (double Q)



METHODS (EXCEPT WHERE SPECIFIED)

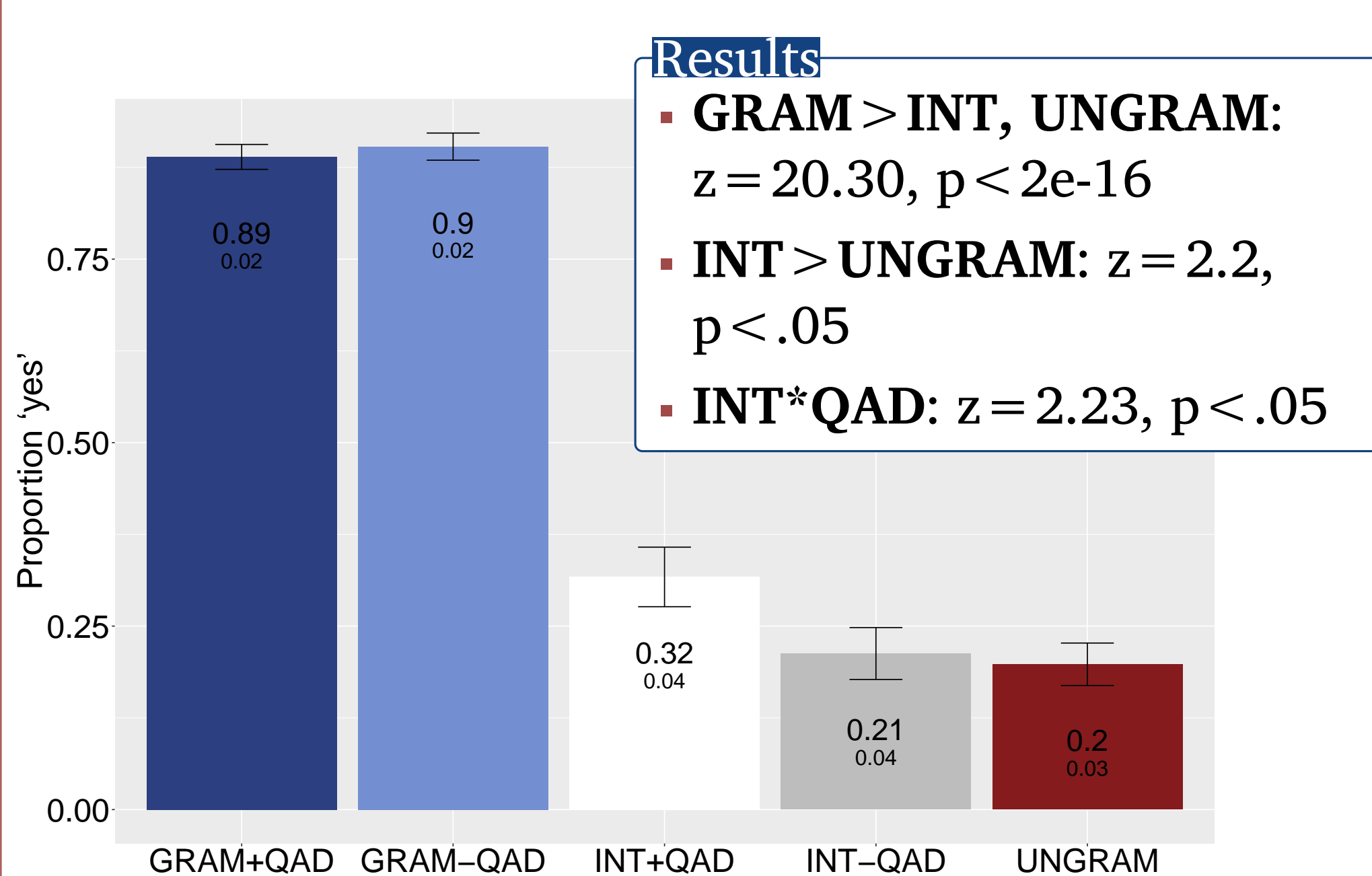
- RSVP + speeded response
 - Recruitment by RISC mailing list
 - Statistical analysis: mixed-effects model
 - Acc. task: Did you find this sentence acceptable? Yes/No
 - All sentences used verbs with an object and a goal PP
- SUBJECT V [à GOAL]_{PP} [OBJECT]_{DP}
[à QUANTIFIEUR de-NP] [de la NP]
[à de-NP] [de NP]
[à QUANTIFIEUR de-NP] [de NP]

- Hypothesis 1: The presence of a Q in the string improves the acc. of an ungrammatical sentence with 2 de-NP's

- Predictions: GRAMMATICALITY: GRAM > INT, UNGRAM INTRUSION: INT > UNGRAM

EXPERIMENT 2: +/-QAD MATTERS (HYP. 2)

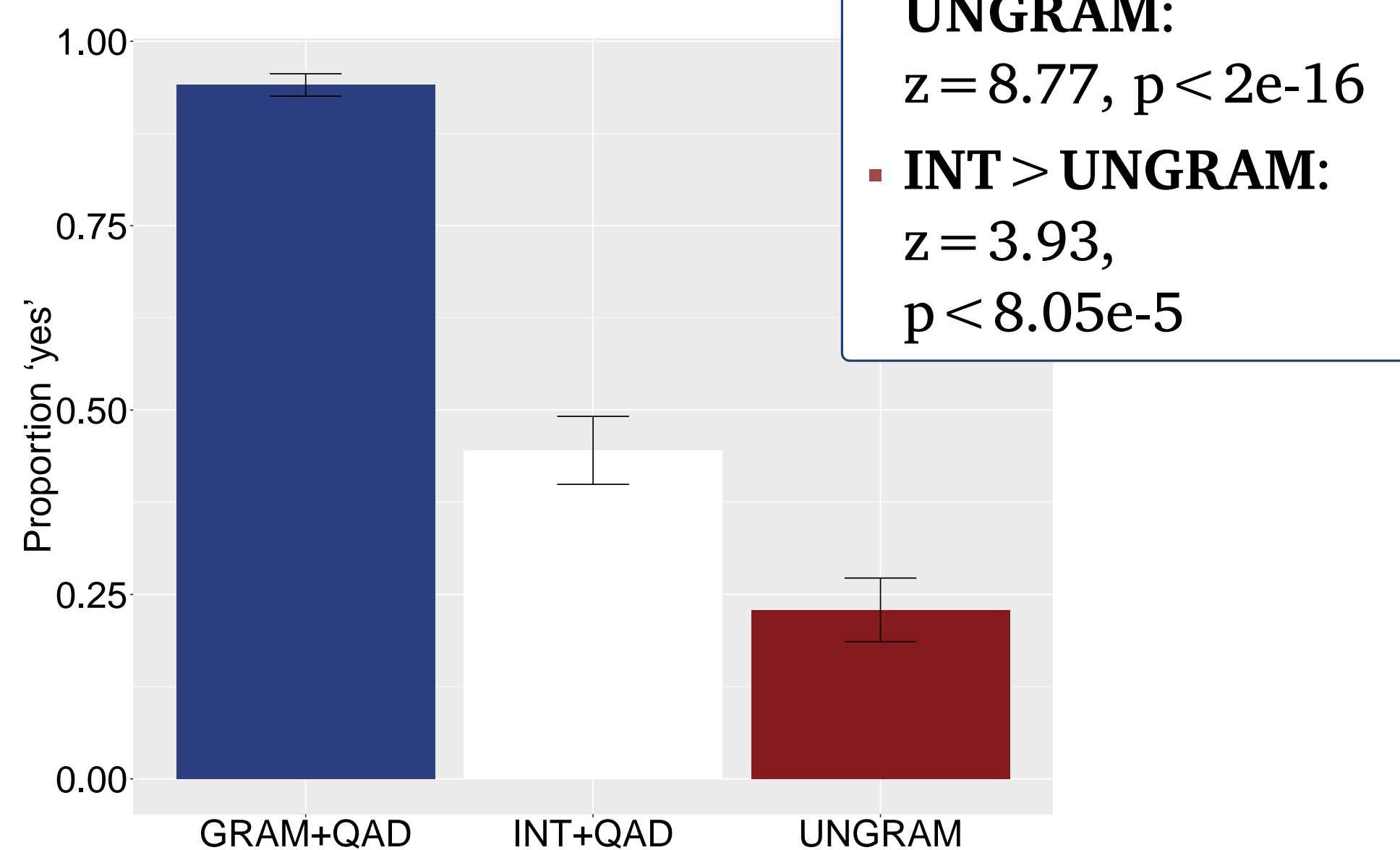
- N = 50, # items = 30, # fillers = 40
- 3 +QAD & 3 -QAD Qs



EXPERIMENTS 1-4: ESTABLISHING A PATTERN

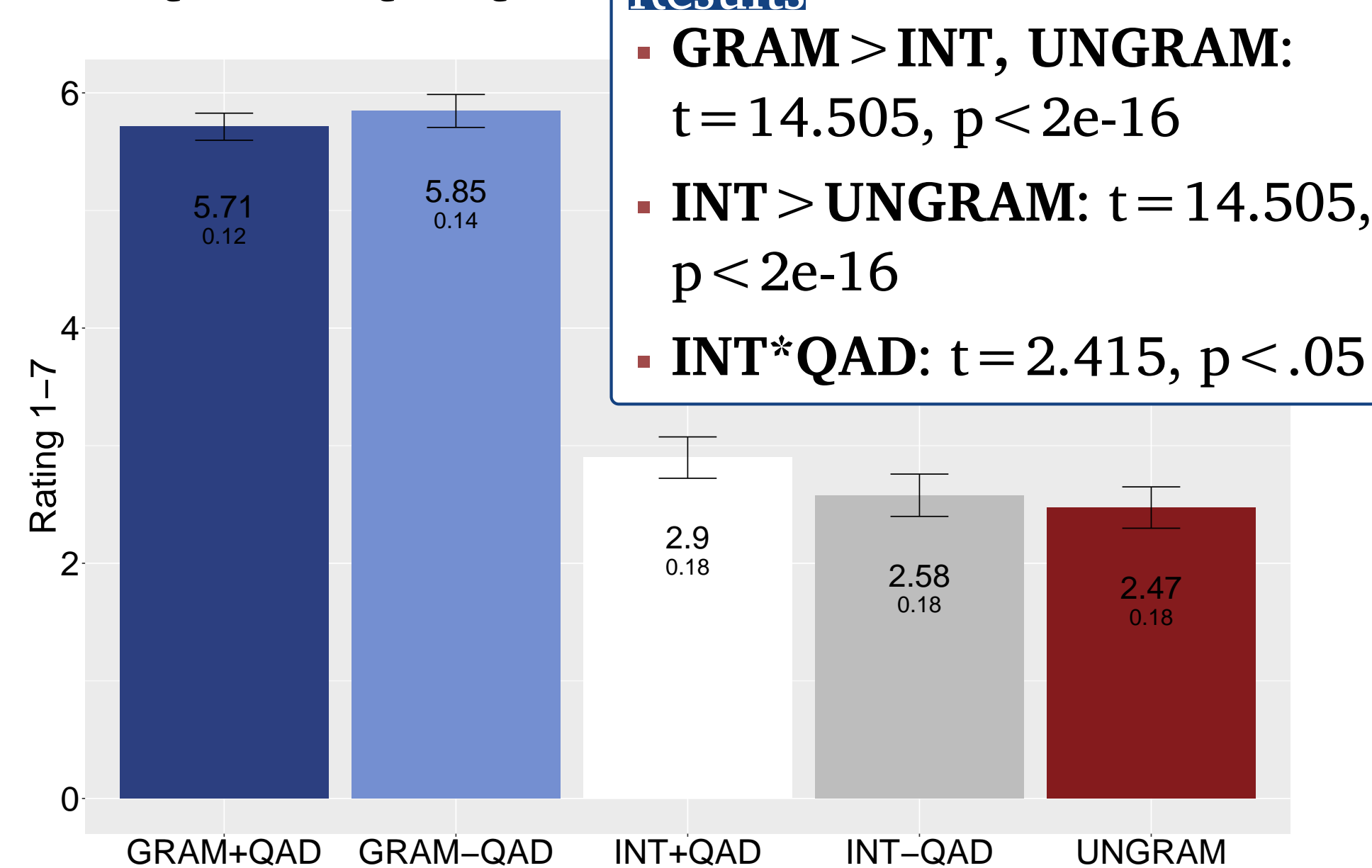
EXPERIMENT 1: PREDICTIONS ARE MET

- N = 40, # items = 18, # fillers = 23
- 6 different (+QAD) Qs
- recruitment by word-of-mouth



EXPERIMENT 3: OFFLINE REPLICATION

- N = 51, # items = 30, # fillers = 40
- no RSVP/speeded resp, Likert scale (1-7)
- 3 +QAD & 3 -QAD Qs



SOME QUANTIFIERS FLOAT, SOME DO NOT

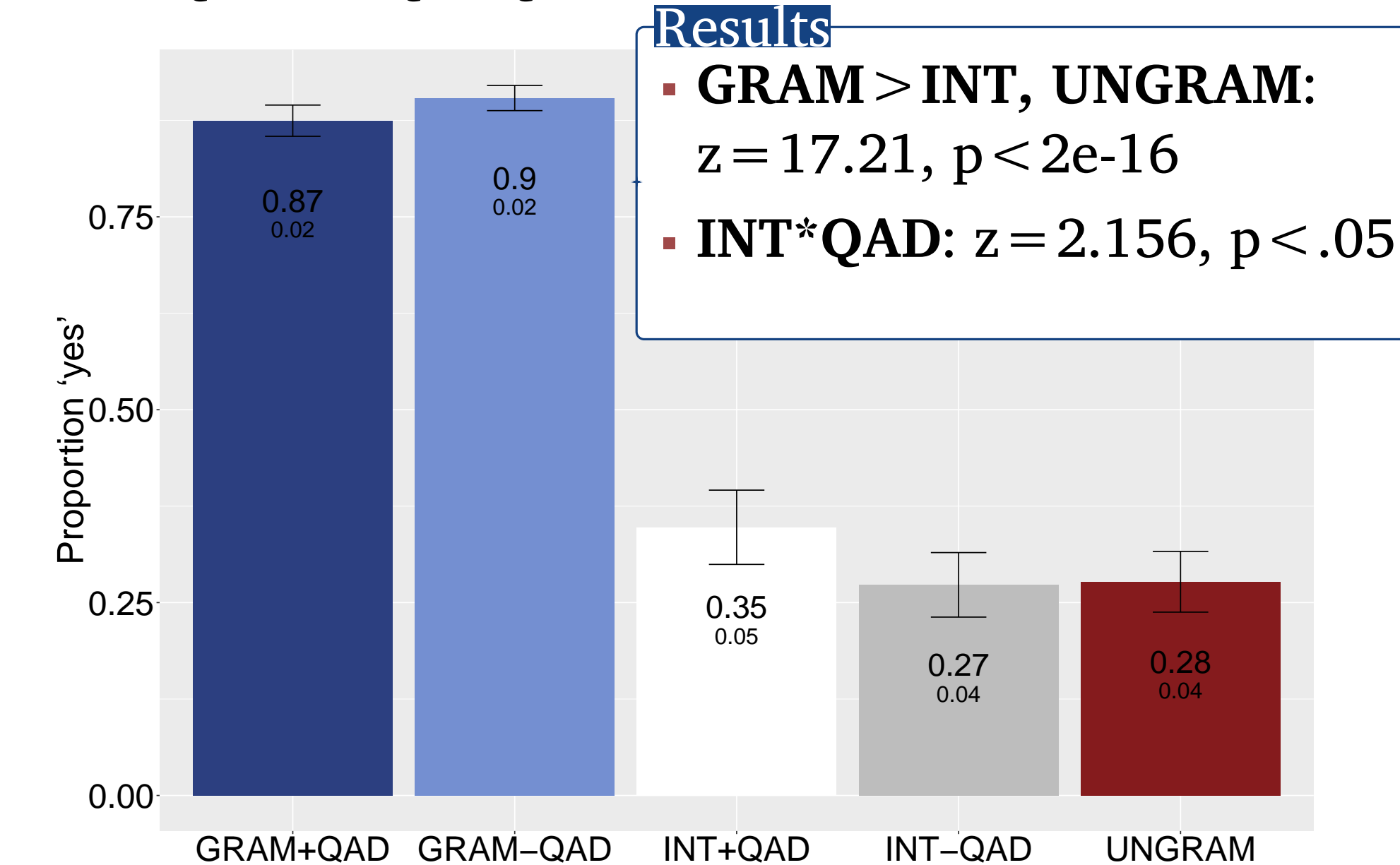
- Exp. 1 used only Q_{+QAD}, is this important?
 - +QAD quantifiers float: *beaucoup* `much/many'
 - QAD quantifiers do not: *plein* `much/many'
- J'ai donné beaucoup de livres. J'ai donné plein de livres.
J'ai beaucoup donné de livres. *J'ai plein donné de livres.

Hypothesis 2:

- A: Noisy memory search for a licensing quantifier?
*J'ai donné [à beaucoup / plein de gens] [de livres] pour Noël.
- B: Or conditioned by a grammatical alternative (QAD)?
*J'ai donné [à beaucoup / plein de gens] [de livres] pour Noël.
cf. J'ai beaucoup donné à des gens de livres pour Noël.

EXPERIMENT 4: SUBJECT Q REPLICATION

- N = 42, # items = 30, # fillers = 37
- different construction: Q in subject position
- 3 +QAD & 3 -QAD Qs



CONCLUSION

- We replicably observed an interaction of Q type and intrusion
- We hypothesize a causal link between the possibility to QAD and to intrusively license a de-NP
- We tested this out in exp. 5 but did not find clear support for the hyp.
- Findings could be explained by repair models [5] or memory intrusion models that are sensitive to grammatical features of licensers.

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REFERENCES

- [1] Phillips et al. 2011. Grammatical illusions and selective fallibility in real-time language comprehension. [2] Vasishth et al. 2008. Processing Polarity: How the ungrammatical intrudes on the grammatical. [3] Lewis & Vasishth 2005. An activation-based model of sentence processing as skilled memory retrieval. [4] Parker & Phillips 2016. Negative polarity illusions and the format of hierarchical encodings in memory. [5] Frazier 2014. Two interpretive systems for Natural Language?