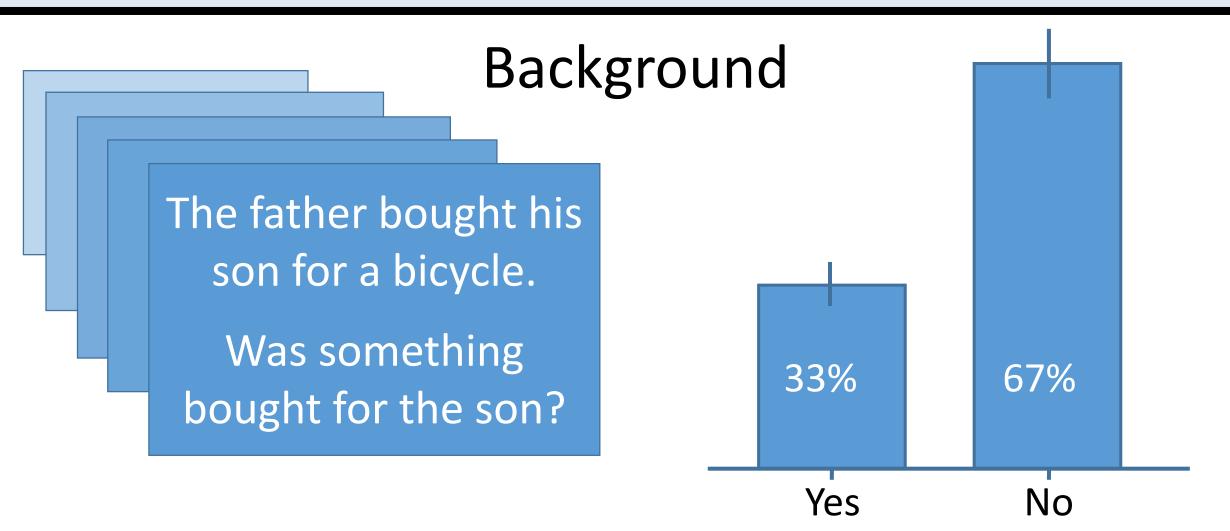


# STRUCTURE-SENSITIVE NOISE INFERENCE: COMPREHENDERS EXPECT EXCHANGE ERRORS

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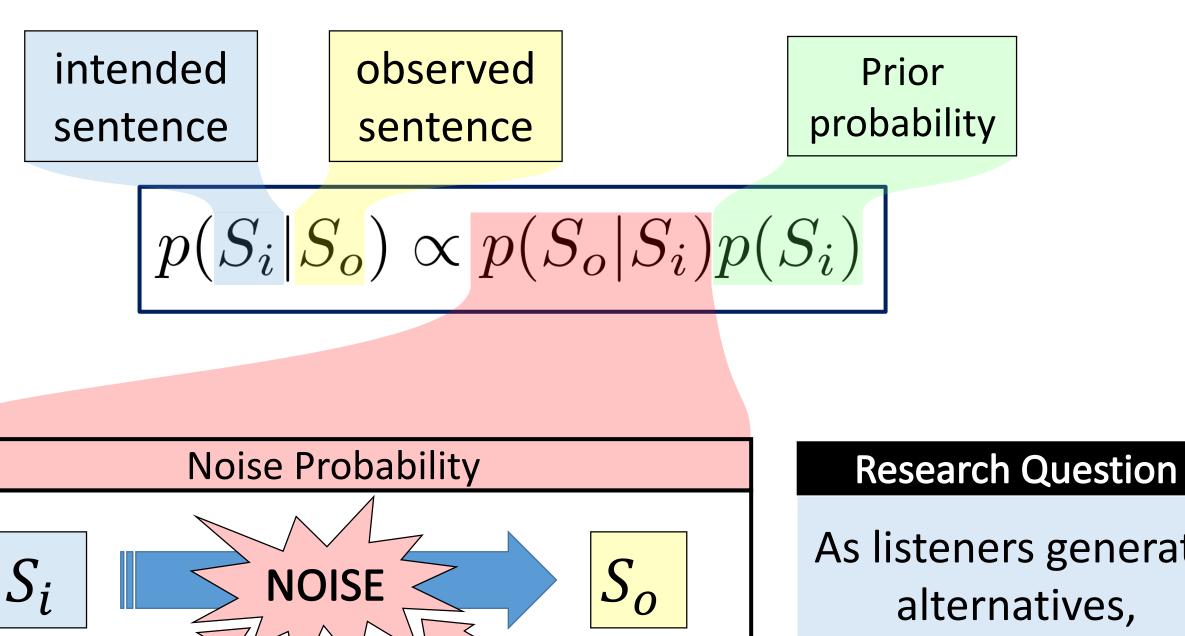
- Comprehenders consider non-literal interpretations
- Evidence from garden-paths: readers retain initial misinterpretations (Christianson et al., 2001)
- Also in **non-garden paths** (Ferreira, 2003)
- Key finding: the tendency to adopt non-literal interpretations is affected by semantic plausibility and syntactic canonicality

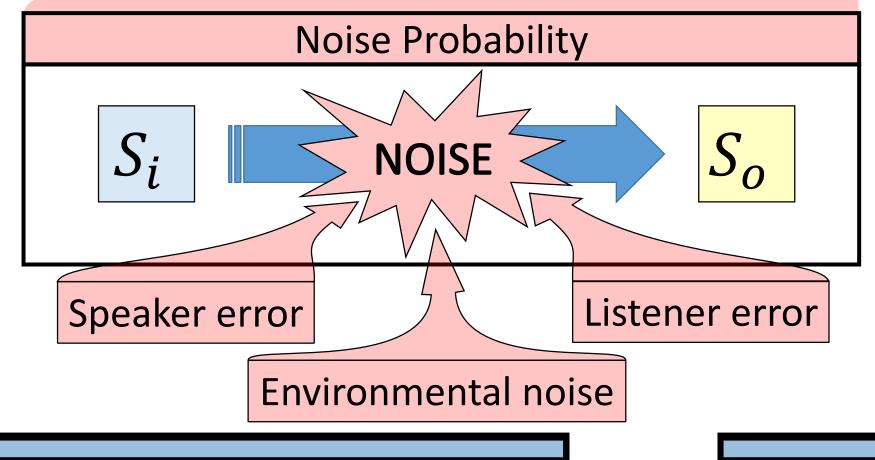
Thematic role assignment

Syntactic frequency

# Noise Inference

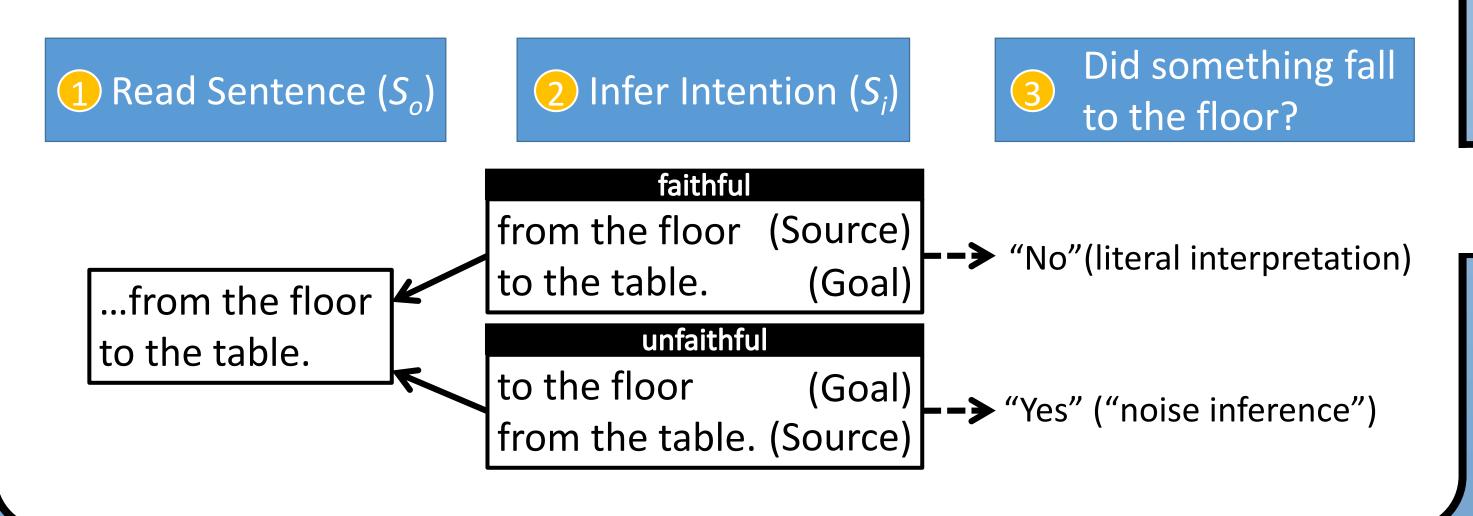
Gibson et al. (2013): Noisy-channel approach





As listeners generate do they consider exchange errors?

# Assumptions



## Predictions

- 1. Effect of the prior: % of noise inferences should be inversely related to plausibility and canonicality
- 2. # of string edits: noise operations with fewer string edits should permit more noise inferences
- 3. Exchange errors: % of noise inference should be higher for exchanges than active/passive constructions

# Methods

- 2x2 design: plausibility x canonicality (estimated in separate corpus analysis)
- <u>Dependent measure</u>: % of literally correct answers

#### Replication **Novel** Experiment 2: Experiment 1: Experiment 3: Experiment 4: Transitive/Intransitive Active/Passive DO/PO [VP/NP PP PP] The package fell The CEO benefitted The ball The cook baked Lucy **from** the floor kicked the girl. for a cake. the tax law. to the table. from by from for to <del>Was</del> from to (2 deletions) (1 insertion) (1 deletion) (4 edits?!)

### Discussion

Listeners consider exchange errors:

The package fell from the floor to the table.

Comprehenders' noise model is structure-sensitive

- Open questions:
- Noise model vs. speaker model: are listeners' inferences attuned to error frequencies? (cf. spoonerisms; e.g. Dell et al., 2000)
- Exchange what?

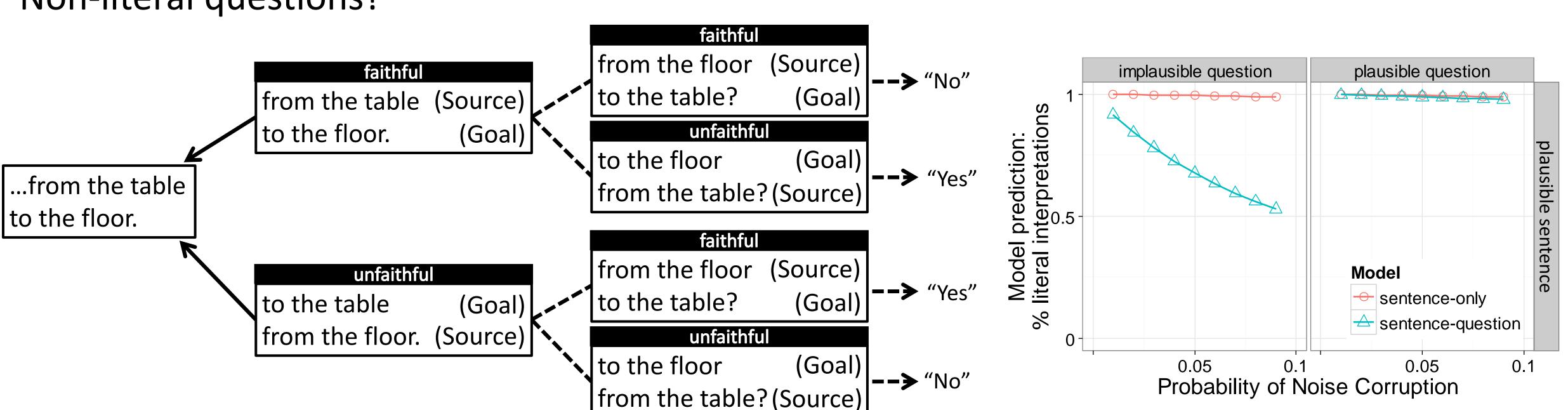
The ball kicked the girl.

# Results **Exchanges** DO\PO Passive / Active **Transitive / Intransitive** 100% interpretations 75% – 50% plausible active Replication **Novel**

### References

Ferreira, F. (2003). The misinterpretation of noncanonical sentences. *Cognitive* Psychology, 47(2), 164-203. assigned along the garden path linger. Cognitive Psychology, 42(4), 368–407. Dell, G. S., Reed, K. D., Adams, D. R., & Meyer, A. S. (2000). Speech errors, phonotactic Gibson, E., Bergen, L., & Piantadosi, S. T. (2013). Rational integration of noisy constraints, and implicit learning: A study of the role of experience in language production. evidence and prior semantic expectations in sentence interpretation. Journal of Experimental Psychology: Learning, Memory, and Cognition, 26(6), 1355–1367. Proceedings of the National Academy of Sciences, 110(20), 8051–8056.

# Non-literal questions?





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