

Experimentally extracting implicit instruments

CogSci 2025
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Research Question

To what extent do people build representations of **implicit instruments** during event processing?

Background

“The chef chopped an onion.”

AGENT

PATIENT

IMPLICIT INSTRUMENT: knife

- Event roles [1]:

Agents initiate actions; **Patients** are acted upon;
Instruments are used to carry out an action

Instruments are **implied** in some events! [2]

Design

Covered box task:

The chef chopped an onion. Then, with the same ____

knife



4 answer conditions:

P: primary instrument (knife)
O: object (onion)
S: secondary instrument (bowl)
A: associated item (oven)

Experiments

The chef chopped an onion.

Then, with {the same/a different} . . .

knife (P)
onion (O)
bowl (S)
oven (A)

Experiment 1:
with

*with & use prime instruments [3];
take does not*

The chef chopped an onion.

the chef used
Then, the chef took
using {the same/a different} ...
taking

knife (P)
onion (O)
bowl (S)
oven (A)

Experiment 2:
verb bias: *use* vs. *take*
aspect: past vs. progressive

Results:

People always represent instruments

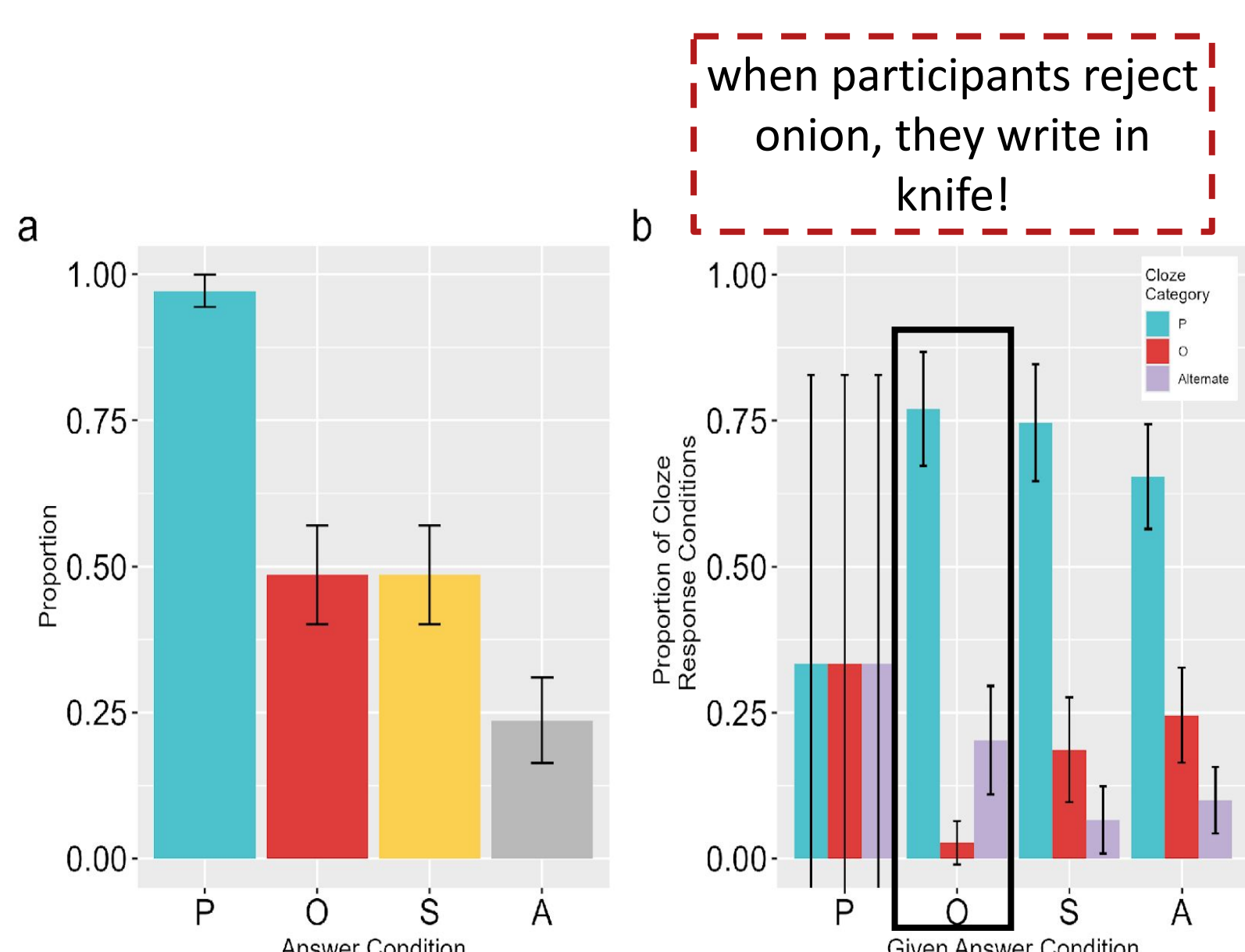


Figure 1:

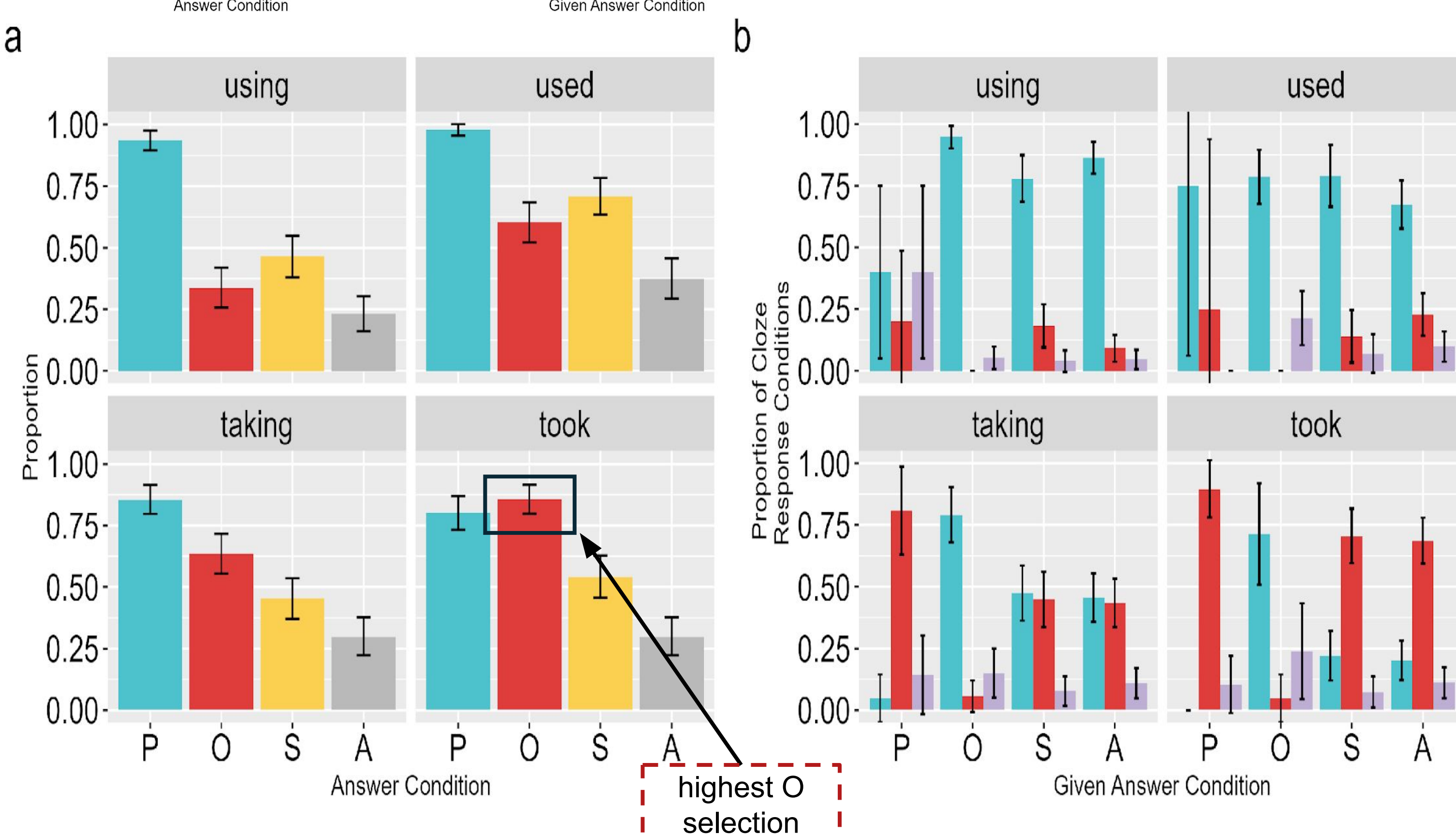
← *with*

a. Proportion of answer choices selected over black box
b. Cloze response categorizations

Figure 2:

↓ *use* vs. *take*

a. Proportion of answer choices selected over black box
b. Cloze response categorizations



Discussion

- use* and *with* boost instrument selection
- Instrument selection decreases in the past tense, when the instrument is less cognitively available [4]
- Object selection increases in past-tense *take*
- When people reject the object or other choices, they write in the instrument

Conclusion

People represent implicit instruments **even though the object is primed**; this is modulated by verb and aspect.

Select References

- [1] Fillmore (1968), *Foundations of Language*.
- [2] Ferretti et al. (2001), *Journal of Memory & Language*.
- [3] Schlesinger (1989), *Journal of Linguistics*.
- [4] Zwaan & Radvansky (1998), *Psychological Bulletin*.
- [5] Rissman & Majid (2019), *Psychonomic Bulletin & Review*.