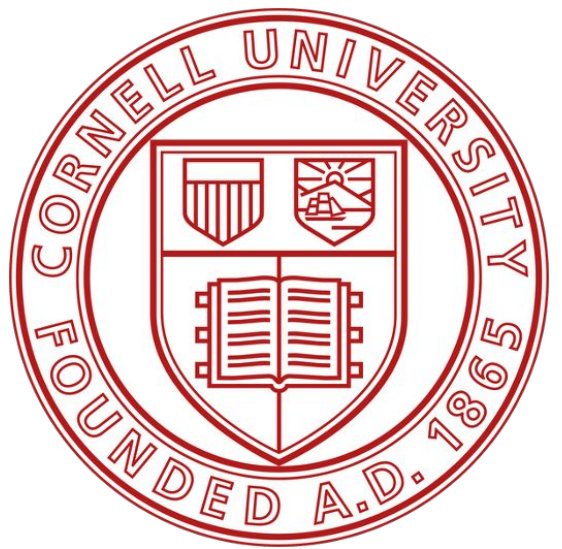


# Experimentally extracting implicit instruments

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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.

Then, the chef used  
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

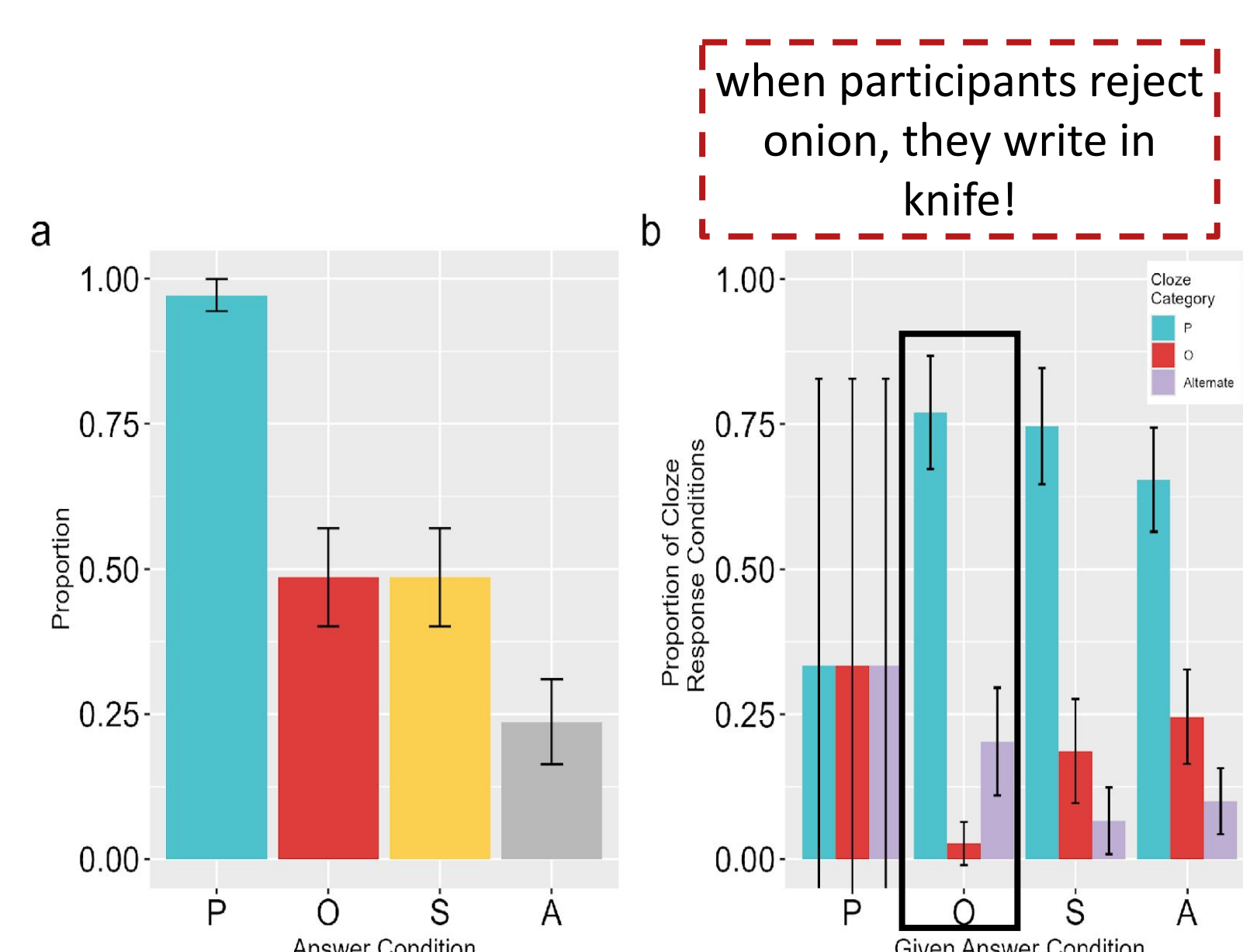


Figure 1:

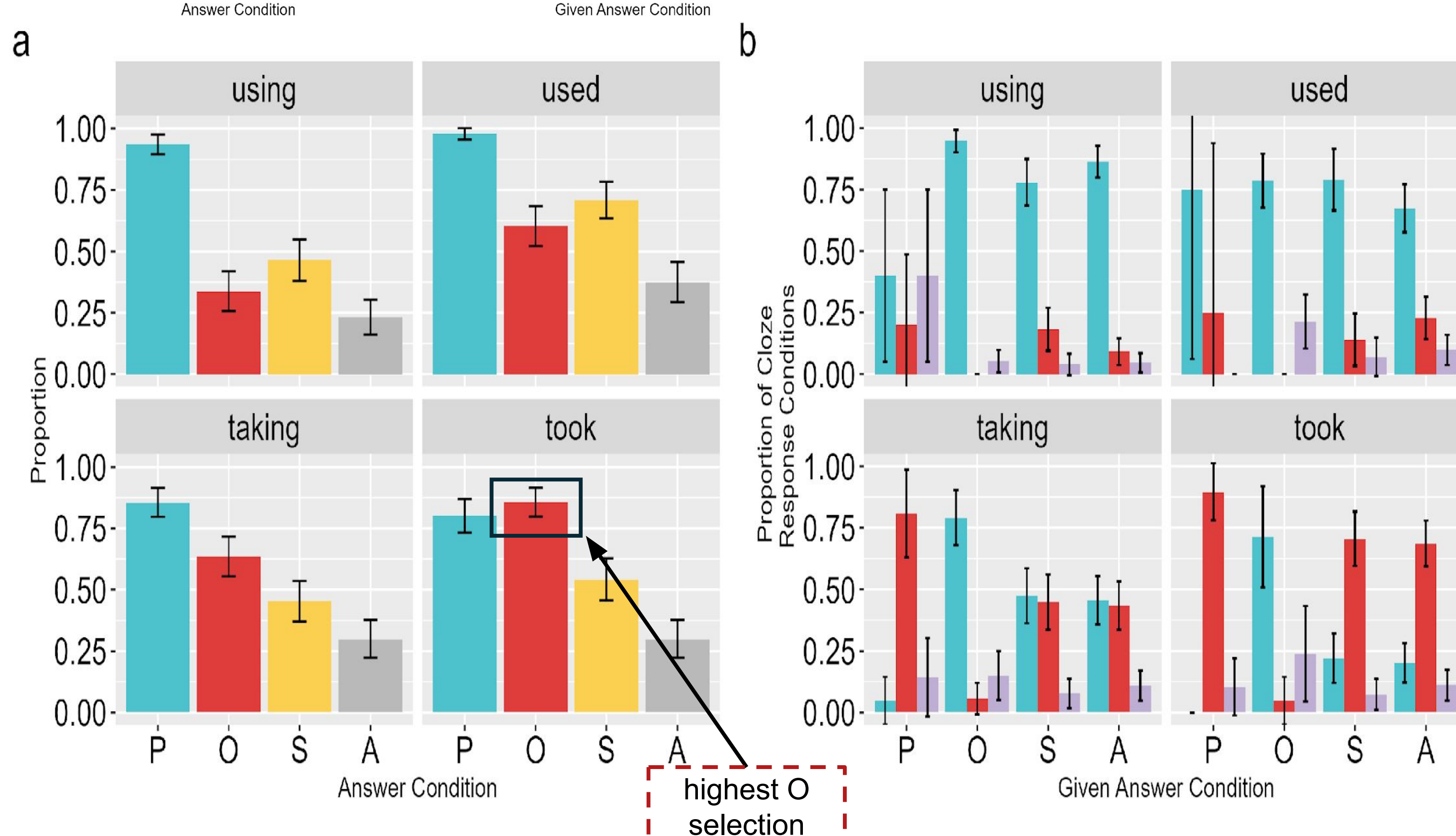
← *with*

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
- Object selection increases in the past tense, when the instrument is less cognitively available [4]
- Object selection is highest 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*.