

# Effects of Prosodic Stress on Memory in Language Comprehension

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## ABSTRACT

Two experiments investigated whether prosodic stress affects memory in language comprehension. Prosodic stress frequently indicates linguistic focus (see Ladd, 1996) and may lead to increased semantic specificity in semantic encoding and representation. We manipulated the presence of contrastive stress in recorded stories containing contrasts between two items in a discourse. In Experiment 1, discourse referents receiving contrastive stress were recognized better on a later two-alternative forced choice recognition test than referents not receiving contrastive stress. Experiment 2 tested whether contrastive stress on one referent had any effect on memory for another referent within the same story. Contrastive stress improved memory for the focused referent. For younger adults, contrastive stress did not impair or facilitate memory for the other referent in the story. For older adults, however, contrastive stress on one referent impaired memory for the other referent. These findings suggest that stress and linguistic focus facilitate memory in language comprehension.

## PRIOR WORK & RATIONALE

Linguistic focus increases semantic specificity in encoding (Birch & Garnsey, 1995; Kamas et al., 1996; Sanford et al., 2006)

But:

- > Most experiments have investigated reading only
- > No examinations of later memory for this material

Present study:

- > Examined effects of focus in spoken language
- > Manipulated prosodic stress -- often used to indicate focus in speech (Ladd, 1996)
- > Tested later memory
- > Examined comprehension of prosodic stress across the lifespan

## ACKNOWLEDGMENTS

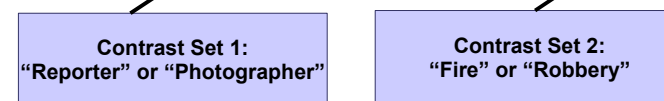
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## PRESENTATION PHASE & STIMULI

Auditory presentation of **50 stories**, each containing **two contrast sets**:

"The newspaper didn't have the resources to cover both the fire and the robbery, so the editor assigned the paper's best reporter and photographer to focus on one of the two stories. This turned out to be a good decision, because the \_\_\_\_\_'s work on the \_\_\_\_\_ story was later nominated for an award."



Manipulated type of stress on each item:  
**Presentational stress** (H\* in ToBI) or **contrastive stress** (L+H\*)

EXPERIMENT 1:

>24 **critical** stories:  
**Presentational** stress on one referent; **contrastive** on other

>26 other stories used as **filler**, all with **presentational** stress

>N = 24 younger adults

EXPERIMENT 2:

>48 **critical** stories:  
Independently manipulated type of each stress on each referent

>No filler stories.

>N = 20 younger adults, 19 older adults

## TEST PHASE

Visual presentation with **forced choice recognition test**:

The newspaper didn't have the resources to cover both the fire and the robbery, so the editor assigned the paper's best reporter and photographer to focus on one of the two stories. This turned out to be a good decision, because the \_\_\_(A)\_\_\_'s work on the \_\_\_(B)\_\_\_ story was later nominated for an award.

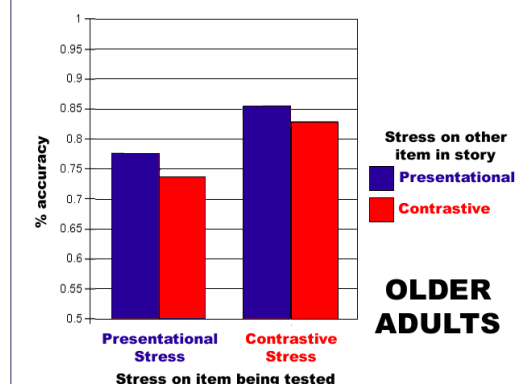
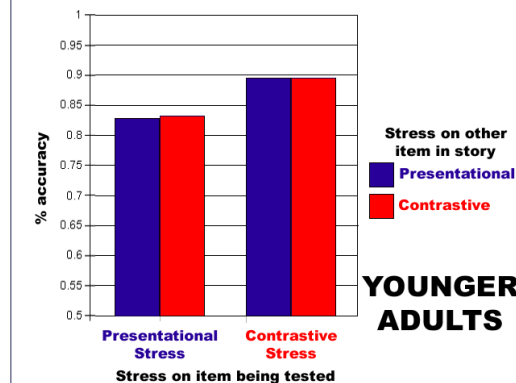
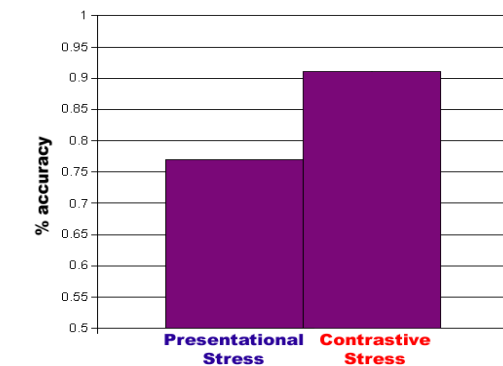
(A) **REPORTER** or **PHOTOGRAPHER**?

(B) **FIRE** or **ROBBERY**?

## RESULTS

### EXPERIMENT 1

Referents with **contrastive stress** recognized **better** than referents with **presentational stress**.



### EXPERIMENT 2

Referents with **contrastive stress** recognized **better** than referents with **presentational stress**.

Stress on the **other item** interacted with age:

- > For younger adults, no effect of stress on the **other item**.
- > For older adults, *impaired* memory if the **other item** had **contrastive stress**.

## CONCLUSION

Prosodic stress and linguistic focus may:

- > Change encoding of part of a linguistic stimulus
- > Facilitate recognition for that referent

When one referent is focused, older adults may have poorer memory for *other* referents

- > Could reflect lack of memory resources
- > Or could reflect strategic processing

