



# Passive Exposure Improves Comprehension of Passive Voice in 4-Year-Olds

Jennifer B. Ganger University of Pittsburgh  
Peter Gordon, Columbia University



## Background

### Is grammatical development driven by input or maturation?

Test case: passive voice

Non-action/mental passives are harder than action/physical passives (Maratsos et al 1983). Why?

- Inherently harder? (Wexler 2004; Pinker et al 1987)
- Rarer in input? (Gordon & Chafetz, 1990)

Clues from a Twin Study

- Higher heritability for non-action/mental passives (Ganger, Dunn & Gordon 2005).
- Due to importance of genetic variation, or merely lack of environmental variance?

## Method: Training Study

Pre- and post-test of passive comprehension.

Training is listening to three stories rich in passives over three days.

Half these passives also appear on comprehension test.

**Random Assignment:** Participants assigned to one of three training groups:

1. Training stories with action/physical passives
2. Training stories with nonaction/mental passives
3. Control (no training)

## Procedure

**Participants:** 63 pre-schoolers, mean age 4.0 (SD = 0.3); 31 M

**Comprehension of passives** tested before and after training period

- Test includes:
  - 9 action/physical full passives: *dropped, eaten, carried, kissed, held, washed, shaken, hugged, kicked*
  - 9 non-action/mental full passives: *watched, forgotten, heard, known, remembered, believed, liked, seen, hated*
- Brief vignettes with pictures
- Pair of y/n questions to gauge comprehension for each story.
- Children trained in advance to answer each pair of questions with one "yes" and one "no." (from Gordon & Chafetz, 1990)

### Example item:

"John's favorite movie is the Wizard of Oz. It was on TV, so he stayed inside to watch it."

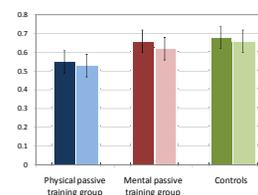


1. Was the TV watched by John?
2. Was John watched by the TV?

## Results

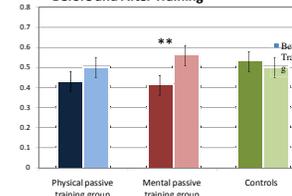
**No improvement on action/physical passives** for any training group (Fig 1)

Fig 1: Action/Physical Passives Before and After Training



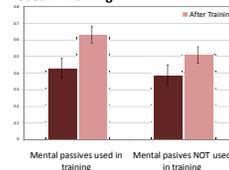
**Improvement on non-action/mental passives** for non-action/mental passive training group only (Fig 2)

Fig 2: Non-action/Mental Passives Before and After Training



**Biggest improvement for same verbs used in training** (Fig 3)

Fig 3: Non-action/Mental Passives Used in Training versus Those Not Used in Training



## Conclusion

### Input matters

When input is enriched, comprehension improves, but only for non-action/mental passives.

- Physical/action passives already occur in children's input; further input does not change outcome.
- Mental passives are very rare in normal input. Enriching the environment for these passives had an effect. Furthermore, the exact items used in training showed more improvement.

Previous finding of high heritability for mental passives could have been due at least in part to lack of environmental variance for these passives.

However, the subjects did not master either type of passive, regardless of training, so input is not the only driving factor.

## References

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