



# Definition of Poor Comprehenders



Kayleigh Ryherd<sup>1,3</sup>, Clint Johns<sup>2</sup>, Julie Van Dyke<sup>2</sup>, Nicole Landi<sup>1,2,3</sup>

<sup>1</sup>University of Connecticut, Dept. of Psychology & Language Plasticity IGERT; <sup>2</sup>Haskins Laboratories; <sup>3</sup>CT Institute for the Brain and Cognitive Sciences

## Introduction

**Poor comprehenders (PCs)** are generally defined as individuals with poor reading comprehension despite intact decoding ability.

Important considerations for defining poor comprehenders:

- How will you measure the constructs of interest (comprehension, decoding)?
  - Keenan & Meenan (2014) – found significant variability in who is considered a “poor comprehender” as a function of the measures of comprehension & decoding used
- How will you use these measurements to define groups?
  - Classic Cutoff method:** Decoding needs to be above a certain score, comprehension needs to be below a certain score
  - Current investigation cutoffs for PCs (n=17):**
    - Nonword decoding  $\geq 100$  (standard score)
    - Reading comprehension  $\leq 90$  (standard score)
    - Often matched for IQ

### Regression method:

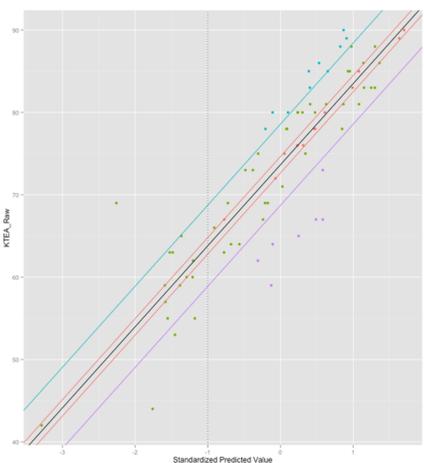
- Predict reading comprehension from other variables (age, decoding, IQ, vocabulary)
  - Compare predicted comprehension to measured comprehension
  - Unexpected poor comprehenders (UPCs)** – those below 65-80% confidence interval
  - Expected average comprehenders (EACs)** – within a 15-25% CI (serves as control group)
  - Unexpected good comprehenders (UGCs)** – above 65-80% CI
- (Li & Kirby, 2014; Tong, Deacon, & Cain, 2013; Tong, Deacon, Kirby, Cain, & Parrila, 2011)

### Current Investigation:

- How does inclusion of vocabulary as a predictor change the UPC group?
- How do UPCs compare to PCs defined using a cutoff method

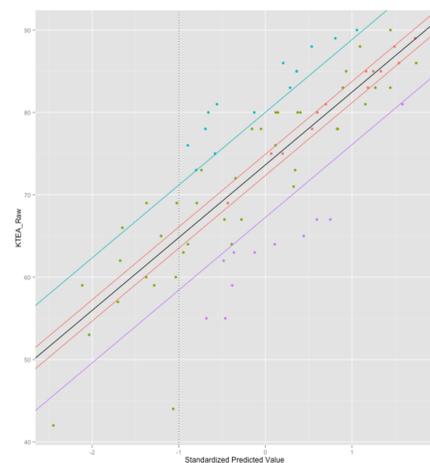
## Regression Method

KTEA ~ Age\*LW\*WA\*PIQ\*RV



EAC: 13; UPC: 7; UGC: 10

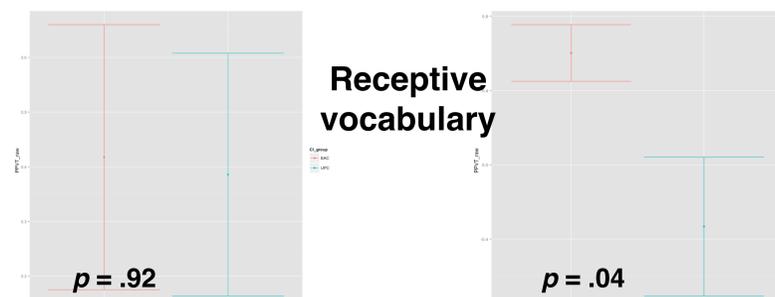
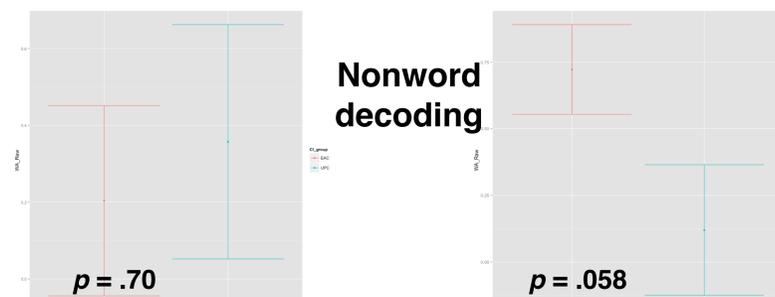
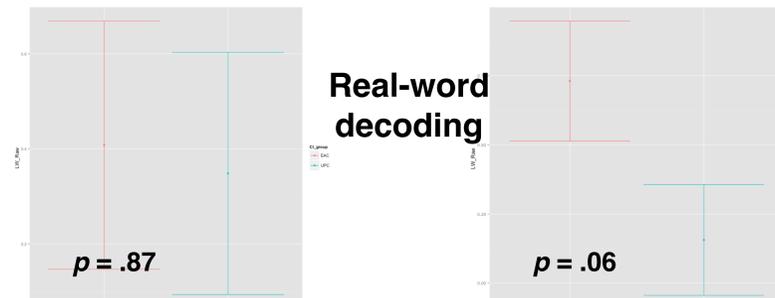
KTEA ~ Age\*LW\*WA\*PIQ



EAC: 13; UPC: 11; UGC: 14

## Comparison of Regression Type

KTEA ~ Age\*LW\*WA\*PIQ\*RV    KTEA ~ Age\*LW\*WA\*PIQ



## Regression vs. Cutoff

### UPCs (regression method) compared to PCs (cutoff method)

#### Model with vocabulary

- PCs significantly lower than UPCs:
  - Receptive vocabulary ( $p = .002$ )
- No significant difference between PCs and UPCs:
  - Nonword decoding
  - Reading comprehension
  - Performance IQ
  - Real-word decoding

#### Model without vocabulary

- No significant differences between UPCs and PCs in reading comprehension, decoding, receptive vocab, or performance IQ.

## Discussion & Future Directions

- Including vocabulary in the regression model changes the composition of UPC and control groups
  - Is vocabulary a sub-skill that makes up comprehension? Should we be using it to predict comprehension?
- Parameters used in the regression model determine pattern of differences between UPCs and PCs

### Future Directions

- Explore variables put into model
- Explore confidence interval/standard deviation thresholding
- Compare UPCs and PCs on additional behavioral, experimental, and neurobiological measurements not included in model

### References

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