

# Morphological awareness in poor comprehenders: clues to the source of difficulty

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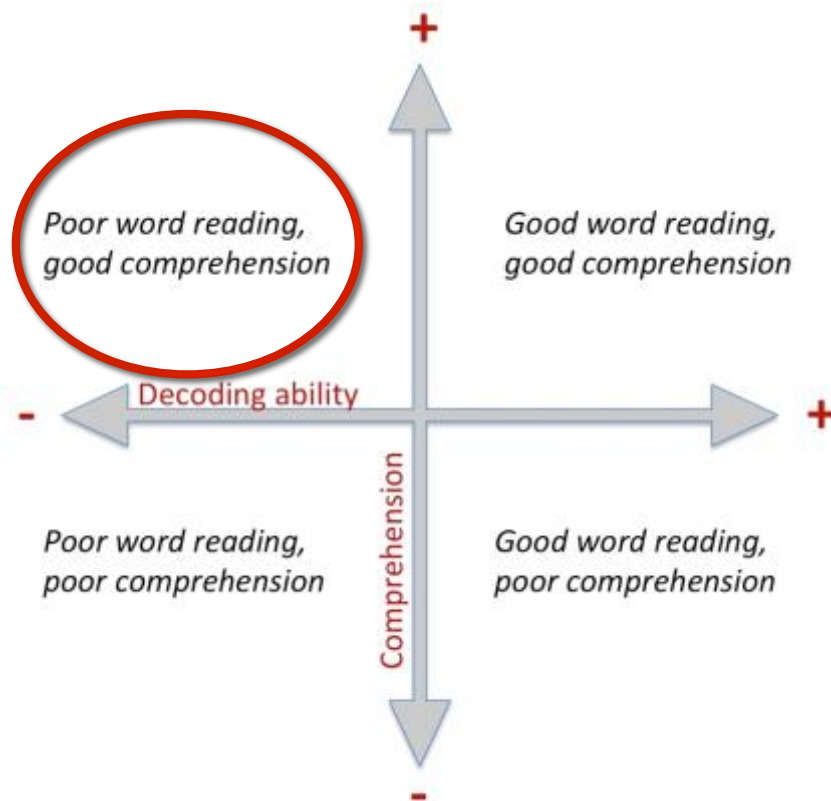
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# Overview

- Introduction to poor reading comprehension – why might morphological awareness be key to comprehension difficulties?
- Methods to select good vs. poor comprehenders
- Tasks used to assess morphological awareness
- Results to address specificity of morphological awareness problems for poor comprehenders:
  - Morphological constructs
  - Tasks
  - Development

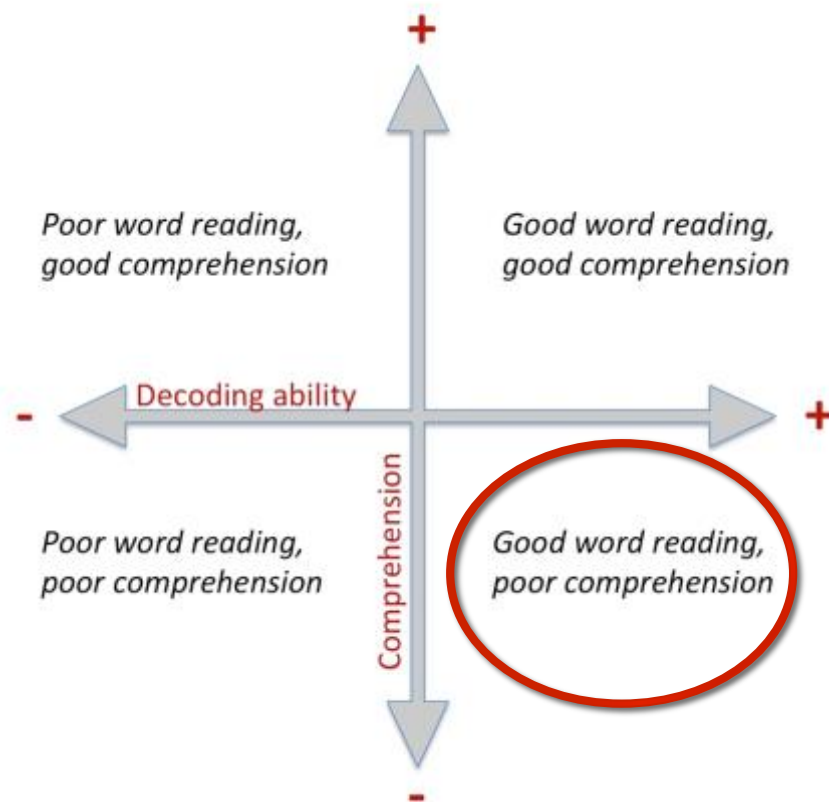
# The Simple View of Reading



- Decoding and comprehension as separable components
- **Dyslexia: poor word reading skills but good comprehension**

(Gough & Tunmer, 1986)

# The Simple View of Reading



(Gough & Tunmer, 1986)

- Decoding and comprehension as separable components
- Dyslexia: poor word reading skills but good comprehension
- **Poor comprehenders:** good word reading skills, but impaired comprehension
  - ~10% school-aged children
  - Identified from age 7+

# Morphological awareness

## Morphology

- Compounds (*sunshine*)
- Inflections (*smiling*)
- Derivations (*happiness*)

## Morphological awareness

- Awareness of and access to the meaning structure of words
- Semantic and grammatical
- Explicit and implicit

“I never heard of **Uglification**,” Alice ventured to say. “What is it?”

The Gryphon lifted up both its paws in surprise. “Never heard of **uglifying**!” it exclaimed. “You know what to beautify is, I suppose?”

“Yes,” said Alice, doubtfully: it means—to —make—anything—prettier.”

“Well, then,” the Gryphon went on, “if you don’t know what to **uglify** is, you are a simpleton.”

Lewis Carroll, *Alice in Wonderland*

# Morphological Awareness and Reading Comprehension

- Morphological awareness positively correlated with reading comprehension (e.g., Carlisle, 2000)
- Morphological awareness impairments in poor comprehenders:
  - Irregular inflections? (Nation et al., 2005)
  - Derivations only? (Tong et al., 2011; 2013)
  - Development? (Tong et al., 2011)
  - Task demands? (Tong et al., 2013)

# How might morphological awareness impairments contribute to comprehension problems?

- **Decoding and fluency** (e.g., Jarmulowicz et al., 2008)
  - *React vs. read, dishonest vs. dishes*
- **Vocabulary** (e.g., Apel et. al, 2012)
  - Exposure to language
- **Semantics** (e.g.,McCutchen et al., 2008)
  - Impaired semantic representations a prominent theory of poor comprehension (e.g.,Nation & Snowling, 1999)
  - Nation et al. (2005) – impaired on irregular words because required greater level of semantic support

# Research Questions

Are poor comprehenders' weaknesses on morphological awareness tasks:

- Specific to a given morphology type?
- Dependent on task demands?
- Constant across development?
- Independent of vocabulary knowledge?



# Methods - Participants

Year 5	Good comp. (n = 16)	Poor comp. (n = 16)
<b>Age</b> (years;months)	10;01 (±0;03)	10;02 (±0;03)
<b>Vocabulary</b> (raw, /36)	27.5 (±4.84)	26.94 (±4.09)
<b>Nonverbal reasoning</b> (proportion correct)	.66 (±.18)	.65 (±.16)
<b>TOWRE – Phonemic decoding</b> (standard)	103.69 (±15.79)	103.94 (±13)
<b>TOWRE – Sight word</b> (standard)	101.94 (±13.42)	99.38 (±13.17)
<b>Reading Accuracy</b> (standard)	102.81 (±11.82)	101.19 (±11.63)
<b>Reading Comprehension</b> (standard) **	112.25 (±7.33)	84.69 (±7.62)

Year 8	Good comp. (n = 18)	Poor comp. (n = 18)
<b>Age</b> (years;months)	13;02 (±0;03)	13;02 (±0;04)
<b>Vocabulary</b> (raw, /36)	29.72 (±4.01)	27.39 (±4.86)
<b>Nonverbal reasoning</b> (proportion correct)	.78 (±.12)	.71 (±.15)
<b>TOWRE – Phonemic decoding</b> (standard)	108.39 (±12.89)	100.83 (±13.23)
<b>TOWRE – Sight word</b> (standard)	104.22 (±12.53)	98.50 (±14.38)
<b>Reading Comprehension</b> (standard) **	116.5 (±4.48)	91.33 (±7.34)

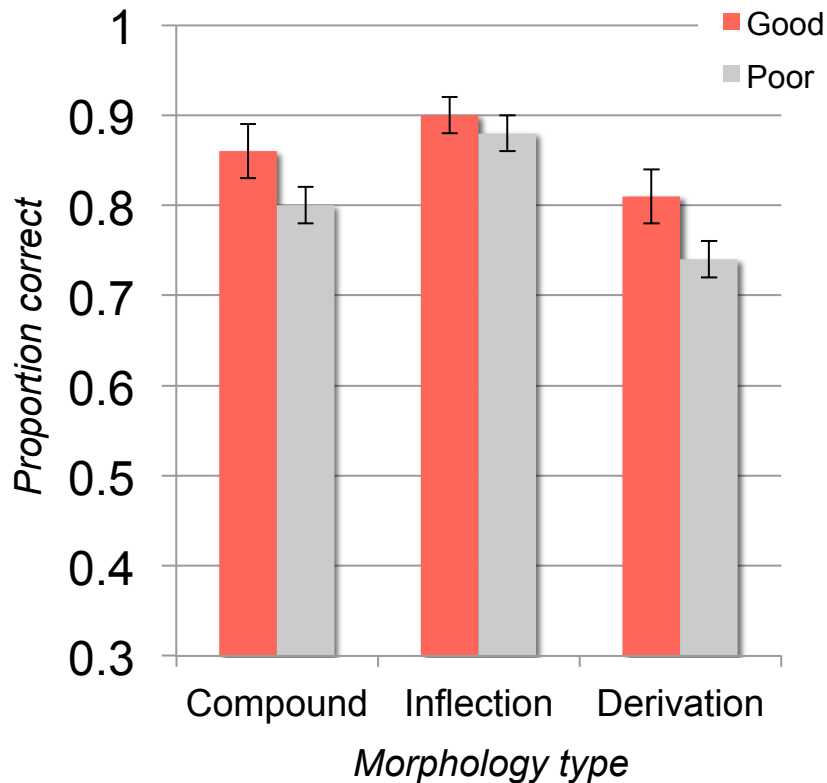
# Morphological Awareness Tasks

	Analogy	Judgement
Compound	A wand that a fairy has is called a fairy wand. What is the name for a wand that an elf has?	Which is a better name for a patch that you wear over your ear? Ear patch or patch ear?
Inflection	Child : children Beach : _____	To <u>stick</u> . Jack <i>stuck</i> / <i>sticker</i> / <i>sticked</i> the card together.
Derivation	Drive : driver Run : _____	To <u>farm</u> . I want to be a <i>farmist</i> / <i>farmer</i> / <i>farming</i> .

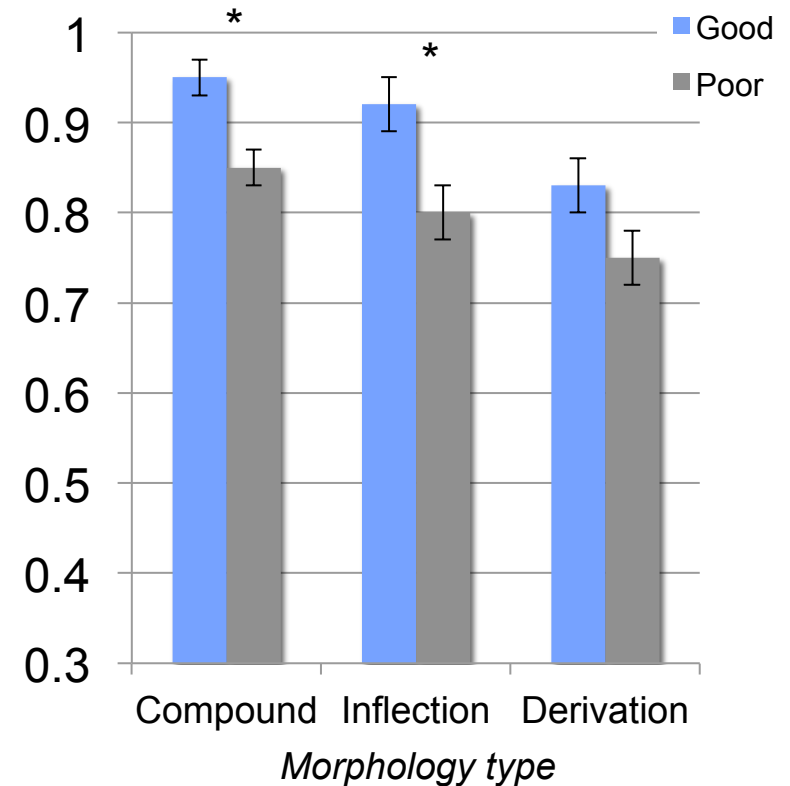
- Words and nonwords
- Regular and irregular transformations
- Range of word class transformations

# Judgement tasks

Year 5

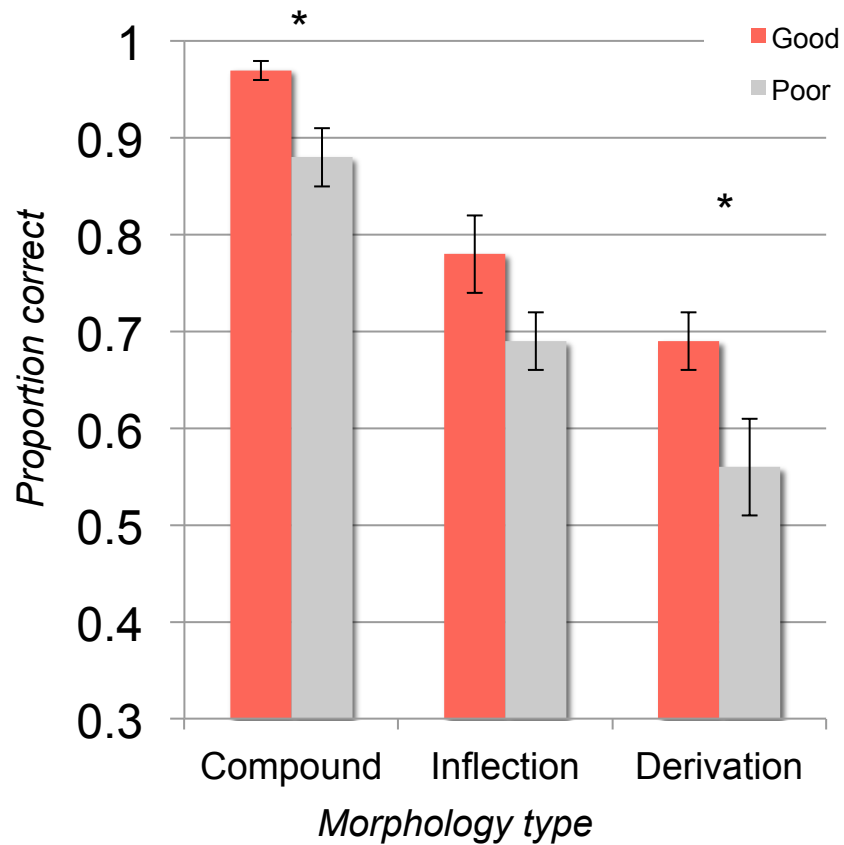


Year 8

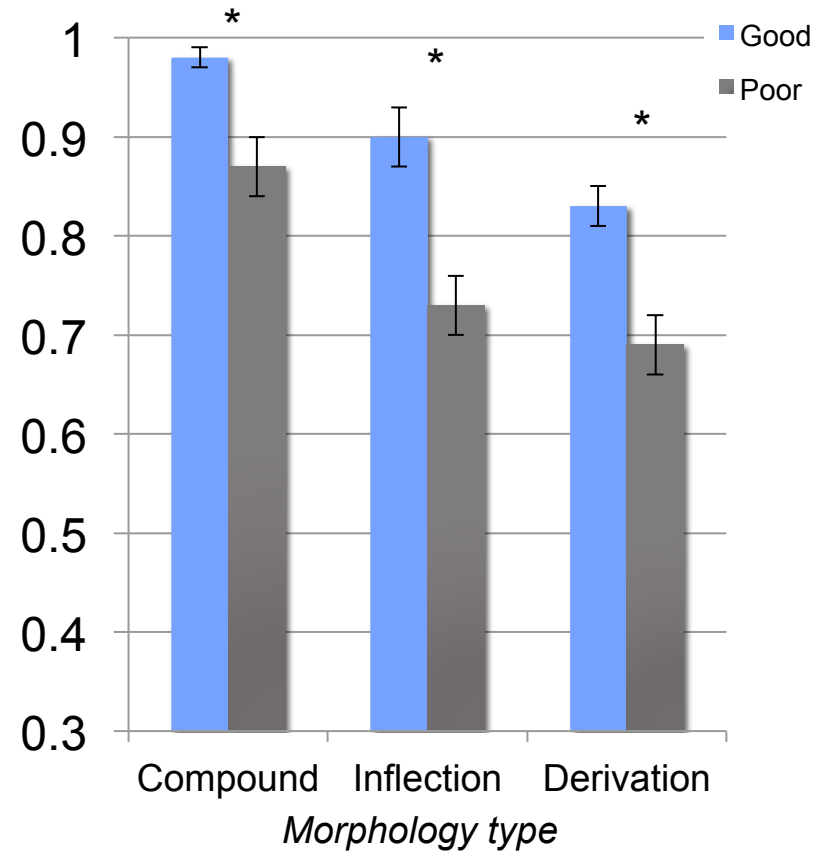


# Analogy tasks

Year 5



Year 8



# Specificity – task demands

- Poor comprehenders relatively impaired on all analogy tasks
  - Consistent with Tong et al. (2013) – Year 5s impaired on analogy task but not syntactic
- Better performance on judgement tasks, but some indication of some impairment
  - Year 8 poor comprehenders not quite acquired same level as peers

Why were the analogy tasks more challenging?

- Analogical reasoning – but matched on reasoning ability?
- Judgement task: provision of answers, syntactic support
- Analogy task: focus on meaning of changes

# Specificity – morphology type

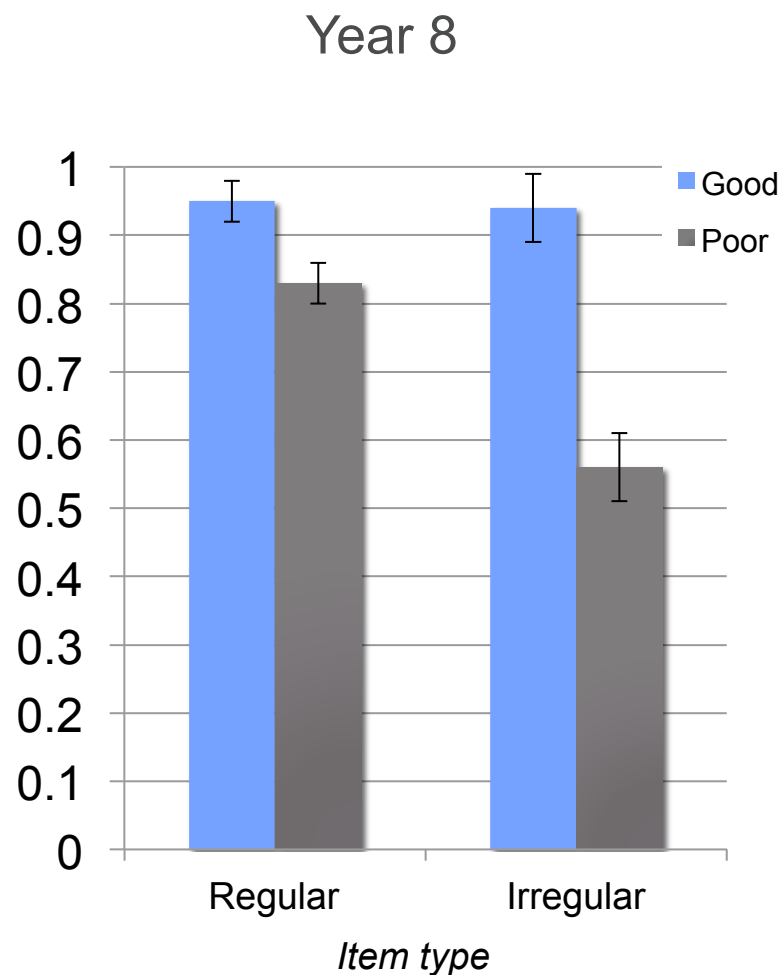
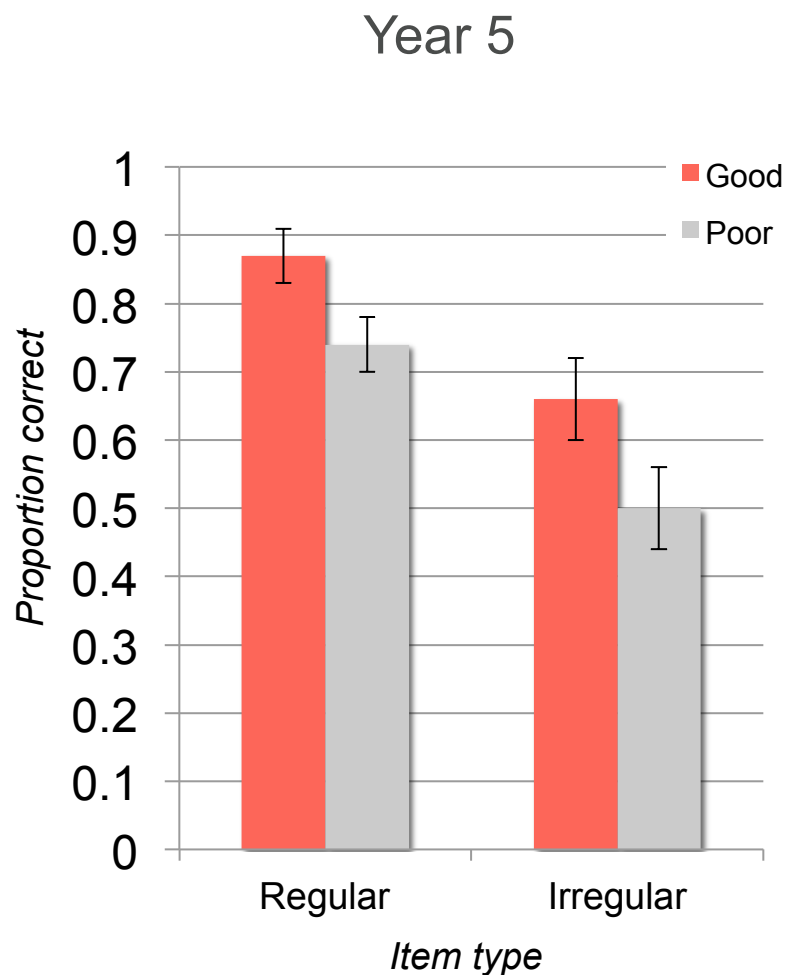
- Consistent with findings of Tong et al. (2011) that poor comprehenders not impaired on inflections in Year 5
- ...but fall behind by Year 8
- Poor comprehenders experience difficulties across all types of morphological awareness
  - Extends to their understanding of compound words
  - Support for morphological awareness construct

# Inflections – Regularity

- Nation et al. (2005) – poor comprehenders specifically impaired on irregular inflections
- Real word items only

Regular	Irregular
share : shared drop : <u>dropped</u>	spend : spent bend : <u>bent</u>
wash : washes ride : <u>rides</u>	skip : skipped think : <u>thought</u>

# Inflection analogy – regularity?





# Development?

- Poor comprehenders relatively more impaired at morphological awareness tasks in older age groups
- Cross-sectional
  - Similar pattern found by Tong et al. (2011)
- Developmental lag?
- “Matthew effects” (Stanovich)
  - Perhaps read less - acquire less through text exposure
  - Skills to improve independently, when formal instruction ceases?

# Summary

Are poor comprehenders' weaknesses on morphological awareness tasks:

- Specific to a given morphology type?
  - No – relatively impaired at compounds, inflections and derivations
- Dependent on task demands?
  - Yes – affected by, although not restricted to
- Constant across development?
  - No – appear relatively more impaired later in development
- Independent of vocabulary knowledge?
  - Yes – matched

# How might morphological awareness impairments contribute to comprehension problems?

- Decoding and fluency
  - Matched
- Vocabulary
  - Matched – but adequate?
- Semantics
  - Analogy tasks show greater impairment than cloze/judgement task
  - Inflection impairments apparent in real word analysis, and more so for irregular
  - Compounds – understanding of how the two components each contribute meaning, and how one modifies the other

# Implications

- Poor comprehenders' difficulties are not limited to understanding of texts
  - Understanding other aspects of language
- Educational implications
  - Poor comprehenders become relatively more impaired as they get older
  - ...Emphasises need for continued support
  - Need for continued explicit instruction in language skills?

# Thanks

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