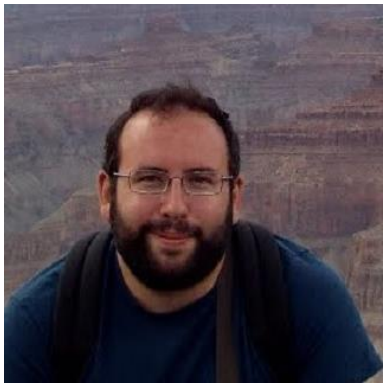
Kathy Rastle

Marc Brysbaert



Marco Marelli

Maria Korochkina

What children learn from books, and how to talk to teachers about it

UKRI Economic and Social Research Council

maria.korochkina@rhul.ac.uk
https://mariakna.github.io/

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researchED

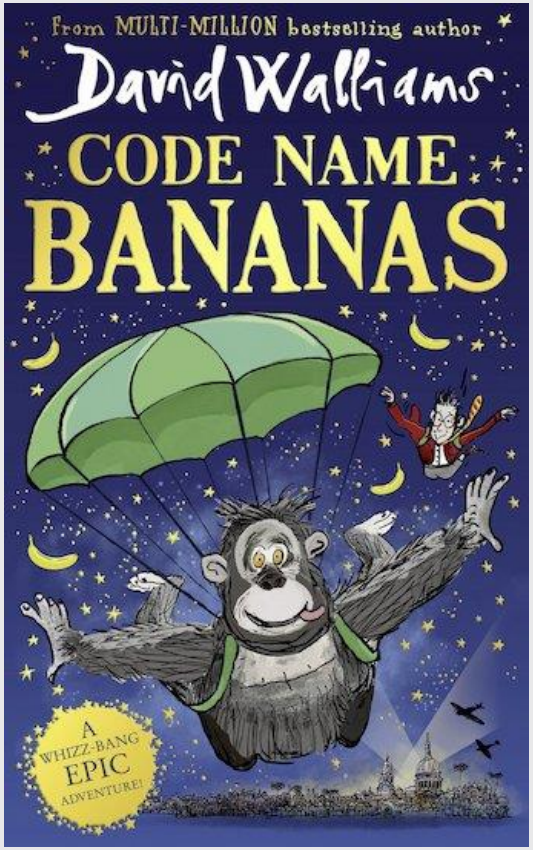
The goal of researchED is to bridge the gap between research and practice in education. Researchers, teachers, and policy makers come together for a day of information-sharing and myth-busting.

We aim to to bring together as many parties affected by educational research – e.g. teachers, academics, researchers, policy makers, teacher-trainers – in order to establish healthy relationships where field-specific expertise is pooled usefully.

https://researched.org.uk/

The complexity of reading

"Then a mischievous thought flashed across her eyes, and she pursed her lips together and pushed her tongue forward".



The journey to skilled reading

Oral language foundations

Phonics instruction

Text experience

What challenges does text experience pose and what opportunities does it bring?

Keep an eye out for the lightbulbs!

CYP-LEX
The Children and Young People's Books Lexicon

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National reading surveys, publisher data, book sales statistics from Amazon, BookTrust, Goodreads, LoveReading4Kids, etc.

↓

1,200 popular books, 400 books per age band

7-9 years

10-12 years

13+ years

Many distinct words in each age band

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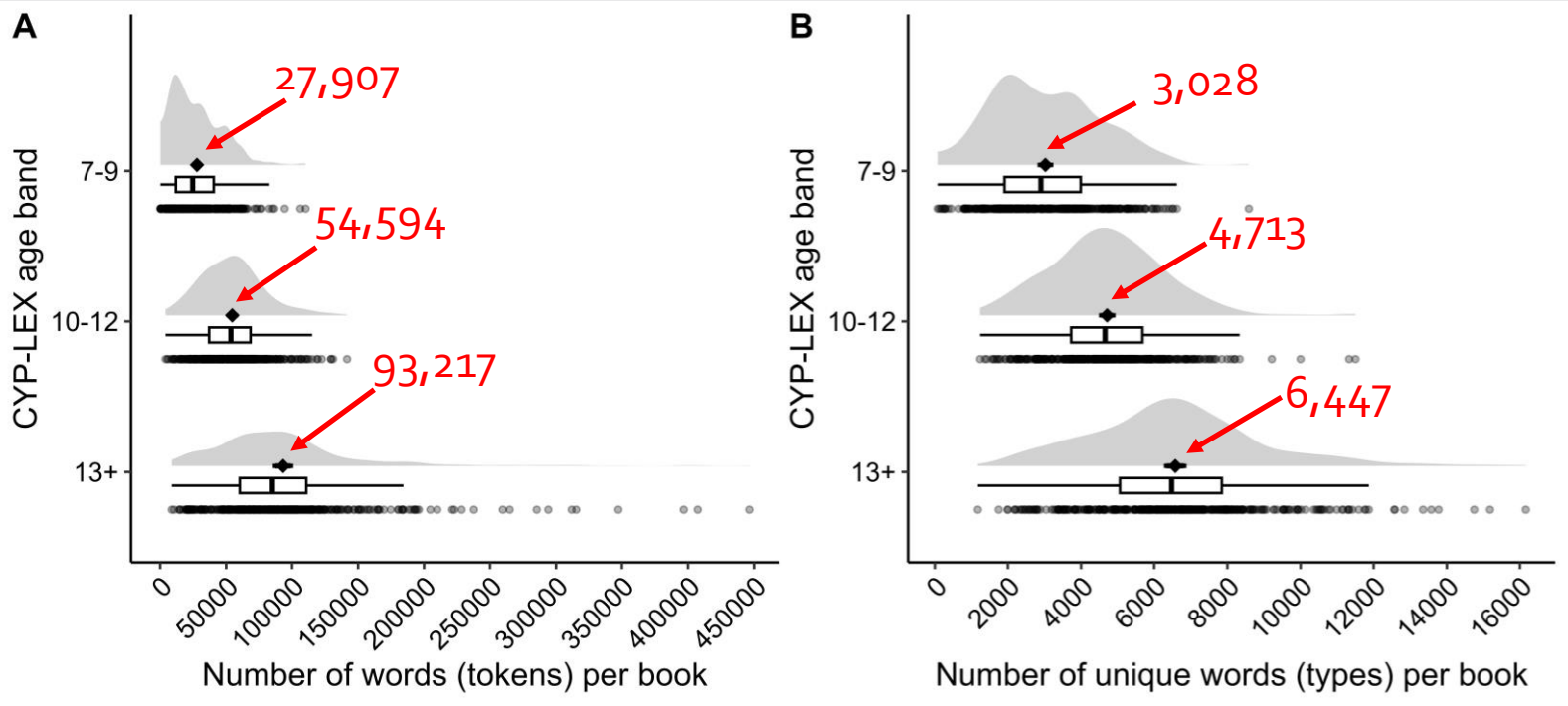
- Over **70 million words** and **over 100K** distinct words in 1,200 books
- **50K+** distinct words in the 7-9 age band alone

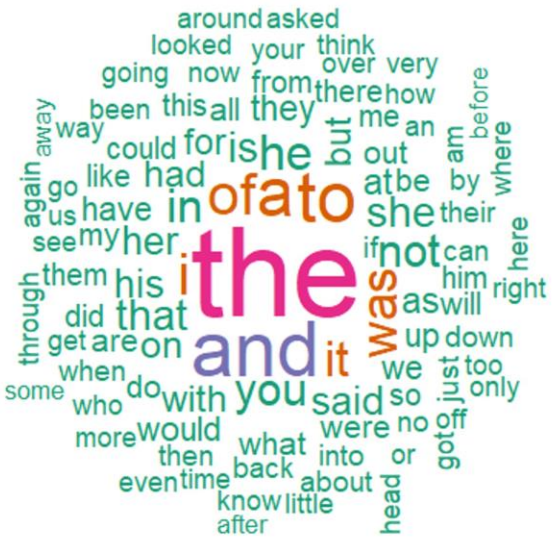


- Vast numbers of distinct words in books
- **Memorising words by rote is not an option**

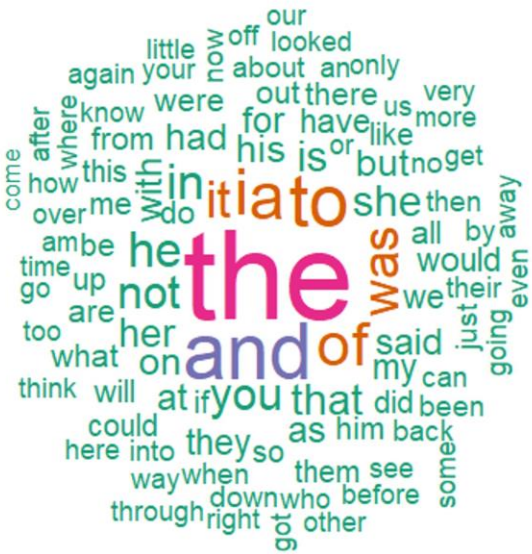
100 words make up 54% of the books…

…that's about 37 million words!

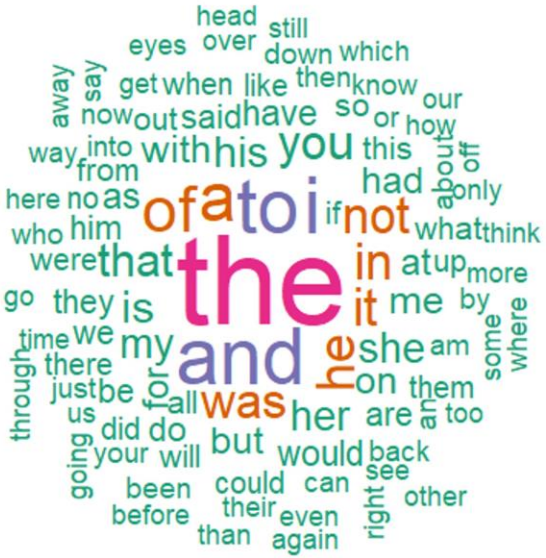
A 7-9 age band



B 10-12 age band



C 13+ age band



Yet, these words aren't very useful for understanding

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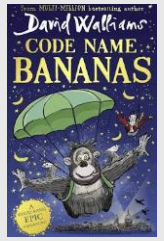
"Then a mischievous thought flashed across her eyes, and she pursed her lips together and pushed her tongue forward".

"Then a mischievous thought flashed across her eyes, and she pursed her lips together and pushed her tongue forward".



- Children will quickly learn to recognise these words by sight
- Recognising every second word effortlessly **will not be enough to understand** the text

Many words may be unfamiliar

Percentage of CYP-LEX words **not** encountered on TV

	CBeebies (*up to 6 yrs*) + **CBBC** (*6-12 yrs*) 63,081 words	9 BBC channels 159,235 words
7-9 age band	**28%**	
10-12 age band	**40%**	
13+ age band		**21%**

- Children encounter many words in books that are **not in their spoken vocabulary**
- This occurs from the **earliest** years of independent reading

Children **will be needing support** to understand the words they encounter in books

Most words are not used repeatedly

	% words used **more** than 100 times	% words used **less** than 50 times
7-9 age band	12%	81%
10-12 age band	14%	79%
13+ age band	16%	77%

- Increasing % of frequently used words as books become more advanced
- **Not enough exposure** to learn to recognise most words by sight

It is crucial that children acquire **strong decoding skills** early on

Books vary greatly in the words they use

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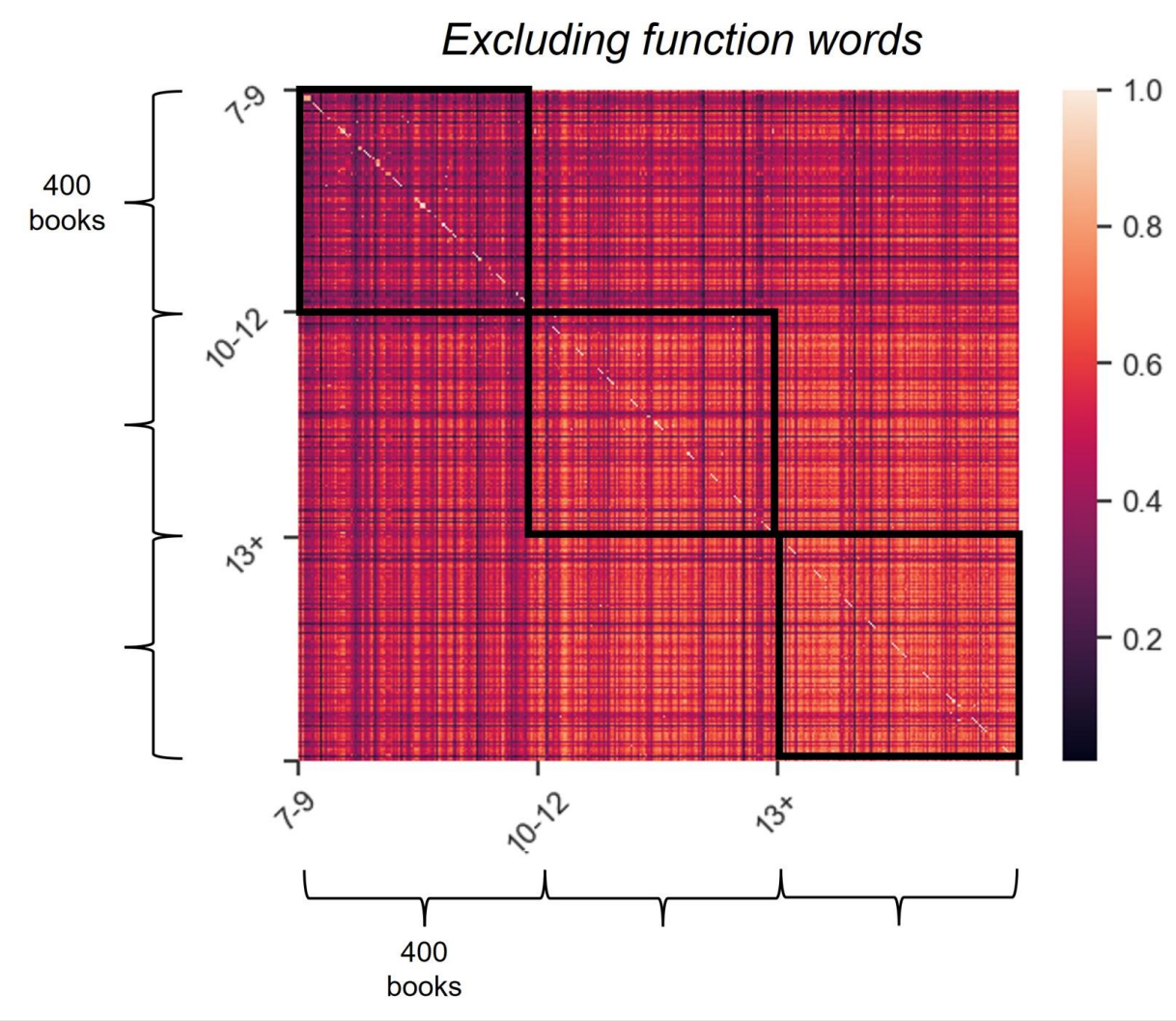
- In each age band, 30% of distinct words appear in **1 book out of 400**
- Most of these words are used **once** in that book

Books vary greatly in the words they use



Books vary greatly in the words they use

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- In each age band, 30% of distinct words appear in **1 book out of 400**
- Most of these words are used **once** in that book
- **Low similarity** in vocabulary **across the individual books**
- In the 7-9 age band, books are less similar to one another than in the other age bands

↓

Each book contains many words that are not encountered in any other book

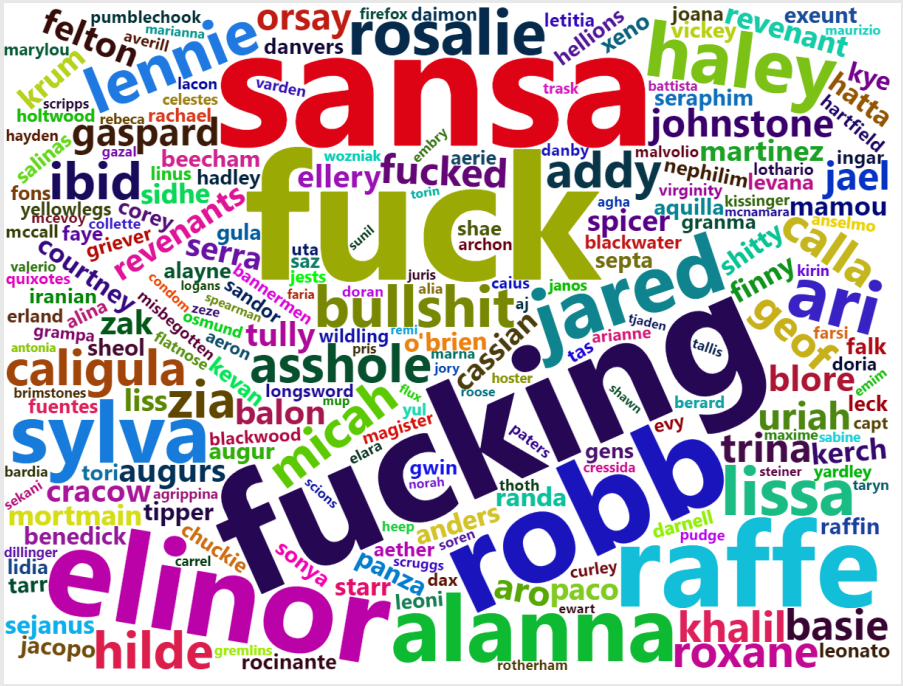
- **Each book is a challenge**
- To encounter as many different words as possible as often as possible, children **must read widely**

Many new words in each age band

- **25,627** new words in the 10-12 age band
- **31,025** new words in the 13+ age band
- Only 1 % are encountered frequently

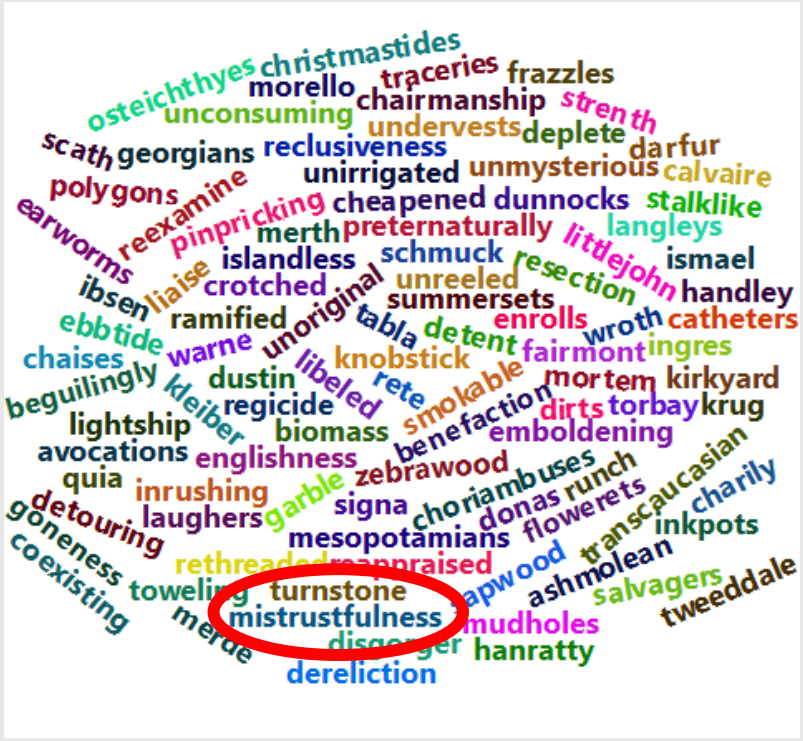
Many names…

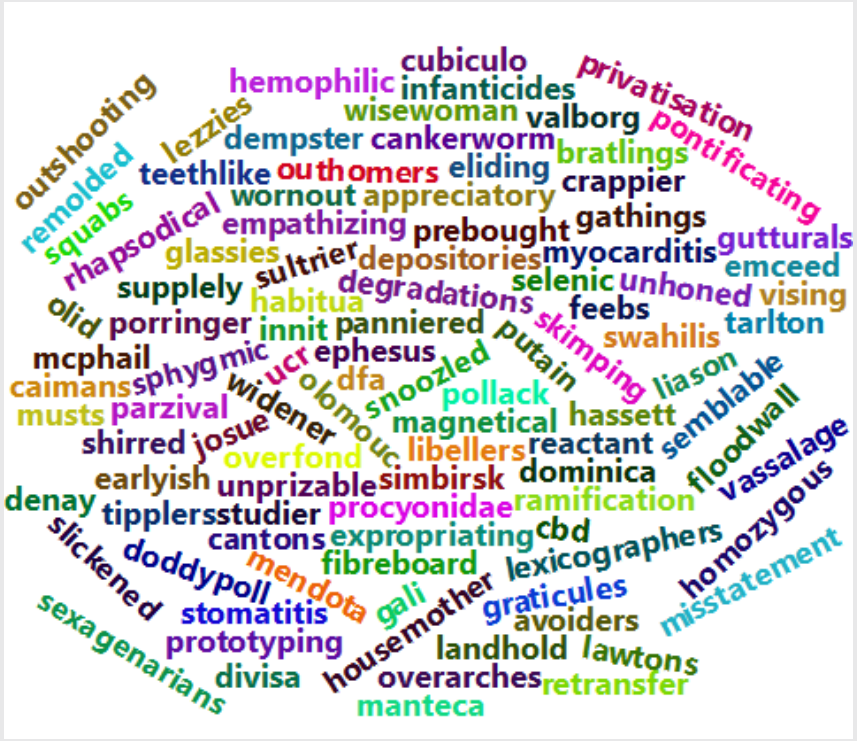
…and, in 13+ books, swear words!



Over 70% of "new" words are used infrequently…

… and many contain **several morphemes!**





Children will need **strong morphological knowledge** to understand new words in books

The power of morphology

- Most English words are built by **recombining stems and affixes**

clean<u>er</u>, clean<u>ly</u>, un<u>clean</u>
teach<u>er</u>, bank<u>er</u>, build<u>er</u>

- Morpheme knowledge is also crucial for computing the meanings of **unfamiliar** words

bright + -ify → brightify

- Limited time for explicit teaching of morphology, so morpheme knowledge often acquired through **text experience**

Few complex words are used repeatedly

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- Roughly **half of all distinct words** in each age band are complex
- But **few complex words are used repeatedly** or in many books

	7-9	10-12	13+
Occur 5 times or less	50%	42%	35%
Occur 100 times or more	8%	11%	15%

- Children are **likely to see** a complex word, but **unlikely to ever see it again**!

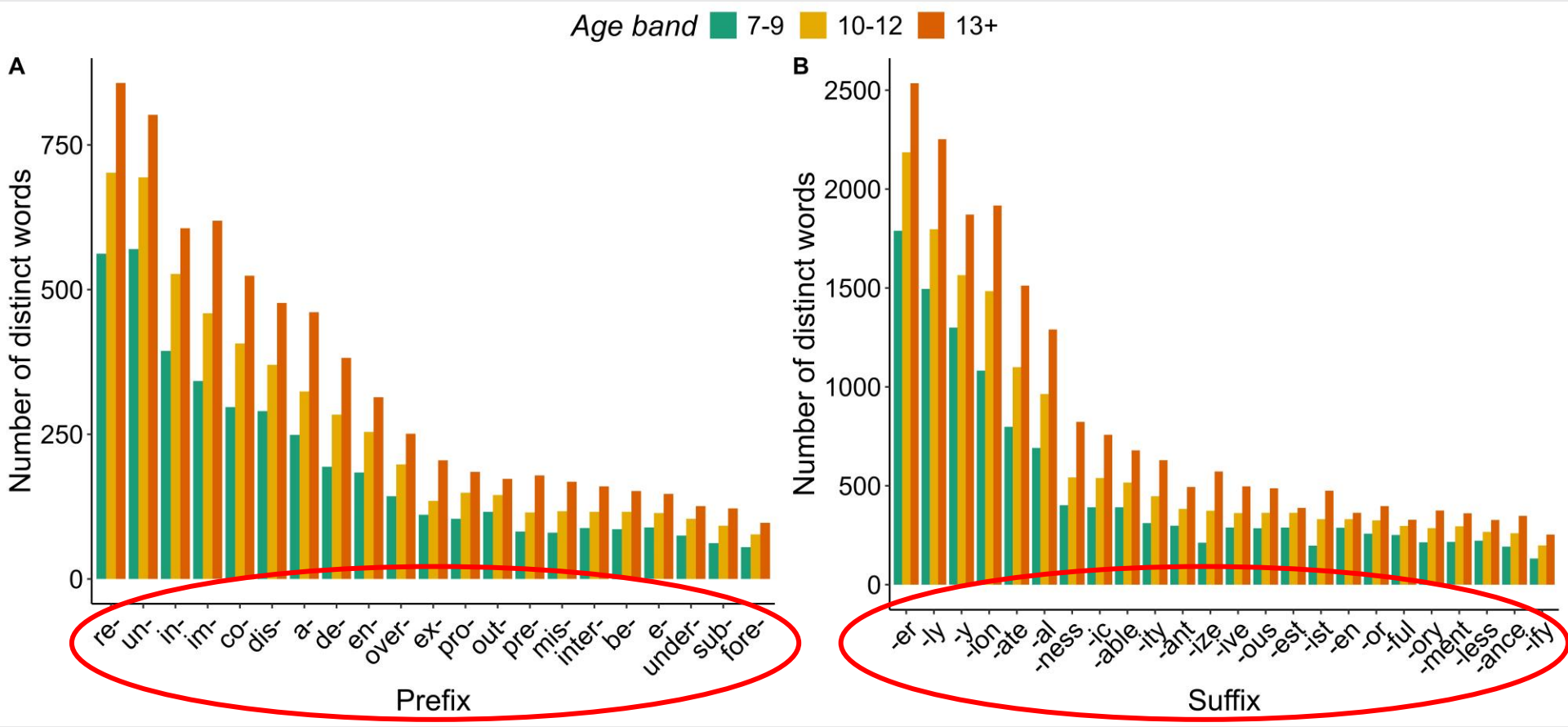
- **Difficult** to learn to recognise complex words by sight
- It is critical to be able to **break words apart**

Pre-requisites for affix learning

unknown	subconscious
unfair	subheading
unafraid	suboptimal
unlikely	subjugate
unconvinced	submit
unsure	subject
unwell	subside (sub + -sidere)

- Must have **consistent** meaning transformation
- Must occur with a high number of **distinct stems**
- Must be **detectable**

Few affixes are used with many different stems



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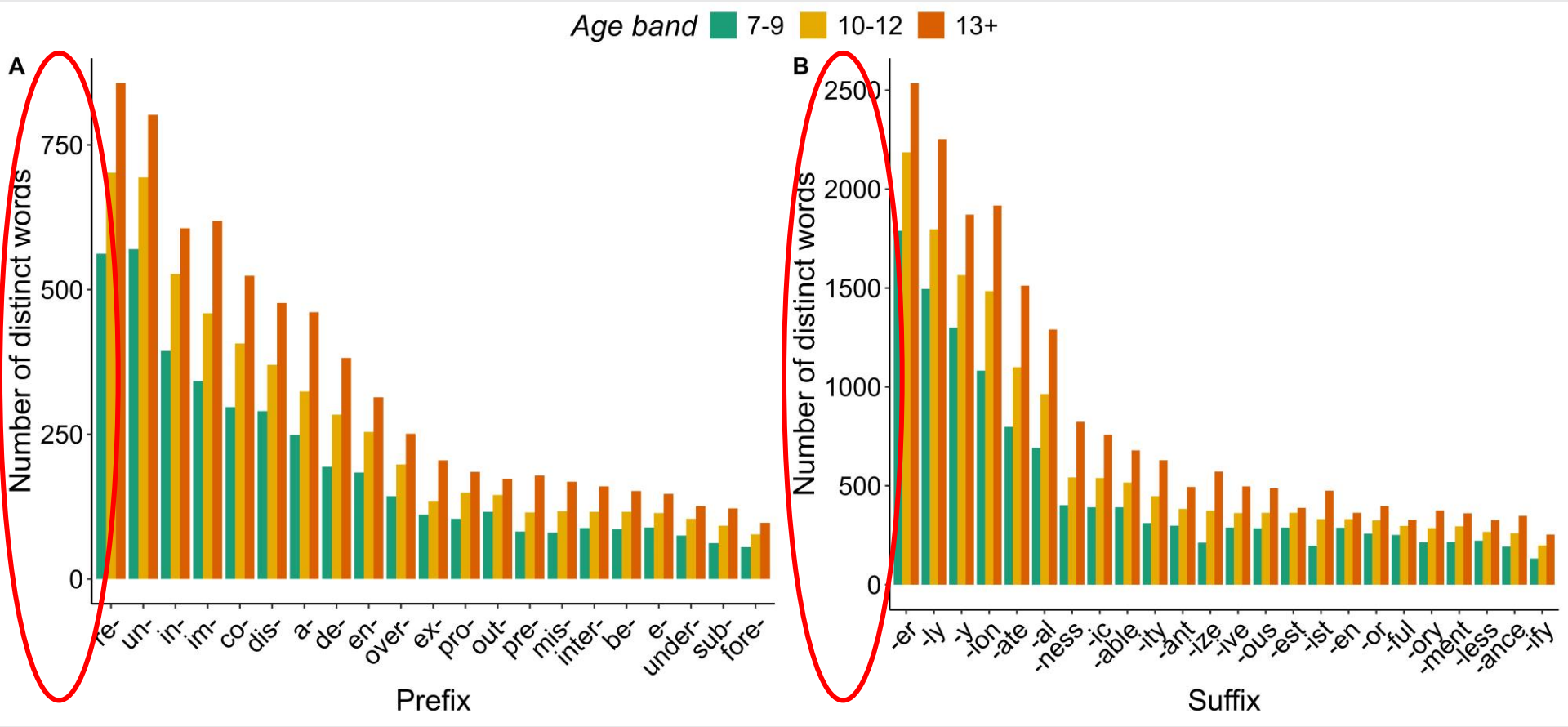

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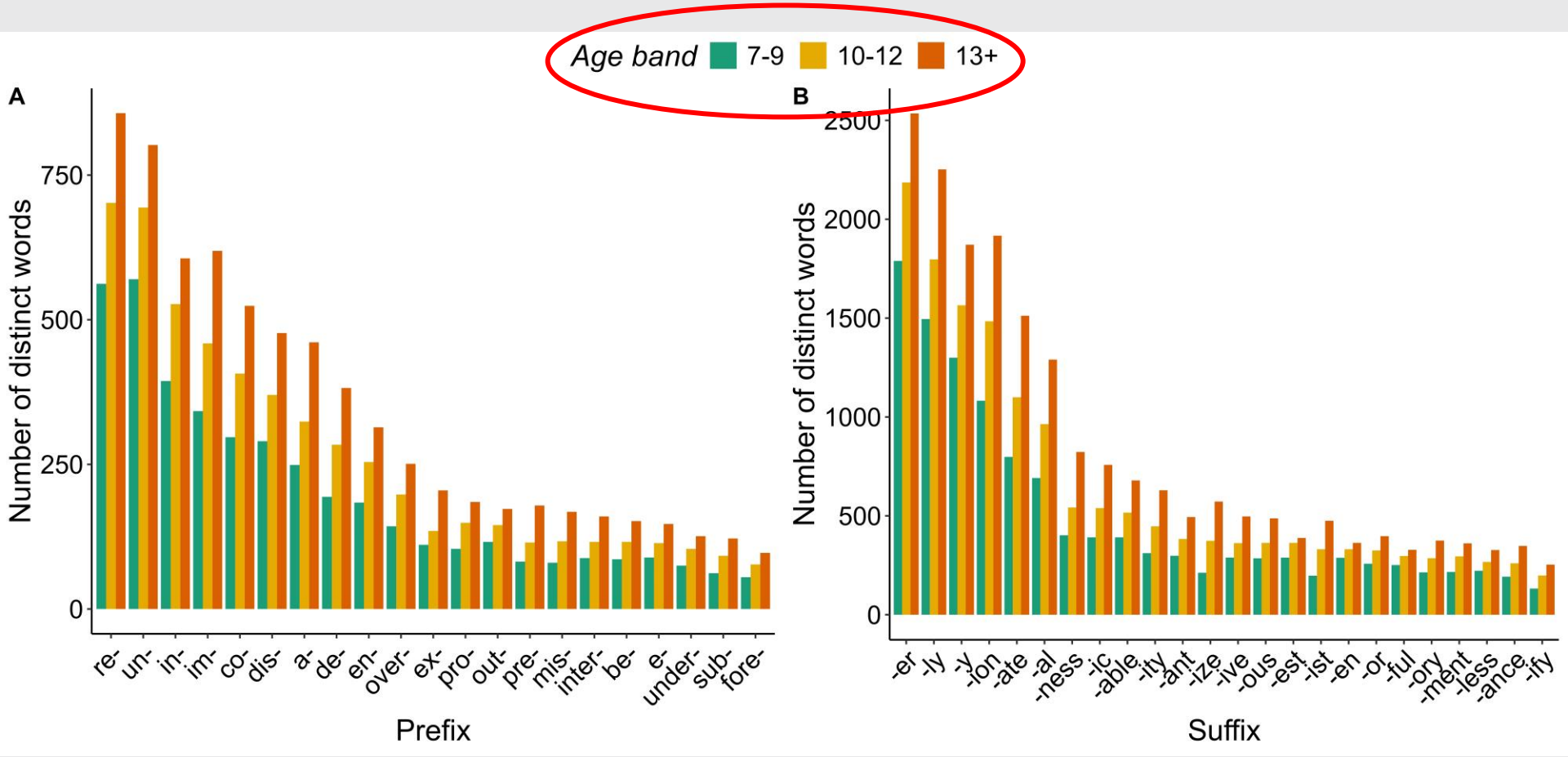

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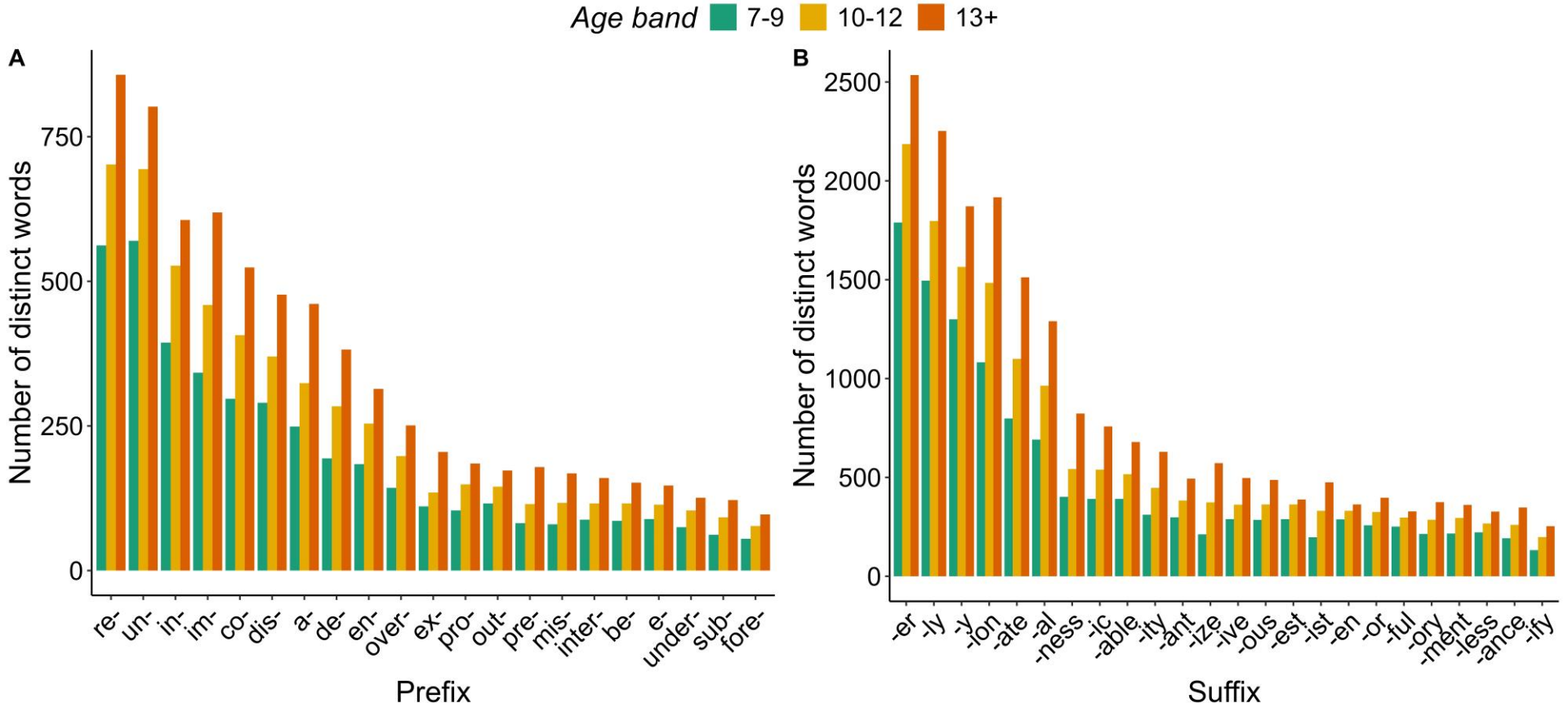

- **Limited exposure** before 13+ texts
- Only a few affixes are frequent: *un-*, *re-*, *in-*, *-er*, *-ly*, *-y*, *-ate*

Morpheme detectability analysis

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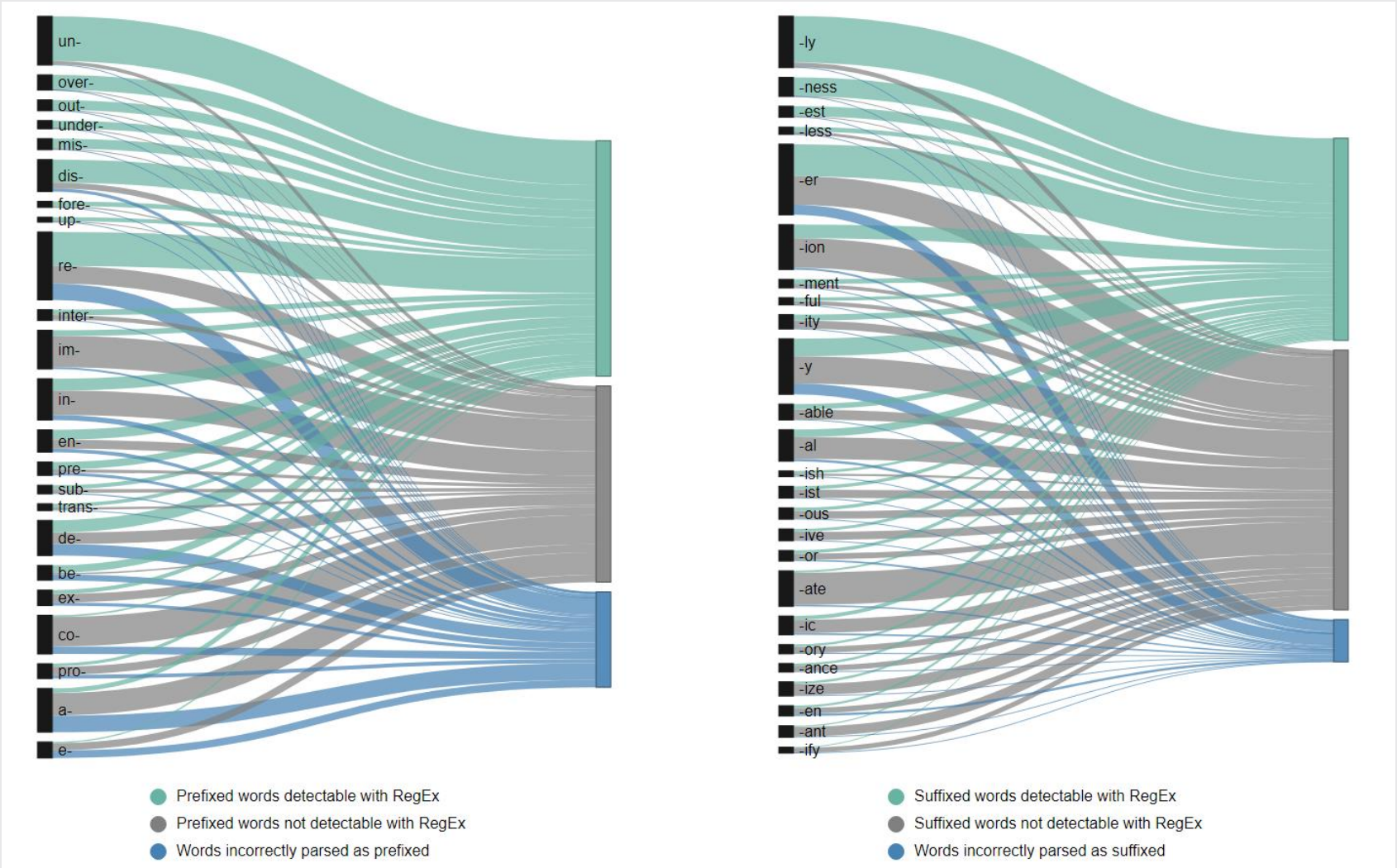
Prefixes



Suffixes

Few affixes are easy to detect

Easy to detect
un- (unknown, unwise, undo)
-ly (warmly, openly, friendly)

Mostly undetectable
in- (inject, include, involve)
-ate (facilitate, allocate, irrigate)

Often undetectable or difficult to parse
-y (gravity, trinity, comply, rely, subsidy)

Pseudo-affixation
-er (corner, brother, number)

- Many complex words **will not add to a reader's experience** of the affixes
- The **opportunity** for affix learning via text is **limited**

A case for morphology instruction?..

- Complex words comprise a large proportion of words in children's books
- Beyond a handful of affixes, morpheme knowledge will be **difficult to acquire** from text

↓

- Is there value in **more systematic** morphology instruction?
- There is **potential for substantial impact** on vocabulary acquisition and reading comprehension
- Yet, there may be significant **challenges in implementation**

A closer look at the 13+ books…

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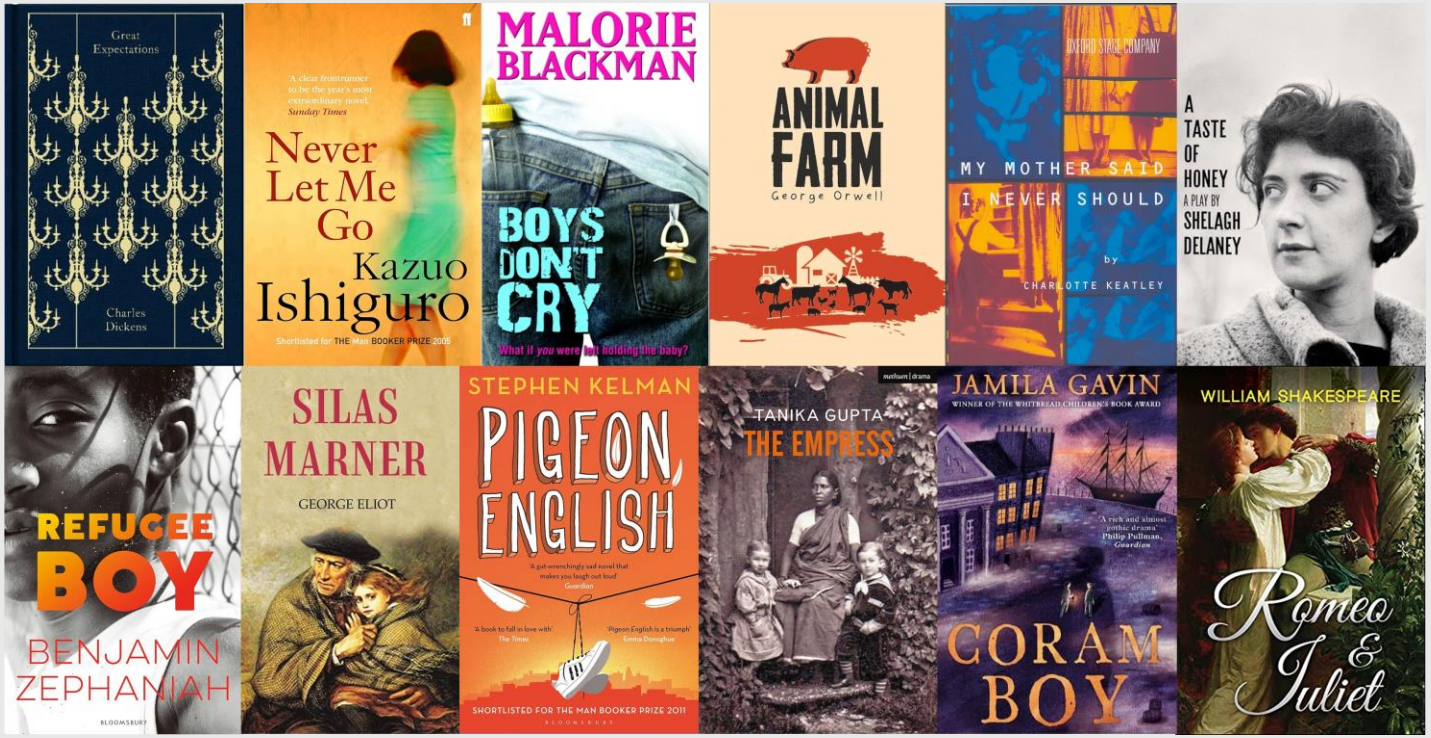
32 prose books from the AQA and EdExcel specifications for English Literature GCSE



How do these books compare to the popular books?

Highly dense vocabulary in the GCSE books

- GCSE books are **half as long as** popular books, but contain a **similar number of distinct words**
- GCSE books are much **less homogenous** in the words they use

- **More** vocabulary through **less** text in the GCSE books
- May be **harder to understand the text as a whole**

Many unfamiliar words in the GCSE books

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- Only **33%** of the distinct words **occur regularly** in popular books
- The remaining **67% are used sparsely**
- **3,000** distinct words **never used on 9 BBC TV channels over 3 years**
  - *poulterer*, *bonneted*, *dowerless*, *bedight*, *sepulchre*, *catechize*
  - *brusquely*, *docilely*, *imploringly*, *beatifically*, *superciliously*

- GCSE texts **will stretch** even those who read widely
- Weaker readers **may not be able to engage** with the GCSE texts at all

Many unfamiliar words in GCSE books are new roots

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- Children **often** encounter unfamiliar words in books
- In popular books, many of these "new" words are **morphologically complex**

→ Meanings **can be derived** from the words' constituents: [mourn] + [-ful] + [-ly]

- In GCSE books, most "new" words are **new roots**

→ Meanings **cannot be derived** from smaller units

  - *aspidistra*, *crimplene*, *beseech*, *coccidia*, *gambol*

- Pupils **must rely on context or instruction** to understand these words
- Deriving meaning from context requires **advanced language and reading skills**

Conclusions

- Books offer a wonderful **opportunity** to build vocabulary
- Yet, book vocabulary is **challenging** from the get-go
- Children need **strong foundational reading skills** to access popular books
- Children need to **read widely** to build reading proficiency
- There is a **partnership** between reading skills and reading motivation
- Children with good foundational reading skills will be able to read, understand what they are reading, and derive pleasure from books, **leading to a virtuous cycle**

Dissemination & impact

Quarterly Journal of Experimental Psychology
OnlineFirst

https://doi.org/10.1177/17470218241229694

Open Access

Sage Journals

Original Article

The Children and Young People's Books Lexicon (CYP-LEX): A large-scale lexical database of books read by children and young people in the United Kingdom

Maria Korochkina [1], Marco Marelli[2], Marc Brysbaert [3], and Kathleen Rastle [1]

rastlelab.com/blog

Maria Korochkina & Kathy Rastle · Mar 12 · 5 min read

What Words do Children Encounter When They Read for Pleasure?

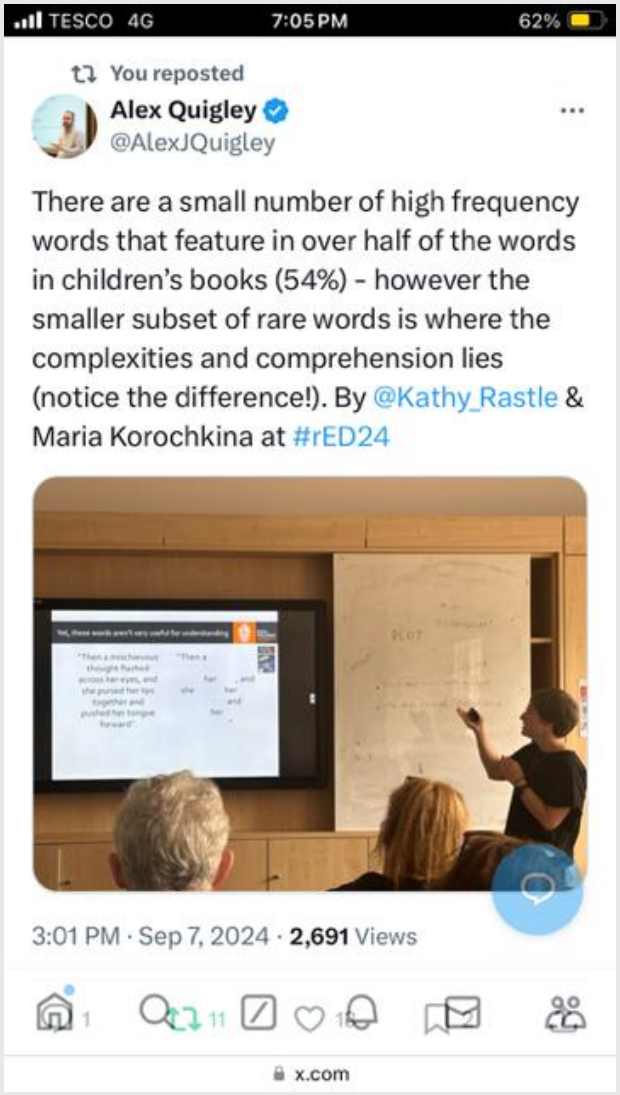
The ability to read opens up worlds. Reading enables children to progress into post-primary education and provides the basis for lifelong learning and prosperity into adulthood. Importantly, the journey to becoming a skilled reader requires not only high-quality classroom instruction but also many years of practice through independent book reading.

Gold, silver and tin: standards of evidence p. 4 | Cognitive load theory under attack? p. 20 | The science on reading fluency p. 28

Nomanis

Reading | Teaching | Learning | Connecting

Issue 17, June 2024



Dissemination & impact

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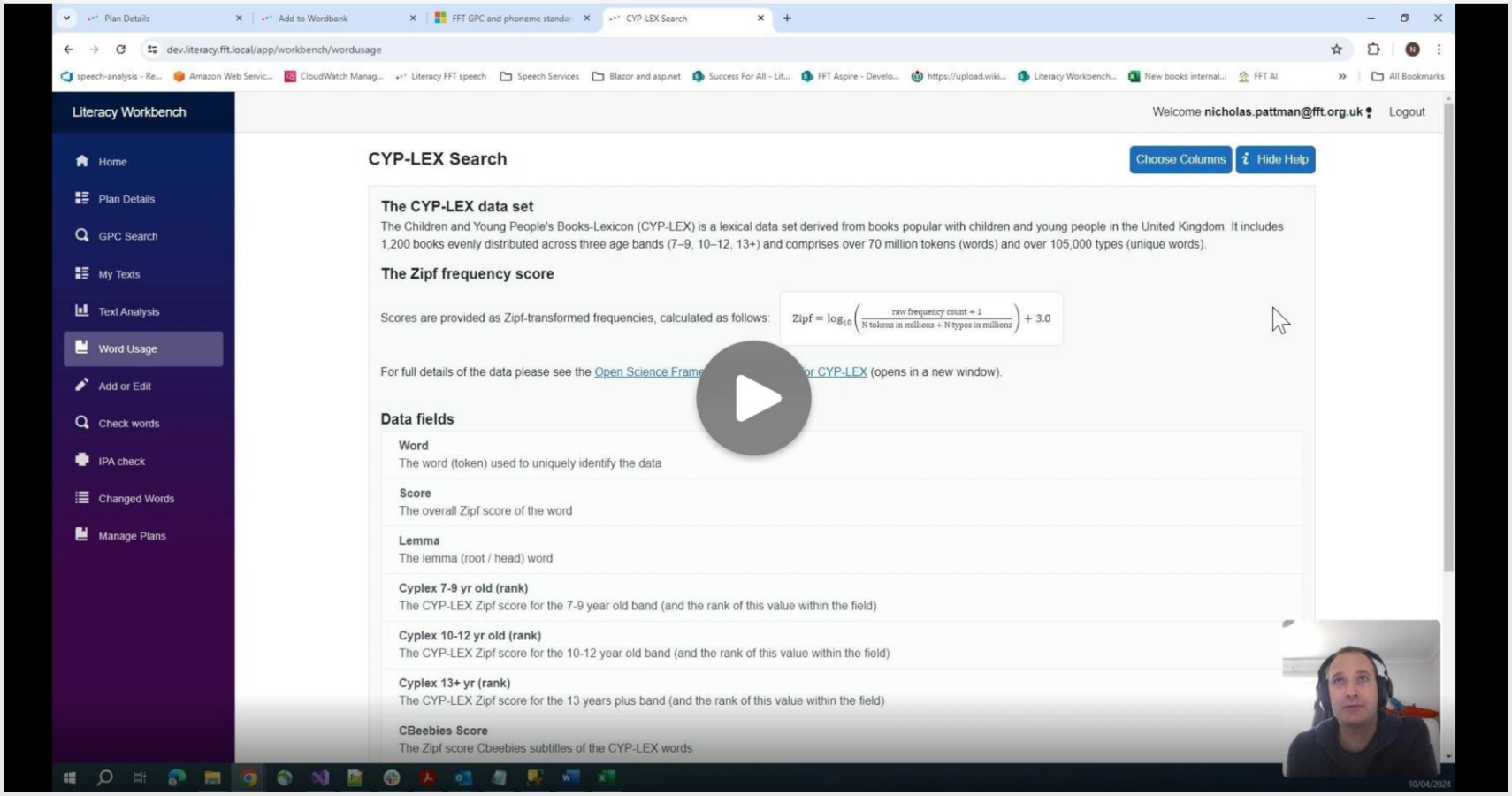
Powerful data ▾ Effective literacy ▾ Research & evidence



Dissemination & impact

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https://doi.org/10.31219/osf.io/vg8c3

The vocabulary barrier in the General Certificate of Secondary Education (GCSE) in English Literature

Maria Korochkina and Kathleen Rastle
Department of Psychology, Royal Holloway, University of London, United Kingdom

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What makes GCSE English lit so hard for students?

New research has analysed GCSE literature texts against popular fiction – and found three key reasons why so many young people struggle with the qualification

4th August 2024, 8:00am

Maria Korochkina and Kathleen Rastle

Vocabulary Sep 21, 2024 • by Alex Quigley

The rare vocabulary problem in English Literature

Emerging research from **Maria Korochkina** and **Kathleen Rastle**, entitled '**The Vocabulary Barrier in the General Certificate of Education (GCSE) in English Literature**', has shown the vocabulary in the GCSE English Literature texts is uniquely rare. They reveal it woul access *even for avid teen readers*, whilst weaker rea chance to engage with the language of the texts.

Morphology in children's books: What's there and what's useful for learning?

Maria Korochkina[1*] and Kathleen Rastle[1]

Thank you!

maria.korochkina@rhul.ac.uk
https://mariakna.github.io/