

Dr Maria Korochkina

Affix learning from text: A new theoretical and computational framework

SSSR @ Rotterdam
18 July 2026

Pre-requisites for affix learning

- **High type frequency** – affix must occur within a high number of distinct words

*Count all instances where a complex-looking word is **historically formed through derivation***

<u>d</u> eactivate	<u>d</u> emand
<u>d</u> ecode	<u>d</u> eceive
<u>d</u> ecompose	<u>d</u> epend
<u>d</u> efrost	<u>d</u> ele t e
<u>d</u> ehydrate	<u>d</u> eliver
<u>d</u> evalue	<u>d</u> etail
<u>d</u> ethrone	<u>d</u> efe a t

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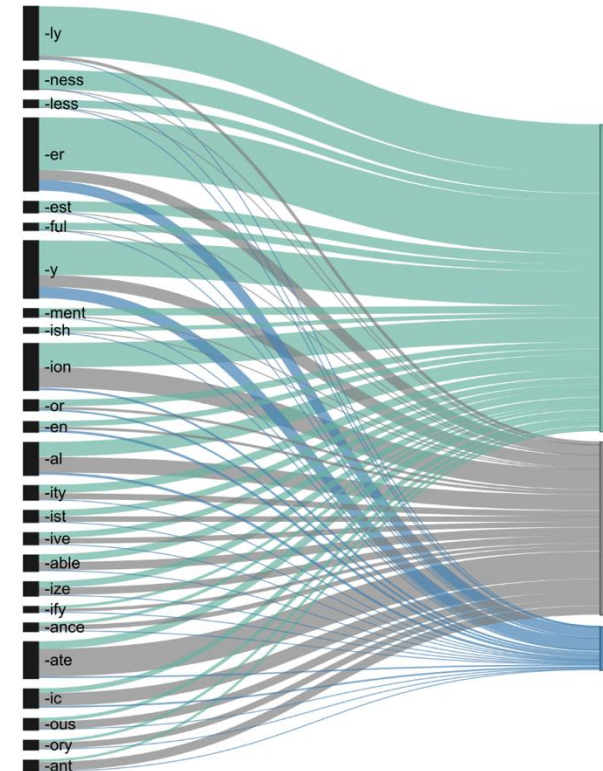
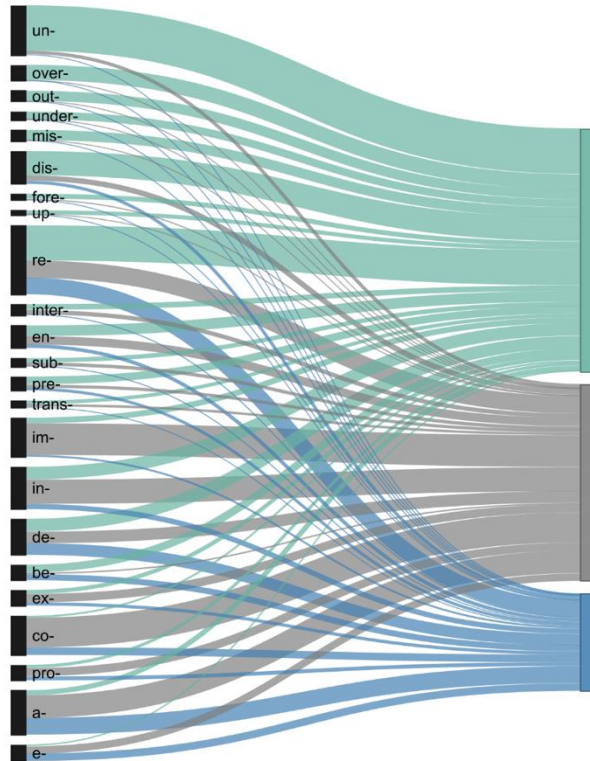
demand
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Count only those instances where affixes are **identifiable without specialised knowledge**

Affixes vary in detectability and false-alarm rates

Data from
a 70-mln-word
corpus of children's
books (CYP-LEX)



Pre-requisites for affix learning

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 - This number changes if we take readers' perspective into account
- Affixes must induce a **consistent meaning transformation**

teacherer
bankerer

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corner

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- **High type frequency** – affix must occur within a high number of distinct words
 - This number changes if we take readers' perspective into account
- Affixes must induce a **consistent meaning transformation**
 - Affixes communicate meaning in a quasiregular way



What can readers learn about affix meanings through reading?



Compositional distributional semantics

CAOSS: Compounding as Abstract Operation in Semantic Space

undo

CAOSS: Compounding as Abstract Operation in Semantic Space



un

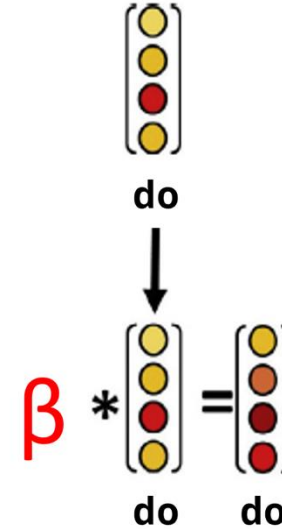
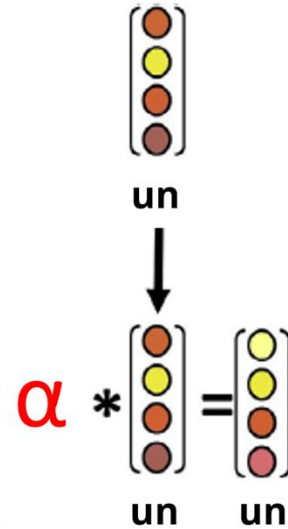
undo



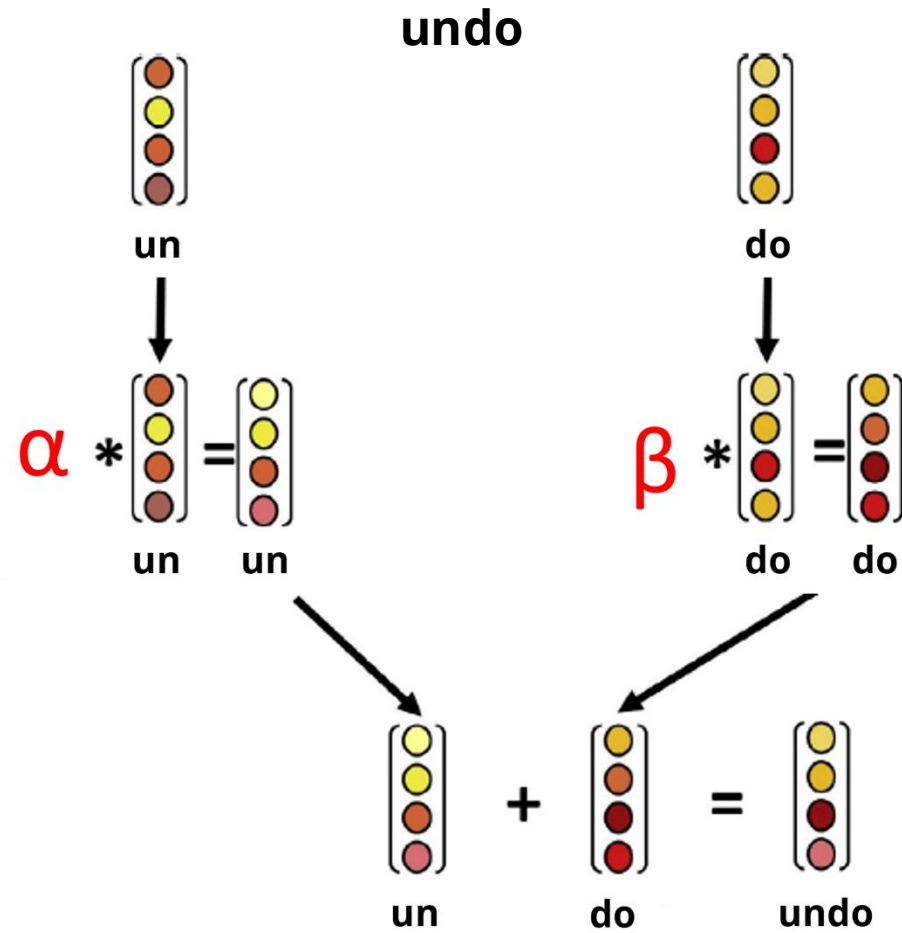
do

CAOSS: Compounding as Abstract Operation in Semantic Space

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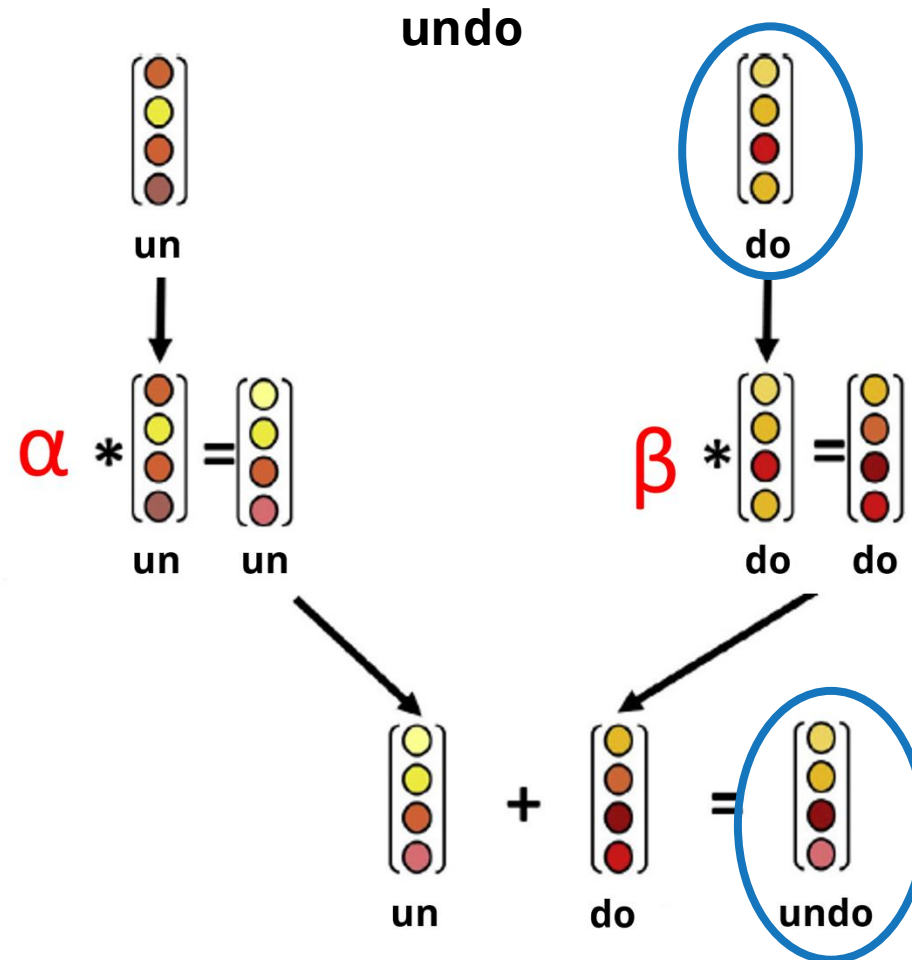


CAOSS: Compounding as Abstract Operation in Semantic Space

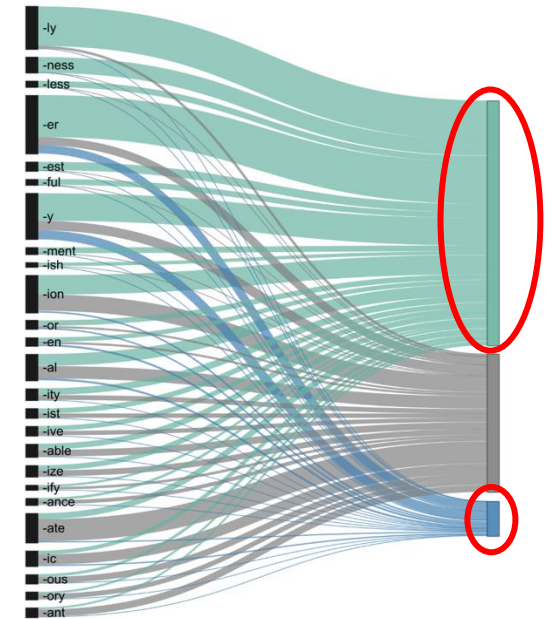


Our modelling approach

Lexicalised representations
for **words** & **affixed words**
from *subs2vec*
(van Paridon & Thompson, 2021)



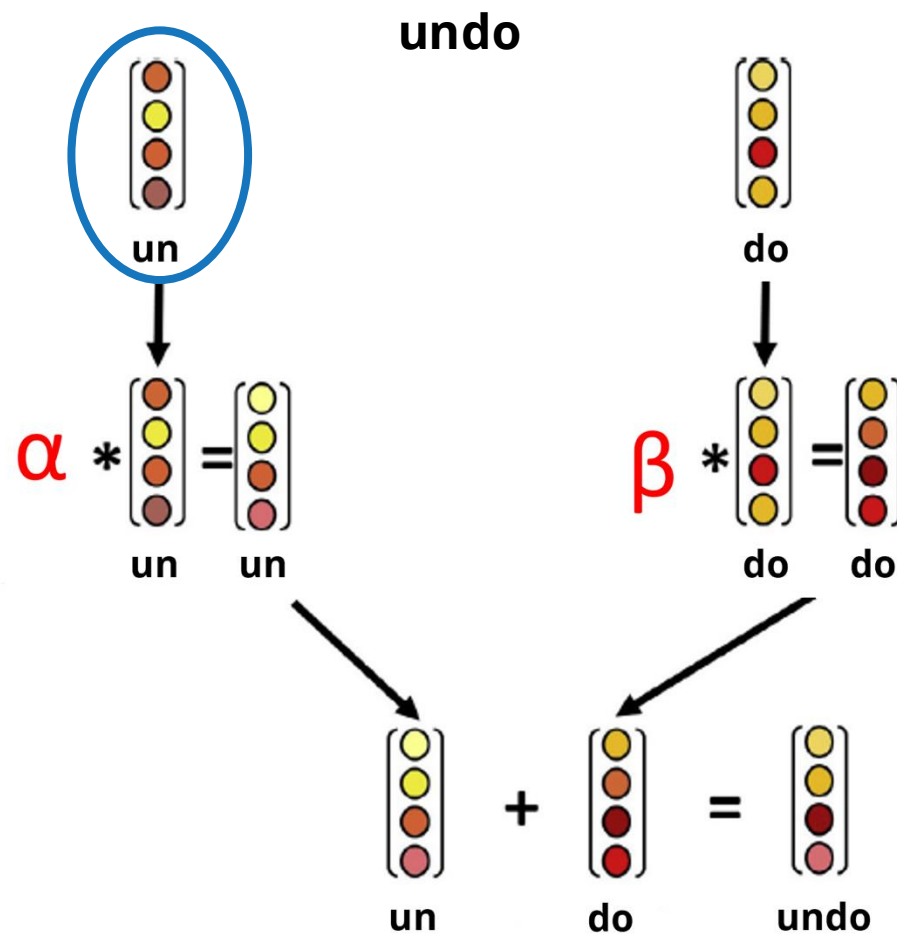
Training set



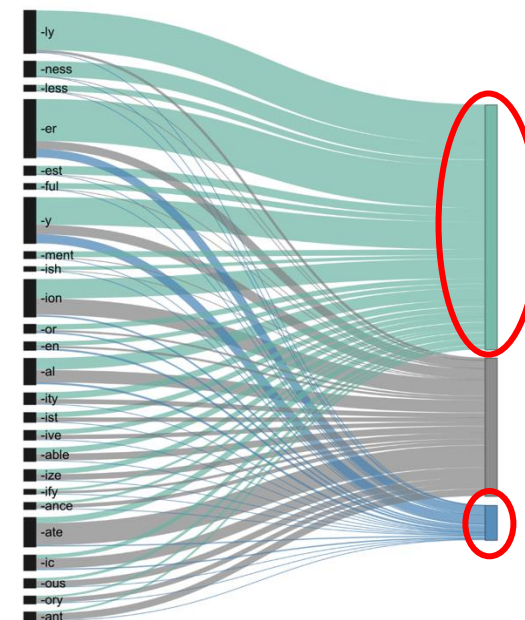
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Affix representations
Average of vector representations of all
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(Westbury & Hollis, 2019)



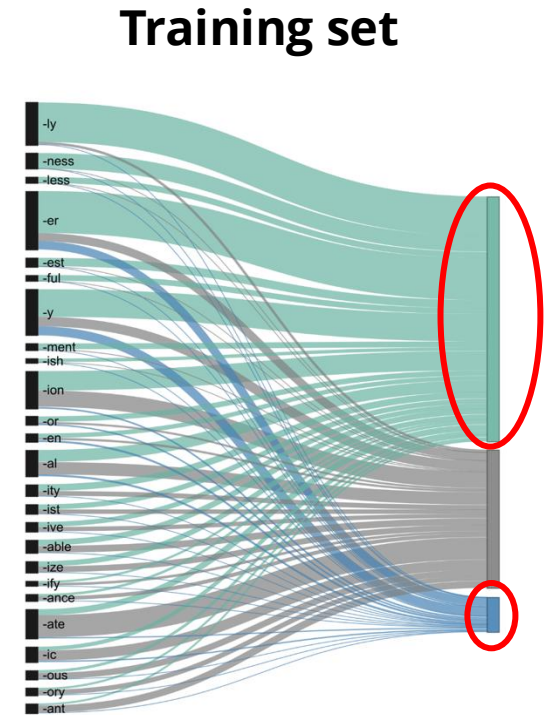
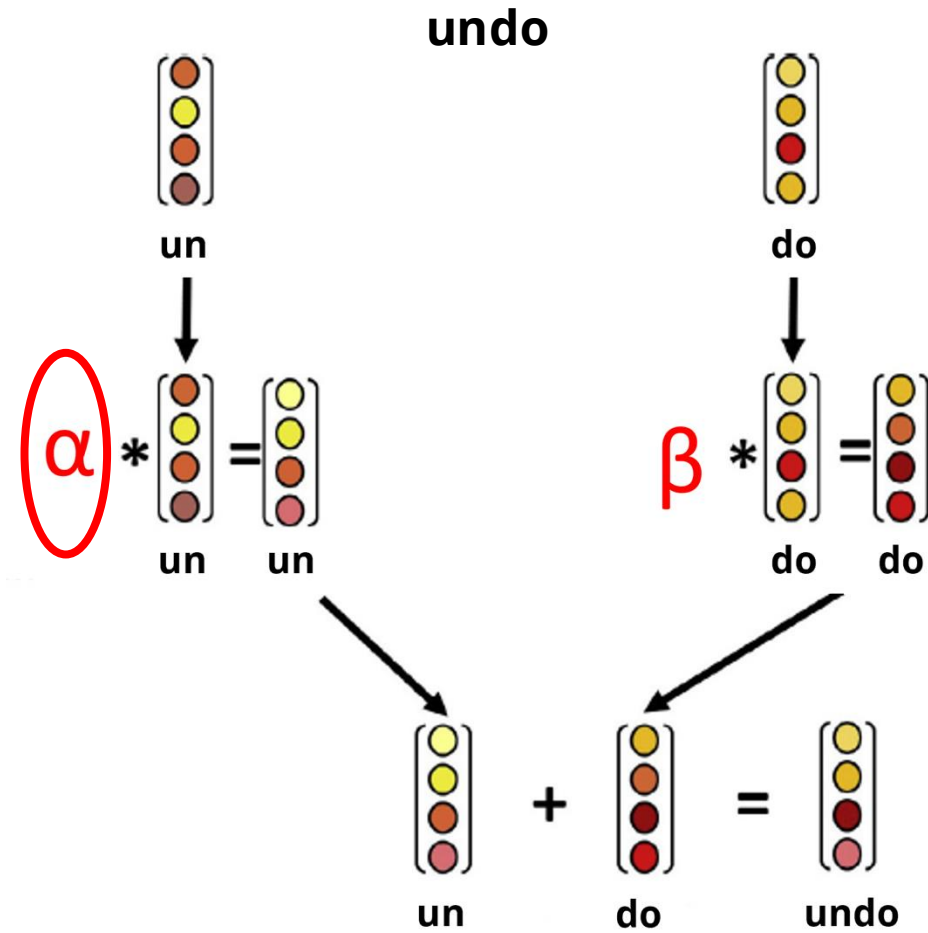
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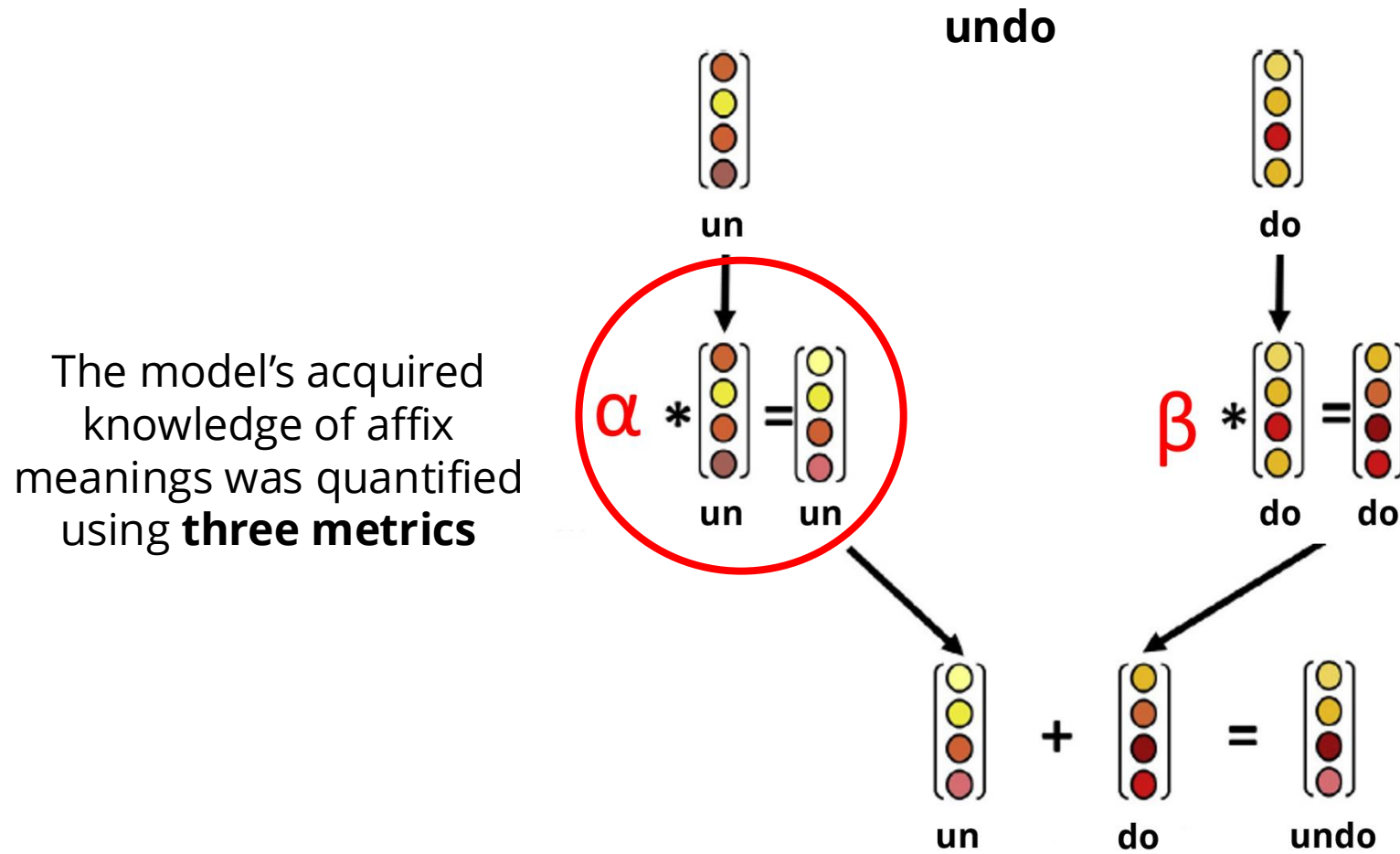
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Our modelling approach



Affix diffuseness

Degree of diffusion and uncertainty in the affix meaning

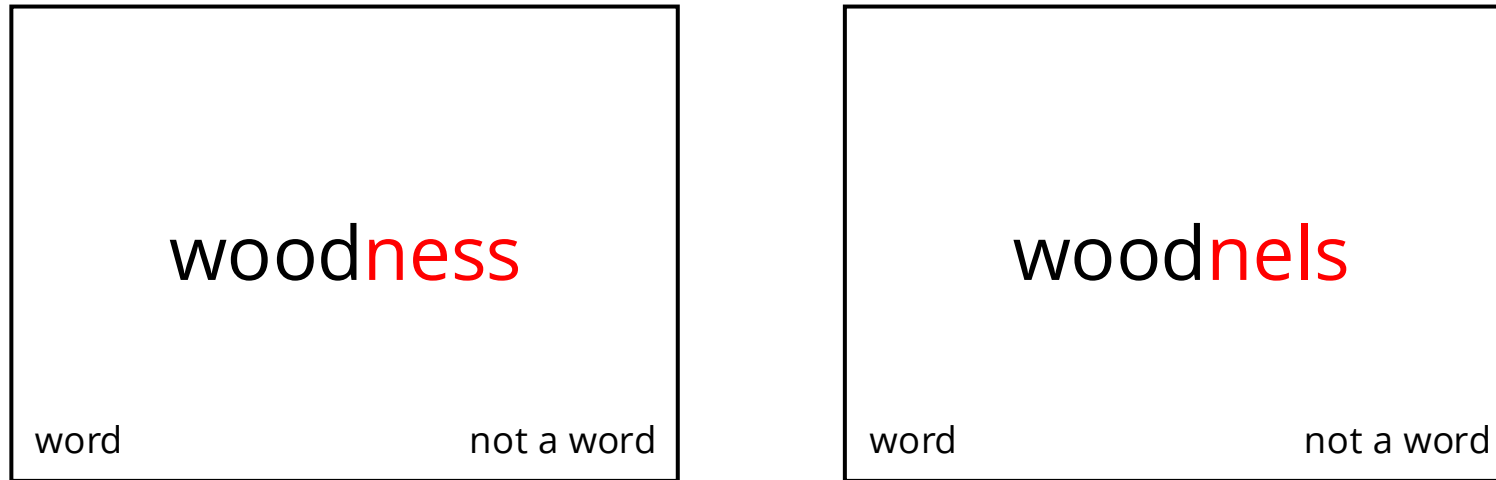
Affix richness

Richness and complexity of affix meaning

Affix-word coherence

Similarity between the meaning of the affix and the meanings of words that contain it

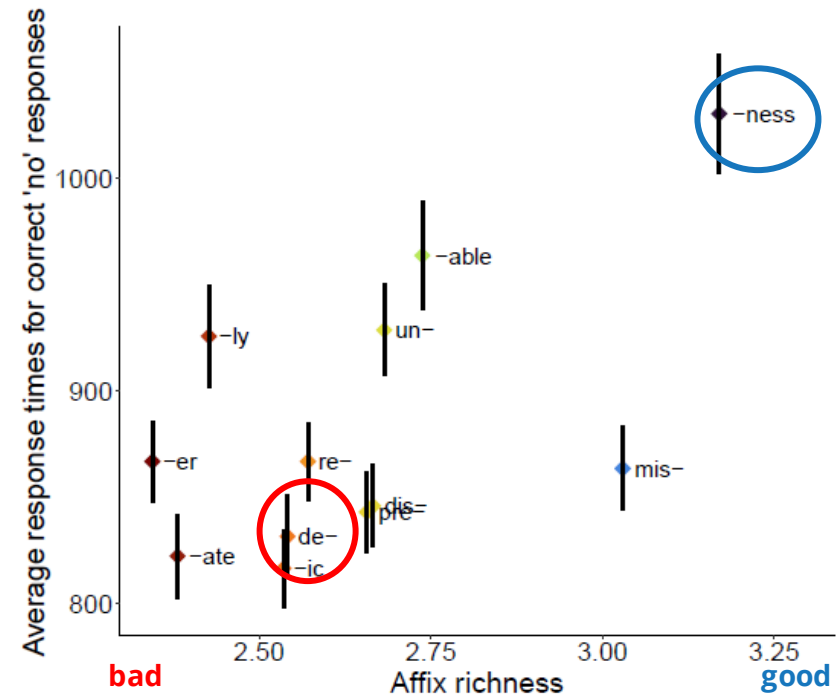
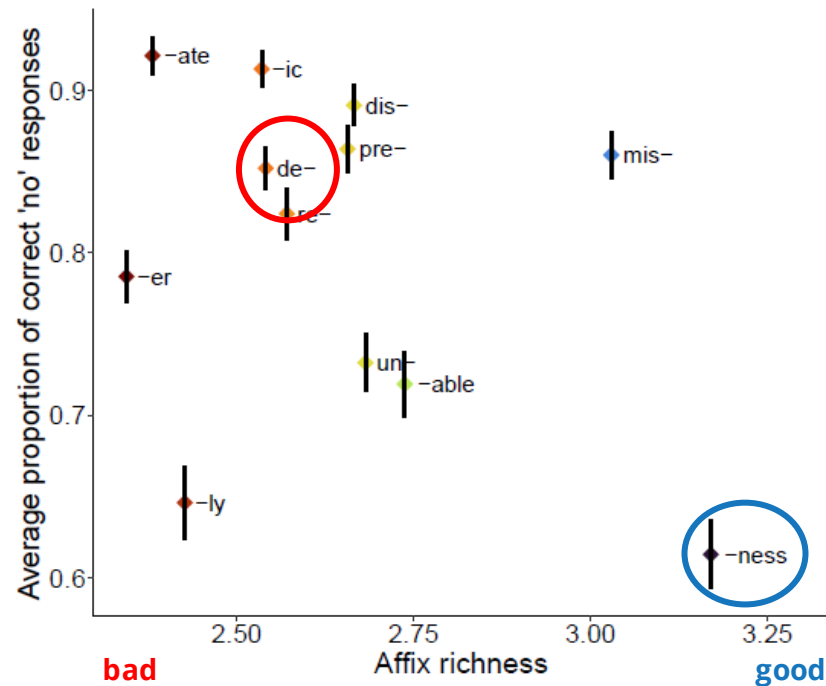
The morpheme interference paradigm



Readers are **less accurate and slower**
at rejecting morphologically structured nonwords (*woodness*)

- 6 prefixes: *un-*, *mis-*, *dis-*, *pre-*, *de-*, *re-*
- 6 suffixes: *-ness*, *-ly*, *-able*, *-er*, *-ic*, *-ate*

Nonwords with “better” affixes are harder to reject



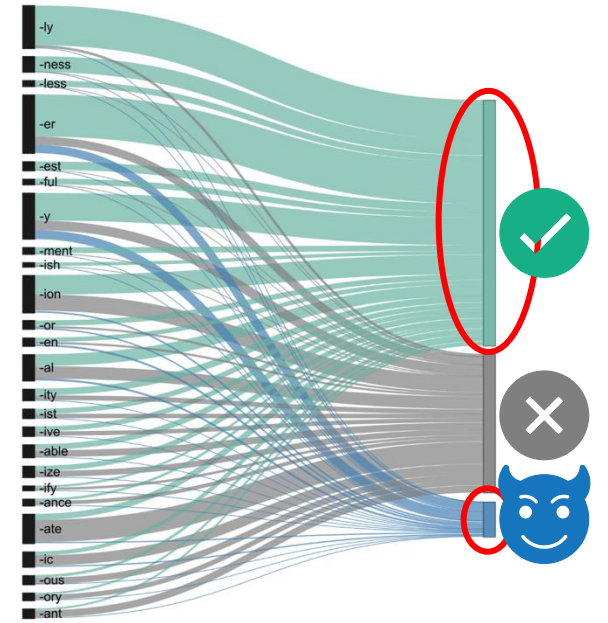
- Same result for the other two metrics (*affix-word coherence*, *affix diffuseness*)
- CAOSS captures systematic patterns in readers' lexical processing

Conclusions

- **Principled & scalable** account of **affix learning in the wild**
- **Innovation** in computational **modelling** of affix semantics
 - **First** use of CAOSS with “**noisy**” input
 - **First** attempt to model **prefix semantics**

→ Natural text has **enough structure to support learning** of some core aspects of affix semantics...

→ ...and it shapes both our knowledge of individual affixes and the perceived plausibility of morphemic combinations containing them



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Morphology in children's books, and what it means for learning

[Maria Korochkina](#)  & [Kathleen Rastle](#)

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BRIEF REPORT

Morpheme knowledge is shaped by information available through orthography

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Morphemes in the wild: Modelling affix learning from the noisy landscape of natural text

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Marco Marelli



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Thank you!

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