

# Special role of morphology in English writing

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**/-əs/**

FAMOUS, SOLACE, ATLAS, CYPRESS,  
BONUS, TORTOISE, RHINOCEROS

Sound-to-spelling mappings are very inconsistent  
Challenge for children and L2 learners

Is this inconsistency functional?



Systematicity between spelling and grammatical class

Study 1: Large-scale linguistic analysis

Q: How common is this regularity in English writing?

Study 2: Explicit judgement

Study 3: Implicit spelling

Q: Are people sensitive to these regularities?

# Regularity between spelling and grammatical class

**-/əs/**

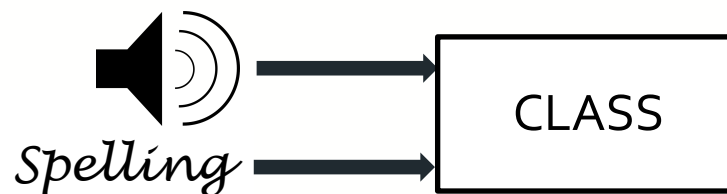
		OUS spelling	Other spelling
Number of words (and example)	adjectives	346 <i>Marvellous</i>	6 <i>Citrus</i>
	NOT adjectives	0 --	314 <i>Cactus</i>

*Berg & Aronoff (2017)*

**-OUS, -IC, -AL, -Y**



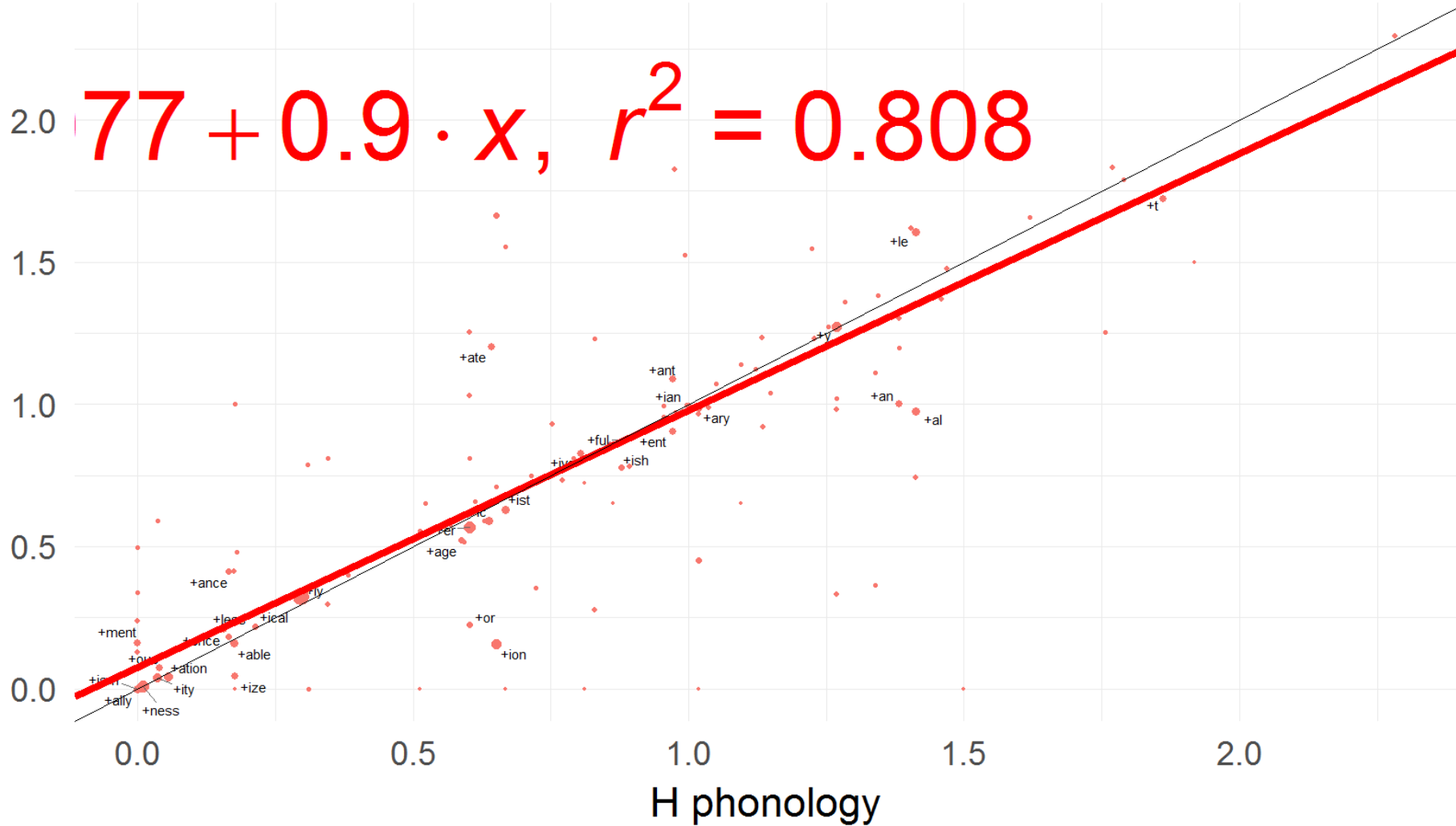
- **Question:** Is systematicity between spelling and class true of English derivation in general?
- **Idea:** Spelling disambiguates grammatical class
  - For all 159 suffixes
  - Is there a dependency between spelling and class?
  - Is this dependency stronger than that between phonology and class?
    - Entropy (H), a measure of prediction precision



Entropy (H) in predicting class (low values = good prediction)

$$77 + 0.9 \cdot x, r^2 = 0.808$$

H orthography



**Orthography predicts class better than phonology does**

# Study 1: Large-scale linguistic analysis



Example: sound /i/

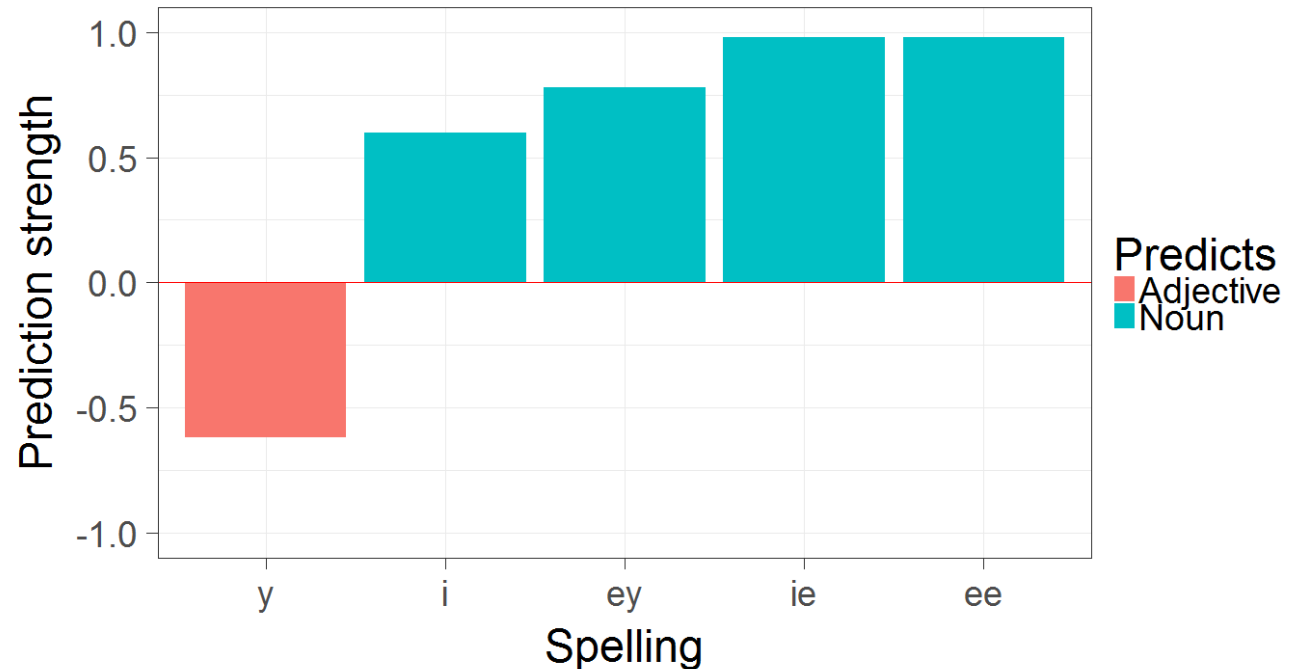
Most common spelling is “Y” e.g. BUSY

<ie>: calorie

<ee>: employee

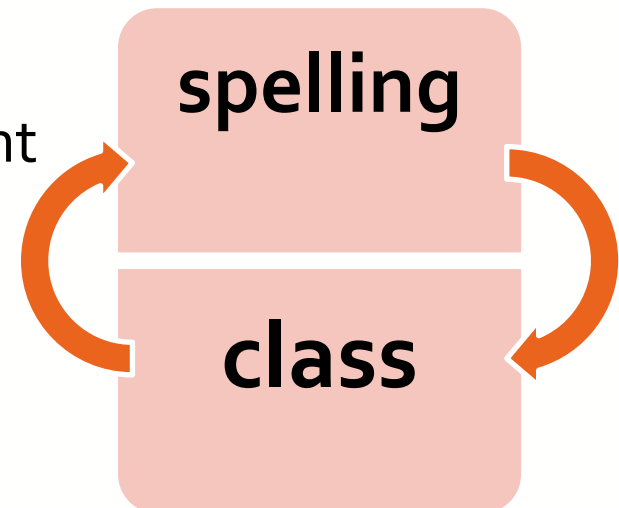
<i>: Israeli

<ey>: alley





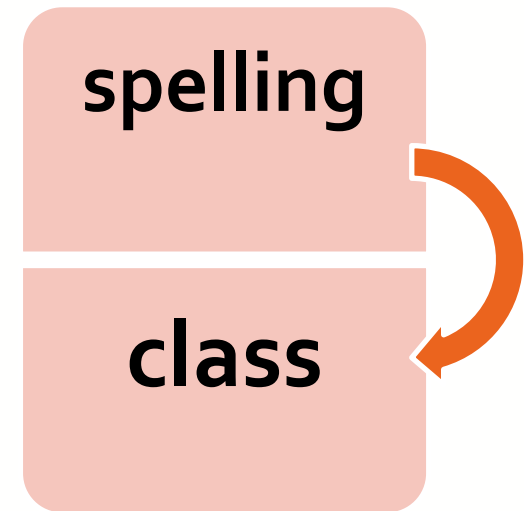
- Study 1: Linguistic analysis
  - Conclusions:
    - Spelling provides additional information about grammatical class
    - This is true of English derivation in general
- Q: Are people sensitive to regularities between spelling and class?
  - Experimental study 2: Explicit judgement
  - Experimental study 3: Spelling







- Question: Are people sensitive to regularities between spelling and class?
- Idea:
  - We manipulate spellings of nonwords
  - Does this manipulation influence people's decisions about which grammatical class these nonwords may belong to?





- 10 Noun and 10 Adjective suffixes that strongly predict class
- Joined them with CVC non-existing stems

**JIXLET**

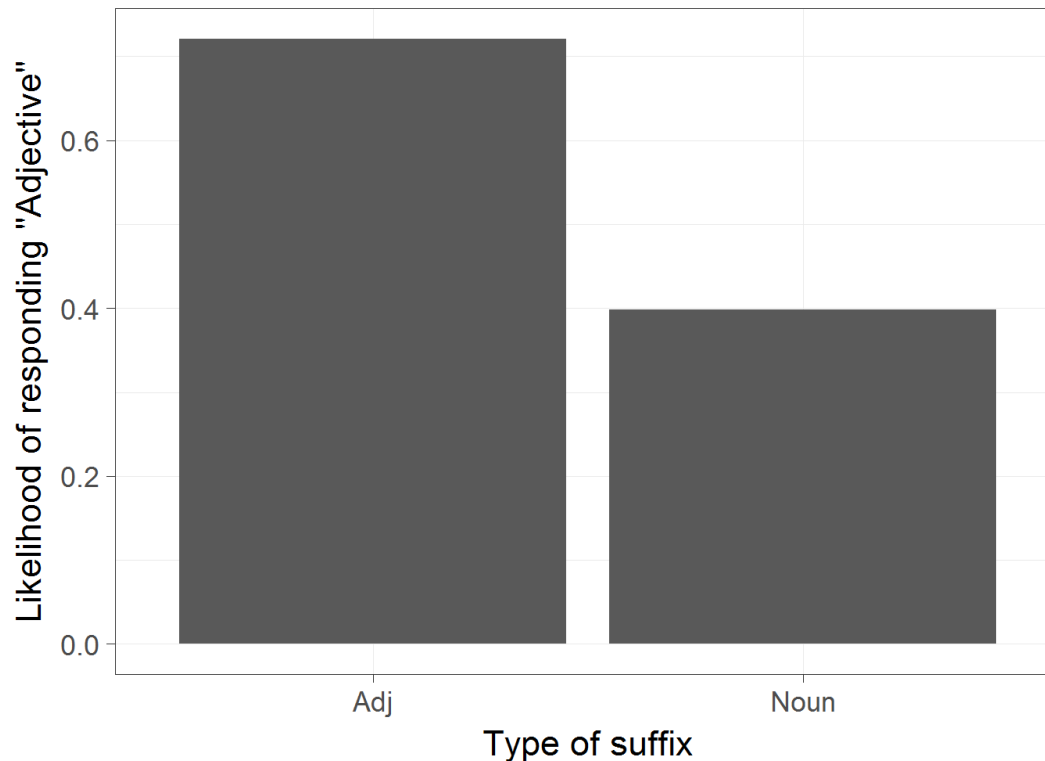
**Does this look like a noun or an adjective?**

- We explained to people what nouns are and what adjectives are
- 46 participants

# Study 2: Explicit judgement – Results

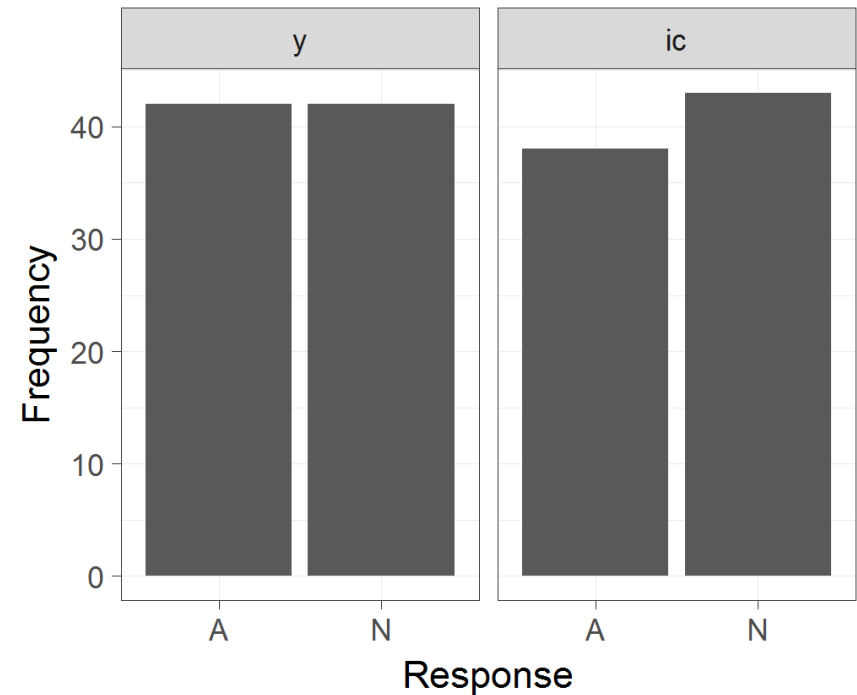
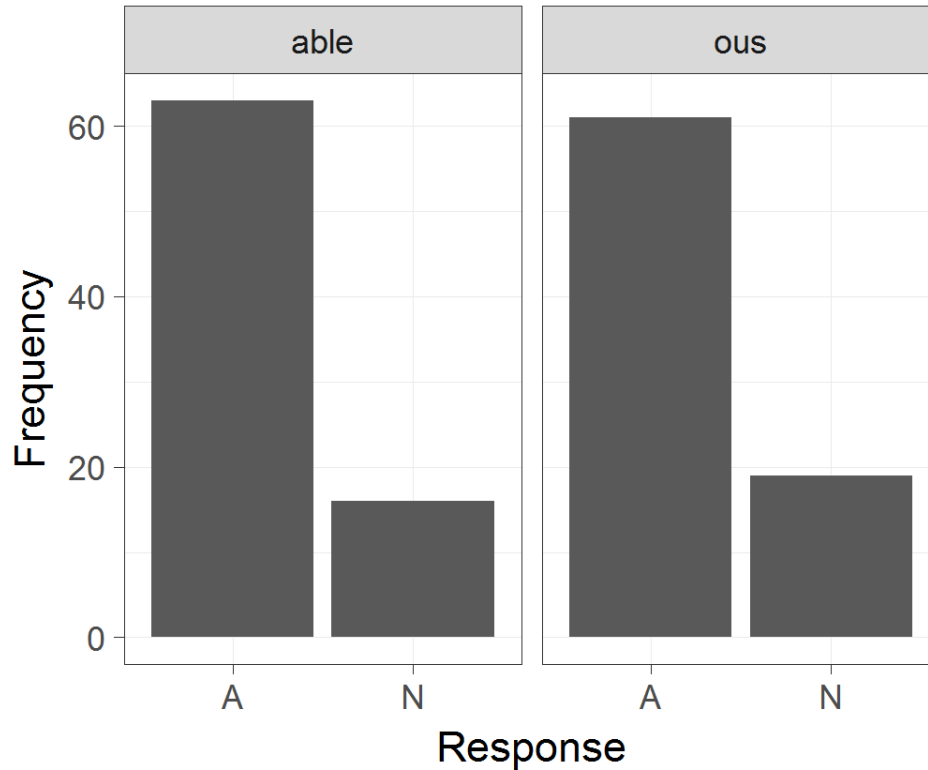


People have explicit awareness of systematicities between spelling and class



\*\*\*  $z = -4.18$ ,  $p < 0.0001$

# Study 2: Explicit judgement – Results

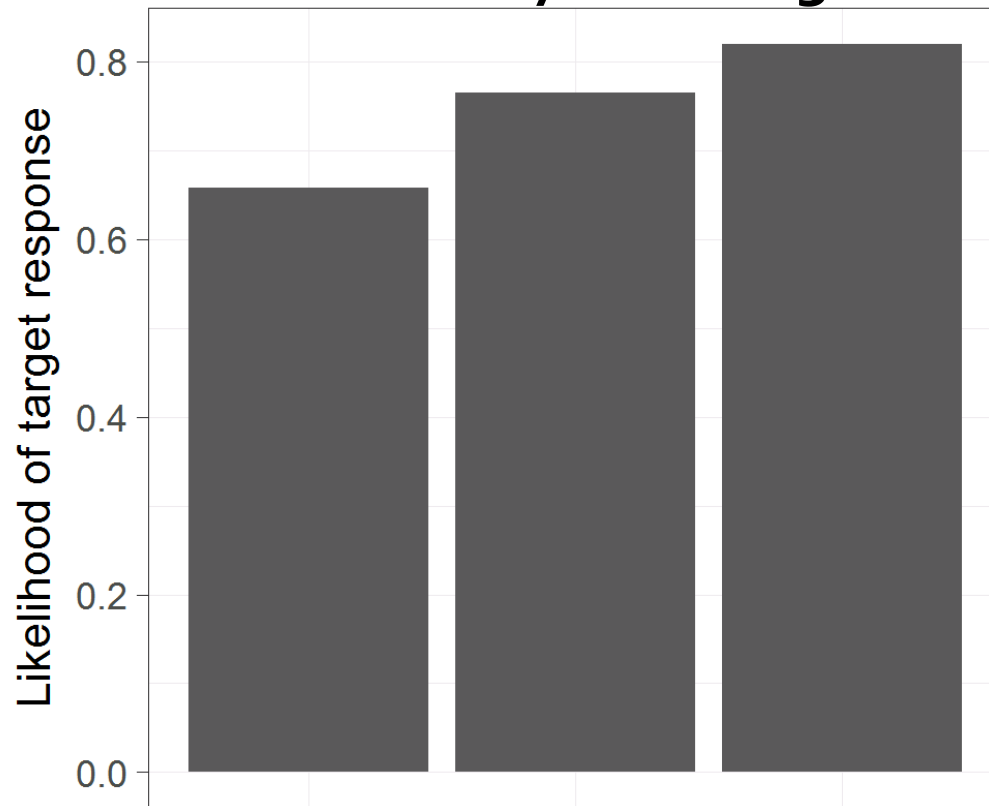


**Why are there differences across suffixes?**

# Study 2: Explicit judgement – Results



People's awareness of class-spelling relationships is better for suffixes that effectively disambiguate class



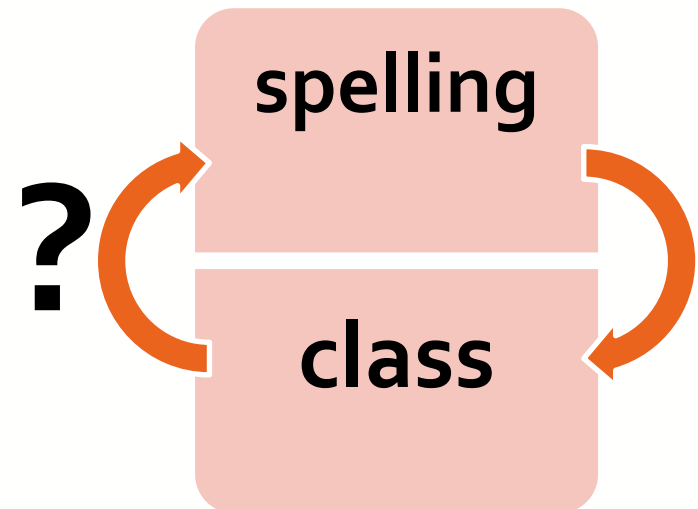
Better prediction



$z = 11.963, p < 0.0001$

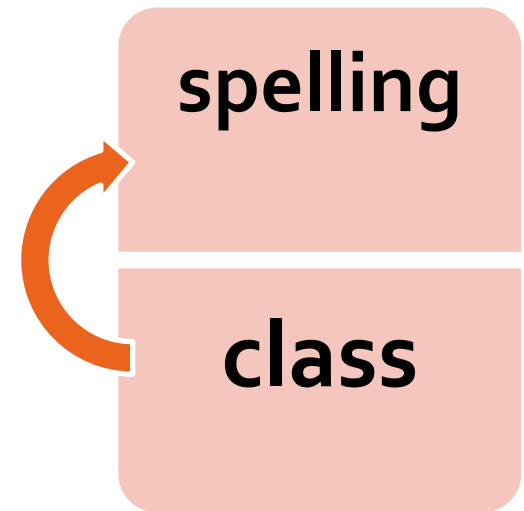


- Study 1: Computational linguistic analysis  
Systematicity between suffix spelling and class is ubiquitous
- Study 2: Explicit judgement  
People access grammatical class information from spelling
- Study 3: Spelling study





- Q: Are people sensitive to regularities between spelling and class?



- Idea:
  - Nonwords are placed into different sentence frames
  - Does context influence people's spellings?

# Study 3: Spelling study – Design



- 11 phonological endings that can be spelled differently
- Joined them with CVC non-existing stems
- 66 nonword recordings
- Biasing sentence contexts



**[sedʒnɪs]**

**Can you spell this?**

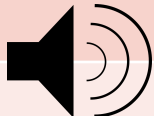


# Study 3: Spelling study – Design



- 29 participants

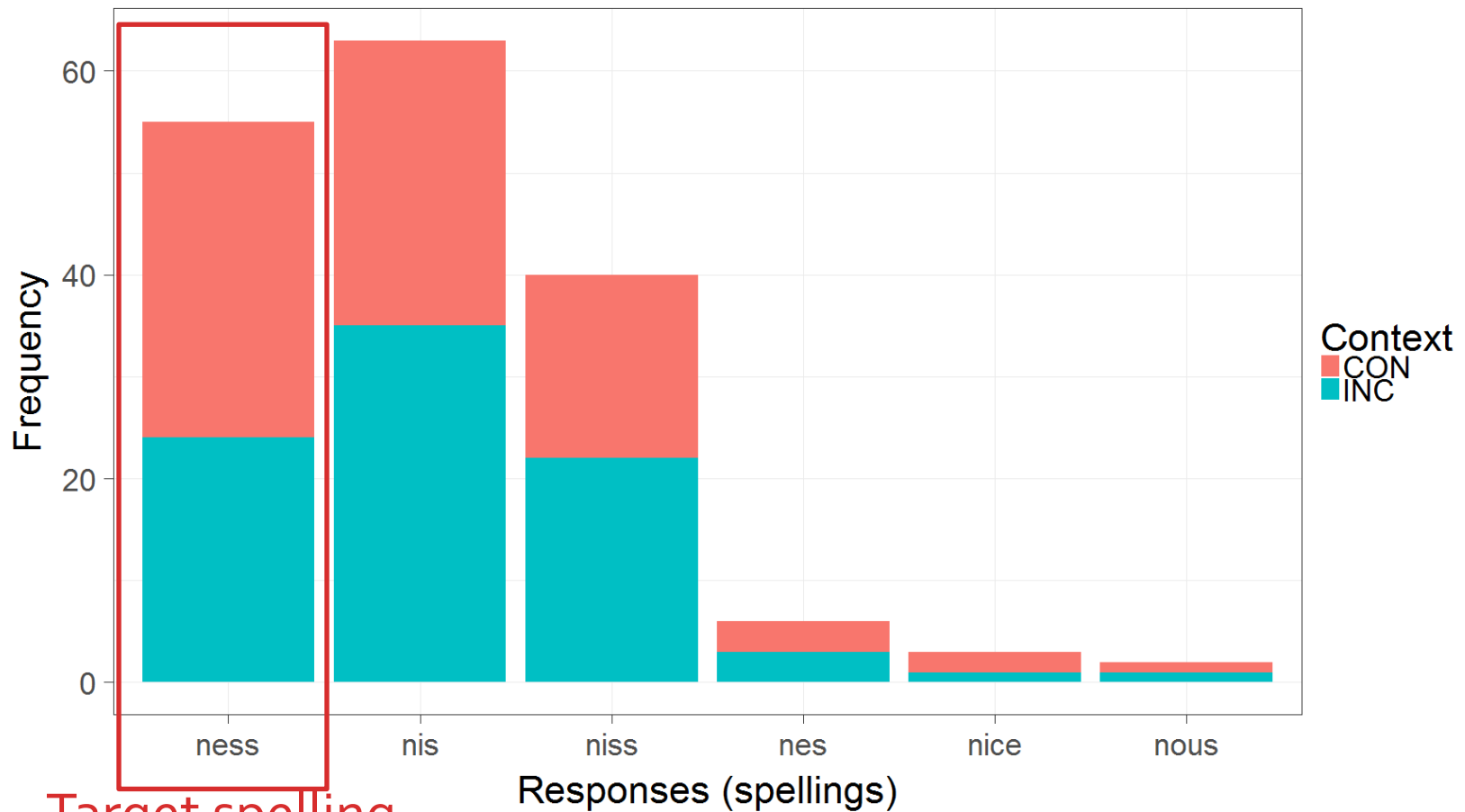
[sedʒnɪs]

Context	Sentence (beg.)	Target	Sentence (end.)	Spelling
<b>CON</b>	The presentation recognised the impressive		of the protestors.	<b>-NESS</b>
<b>INC</b>	The mourners began to sadly		as the coffin disappeared.	<b>???</b>

# Study 3: Spelling study – Results

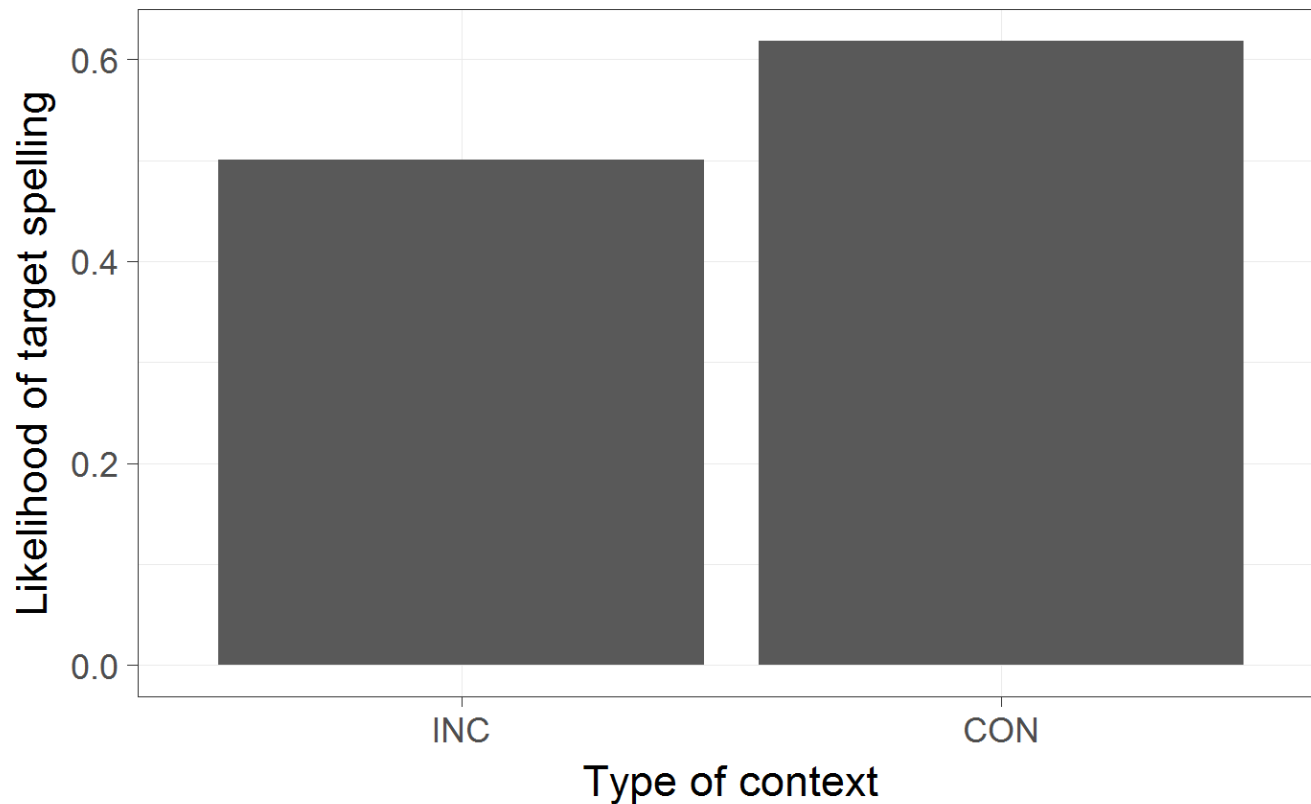


- Variety of spellings





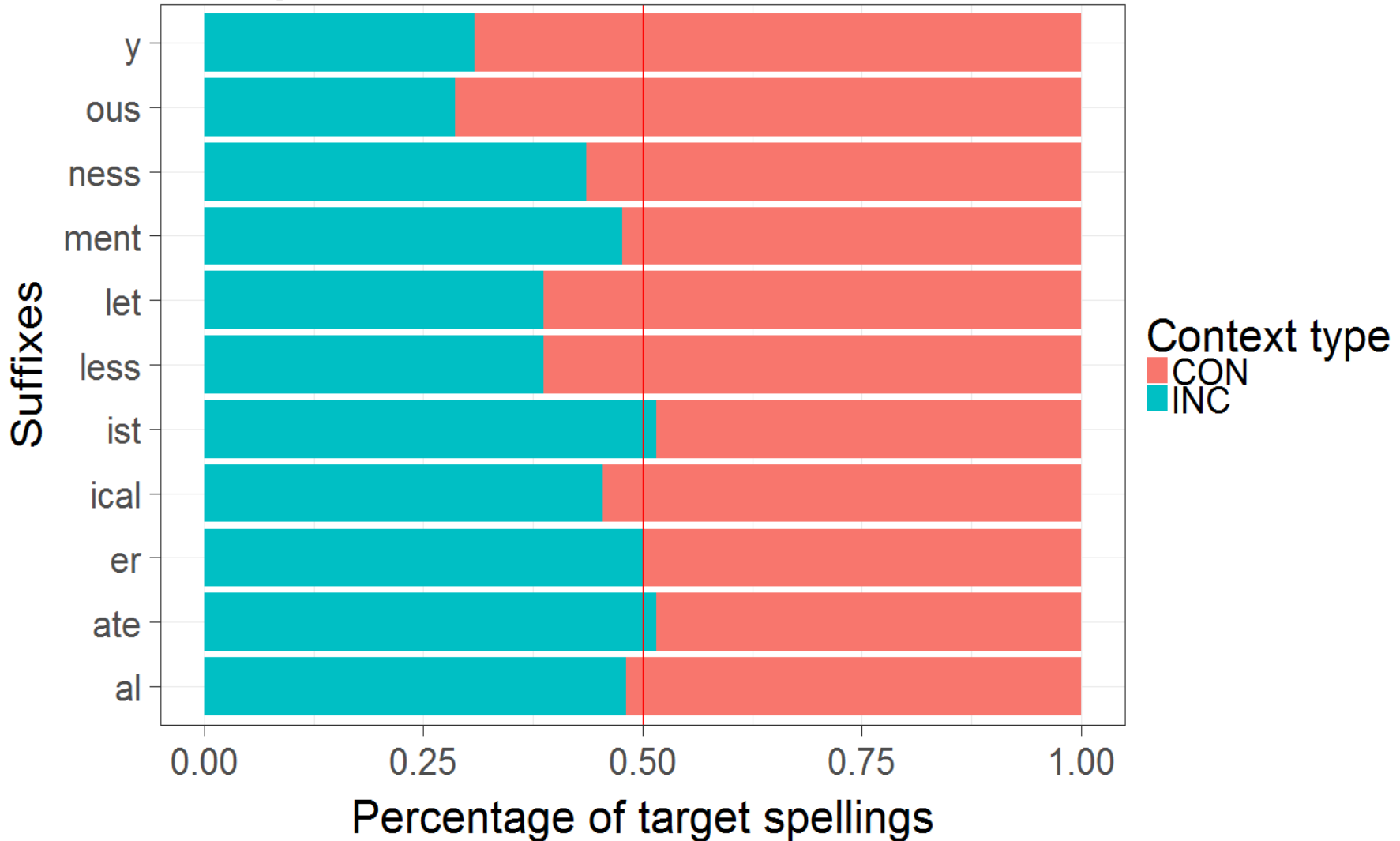
## People exploit their knowledge of class-spelling regularities to indicate grammatical class



# Study 3: Spelling study – Results



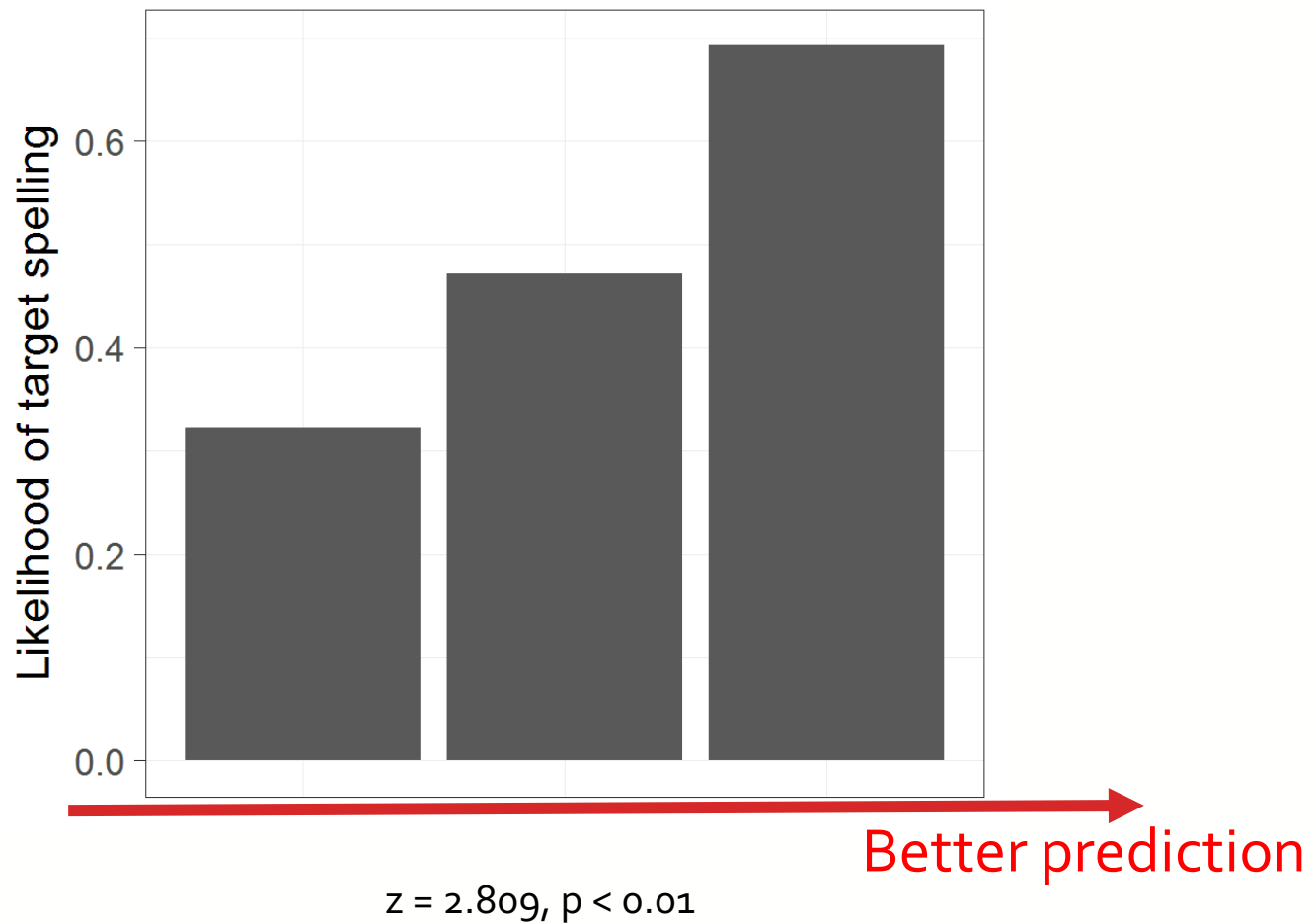
## Why are there differences across suffixes?



# Study 3: Spelling study – Results



**Strongest effects on spelling are found for suffixes that disambiguate class**





- Regularities between spelling and grammatical class are ubiquitous
- People are sensitive to these regularities
- Degree of sensitivity mirrors the statistics of the writing system

Thank you for your attention!

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Any questions?



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