

Letter coding in regular and irregular words

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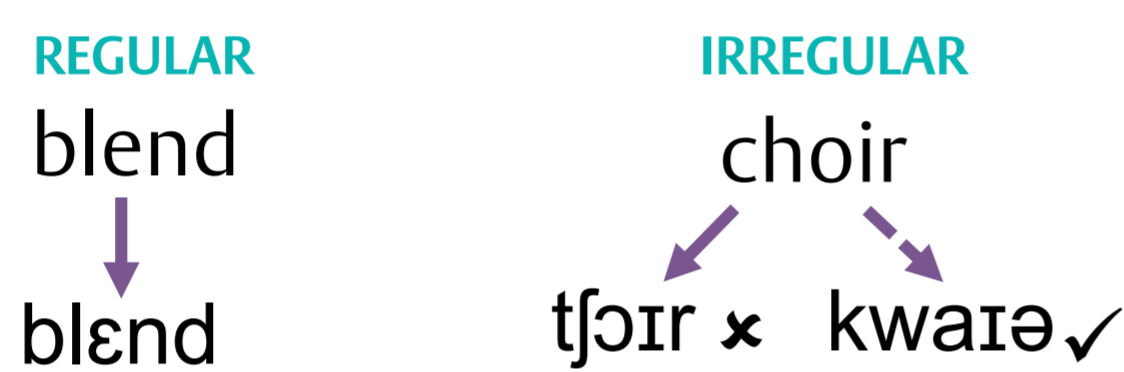
Research Aims

This research investigates a central challenge in the study of reading: the visual input required for word recognition, and how this is represented during lexical access. Our research aims were two-fold: to investigate how print-sound regularity impacts the precision of letter coding; and to further explore representations of letter identity.

Background

Phonological transparency

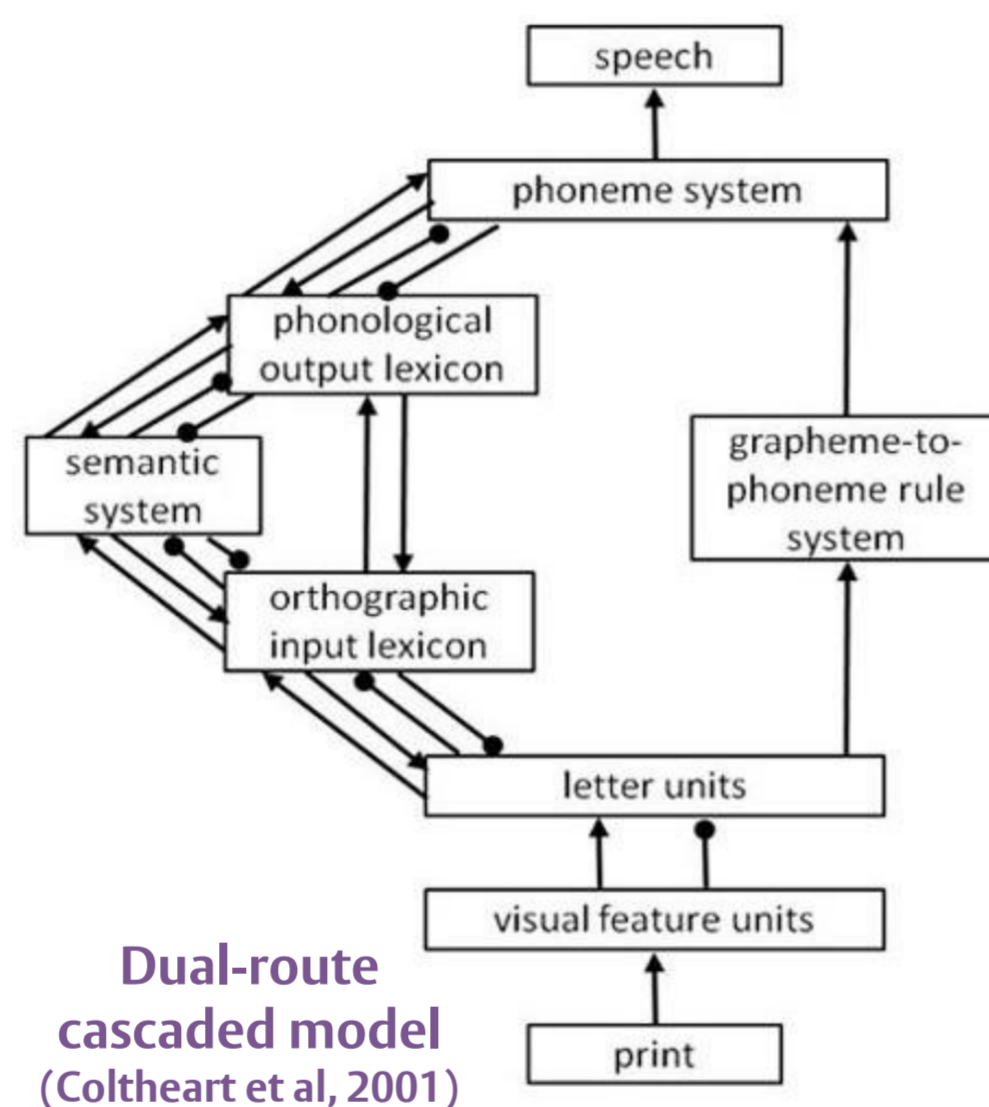
- Computation of phonological codes is central to skilled reading (Frost, 1998)
- Irregular words cannot be pronounced using letter-to-sound rules



- Is the reader less reliant on information provided by individual letters in irregular words?

Cognitive models of reading

- Dual-route models propose that there is a lexical route in which graphemes and phonemes have an indirect relationship
- Intermediate stage in which the reader maps visual input on to existing abstract orthographic representations
- Phonological code is derived from whole-word orthographic representations



Evidence for orthographic representations

- Readers show tolerance and flexibility in letter coding



LETTER FEATURES
Kinoshita & Kaplan (2012)



LETTER POSITION
Perea & Gomez (2012)

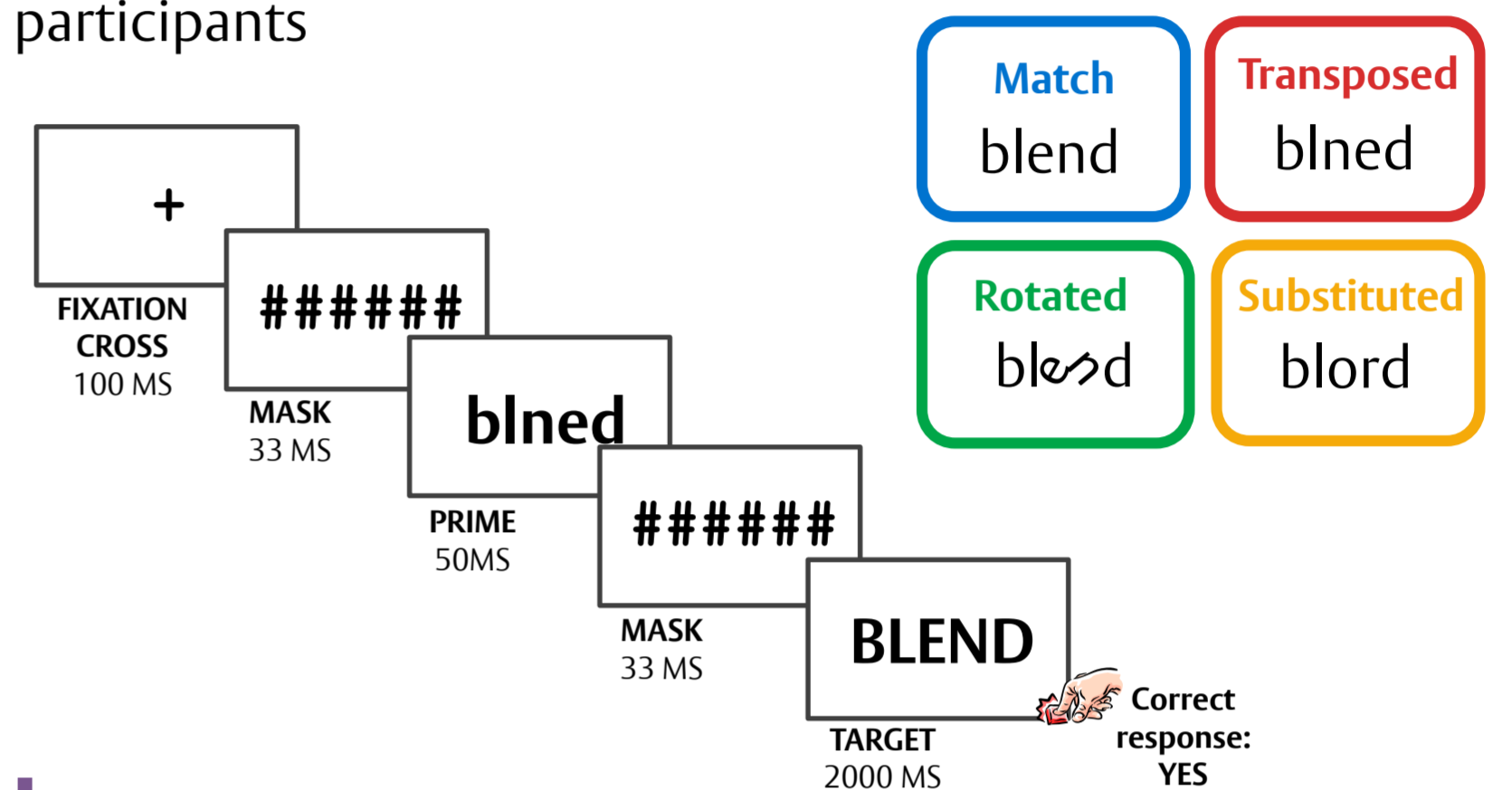
- Models predict that these processes occur *before* phonological encoding

Hypotheses

- Irregular words will elicit longer recognition times than regular words
- Print-to-sound regularity will not affect letter identity and letter position coding

Method

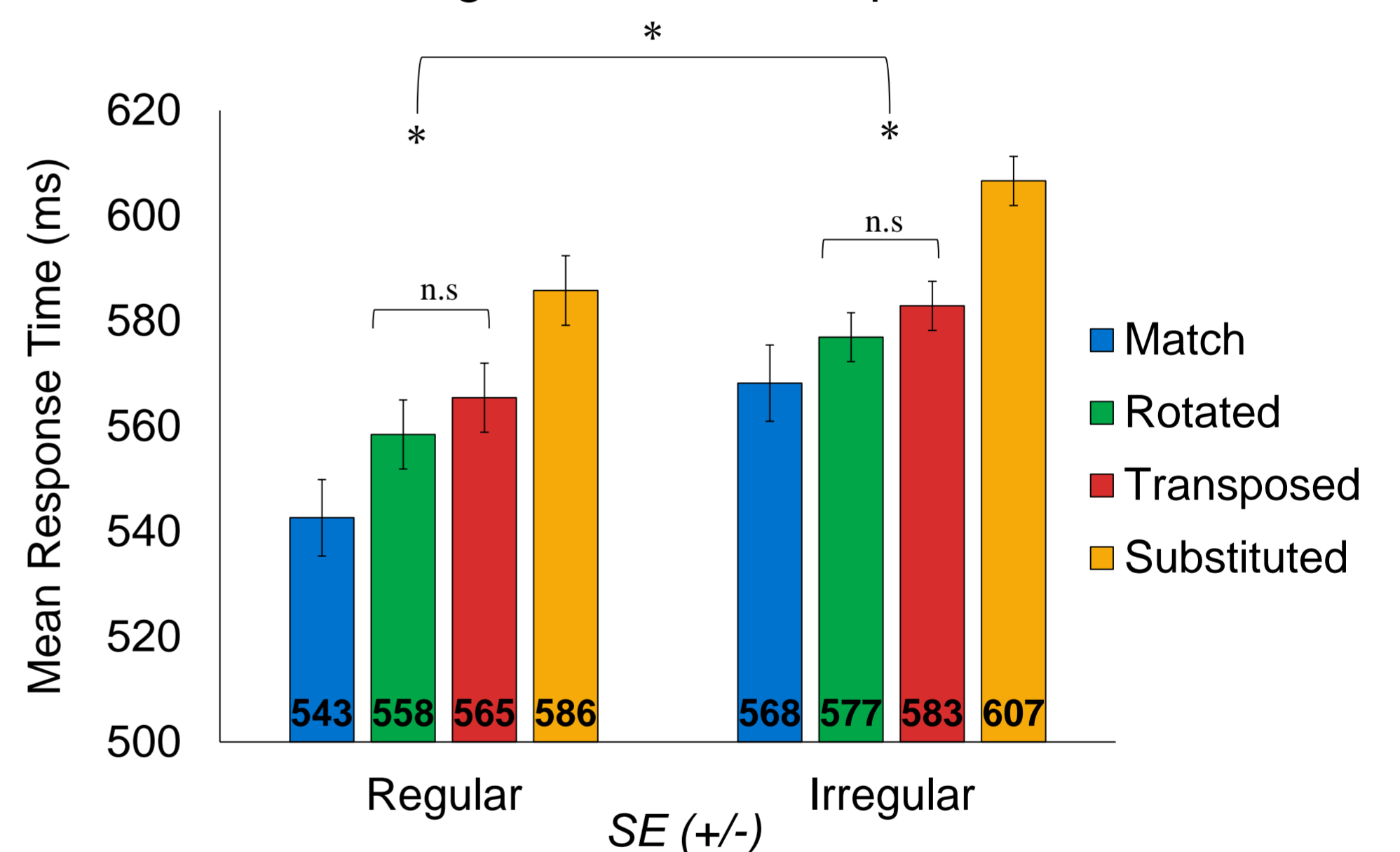
- Masked priming lexical decision task (432 trials)
- 108 regular words & 108 irregular words
- 40 participants



Results

- Linear mixed effects models
- Fixed effects: Target Regularity * Prime Condition
- Random effects: Subject, Item & Trial

Priming Task Mean Response Times



Conclusions

- Phonological transparency affects the speed of recognition but not the impact of the prime
- Supports evidence that readers encode letters to abstract orthographic representations prior to phonological access

References

1. Coltheart, M., Rastle, K., Perry, C., Langdon, R., & Ziegler, J. (2001). DRC: a dual route cascaded model of visual word recognition and reading aloud. *Psychological Review*, 108(1), 204-226.
2. Frost, R. (1998). Toward a strong phonological theory of visual word recognition: true issues and false trails. *Psychological Bulletin*, 123(1), 71-99.
3. Kinoshita, S. & Kaplan, L. (2008). Priming of abstract letter identities in the letter match task. *The Quarterly Journal of Experimental Psychology*, 61(12), 1873-1885.
4. Perea, M. & Lupker, S. J. (2003). Does jugde activate COURT? Transposed-letter similarity effects in masked associative priming. *Memory & Cognition*, 31(6), 829-841.

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