

## Introduction

On the basis of a decomposition approach (e.g. Pinker & Ullman 2002), we investigate how highly fluent second-language speakers (L2) of English respond to morphologically complex items compared to native speakers (L1) and what this may reveal about the nature of L2 processing of morphological information.

Previous research on L2 processing of morphology suggests differences in terms of:

- the use of declarative knowledge over decomposition (e.g. Bowden et al. 2010)
- the degree of reliance on surface orthographic factors (e.g. Heyer & Clahsen 2015)
- possibly a longer duration of the morphosyntactic analysis process (cf. Bosch et al. 2016)

All three points have an effect on an L2 speaker's ability to discriminate sufficiently between form-related and morphologically related items but this may apply particularly in short-lag priming studies such as masked priming.

Thus, if presented with a longer-lag task (i.e. delayed priming):

- does this allow for any discrimination between form and morphological/structural overlap?
- can conclusions be drawn for the status of decomposition in non-native processing?

## Research Questions

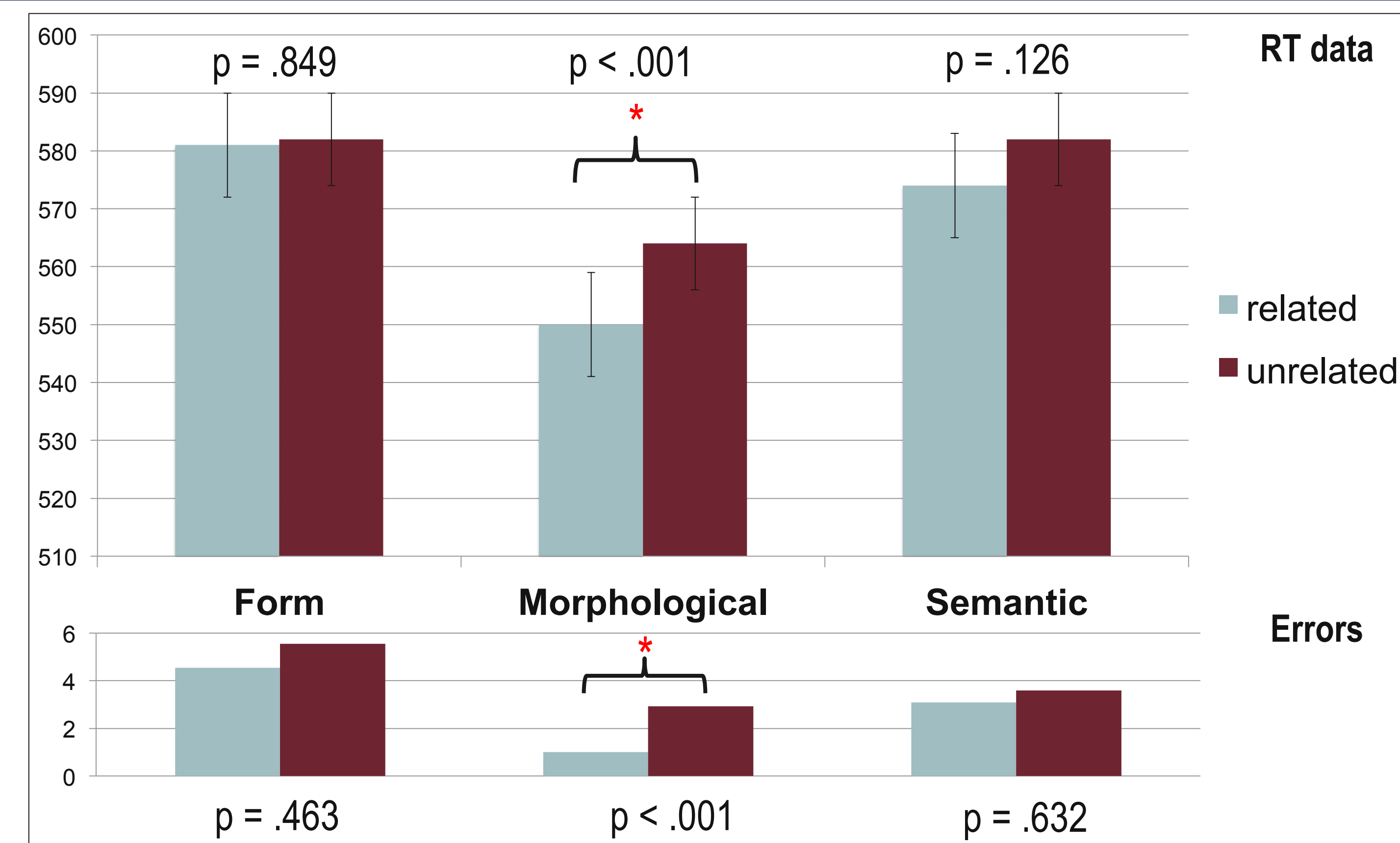
- Will highly fluent L2 speakers show the same pattern as native speakers when exposed to morphologically complex words in a delayed priming paradigm?
- If form priming is found, as suggested by previous studies,
  - is there a difference between the degree of priming in form and morphology conditions?
  - why does form prime for L2 speakers but not for L1 speakers?

## Predictions

Three possibilities:

1. Due to high proficiency, L2 will show a similar pattern to L1 (i.e. only facilitation for morphologically related items).
2. L2 speakers will show similar facilitation effects for form and morphology conditions.
3. The longer lag time in delayed priming may result in a difference between the facilitation for form and morphologically related items.

## Experiment 1: Native Speakers

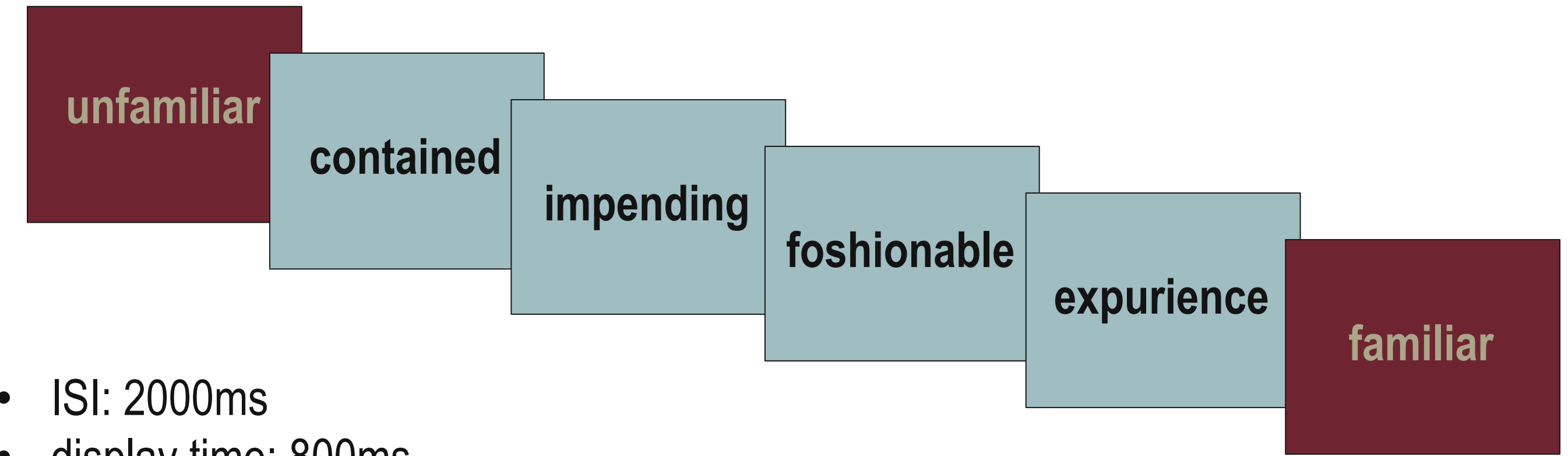


## Key Findings

- (a) Overall the data provides compelling evidence for morphological decomposition for both L1 and L2 participants.
- (b) Our data shows no facilitation in either group for semantically related items and strong priming effects ( $p < .001$  for both groups) in the morphological condition confirming that facilitation is not dependent on semantic relationships but is purely structural.
- (c) However, while L1 speakers predictably do not show facilitation in the form condition, L2 speakers show significant priming ( $p = .021$ ) as well as lower error rates for primed targets ( $p = .019$ ).
- (d) In addition, our L2 data shows a significant difference in the degree of priming between form and morphological conditions ( $p < .001$ ) with greater facilitation for the latter.
- (e) The difference in degree of priming suggests L2 speakers treat pure form overlap and morphological relationships differently although both lead to facilitation.

## Experiment Design

- visual delayed priming task with English morphologically complex items
- 5-7 items between prime and target
- participants respond to all items (pure LD task)



## Stimuli and Participants

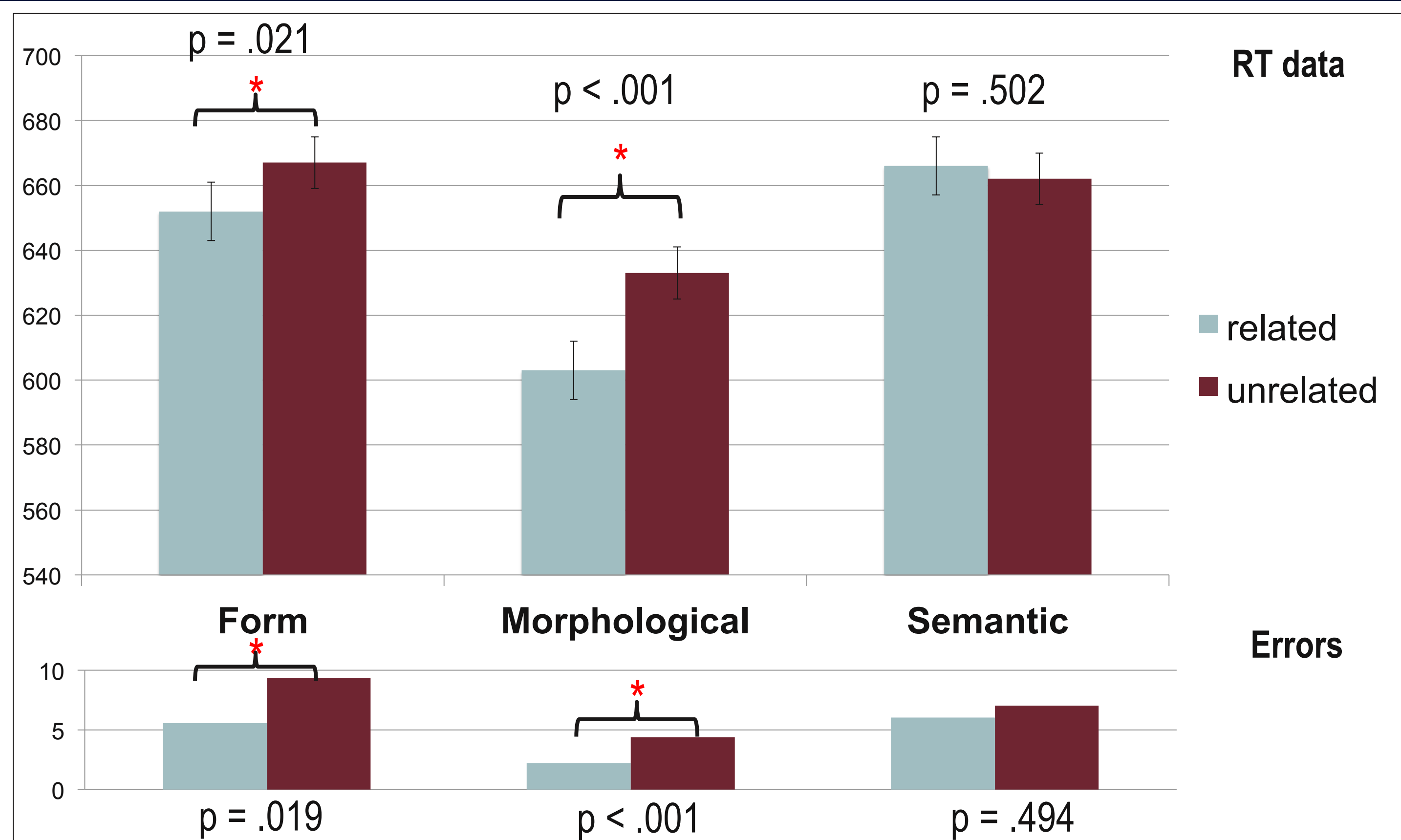
|        | Morph 1   | Morph 2  | Form      | Semantics |
|--------|-----------|----------|-----------|-----------|
| Prime  | unhealthy | inactive | increased | soundless |
| Target | healthy   | active   | creased   | silent    |

- 48 morphologically complex items
  - 24 prefixed with *un-* (12 adjectives/12 adverbs)
  - 24 prefixed with *in-* (12 adjectives/12 nouns)
- 24 form-related items and 24 semantically related items
- 48 morphologically complex real-word fillers
- 144 non-words
- all items matched for word class, frequency and degree of complexity

### Participants

- 52 adult native speakers of English (average age: 20) who were undergraduate students at the University of Oxford, UK
- 54 Bengali/Hindi native-speaking L2 learners of English (average age: 16) in English-medium education at Shri Shikshayatan School, Kolkata, India

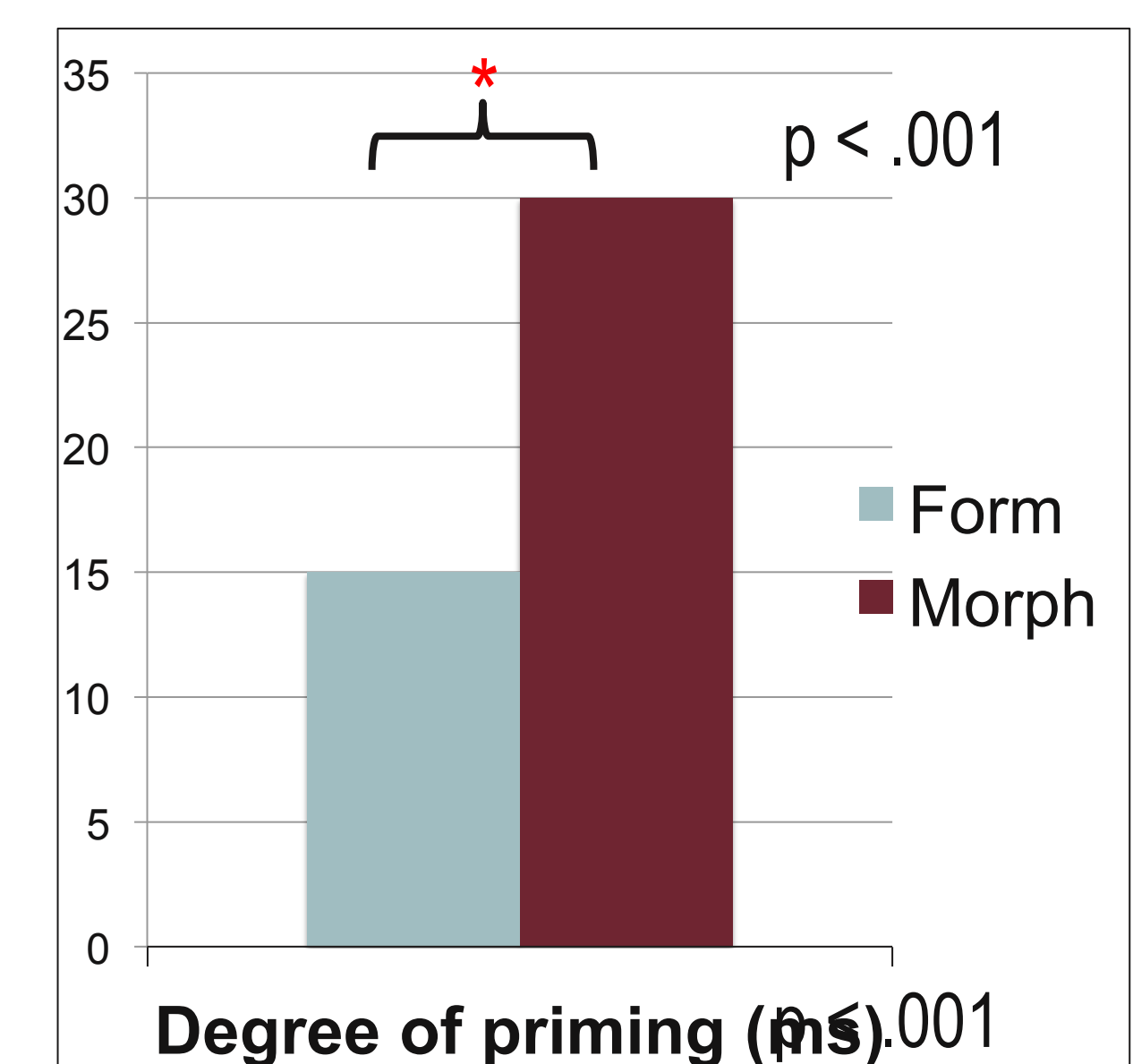
## Experiment 2: L2 Speakers



## Discussion

### Possible causes:

- L2 speakers show greater sensitivity to form overlap which primes to a certain degree but is not as strong an effect as in the morphological condition.
- L2 speakers are attempting to decompose items with form overlap:
  - they are less experienced with the morphological possibilities.
  - they treat items which are not decomposable for NS participants in a similar way to items which are morphologically complex.



## Contact

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## Selected References

Bosch, S. Krause, H., Leminen, A. (2016). The time-course of morphosyntactic and semantic priming in late bilinguals: A study of German adjectives. *Bilingualism: Language and Cognition*, 20(3), 435–456. Bowden, H., Gelfand, M., Sanz, C., & Ullman, M. T. (2010). Verbal inflectional morphology in L1 and L2 Spanish: A frequency effects study examining storage versus composition. *Language Learning*, 60, 44–87. Heyer, V. & Clahsen, H. (2015). Late bilinguals see a scan in scanner AND in scandal: dissecting formal overlap from morphological priming in the processing of derived words. *Bilingualism: Language and Cognition*, 18(3), 543–550. Pinker, S. & Ullman, M. T. (2002). The past and future of the past tense. *Trends in Cognitive Science*, 6, 456–463.

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