Form vs. morphological complexity in L1 and L2 processing

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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)
- differences in time-course 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 in priming between the form and morphology conditions?
  - what are possible causes of this facilitation?

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

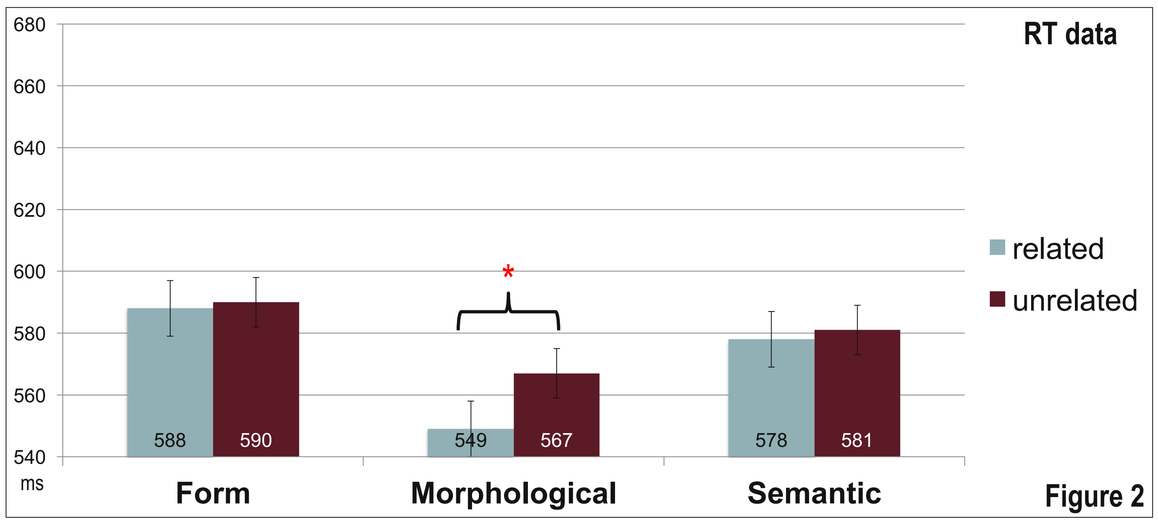

Figure 2

p = .297 p < .001 p = .932

Error data

- participants show significantly greater error rates for form and semantic targets (p < .001)
- error rates are significantly greater in the unprimed condition (2.93%) than the primed condition (1.01%) for morphologically related targets only (p < .001)

Key Findings

(a) Overall the data provides substantial evidence for morphological decomposition for both NS and NNS participants.

(b) Our data shows no facilitation in either group for semantically related items and strong priming effects (p < .001 for both groups) in morphological conditions confirming that the facilitation is not mediated by 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 = .010).

(d) In addition, our data shows significant differences in the degree of priming between form and morphological conditions (p < .001) with greater facilitation for the latter.

(e) The degree of priming suggests a difference between pure form overlap and morphological relationship (p = .028)

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)
- ISI: 2000ms; display time: 800ms

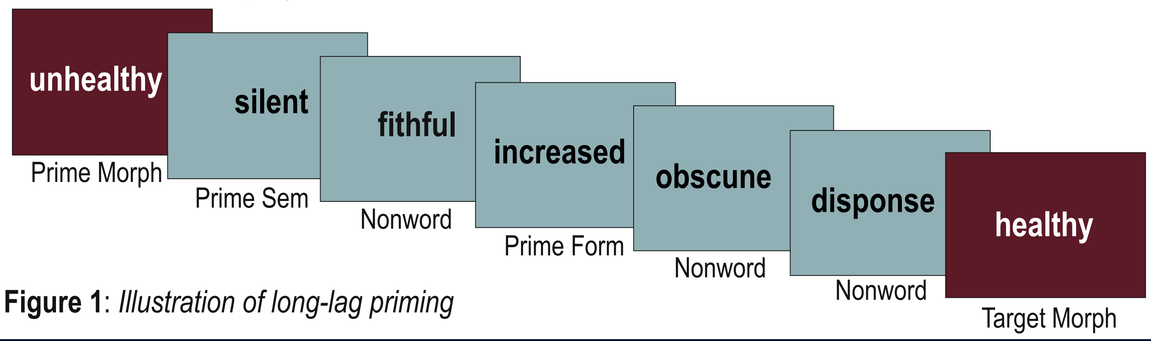

Figure 1: *Illustration of long-lag priming*

Stimuli and Participants

Table 1: *Sample stimuli*

	Morph 1	Morph2	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 semantically related items and 24 form-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: 20.6, 32 female) who were (under)graduate students at the University of Oxford, UK
- 59 Bengali/Hindi native-speaking highly proficient L2 learners of English (average age: 16, all female) in English-medium education at Shri Shikshayatan School, Kolkata, India

Experiment 2: L2 Speakers

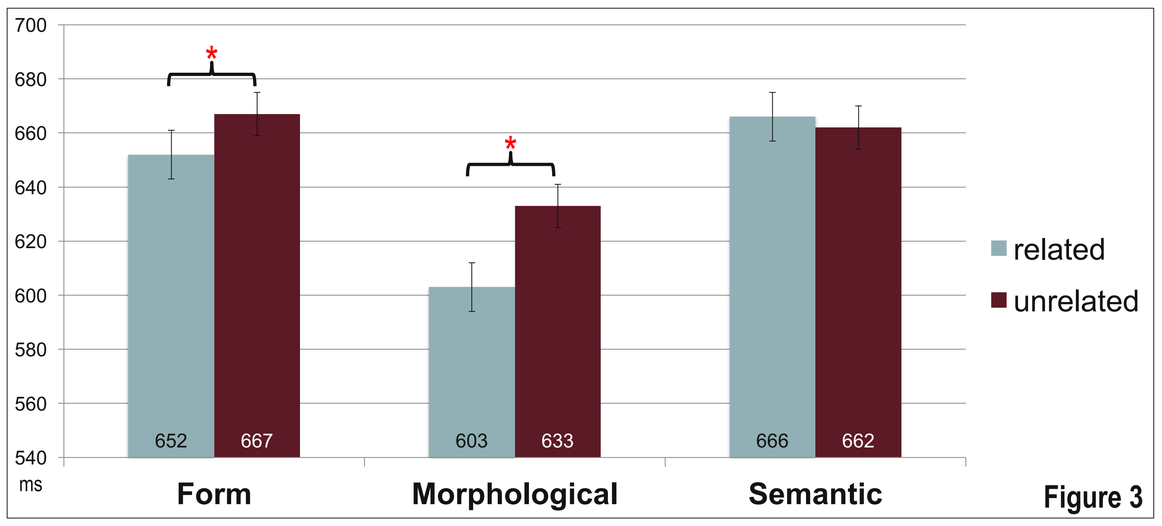

Figure 3

p < .010 p < .001 p < .494

Error data

- participants also show significantly greater error rates for form and semantic targets
- error rates are significantly greater in the unprimed condition for both form (9.37% vs. 5.58%; p = .019*) and morphologically related (4.38% vs. 2.2%; p = .001*) targets

Discussion

Differences in the L2 data:

- significant effect of form overlap
- greater accuracy in form condition for primed items

⇒ seems to indicate greater sensitivity
⇒ to form overlap in L2 speakers
⇒ might suggest that morpho-orthographic
⇒ similarities are used differently in L2 processing

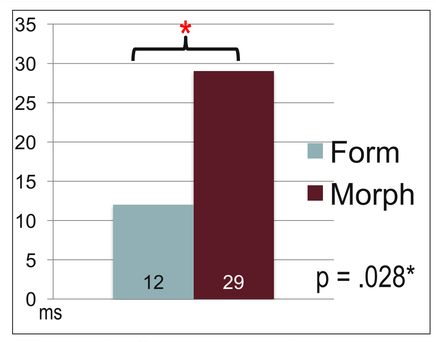

Figure 4: *Comparison of degree of priming in the L2 data*

Possible causes:

- L2 speakers are attempting to decompose items with form overlap
- time course of L2 processing differs
- L2 speakers make use of mechanisms at different times/to different degrees

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Selected References

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