

# Contrary to expectations: Does context influence the processing cost associated with negation?

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## Contrary to expectations:

# Does context influence the processing cost associated with negation?

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## INTRODUCTION

### Preliminaries

- Negation is generally associated with high processing costs (Fischler et al. 1983), and is said to require the activation and rejection of the positive correspondent (Kaup et al. 2007).
- However, negation serves certain functions in communication which may be obscured when negation is used out of context.

### Research question

Based on the premise that the rejection of the counterpart is not exclusive to negation, we investigated **the hypothesis** that negation is not more difficult to process than affirmation when both are presented in contexts where contextual expectations are denied.

## METHOD

### Stimuli, task and design

- **40** sensical experimental sentences + **40** non-sensical fillers
- **Sensibility-judgment-task**
- **2 x 2 Design: Context (supportive vs. non-supportive) x Polarity (affirmative vs. negative)**

### Pretest and Predictions

Negative and affirmative experimental items do not differ significantly with regard to plausibility ( $U = 661.5, p = .18$ ).

**We predicted a stronger polarity effect for the non-supportive than the supportive contexts**

### Experiment 1

Aim: Investigating the polarity effect in different context conditions.

Context	Affirmative	Negative
non-supportive	<i>John has eaten the soup.</i>	<i>John hasn't eaten the soup.</i>
supportive	<i>Contrary to expectations, John has eaten the soup.</i>	<i>Contrary to expectations, John hasn't eaten the soup.</i>

Synonym expressions: *Surprisingly, Unexpectedly, Unpredictably*

### Experiment 2

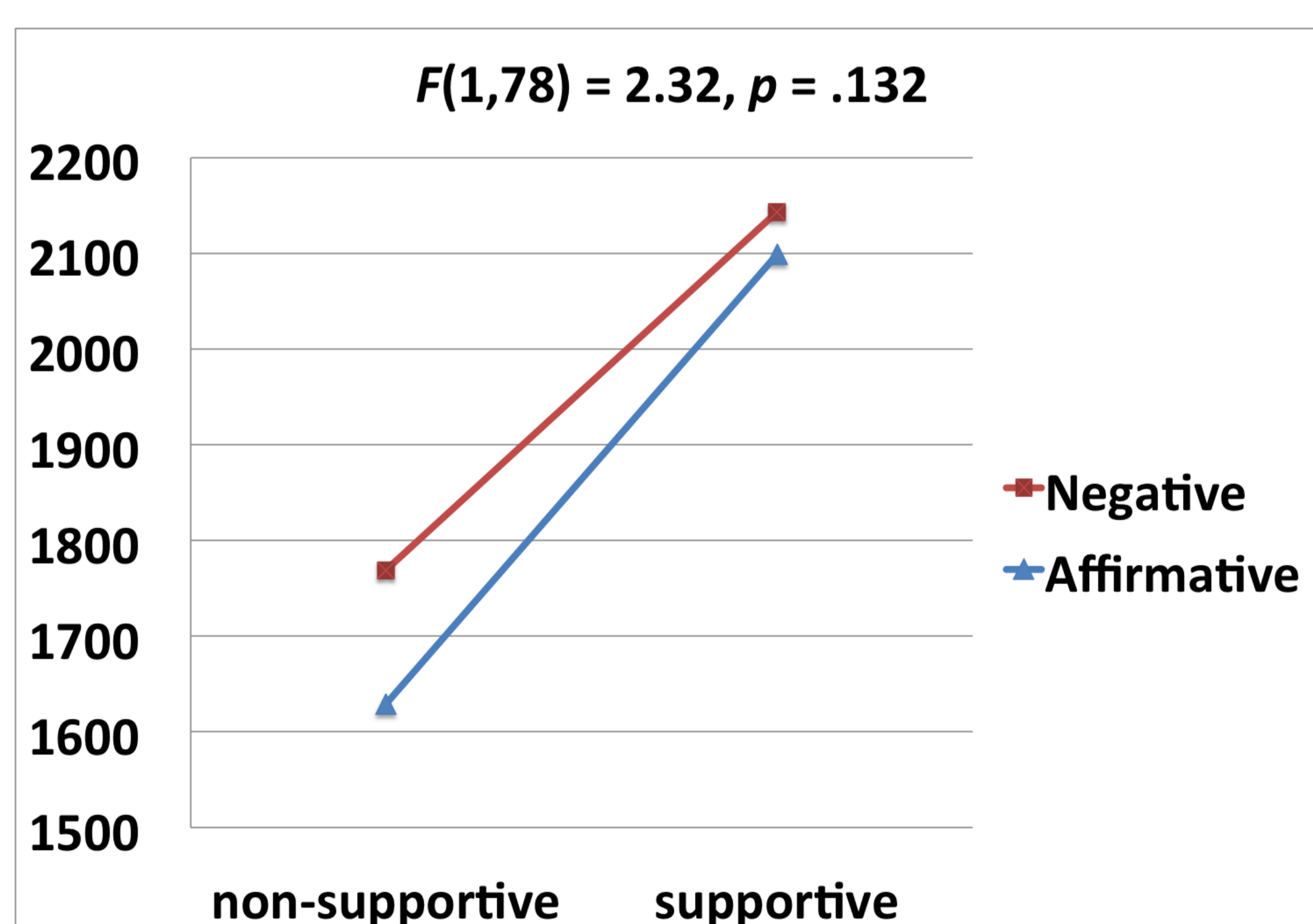
Aim: Eliminating length confound in the two context conditions.

Context	Affirmative	Negative
non-supportive	<i>Everybody is convinced that John has eaten the soup.</i>	<i>Everybody is convinced that John hasn't eaten the soup.</i>
supportive	<i>Contrary to expectations, John has eaten the soup.</i>	<i>Contrary to expectations, John hasn't eaten the soup.</i>

Synonym expressions: *Everyone thinks that, Based on what we know, We believe that* (similar number of syllables as in Exp. 1)

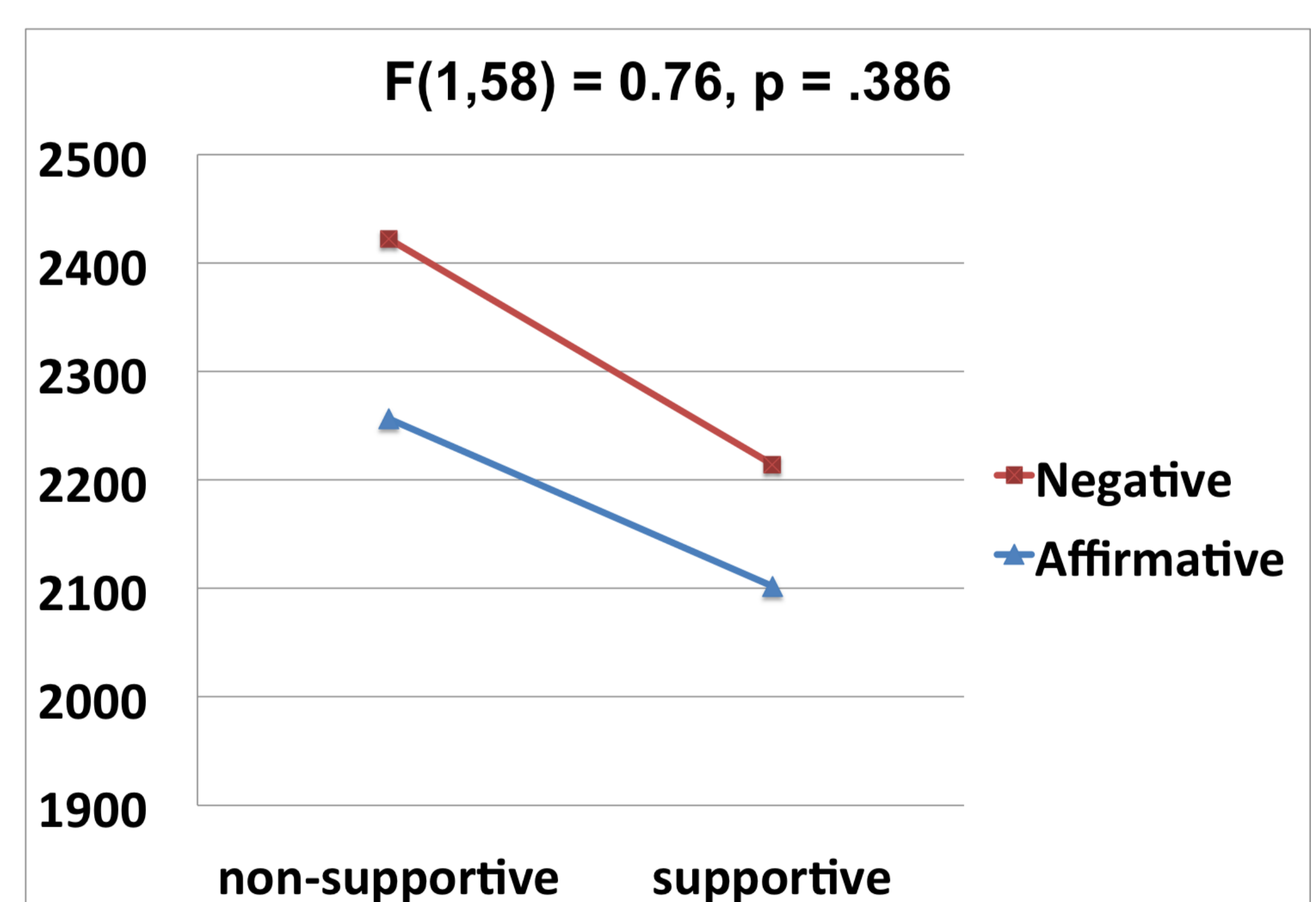
## RESULTS

### Experiment 1



→ Two main effects,  $p_s < .001$ , no interaction

### Experiment 2



→ Two main effects,  $p_s < .01$ , no interaction

## CONCLUSIONS

Although the patterns of RTs tended to validate our prediction, the relevant interaction was not significant, showing that polarity and context do not influence each other. In other words, the supportive context does not seem to facilitate the processing of negation in the current setting. However, the processing difficulty associated with negation should be further investigated, as the RTs in the sensibility-judgement task include the time required for response decision and response preparation and might not be ideal to capture subtle differences in processing times.

## References

- Fischler, I., Bloom, P., Childers, D., Roucos, S., & Perry, N. (1983). Brain potentials related to stages of sentence verification. *Psychophysiology*, 20, 400–409.
- Kaup, B., Zwaan, R., & Lüdtkke, J. (2007). The experiential view of language comprehension: How is negated text information represented? In F. Schmalhofer & C. A. Perfetti (Eds.), *Higher level language processes in the brain: Inference and comprehension processes* (pp. 255–288). Mahwah, NJ: Lawrence Erlbaum.