

Priming cooperating prosodic phrasing increases reading times: An Eye-Tracking Study



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What did we investigate?

Prosody contributing to sentence processing even in silent reading [1]

- Studies indirectly inducing prosodic breaks [e.g. 2]
- Few studies directly manipulating prosody [3, 4]

But

- Only evidence on offline responses vs. **real-time processing** [1-4]
- Only boundaries manipulation vs. **role of full phrasing and pace** [5]

Does prosody modulate sentence processing in silent reading?

- 🔍 Real-time processing of prosodic information
- 🔍 Effects of full phrasing, beyond the simple boundary
- 🔍 Prosodic effects, beyond syntax

How to test it?

Cross-Modal Priming Paradigm with a mismatch design [6, 7, 8]

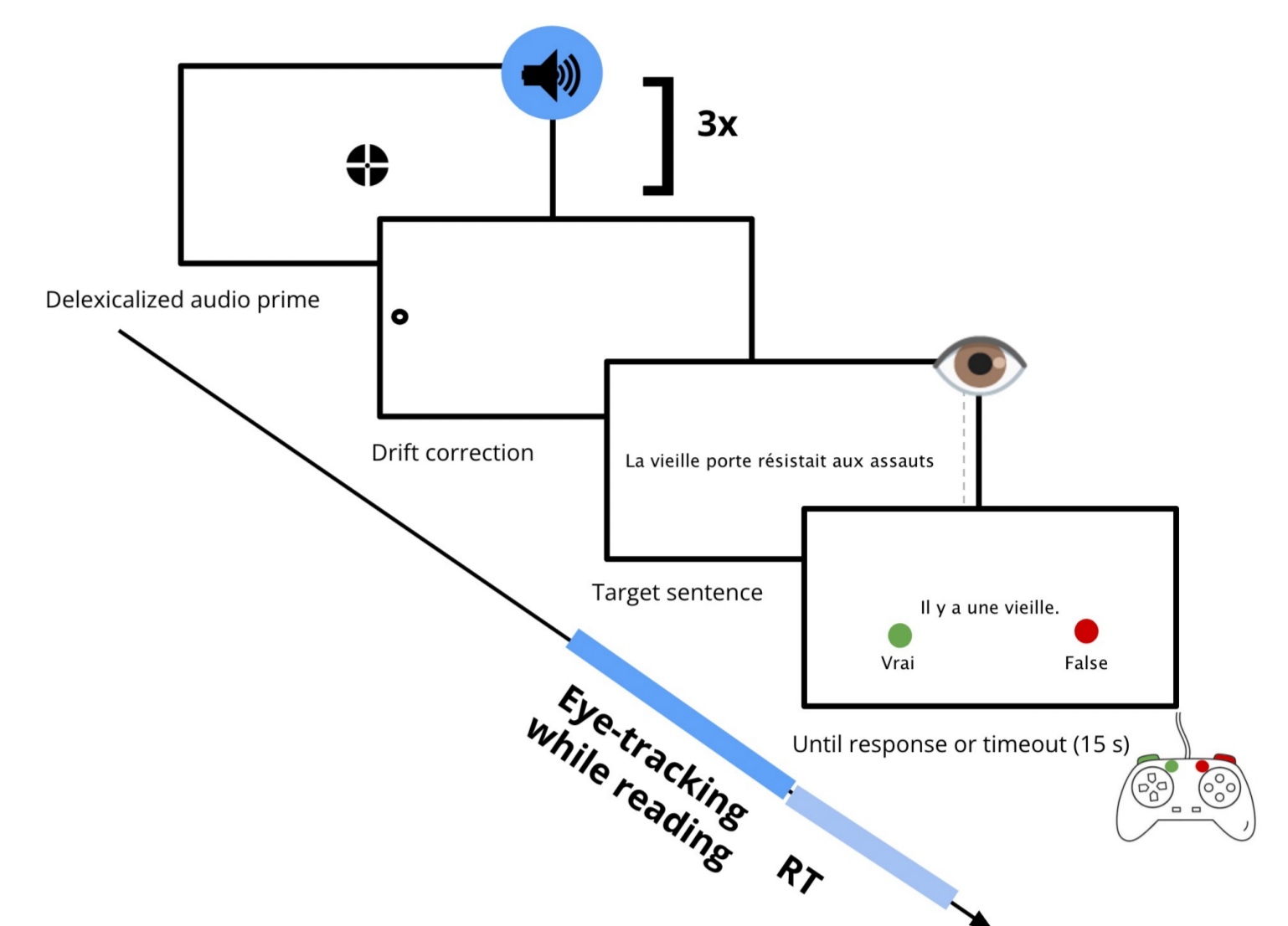
Priming overt prosodic phrasing (of the delexicalized prime)

- cooperating
- conflicting

on the implicit prosodic phrasing (of the target sentence)

What did we expect?

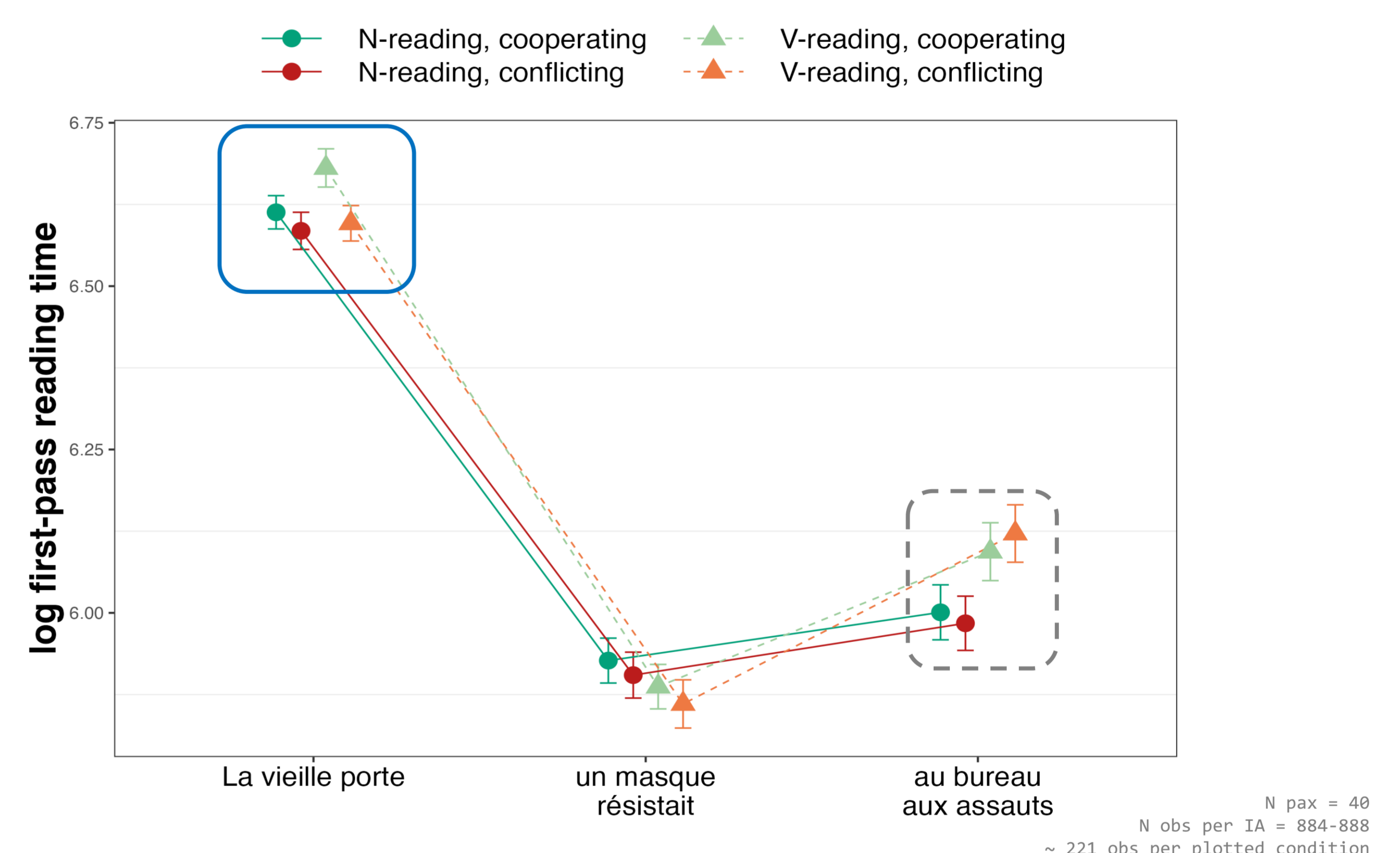
- Sentences primed with cooperating < conflicting prosodic phrasing
- shorter fixation times at critical interest areas
- modulation of the garden-path effect in ambiguous constructions



What did we find?

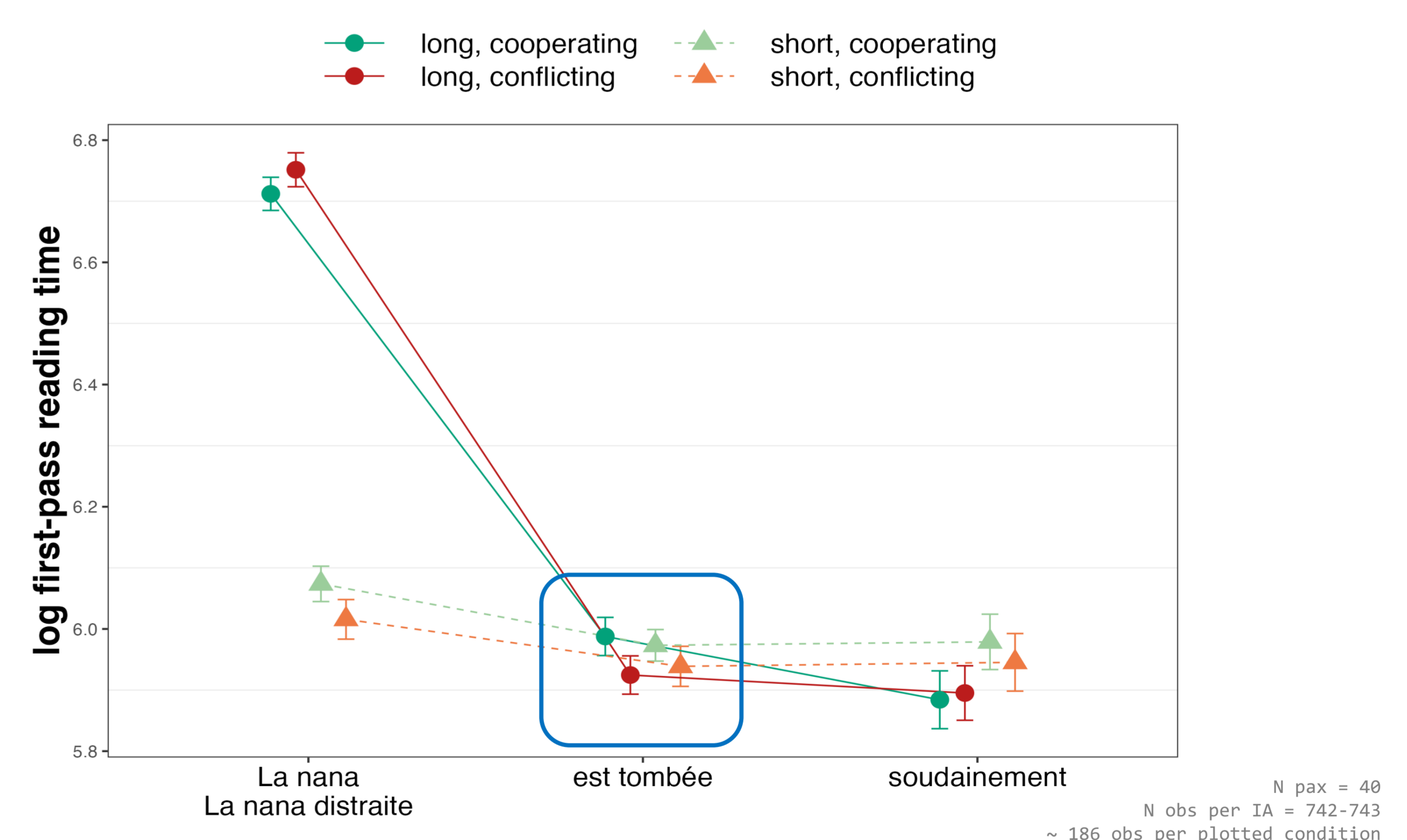
Homograph temporarily ambiguous constructions with mutually exclusive prosodic phrasing

Target structure	Delexicalized prime prosody	Target sentence
V-reading	cooperating	<i>La vieille % porte un masque % au bureau</i> 'The old women wears a mask at the office'
	conflicting	* <i>La vieille porte % un masque au % bureau</i>
N-reading	cooperating	<i>La vieille porte % résistait % aux assauts</i> 'The old door resisted the assaults'
	conflicting	* <i>La vieille % porte rési- % -stait aux as- % -saults</i>



Unambiguous constructions syntactically equivalent but spontaneously prosodically different

Target structure	Delexicalized prime prosody	Target sentence
short	cooperating	<i>La nana % est tombée % soudainement</i> 'The girl suddenly fell'
	conflicting	* <i>La nana % est tom- % -bée soudaine- % -ment</i>
long	cooperating	<i>La nana distraite % est tombée % soudainement</i> 'The distracted girl suddenly fell'
	conflicting	* <i>La nana % distraite est % tombée sou- % -dainement</i> (only plausible realization, in terms of syllables) <i>La nana distraite % est tombée % soudainement</i> (also plausible, in terms of intonational contour)



Does prosody modulate sentence processing during silent reading?

Yes, modulating priming effects of overt phrasing of delexicalized audio primes on implicit prosody of targets

- ! Real-time processing of prosodic information
- ! Full phrasing representation, beyond the simple boundary
- ! Prosodic priming effects, beyond syntactic effects
- Extension of prior work on implicit prosody

Yet, in the opposite direction than expected, with cooperating prosody in the primes increasing reading times

- ? Greater engagement and deeper processing due to alignment of primed prosodic phrasing, syntactic boundaries, and implicit prosody, as shown for overt prosody
- ? Effects of meter regularity or cognitive load

