

Listeners rapidly update their predictions in response to unexpected information

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Introduction

- Comprehenders can use rich contextual information to predict upcoming language in real time (see Kamide, 2008, Kutas et al., 2011, and Pickering & Gambi, 2018 for a review).
- They can also use unexpected information to update their predictions very quickly (Szewczyk & Wodniecka, 2020; Chow & Chen, 2020).
- Chow & Chen (2020) examined listeners' sensitivity to cues that are inconsistent with their predictions by using nominal classifiers in Mandarin Chinese.

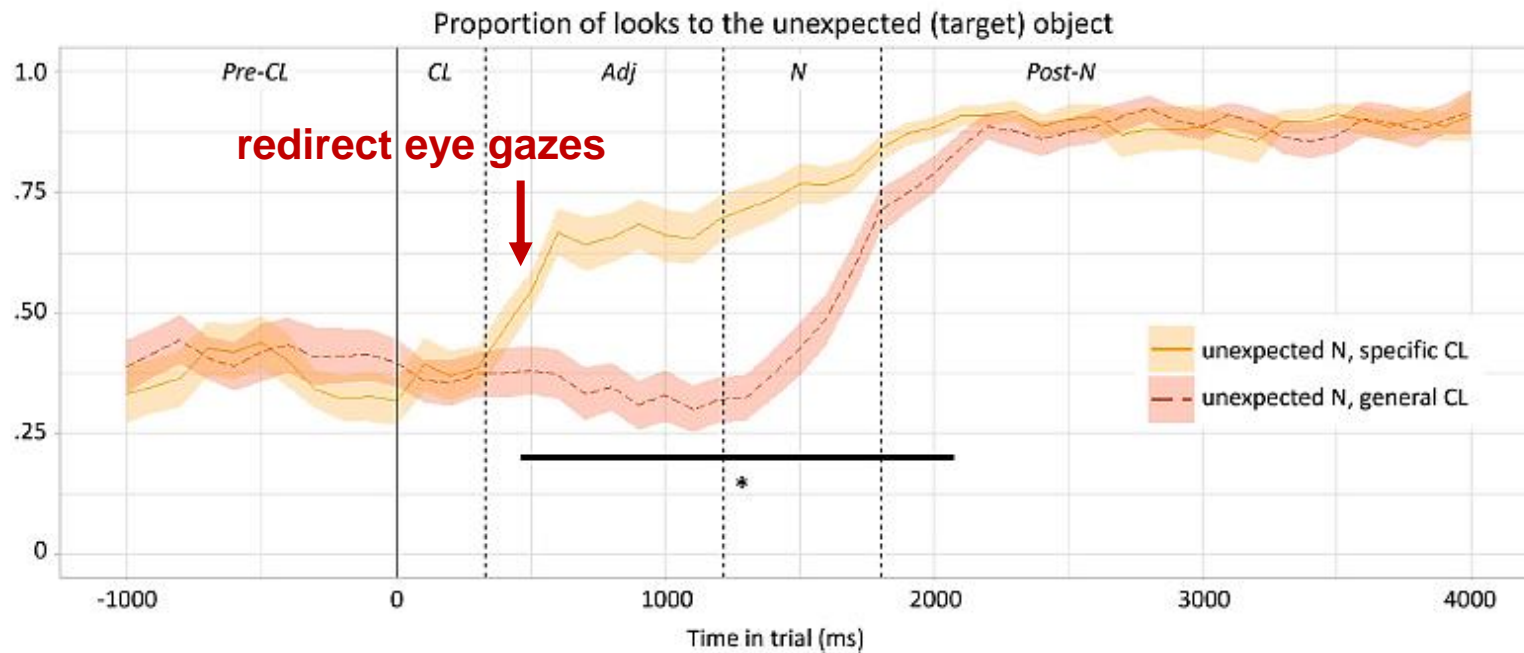
Anna zai xingbake mai-le yi

Anna at Starbucks bought one



Introduction

- Chow & Chen (2020) found that Mandarin Chinese listeners were able to rapidly redirect their eye gaze towards a previously unexpected object upon hearing a prediction-inconsistent classifier.



Anna at Starbucks bought one CL_piece / CL_general very nice-tasting cake.

← Unexpected noun

The present study

- To extend these findings to English using measure words (MW)
- MWs are container or group nouns that indicate the quantity of objects in pseudopartitives.
- Specific MWs delimit objects with certain features, whereas general MWs are compatible with a much wider range of objects (Klein et al., 2012).
- **Objective:** Unlike classifiers in Mandarin Chinese, MWs are not obligatory for nouns in English, and therefore, allow us to test whether comprehenders can quickly revise their predictions even when the relevant cue is not routinely present in the language.

Specific / General MW

a **herd** / **roomful** of sheep
a **pile** / **roomful** of hay

a **gust** / **hint** of wind
a **shower** / **hint** of rain

a **pride** / **group** of lions
a **flock** / **group** of flamingos

a **pot** / **bit** of tea
a **plate** / **bit** of biscuits

Method

- **Design:** 2 predictability of noun (expected vs. unexpected) x 2 MW types (specific vs. general)



(1) In the barn at the back of the field, the shepherd was keeping a

- (a) **herd** / **roomful** of recently stolen sheep. (Expected)
- (b) **pile** / **roomful** of recently stolen hay. (Unexpected)

	Expected noun		Unexpected noun	
	Specific MW	General MW	Specific MW	General MW
Average Cloze probability (range)	79% (37% - 100%)	53% (10% - 97%)	51% (19% - 97%)	5% (0% - 27%)

Results

1) Mixed-effects logistic regressions

- **MW window**

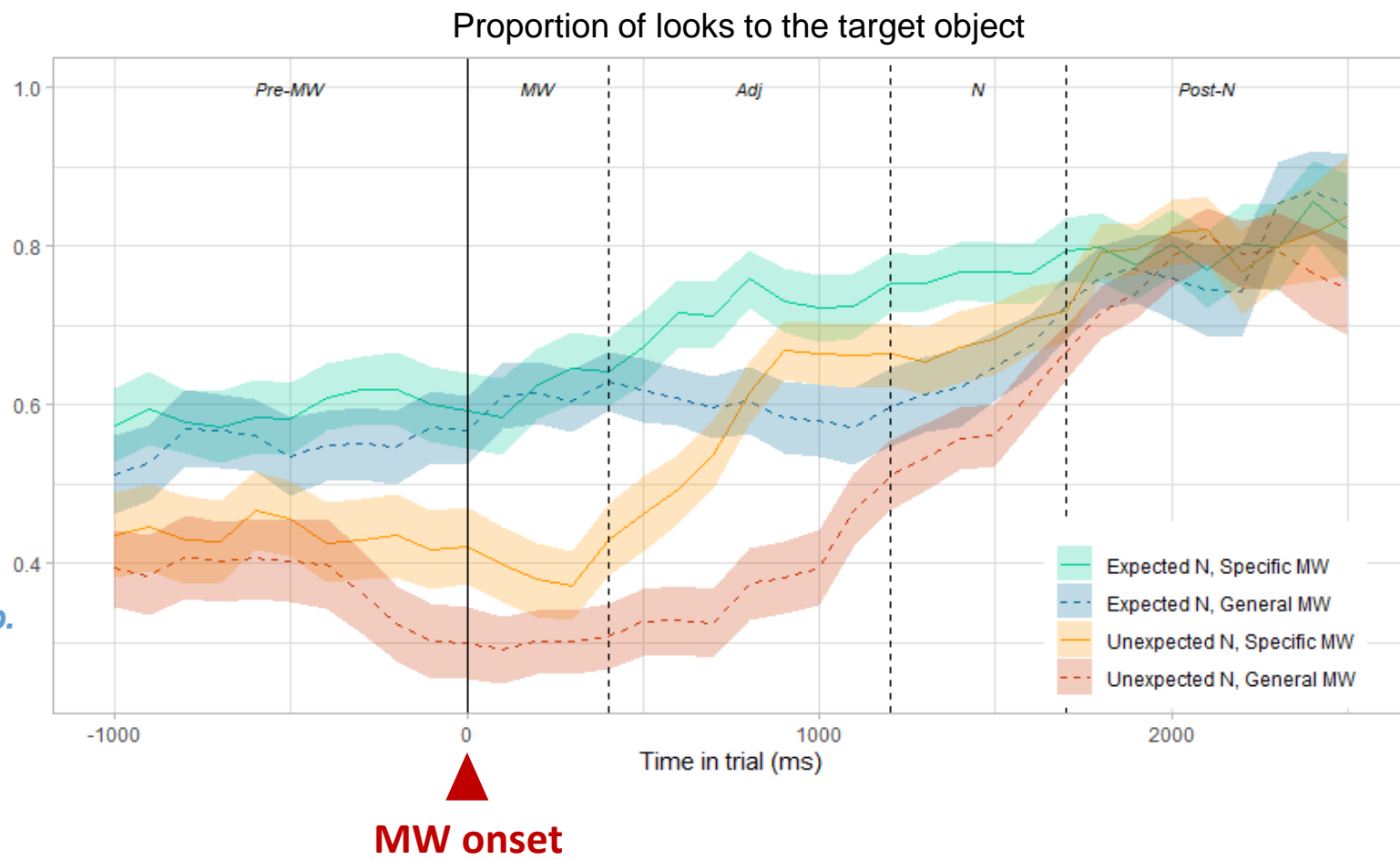
More likely to look at the expected object than the unexpected object.

- **Adjective window**

More likely to look towards the target after hearing a specific (than a general) MW.

In the barn at the back of the field, the shepherd was keeping a

— *herd of ... sheep.*
- - - *roomful of ... sheep.*
— *pile of ... hay.*
- - - *roomful of ... hay.*



Results

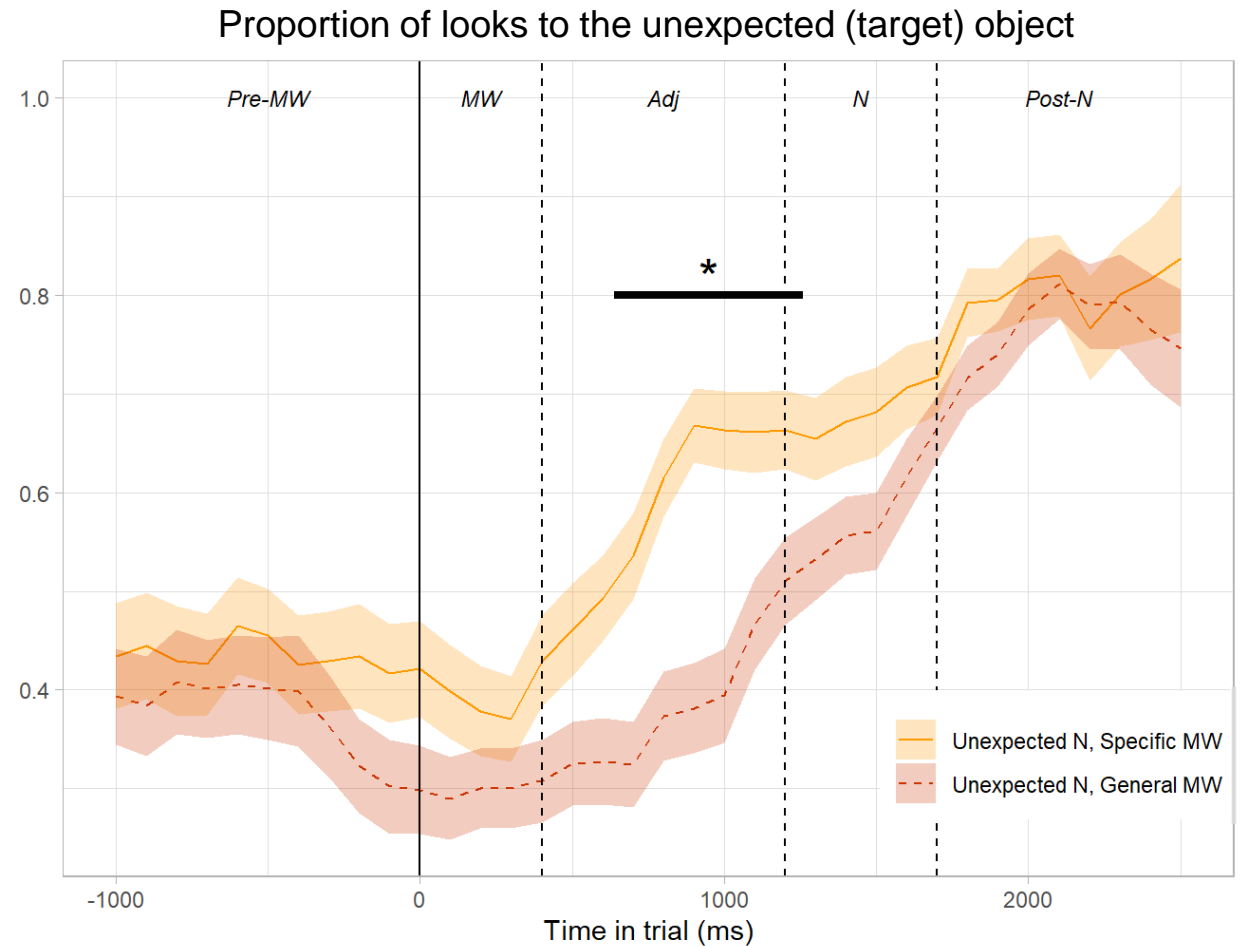
1) Cluster-based permutation tests

- **A significant cluster from 640 ms to 1260 ms**

More likely to look away from the expected object and towards the unexpected target upon hearing a specific, relative to a general MW.

Note: noun onset was at least 658 ms after MW onset (average = 1200 ms).

- These results showed that listeners were able to revise their predictions upon encountering a prediction-inconsistent MW before they heard the noun.



Interim conclusion

- Consistent with the effect first reported in Mandarin Chinese (Chow & Chen, 2020)
- Further evidence that comprehenders can rapidly update their predictions in response to unexpected incoming information.
 - ★ Even when the relevant cue is not routinely present in the language.
- We aim to test an additional 20 participants (total $n = 60$) to increase statistical power to compare with the Chinese classifier study.

References

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