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## Introduction

- Discourse connectives play a crucial role in our ability to comprehend language effectively and efficiently.

- Unclear whether the different types of coherence relationships or pragmatic communicative functions that are specified by different discourse connectives have different effects on processing.

- We used event-related potentials (ERPs) to compare comprehenders' use of two types of discourse connectives to predict upcoming events: "Therefore", which tells comprehenders to expect a specific causal relationship (Result), and "Even so", which tells comprehenders to deny expectations, based on their real-world knowledge (Concession).

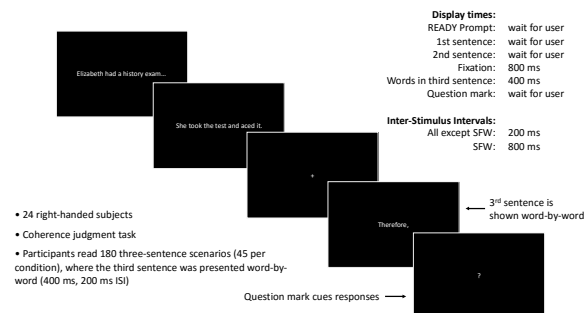
- Previous work [1] has shown that comprehenders can quickly integrate the concessive function of "Even so" to reverse their real-world knowledge semantic predictions, and moreover, that these predictions are stronger than in conditions without connectives (as reflected by an enhanced attention of the N400 component).

- Question: Does "Even so" lead to stronger semantic predictions than the causal discourse connective, "Therefore"?

## Methods

- Participants read two-sentence contexts followed by a third sentence, presented word by word, beginning with either "Therefore" or "Even so".

- ERPs measured on critical words that rendered scenarios coherent or incoherent



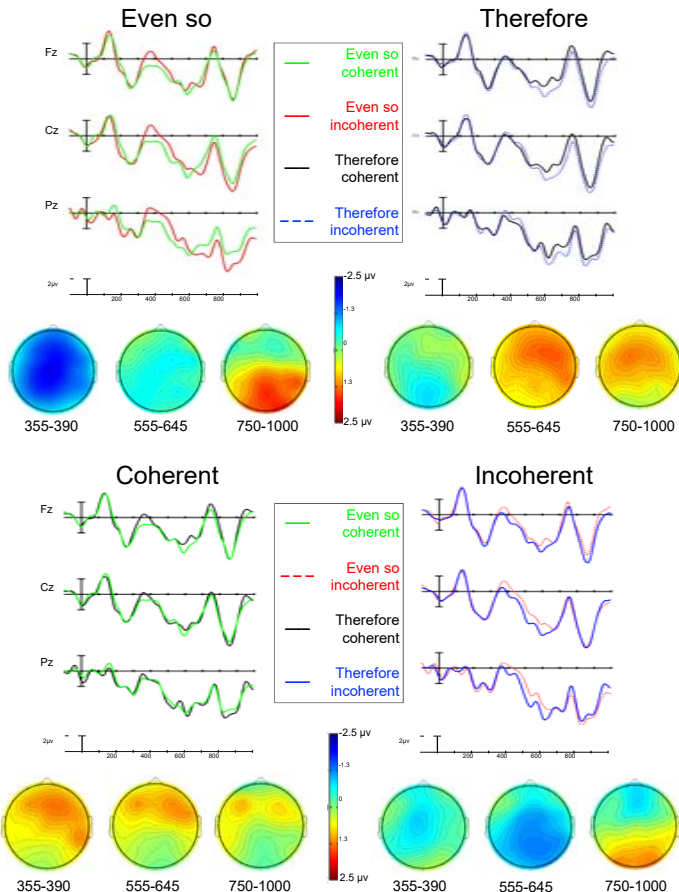
## Stimuli

	Therefore	Even So
<b>Coherent</b>	Elizabeth had a history exam on Monday. She took the test and aced it. Therefore, that night she <b>rejoiced</b> by partying wildly.	Elizabeth had a history exam on Monday. She took the test and failed it. Even so, that night she <b>rejoiced</b> by partying wildly.
<b>Incoherent</b>	Elizabeth had a history exam on Monday. She took the test and failed it. Therefore, that night she <b>rejoiced</b> by partying wildly.	Elizabeth had a history exam on Monday. She took the test and aced it. Even so, that night she <b>rejoiced</b> by partying wildly.

- Semantic Similarity Values [2] between first two sentences and the critical word were matched across conditions
- Final word-by-word sentence is identical across conditions, except for leading connective

## Results

Critical word:



## Results (continued)

**N400:**

- Between 355-390ms, the magnitude of the N400 coherence effect (incoherent vs coherent) evoked by critical words was larger in the even-so than in the therefore scenarios.

- This larger N400 coherence effect in even-so scenarios was driven by a smaller (less negative) N400 to coherent critical words in the even-so than in the therefore scenarios.

**Late Positivities:**

- A widely distributed late positivity was larger to incoherent (versus coherent) critical words, regardless of the preceding connective.

- Between 750-1000ms, the magnitude of a posteriorly-distributed late positivity coherence effect (incoherent vs coherent) evoked by critical words was larger in the even-so than the therefore scenarios.

- This larger posterior late positivity coherence effect in even-so scenarios was driven by a larger (more positive) late positivity to incoherent critical words in the even-so than in the therefore scenarios.

## Conclusions

- The reduced amplitude of the N400 to coherent vs incoherent critical words in the even-so scenarios is consistent with our earlier findings showing that comprehenders quickly integrate the concessive function of "Even so" to reverse their semantic predictions, thereby facilitating semantic processing of incoming critical words [1].

- The reduced amplitude of the N400 to coherent critical words in the even-so, relative to the therefore, scenarios suggests that "Even so" led comprehenders to generate stronger predictions about upcoming semantic features than "Therefore". This may be because "Even so" is more pragmatically informative than "Therefore", leading it to capture the comprehender's attention and enhance predictive processing.

- The larger late posterior positivity (between 750-1000ms) evoked by the incoherent critical words in the even-so, relative to the therefore scenarios, may reflect prolonged processing and adaptation that was triggered by the violation of strong predictions events that were incongruous with real-world knowledge.

## References

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- Landauer, T. K., & Dumais, S. T. (1997). A solution to Plato's problem: The latent semantic analysis theory of acquisition, induction, and representation of knowledge. *Psychological Review*, 104, 211-240.