



Idiom Processing: Bridging Literal and Figurative Meaning



Madilyn Cable & Leah Kim – Brigham Young University

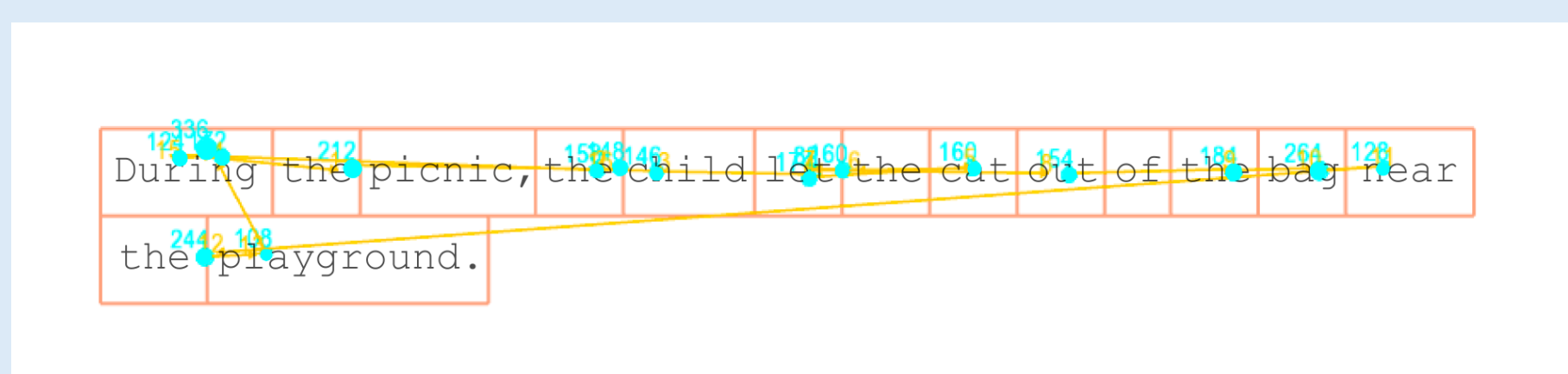
ABSTRACT

We tested whether native English speakers at BYU process idioms differently in literal versus figurative contexts. Using eye-tracking data, results showed no significant differences across conditions. Contrary to prior research, findings suggest idioms are processed similarly regardless of context.

INTRODUCTION

Existing research suggests that formulaic phrases, such as idioms, are processed faster than nonformulaic phrases because we encounter formulaic phrases more frequently (Carroll & Conklin, 2020). Research also suggests that native English speakers have an idiom processing advantage over speakers of English as a second language (Eckstein et al., 2021). Our study aims to further explore how idioms are processed by native English speakers with eye-tracking technology, using the guiding research question: How do BYU students read idiomatic phrases in literal and figurative contexts?

Pictured below is a sample of eye-tracking data we collected from our study. The blue dots indicate fixations, which are moments when the eye focuses on a certain area, measured in milliseconds. The yellow lines indicate saccades, which are eye movements in between fixations.



METHODOLOGY

The participants in this study were all BYU students, who were volunteers from classes or acquaintances depending on their availability. Out of the 8 participants, 5 had usable data. 2 of the 5 participants were linguistics students, and 2 were also male.

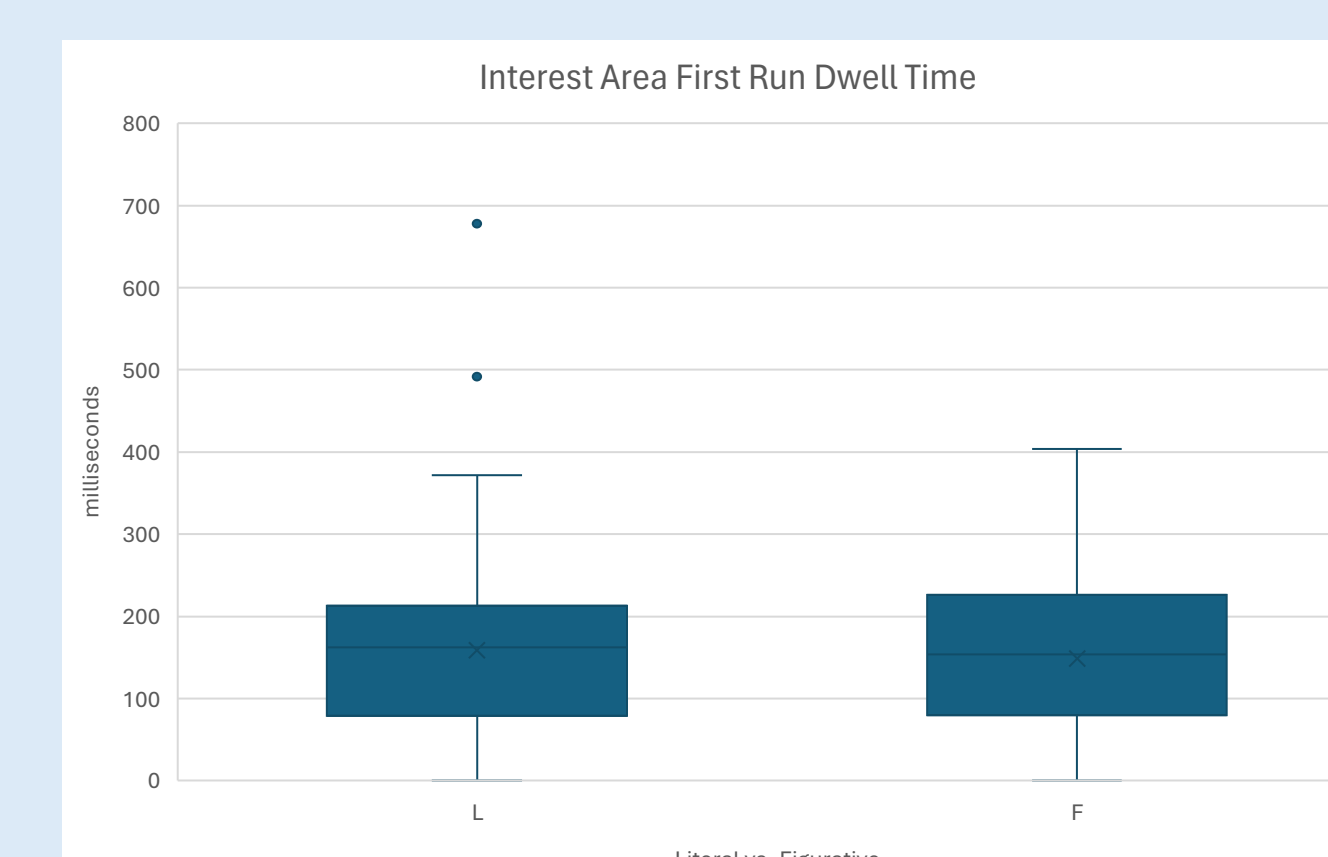
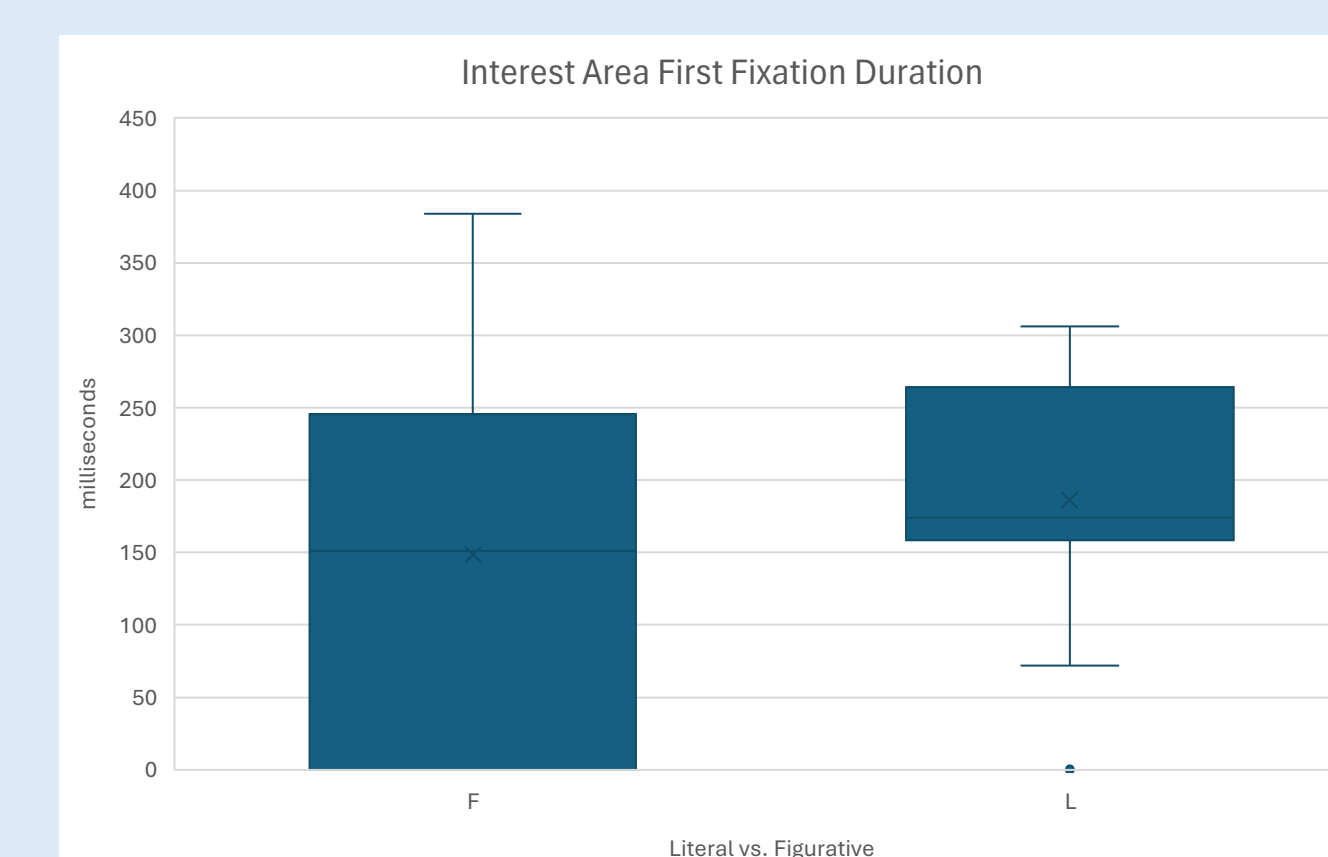
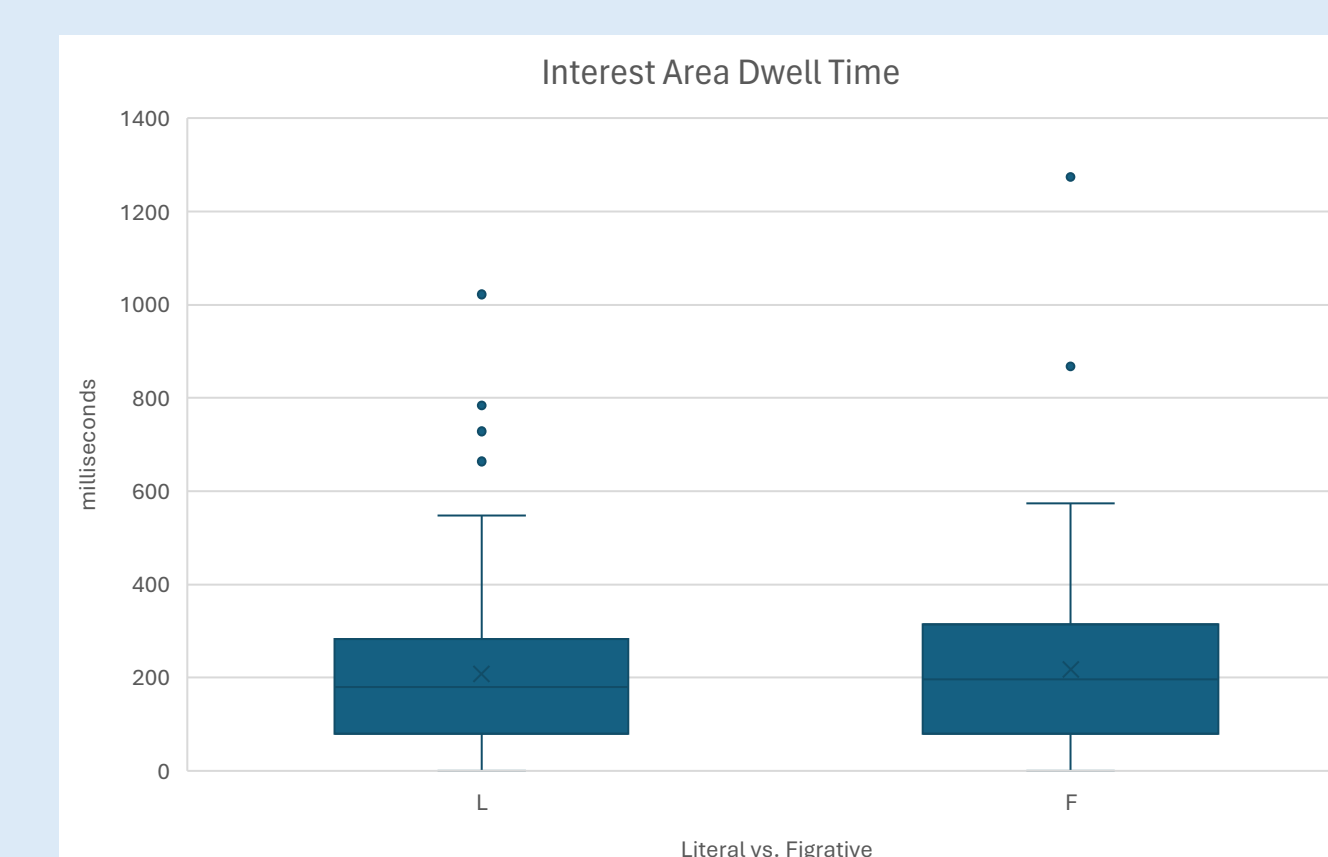
We designed our experiment using the online program SR Experiment Builder. Data was collected using an EyeLink 1000+ machine, designed to gather accurate eye-tracking data by measuring fixations, regressions, and saccades. During the experiment, each the participant was provided with 15 randomized sentences. 5 sentences included common idioms used literally, 5 sentences included the same idioms used figuratively, and 5 sentences were filler sentences. Every 3 questions, the participant would be asked to answer a comprehension question to ensure focus.

The study was carried out in a lab setting under similar conditions for all participants to maintain consistency. Participants were compensated for their time with cookies.

Once data was collected, it was organized using the online application Data Viewer, where the data was cleaned to remove any outliers in the dataset. The usable data was then exported to an Excel spreadsheet, where we log-transformed the data and coded each idiom as either literal or figurative. Then, the data was analyzed through Jamovi, an online statistic analysis tool, where we ran independent samples t-tests on the Interest Area Dwell Time, Interest Area First Fixation Duration, and Interest Area First Run Dwell Time measurements, comparing literal versus figurative uses.

RESULTS

Eye-tracking measures showed no significant differences between literal and figurative idioms across all variables, including dwell time ($p = .81$), first fixation duration ($p = .53$), and first run dwell time ($p = .65$). Dwell time reflects the total time spent reading a region, first fixation duration captures initial processing, and first run dwell time indicates early reading before moving on. Across all three measures, participants showed similar reading patterns for both types of idioms.



IMPLICATIONS

These results suggest that figurative idioms did not require additional processing effort compared to literal ones. In other words, participants did not spend more time reading, revisiting, or initially processing figurative language.

One possible explanation is that familiar idioms are stored and accessed as whole units rather than interpreted word-by-word. This allows readers to quickly recognize their meaning, regardless of context.

However, the small sample size ($n = 5$) limits the strength of these conclusions. Future research with more participants and a wider range of idioms is needed to better understand how context influences idiom processing.

REFERENCES

Carroll, G., & Conklin, K. (2020). Is all formulaic language created equal? Unpacking the processing advantage for different types of formulaic sequences. *Language and Speech*, 63(1), 95–122.

Eckstein G.T., Miner S., Luke S.G., Casper R. (2021). Reading idiomatic language: A comparative eye-tracking study of native English speakers and native Korean speakers. *Korean TESOL Journal*, 17(1), 41–63.