

## At-Issueness in Misinformation Detection: An Investigation of L2-induced Cognitive Load

This preregistered study examined the effect of cognitive load stemming from second language (L2) processing on misinformation detection as a function of its at-issueness. Previous work showed that false information is detected faster and more accurately when at-issue (Giunta et al. 2025). We extended this line of research to L2 processing, exploring how heightened cognitive load influences misinformation detection.

As L2 is typically more effortful to process (Foster-Cohen 2000, Padilla Cruz 2013), the resulting cognitive strain may alter how cognitive resources for misinformation detection are allocated. The identification and processing of at-issue content being paramount, misinformation detection in L2 may rely on a special optimization procedure that strategically reallocates limited cognitive resources toward at-issue information, thereby prioritizing the scrutiny of more relevant content (Sperber et al. 2010). We call this the *optimization hypothesis*.

Alternatively, difficulty integrating syntactic information in L2 (Sorace 2011) may impair the identification of at-issue content, as syntactic structure encodes propositional prominence (Gutzmann 2023). On this view, misinformation detection in L2 may be less sensitive to the distinction between at-issue and not-at-issue information. This would result in a more uniform level of scrutiny of at-issue and not-at-issue information, thereby reducing the impact of linguistic framing on misinformation detection. We refer to this view as the *deprecation hypothesis*.

To test these hypotheses, we adapted a misinformation-detection task from Giunta et al. (2025) in a 2 (Nativity: native vs. non-native)  $\times$  2 (At-issueness: at-issue vs. not-at-issue) mixed design. Four hundred participants recruited on Prolific first read a brief crime report and then evaluated a dialogue between a policeman and an informant. Their task was to judge whether the informant's answer was true. Twelve items were presented: six controls and six critical items in which the informant provided false information. At-issueness was operationalized by structuring the policeman's question so that it syntactically selected the false proposition as the *Question Under Discussion* (QUD) (the *at-issue condition*) or rendered it non-negotiated and backgrounded (the *not-at-issue condition*). Control items were a version of the informant's answer with no erroneous information. We measured Accuracy and Response Times of misinformation detection. Nonnative participants (N=200) were asked to take the LexTALE language competence test (Lemhöfer & Broersma 2012) upon completion of the main experiment tasks.

We expected to replicate the results of Giunta et al. (2025), showing that in L1 at-issue misinformation is detected more accurately and faster than not-at-issue information. For misinformation in L2, we investigated the predictions of the optimization and deprecation hypotheses. On the one hand, the optimization hypothesis predicts an interaction between At-issueness and Nativeness, with higher accuracy and faster responses for at-issue content in L2 than in L1. On the other hand, the deprecation hypothesis posits that increased processing effort in L2 blurs the distinction between at-issue and not-at-issue material, thus predicting an interaction between At-issueness and Nativeness, with a smaller asymmetry in detection rates and response times across conditions in L2 than in L1.

Accuracy results using Generalized Mixed-Effects Models in R showed a major drop in not-at-issue content ( $p < .001$ ). In addition to this, non-natives outperformed natives in misinformation detection in both conditions ( $p = .029$ ). About Response times, statistical tests on

correct responses showed that all participants were slower in the not-at-issue condition than in the at-issue condition ( $p < .001$ ) and that non-natives were slower overall ( $p = .0018$ ).

A post-hoc correlation model between accuracy and LexTALE scores showed that higher competence leads to higher accuracy overall ( $p = .009$ ). The model showed an interaction between At-issueness and LexTALE scores ( $p = .038$ ), whereby competence correlates positively with accuracy in at-issue trials, even though a second model between response times and LexTALE scores showed that higher language competence leads to faster RTs ( $p < .001$ ).

Non-native participants' LexTALE scores ranged from 50 to 100. Using a cut-off point of 70, we divided them into *Low* and *High* competence groups and compared these groups with *Native* speakers in a simplified correlation model between accuracy and LexTALE scores. The model showed main negative effects for the Native ( $p = .0013$ ) and Low ( $p = .0013$ ) groups, against the baseline of the High group which had the highest accuracy. Estimated marginal means further revealed that whereas High and Native participants differentiated clearly between conditions ( $p < .0001$ ), the Low group showed no significant contrast, suggesting reduced sensitivity to At-issueness and aligning with the deprecation hypothesis. However, pairwise comparisons in the at-issue condition showed significant contrasts between the High group and both the Native ( $p = .0038$ ) and Low ( $p = .0039$ ) groups, whereas the latter two did not differ. This pattern indicates that high competence learners showed the highest accuracy on at-issue trials, consistent with the optimization hypothesis.

At-issue content consistently facilitated misinformation detection across the L1 and L2 groups, with higher accuracy despite faster responses in at-issue trials. L2 participants were slightly more accurate overall, aligning with evidence that cognitive strain can enhance analytical thinking (Alter et al., 2007). Indeed, according to Alter et al. (2007, 569), "[m]etacognitive experiences of difficulty or disfluency appear to serve as an alarm that activates analytic forms of reasoning that assess and sometimes correct the output of more intuitive forms of reasoning." The results of our correlation models reveal a graded effect of L2 competence on at-issue sensitivity, rather than strict support for either the optimization or deprecation hypothesis. As cognitive load reduces as a result of increased language competence, information processing shifts from a non-discriminatory approach to an optimized treatment targeting relevant information.

## Selected references

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