

# Comprehending Natural Argumentative Texts

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## Background

The ability to comprehend arguments is a fundamental aspect of human decision-making and social interaction. It is also an ability that we expect our educational system to impart to students during their schooling. There is a national expectation that our students become able to comprehend and use that information to think critically within a domain (NAEP 2009; OECD, 2006). The most recent national assessment, however, found that students leaving high-school are not proficient at comprehending argumentative texts (NAEP, 2008). Given the importance of argument comprehension and production to both science and humanities, it is essential that all students become proficient text-based reasoners.

In two experiments, we tried to get a baseline measure of how accurate college students are at identifying claims and reasons in authentic arguments and the extent to which this process is aided by explicit marking of the argument's rhetorical structure.

## Experiment 1 – Baseline argument comprehension

Seventy-six native English-speaking students from an introductory-level Psychology course at Northern Illinois University participated for partial course credit. The undergraduates read seven authentic arguments selected from the Web and argument textbooks averaging 426 words with a Flesch-Kincaid grade level of 11.21. Each argument had one main claim supported by 2 to 10 reasons ( $M = 5.14$ ).

We created two versions of the arguments. One version had linguistic markers that may help students identify features of arguments (Explicit condition). Explicit version included additional discourse markers to emphasize aspects of the rhetorical structure. Some of the markers signaled the claim (e.g., “we propose that,” “I submit that”), others signaled the reasons (e.g., “most indicative of X is the fact that,” “several reasons to support,”), and finally others signaled backing (e.g., “consider the fact that,” “Evidence for ... can be found in a study”). In addition to marking the primary elements, we also included rhetorical connectives (e.g., *however*, *therefore*, *although*) and organizational markers (e.g., *first*, *second*, *finally*). The other version had no linguistic markers signally the argument elements (Implicit condition). In almost all cases, the Implicit condition was the original argument because markers are general not present in authentic argumentative texts. Participants were randomly assigned to marker-explicitness conditions.

Participants read each argument and then, with the argument present, were asked to write down the author's main claim and underline any reasons mentioned by the author to support that claim. After completing all seven arguments, participants completed a test of verbal reasoning ability as measured by a selection of 18 questions from past versions of the Law School Admissions Test (LSAT).

Across all conditions, participants identified only an average of 12.92 argument elements of the 43 possible, which was unexpectedly low. Even high-skilled reasoners only were able to identify 37% of the claims and reasons in naturalistic texts. This is alarming because if one cannot accurately, then one cannot adequately evaluate the quality of an argument. We did find that undergraduates are helped by the presence of markers. The participants assigned to the explicit texts correctly identified 7% more than the participants reading the implicit versions. While these results show that students can make use of explicit markers, it should also be noted that we had to create the explicit versions by adding markers, which were not prevalent in the original texts.



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## Experiment 2 – Testing an argument comprehension tutorial

These results highlight the point that even college students are not proficient at comprehending authentic arguments. Based on an analysis of students' identification errors, we created a tutorial to aid students in argument comprehension and tested the effectiveness of this tutorial. The heart of the instruction was a detailed explanation of the steps necessary for element identification. These included: Identify the main claim and state it clearly; Identify all important reasons and state them clearly; Evaluate whether each reason is true; Evaluate how strongly each reason supports the claim; and Identify the weaknesses in the argument. Throughout the tutorial, participants were asked to practice each skill. At the end, students were given practice items and provided answers to these items on the last page.

To test the Argument Parsing tutorial we had seventy native-English speakers enrolled an introductory-level psychology course at Northern Illinois University participate for partial course credit. Participants were randomly assigned to two separate instructional interventions: Argument Parsing Tutorial and Reading Goal Instructions. For the Argument Parsing Tutorial factor, half of the participants received our argument comprehension tutorial just described. The other half received No-feedback Practice in which participants were wrote a summary of a practice argument and then stated the main claim and listed all the reasons the author provided for support. The Reading Goal factor has two conditions: Comprehension and Rebuttal. Participants in the Comprehension condition were instructed to read for comprehension, and after each argument, they had to create one additional reason that was not mentioned in the text to support the claim. Participants in the Rebuttal condition were asked to critically evaluate the argument while reading. After each argument, they were asked to write down one reason to rebut one of the author's arguments. After reading the instructions and reading either the tutorial (Argument Parsing Tutorial condition) or working through the practice argument (No-feedback Practice), participants were then given four argument essays from Experiment 1. First they wrote a summary of the argument and then they were asked to state the main claim and list all the reasons the author provided for support.

Overall, element identification accuracy was generally low (43% of the possible 28 elements). We found that the Argument Tutorial for the Comprehension group identified more argument elements ( $M = 16.06$ ) than the Argument Tutorial for the Rebuttal condition ( $M = 10.39$ ) or either No-feedback group ( $M = 10.82$  and  $M = 11.39$  for the Comprehension and Rebuttal condition respectively). These results suggest that a simple 10 minute paper-and-pencil intervention could improve college students' argument comprehension. In fact, the tutorial increased argument element identification by 48% (or .76 standard deviations).

### Conclusions

These results show that undergraduates have difficulty comprehending authentic argumentative texts. The findings of experiment 1 also suggest that students can make use of added explicit markings, although it is not very helpful since most authentic arguments do not include such markings. Therefore, students need to be taught to understand arguments that are not well-structured. Experiment 2 found that a brief tutorial can help students comprehend authentic, real-life texts. We also found that although experts rebut as they read, it is not helpful for students to try to engage in rebuttal during reading.

### Further Reading

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