

Assessing Conditional Reasoning

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Throughout algebra, geometry, and higher-level mathematics and science courses, many theorems are presented as conditional statements. This prevalence makes *if...*, *then...* one of the most foundational logical connectives. This preliminary report shares results on undergraduate students' understanding of problems requiring direct, contrapositive, converse, and inverse reasoning of conditional statements. The initial analysis suggests that few undergraduates can correctly reason using the contrapositive and that higher-level mathematics courses (such as, Calculus) do not improve students' reasoning. The development of items for assessing conditional skills will also be discussed.