

# **Analysis of Undergraduate Students' Cognitive Processes When Writing Proofs about Inequalities**

Preliminary Research Report

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The purpose of this presentation is to discuss undergraduate students' cognitive processes when they attempt to write proofs about inequalities involving absolute values. We employ the theory of conceptual blending to analyze the cognitive process behind the students' final proof of inequalities. Two undergraduate students from transition-to-proof courses participated in the study. Although the instruction about inequalities was given graphically, the students recruited algebraic ideas mainly when they attempted to construct a proof for the inequality. We illustrate how students apply the algebraic ideas and proving structures for their mental activity in their proving activity.

Keywords: proof construction, inequalities, absolute values, conceptual blending