1159-97-178 **Paul Christian Dawkins*** (pcd27@txstate.edu) and **Kyeong Hah Roh** (khroh@asu.edu).

How logical relationships may depend on context for learners.

A key aspect of logic in advanced mathematics is that it describes content-independent relationships. However, research reveals little as of yet about how students segue content-independent logic with their content-specific reasoning. To learn more about this, we have been conducting experiments guiding students to reinvent key logical relationships – specifically contrapositive equivalence – in various mathematical contexts to see how the two interact. We will share some insights from one student's reasoning about proofs by contraposition (which we provided to her to read). We found that she initially questioned whether such proofs proved the given theorem until she constructed a relationship of necessity between the categories in the proof (e.g., why a multiple of 6 must also be a multiple of 3). This pattern repeated three times and though she thrice constructed her logical justification for why a contrapositive proof justified a conditional claim, she remained unsure of its generality for all conditional claims. We explore some of the implications of this phenomenon for the learning of logic in proof-oriented mathematics courses. (Received August 04, 2020)