Kristen Lew* (kristen.lew@gse.rutgers.edu) and Juan Pablo Mejia-Ramos (pablo.mejia@gse.rutgers.edu). Investigating the genre of mathematical proof writing at the undergraduate level.

We studied the genre of mathematical proof writing at the undergraduate level both qualitatively and quantitatively. Eight mathematicians and fifteen undergraduate students were asked in interviews (based on Herbst and Chazan’s (2003) breaching experiments) to read seven partial proofs based on student-generated work and to identify and discuss uses of mathematical language that were out of the ordinary with respect to what they considered to be conventional mathematical proof writing. Results were analyzed using open-ended thematic analysis to find common explanations for why the writing was unconventional. We then sent an online survey to mathematicians and undergraduate students throughout the United States asking them to read the same partial proofs. Participants were asked if they agreed that passages were unconventional for the explanations found in the qualitative study and to what degree the unconventional language use would affect the quality of the exposition of the proof. Results indicate mathematicians believe that mathematical language obeys the rules of natural language, whereas some students believe mathematical language and natural language are independent. (Received September 22, 2015)