

# Mathematics Education Seminar

Texas State University

## Toward a Functional Approach for Formal Mathematical Language

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Friday, January 22, 2021  
1pm

Zoom:

<https://txstate.zoom.us/j/94843120951?pwd=NORjZGxDb2NsOUtvVFJzbVoyaHMrUT09>

Meeting ID: 948 4312 0951

Passcode: seminar

Abstract:

Fluency with formal mathematical language is necessary for students in advanced mathematics; however, research has documented that the language is particularly challenging for students. I have been working with pairs of students to support them in learning about particular types of formal mathematical statements – statements with multiple quantifiers. As I attempted to make sense of the students’ thinking about these statements, I realized that the ways in which they reasoned about the statements necessitated a more functional understanding of the statements themselves. During this talk, I will introduce Halliday’s Systemic Functional Grammar and how the theory has led me to important insights about (students’ thinking of) statements with multiple quantifiers. In particular, I will first describe a functional approach to understanding the grammar of the statements. Then I will present students’ considerations of grammatical choices that were sensical, but inconsistent with the larger mathematics community. I will close the talk with implications for future research on the teaching and learning of formal mathematical language.



*Kristen Vroom is a postdoctoral scholar at Oregon State University’s department of mathematics. Her research focuses on undergraduate mathematics education, with an emphasis on the teaching and learning of proof and proof related activities. Kristen earned her Ph.D. in mathematics education from Portland State University, M.A. in mathematics from Appalachian State University, and B.S. in secondary mathematics education from North Carolina State University. During her free time, Kristen enjoys hiking with her two dogs Mowgli and Parker, reading cheesy novels, and cooking new vegetarian recipes.*