

Title: Evaluating Mathematical Quality of Instruction in Advanced Mathematics Courses
By Examining the Enacted Example Space

Abstract: In advanced undergraduate mathematics, students are expected to make sense of abstract definitions of mathematical concepts, to create conjectures about those concepts, and to write proofs and exhibit counter-examples of these abstract concepts. In all of these actions, students must be able to draw upon a rich store of examples in order to make meaningful progress.

We have created a methodology to evaluate what students might learn from a particular course by describing and analyzing the enacted example space (Mason & Watson, 2008) for a particular concept. This method will both give a means to create testable hypotheses about individual student learning as well as provide a way to compare disparate pedagogical treatments of the same content. Here, we describe and assess the enacted example space by studying the teaching of abstract algebra.