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Tasova. *Concept Construction and Abstracted Quantitative Structures.*

A critical aspect of mathematics education is supporting students in constructing sophisticated mathematical concepts. Accordingly, mathematics educators have described various framings of "sophisticated mathematical concepts." In this presentation, we draw on Piagetian ideas of abstraction, Carlson's covariational reasoning framework, Thompson's notion of quantitative reasoning, and related constructs including Steffe's units coordination to describe a construct—abstracted quantitative structures—that defines one form of "sophisticated mathematical concepts." An abstracted quantitative structure is a network of related quantities a student has come to understand as if it is independent of specific figurative material (i.e., representation free). Furthermore, this understanding entails that a student can accommodate (or assimilate) novel figurative material by re-presenting the abstracted quantitative structure, assuming the material and situation permits the associated quantitative operations. Using data collected during clinical interviews and teaching experiments with undergraduate students, we illustrate the introduced construct and we include its research and instructional implications in the context of secondary and undergraduate algebraic and calculus ideas. (Received September 23, 2018)