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Michelle J Zandieh* (zandieh@asu.edu), Department of Mathematics & Statistics, PO Box 871804, Arizona State University, Tempe, AZ 85287-1804. *Mathematical Reasoning: Insights from Cognitive Psychology.*

The purpose of this report is to describe how several seemingly different phenomenon in mathematical reasoning can be seen through one unifying lens with the use of Fauconnier and Turner's theory of conceptual blending. This theory describes how humans reason and learn by combining familiar mental spaces or frames into a new blended space or an integrated network of blended spaces. I use three examples of theoretical frameworks from the mathematics education literature, including data analyzed within these frameworks, and show how they may be reframed using conceptual blending. The examples are 1) the notion of the key idea of a proof, 2) metaphorical and metonymic relationships in a structured understanding of the concept of derivative, 3) the emergent models heuristic from realistic mathematics education. By explicating these three examples I hope to illustrate how conceptual blending may play a role in our understanding of how our students learn and how we may use this knowledge to aid in curriculum design. (Received September 12, 2007)