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**Shiv Karunakaran\*** ([shivk@math.wsu.edu](mailto:shivk@math.wsu.edu)). *Examining expert and novice proving process for "linearity" of deductive logic.*

The argument for the importance of proving and of proof in the teaching and learning of mathematics has been repeatedly made by mathematics education researchers and by policy documents. There is also considerable research examining the existence of a gap in the proving and proof-constructing abilities of “novices” and “experts” in mathematics. Mathematicians have long claimed that the proving process cannot be considered to be a “linear” process and that undergraduates may view the proving process to be necessarily “linear”. However, there is little to no empirical research that supports this familiar claim. This study uses grounded theory methods to examine “expert” and “novice” mathematicians in the process of proving mathematical statements. The finding reported in this session supports the claim that expert provers of mathematics are willing to knowingly and temporarily interrupt the deductive logic during their process of proving mathematical statements, in order to make progress towards constructing a complete deductive argument. However, novice provers may not demonstrate the same flexibility. (Received August 29, 2014)