1056-15-1231   **Elisha Peterson*** (`elisha.peterson@usma.edu`), MADN-Math, United States Military Academy, 646 Swift Road, West Point, NY 10996. *Unshackling Linear Algebra from Linear Notation.*

Have you ever seen one of those movies where the hero unearths an artifact covered with mysterious symbols, and it takes a brilliant scientist to decipher their meaning? Hollywood's tacit (and reasonable) assumption is that the mathematics of a different civilization would look very different. This talk is an accessible introduction to trace diagrams, a non-traditional notation for linear algebra that could plausibly have been developed by another civilization. Surprisingly, the notation is perfectly rigorous, and often leads to proofs more elegant than those written using traditional notation. The only prerequisite is an understanding of basic linear algebra and a willingness to work some examples to get used to doing real math with "doodles". (Received September 21, 2009)