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**JEFFREY SHALLIT**, University of Waterloo

*Proving theorems in combinatorics on words with Walnut*

Walnut is free software, written by Hamoon Mousavi and recently modified by Aseem Baranwal, for proving (or disproving) statements about combinatorics on words. Specifically, it can prove or disprove any first-order claim about automatic sequences  $s$  that is phrased in terms operations like addition, subtraction, comparison, boolean connectives, and indexing into  $s$ . In this talk, I will briefly give the theory behind Walnut and give many examples of the kinds of things one can prove with it. Both existing results and new results will be covered.