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**Matt Valeriote\*** ([matt@math.mcmaster.ca](mailto:matt@math.mcmaster.ca)), Department of Mathematics & Statistics, McMaster University, Hamilton, Ontario L8S 4K1, Canada. *Finite algebras and regular tree languages.*

By regarding deterministic finite state automata as finite multi-unary algebras, and vice versa, one can define the notion of a regular language in algebraic terms. From this perspective, a multi-unary algebra is a string processor, where strings correspond to unary terms, and the algebra will accept or reject a string/term, depending on the value the term produces when applied to a designated initial element of the algebra. In a similar fashion, a finite algebra of arbitrary type can be regarded as a tree processor, with trees corresponding to the terms of the algebra. In this way, the notion of a regular language of strings can be extended to that of a regular tree language.

In my talk I will discuss several definability questions and results for regular tree languages and connect them with some decision problems for classes of finite algebras that are closed under operations, that from a computational perspective, seem quite natural. One of the operations of interest is the matrix power construction and another is the wreath product. This is joint work with Mikołaj Bojańczyk. (Received September 09, 2019)