On the Relation Between Right-Linear #-Rewriting Systems and Simple Matrix Grammars

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This talk deals with the topic of #-rewriting systems, which utilise components present in automata – such as state control – in their rewriting along with the use of a single nonterminal symbol, #. It focuses on n-right-linear #-rewriting systems as their special case that is limited to application of right-linear rewriting rules. On the premise that the language family generated by n-right linear simple matrix grammars is properly contained in the family generated by $(n+1)$-right linear simple matrix grammars for all $n \geq 0$, and therefore that an infinite hierarchy occurs between the language families defined by this grammar type, the talk presents a proof of equivalence between the families of n-right-linear #-rewriting systems and n-right linear simple matrix grammars. In the conclusion of this talk, the existence of an infinite hierarchy between the degrees of n-right-linear #-rewriting systems is implied. Open problems related to #-rewriting systems are presented.