

Ordinal Automatic and Tree Automatic Structures

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A structure in a finite signature is automatic if its domain consists of finite words and the domain, relations, and functions of the structure are recognized by finite automata. Automatic presentations can be generalized to ordinal tapes and to tree automata, and there is a close connection between these. I will describe how to prove non-automaticity in both settings. For example, in joint work with Jain, Khoussainov, and Stephan we prove that the ranks of linear orders with an ω^n -automatic presentation or a tree-automatic presentation are finite and that there is no scattered tree-automatic linear order on the set of all finite labelled trees.