▸ ALEXANDRA REVENKO, *The complexity of automatic partial orders.*
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The theory of automatic structures found wide application in logic. Numerous decidability problems was solved by using this theory. We here consider an automatic structure as a relational structure whose domain and relations are recognized by finite string atomata. It seemed that these structures must be easy from some complexity points of view. But it was showed that they aren't. For example, Khoussainov, Nies and others showed that the complexity of the isomorphism problem for automatic structures is Σ^1_1-complete [2]. Also Khoussainov and Minnes showed that for every ordinal $\alpha \leq \omega_1^{CK} + 1$ there exists an automatic structure such that the Scott rank of it is α [1]. Then it is wishful to prove good complexity results at least for specific classes of automatic structures.

We studied automatic oderings. And the class of automatic partial orderings isn't easy. It was showed that also for any given $\alpha \leq \omega_1^{CK} + 1$ there is an automatic partial order of Scott rank greater than α.

[1] B. Khoussainov, M. Minnes, *Model Theoretic Complexity of Automatic Structures*, ***Lecture Notes in Computer Science, Theory and Applications of Models of Computation*** vol. 4978 (2008), pp. 514–525.

[2] B. Khoussainov, A. Nies, S. Rubin, and F. Stephan, *Automatic structures: Richness and limitations*, ***Logical Methods in Computer Science***, vol. 3 (2007), no. 2, pp. 1–18.