**Advice Automatic Structures and Uniformly Automatic Classes**

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We study structures that are presentable by automata that have access to a fixed advice. Building on these automata we introduce the concept of parameterised automatic presentations as a means to uniformly represent a whole class of structures by a regular set of advices. We give a characterisation of the advice automatic countable Boolean algebras and give upper bounds on the complexity of presentable structures for several algebraic classes like semigroups, groups, and integral domains, generalising results for ordinary automatic structures. On the positive side we give parameterised automatic presentations for several classes of structures, including the class of torsion-free abelian groups of rank 1 and the class of all finitely generated abelian groups. Furthermore we apply our results to establish fixedparameter tractability of the model-checking problem for first-order logic on certain classes of finite structures. In particular we show that FO-model-checking is FPT on the class of all finite groups parameterised by the length of the formula and the size of the non-abelian indecomposable factors of the group.