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Thibault Godin* (thib.godin@gmail.com). *Some new tools and examples for automaton groups of intermediate growth.*

Mealy automata are powerful tools to generate groups with unusual properties. Since the eighties, they have been used to solve several important group theoretical questions, and are especially ubiquitous in problems related to growth. The growth of a group (namely the function counting the number of elements in balls of growing radii in the Cayley graph) is a geometric way to understand and classify groups. The first example of a group of intermediate growth (whose growth function is bigger than any polynomial but smaller than any exponential function), was given by Grigorchuk in 1983 as an automaton group, and since these automaton groups have been the inspiration for all known examples of groups with intermediate growth. I will briefly explain how the underlying automaton structure gives a powerful leverage to understand it, and how this is amenable to computer experimentation. Then I will give several new examples of groups with intermediate growth and compare them with previously known examples. based on an on-going work joint with Jérémie Brioussé (Received September 12, 2019)