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Supun T Samarakoon* (stsamster@math.tamu.edu). *Generalized Grigorchuk's Overgroups.*

Grigorchuk's Overgroup \tilde{G} , is a branch group of intermediate growth. It contains the first Grigorchuk's torsion group G of intermediate growth constructed in [1980], but also has elements of infinite order. Its growth is substantially greater than the growth of G . The group G , corresponding to the sequence 012012..., is a member of the family $\{G_\omega\}, \omega \in \Omega = \{0, 1, 2\}^{\mathbb{N}}$ consisting of groups of intermediate growth when sequence ω is not virtually constant. Following this construction we define generalized overgroups $\{\tilde{G}_\omega, \omega \in \Omega\}$ such that G_ω is a subgroup of \tilde{G}_ω for each $\omega \in \Omega$. We prove, if ω is eventually constant, then \tilde{G}_ω is of polynomial growth and if ω is not eventually constant, then \tilde{G}_ω is of intermediate growth. As a subset of the space \mathcal{M}_8 of marked groups with eight generators, the set $\{\tilde{G}_\omega, \omega \in \Omega\}$ of generalized overgroups is not complete. We describe the completion of it and explain a similarity and a difference with the completion of the classical Grigorchuk's family $\{G_\omega, \omega \in \Omega\}$. (Received September 17, 2019)