

Abstract

We describe, through the use of Rubin’s theorem, the automorphism groups of the Higman–Thompson groups $G_{n,r}$ as groups of specific homeomorphisms of Cantor spaces $\mathfrak{C}_{n,r}$. This continues a thread of research begun by Brin, and extended later by Brin and Guzmán: to characterise the automorphism groups of the ‘Chameleon groups of Richard Thompson,’ as Brin referred to them in 1996. The work here completes the first stage of that twenty-year-old program, containing (amongst other things) a characterisation of the automorphism group of V , which was the “last chameleon.” The homeomorphisms which arise fit naturally into the framework of Grigorchuk, Nekrashevich, and Suschanskii’s *rational group of transducers*: they are exactly those homeomorphisms which are induced by *bi-synchronizing* transducers, which we define in the paper. This result appears to offer insight into the nature of Brin and Guzmán’s *exotic automorphisms*, while also uncovering connections with the theory of reset words for automata (arising in the Road Colouring Problem) and with the theory of automorphism groups of the full shift.