Geometric and Asymptotic Group Theory with Applications 2016

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Elementary and Universal Equivalence of Group Rings

Abstract:
Here we prove that if $R[G]$ is elementarily equivalent to $S[H]$ then the group G is elementarily equivalent to H and the ring R is elementarily equivalent to S. Also if the group G is universally equivalent to F, a free group of rank 2 and $\mathbb{Z}$ is the ring of integers, then if the ring R is universally equivalent to $\mathbb{Z}$, then $R[G]$ is universally equivalent to $\mathbb{Z}[F]$. Finally if R is universally equivalent to $\mathbb{Z}$ and $R[G]$ is universally equivalent to $\mathbb{Z}[F]$, then G is universally equivalent to F.