

Automorphisms of the category of finitely generated free groups of the some subvariety of variety of groups

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Abstract.

Let Θ be a variety of universal algebras. We consider the category Θ^0 . The objects of this category are finitely generated free algebras of the variety Θ . The morphisms of this category are homomorphisms of these algebras. Let \mathfrak{A} be the group of all automorphisms of Θ^0 and let \mathfrak{I} be the group of all inner automorphisms of Θ^0 . On the previous papers ([1] and [2]) it was proved that when Θ is the variety of all groups, or all abelian groups, or all nilpotent groups with nilpotency class $d \geq 2$, the quotient group $\mathfrak{A}/\mathfrak{I}$ is trivial. It means that the automorphic equivalence of groups coincides with the geometric equivalence.

We represent the first example of a subvariety of the variety of all groups such that the group $\mathfrak{A}/\mathfrak{I}$ has 2 elements. In this subvariety it is possible to exist two groups that are automorphically equivalent but are not geometrically equivalent. The work was done under the supervision of professor A. Tsurkov.

References

- [1] Plotkin, B. and Zhitomirski, G., On automorphisms of categories of free algebras of some varieties, *Journal of Algebra*, 2006, 306, p.344–367
- [2] Tsurkov, A., Automorphisms of the category of the free nilpotent groups of the fixed class of nilpotency, *International Journal of Algebra and Computation*, 2007, 17, n. 5 and 6, p.1273–1281