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Strongly stable automorphisms of the category of free linear algebras.

The geometric and automorphic equivalences of algebras are considered in universal algebraic geometry. The geometric equivalence of algebras means the coinciding of structures of closed sets. Automorphic equivalence of algebras means the coinciding of structures of closed sets after some "changing of coordinates". The difference between the geometric and automorphic equivalence can be measured by the factor group A/Y. Hear A is the group of all automorphisms of the category Θ^0, Y is a normal subgroup of all inner automorphisms of the category Θ^0, Θ^0 is a category of the free finitely generated algebras of the variety Θ.

Many varieties were considered in researches of B. Plotkin, G. Zhitomirski and my self: variety of semigroups, inversed semigroups, groups, Abelian groups, nilpotent groups, associative and commutative algebras, associative algebras, Lie algebras. In all these cases the group A/Y is very small: A=Y or $\left|A / Y\right| = 2$ (for algebras – if the field of scalars has not non-trivial automorphisms).

I considered the variety of all linear algebras. If the field of scalars is infinite then the group A/Y in this case infinite, even if the field of scalars has not non-trivial automorphisms.