► PETR KULIKOV, *Some constructions on groups of computable automorphisms*.
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The necessary definitions can be found in [1].

Let $Aut_{rec}\mathfrak{M}$ be the group of all computable automorphisms of a computable structure $\mathfrak{M}$.

THEOREM 1. *Let G be a computable group and H be a subgroup of G such that $G \setminus H$ is c. e.. Then there exists a computable model $\mathfrak{M}$ such that $H \cong Aut_{rec}\mathfrak{M}$.*

Therefore the center of a computable group can be represented as a group of computable automorphisms of a computable model.

Let $\{G_i\}_{i\in\omega}$ be an uniformly computable family of groups and $\{\theta_i\}_{i\in\omega}$ be an uniformly computable family of homomorphisms such that

$$\ldots \to G_2 \xrightarrow{\theta_1} G_1 \xrightarrow{\theta_0} G_0.$$

A sequence $(\ldots g_2, g_1, g_0)$ is called *a thread* if for any $i \in \omega$ $g_i \in G_i$ and $\theta_i(g_{i+1}) = g_i$. The multiplication of threads is defined in natural way. A thread is *computable* if there exists a computable function f such that $f(i) = g_i$. The set of all computable threads with defined multiplication operation is a group called *a reverse computable limit* $\varprojlim_{rec} G_i$ of $\{G_i\}_{i\in\omega}$.

THEOREM 2. *Let $\{G_i\}_{i\in\omega}$ and $\{\theta_i\}_{i\in\omega}$ be as above. Then there exists a computable model $\mathfrak{G}$ such that $\varprojlim_{rec} G_i \cong Aut_{rec}\mathfrak{G}$.*

Let B be a computable group, A be a group of all computable automorphisms of a computable model $\mathfrak{M}$ and $Rec(A^B)$ be the set of all computable mappings $\mu : B \to A$. The Cartesian product $B \times Rec(A^B)$ with an operation $*$

$$(b_1, f_1) * (b_2, f_2) = (b_1 b_2, f_1^{b_2} f_2)$$

(here $f^b(x) = f(bx)$) is a group called *a computable wreath product* $A \diamond B$ of A by B.

THEOREM 3. *Let A and B be as above. Then there exists a computable model $\mathfrak{T}$ such that $A \diamond B \cong Aut_{rec}\mathfrak{T}$.*

[1] MOROZOV A. S., *Groups of computable automorphisms*, ***Handbook of recursive mathematics. Studies in logic and foundations of mathematics. Vol. 1*** (Y. L. Ershov, S. S. Goncharov, A. Nerode, J. B. Remmel, editors), Elsevier, Amsterdam; 1998, pp. 311–345.