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Quotient presentations of structures.
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A *c.e. quotient presentation* of a structure $\mathcal{A} = \langle A; \{f_i\}_{i\in I}, \{R_j\}_{j\in J}\rangle$ consists of a structure $\mathcal{A}^* = \langle \mathbb{N}; \{f_i^*\}_{i\in I}, \{R_i^*\}_{j\in J}\rangle$ and a c.e. equivalence relation E (often called a *ceer*) such that the functions of $\mathcal{A}^*$ are uniformly computable, the relations of $\mathcal{A}^*$ are uniformly c.e., E is a congruence with respect to $\mathcal{A}^*$, and $\mathcal{A}^*/E \cong \mathcal{A}$. E *realizes* $\mathcal{A}$ if $(\mathcal{A}^*, E)$ is a c.e. quotient presentation of $\mathcal{A}$, for some $\mathcal{A}^*$; otherwise, E *omits* $\mathcal{A}$. Khoussainov and his collaborators (see, e.g., [2, 3]) investigated, for familiar classes of structures, which structures are realized by a given ceer E. We are interested in the reverse problem, i.e., we study the structure of the following spectra.

Definition 1. The *spectrum of ceers* of a structure $\mathcal{A}$ is the following class of ceers

$$\mathrm{CeersSp}(\mathcal{A}) = \{E \in \mathbf{Ceers} : E \text{ realizes } \mathcal{A}\}.$$

During the talk, we will discuss the main motivations for the project and we will demonstrate theorems relating the program to the study of some distinguished classes of equivalence relations, such as those considered in [1].

[1] U. Andrews, A. Sorbi, *Joins and meets in the structure of Ceers*, forthcoming in ***Computability***

[2] E. Fokina, B. Khoussainov, P. Semukhin, D. Turetsky, *Linear orders realised by c.e. equivalence relations*, ***The Journal of Symbolic Logic***, 81(2):463482, 2016

[3] A. Gavruskin, S. Jain, B. Khoussainov, F. Stephan, *Graphs realised by r.e. equivalence relations*, ***Annals of Pure and Applied Logic***, 165(7):12631290, 2014