▸ MARAT KH. FAIZRAHMANOV, *Splitting and antisplitting theorems in classes of low degrees*.
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A Turing degree $\mathbf{a} = deg(A)$ is called *superlow* if $A' \leqslant_{tt} \emptyset'$. A Turing degree a is called *totally ω-c.e.* if every function $g \leqslant_T a$ is ω-c.e. It is known that each superlow degree is totally ω-c.e. Downey, Greenberg and Weber (2007) have proved that a degree $\mathbf{a}$ is totally ω-c.e. if and only if $\mathbf{a}$ does not bound a critical triple. Let $\mathbf{J}$ be the partially ordered set of least upper bounds of superlow c.e. degrees and let $\mathbf{C}$ be the upper semilattice of all c.e. degrees.

In the the following theorem the class Δ_a^{-1} is the Δ-level of the Ershov Hierarchy corresponding to the ordinal notation $a \in O$.

Theorem 1. For all notations $a \in O$ there is a low 2-c.e. set D, such that for all 2-c.e. sets E and F, if $E \in \Delta_a^{-1}$ and $F \in \Delta_a^{-1}$, then $D \not\equiv E \oplus F$.

Corollary 2. The low c.e. degrees and the low 2-c.e. degrees are not elementary equivalent.

Theorem 3. For all superlow c.e. degrees $\mathbf{b}_0$, $\mathbf{b}_1$, $\mathbf{b}_2$ there are superlow c.e. degrees $\mathbf{a}_0$, $\mathbf{a}_1$, $\mathbf{a}_2$, such that $\mathbf{b}_0 \cup \mathbf{b}_1 \cup \mathbf{b}_2 = \mathbf{a}_0 \cup \mathbf{a}_1 = \mathbf{a}_0 \cup \mathbf{a}_2 = \mathbf{a}_1 \cup \mathbf{a}_2$.

Corollary 4. The $\mathbf{J}$ is an upper semilattice.

Theorem 5. There is c.e. degree $\mathbf{b}$, such that for all c.e. degrees $\mathbf{a}_0$, $\mathbf{a}_1$, $\mathbf{a}_2$ if $\mathbf{b} = \mathbf{a}_0 \cup \mathbf{a}_1 = \mathbf{a}_0 \cup \mathbf{a}_2 = \mathbf{a}_1 \cup \mathbf{a}_2$ then exists some $i < 3$ such that $\mathbf{a}_i$ is not totally ω-c.e.

Corollary 6. The upper semilattices $\mathbf{C}$ and $\mathbf{J}$ are not elementary equivalent.