Categorical Jonsson fragments in existentially prime convex Jonsson theory

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Abstract: The theory Ò is called convex if for any its model $\mathfrak{A}$ and for any family $\{\mathfrak{B}_{\mathfrak{i}} \mid \mathfrak{i} \in \mathfrak{I}\}$ of substructures of $\mathfrak{A}$, which are models of the theory T, the intersection $\bigcap_{i \in I} \mathfrak{B}_{\mathfrak{i}}$ is a model of T. If it is assumed that this intersection is not empty. If this intersection is never empty, then the theory is called strongly convex.

The inductive theory Ò is called the existentially prime if

1. It has a prime algebraic (AP) model, (the class of its AP denote by T_{AP})
2. Class (E_T) non trivial intersects with class AP, i.e. $T_{AP} \bigcap E_T \neq 0$.

Let Jonsson theory T [1] is complete for the existential sentences in the language L and C is its semantic model.

Let X is Jonsson subset [2] in T, and M is existentially closed submodel of semantic model C of considered Jonsson theory T, where $dcl(X) = M$.

$Th_{\forall\exists}(M) = T_M$, T_M is the Jonsson fragment of Jonsson set X [2].

Theorem 1. *Let theory T will be existential prime strongly convex Jonsson existentially complete theory. Then the following conditions are equivalent:*

(1) T_M^* is ω- categorical;

(2) T_M is ω - categorical.

Theorem 2. *Let T be an existential prime strongly convex Jonsson existentially complete theory. Then the following conditions are equivalent:*

(1) T_M^* is ω_1 - categorical;

(2) any countable model E_{T_M} has a prime algebraic extension in E_{T_M}.

Keywords: Jonsson theory, Jonsson set, Jonsson fragment

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References

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