► A.R. YESHKEYEV, N.M. MUSSINA, *Hybrids of classes from Jonsson spectrum.*
Faculty of Mathematics and Information Technologies, Karaganda State University, University str., 28, building 2, Kazakhstan.
E-mail: aibat.kz@gmail.com, nazerke170493@mail.ru.

Let A be an arbitrary model of countable language. $JSp(A) = \{T/T$ is Jonsson theory in this language and $A \in ModT\}$ and $JSp(A)$ is said to be the Jonsson spectrum of the model A.

Definition 1. We say that the Jonsson theory T_1 is cosemantic to the Jonsson theory T_2 $(T_1 \bowtie T_2)$ if $C_{T_1} = C_{T_2}$, where C_{T_i} are semantic model of T_i, $i = 1, 2$.

The relation of cosemanticness on a set of theories is an equivalence relation. Then $JSp(A)/\bowtie$ is the factor set of the Jonsson spectrum of the model A with respect to $\bowtie$.

Let us define the essence of the operation of the symbol $\boxdot$ for algebraic construction of models, which will be play important role in the definition of hybrids. Let $\boxdot \in \{\cup, \cap, \times, +, \oplus, \prod\limits_F, \prod\limits_U\}$, where $\cup$-union, $\cap$-intersection, $\times$-Cartesian product, $+$-sum and $\oplus$-direct sum, $\prod\limits_F$-filtered product and $\prod\limits_U$-ultraproduct.

Definition 2. A hybrid of classes $[T]_1, [T]_2$ is the class $[T]_i \in JSp(A)/\bowtie$ if $Th_{\forall\exists}(C_1 \boxdot C_2) \in [T]_i$, we denote such hybrid as $H([T]_1, [T]_2)$.

Note the following fact:

Fact 1. For the theory $H([T]_1, [T]_2)$ in order to be Jonsson enough to be that $(C_1 \boxdot C_2) \in E_{[T]_i}$, where $[T]_i \in JSp(A)/\bowtie$.

Finally, the main results are the following theorem.

Theorem 1. Let $[T]_1, [T]_2$ be perfect convex existentially prime complete for $\forall\exists$-sentences classes from $JSp(A)/\bowtie$. X_i are $\forall\exists$-*dcl*-sets in the class $[T]_i$, $i \in \{1, 2\}$, i.e. $X_i \subseteq C_i$, where M_i=$dcl(X_i) \in E_{[T]_i}$, $T_i = Th_{\forall\exists}(M_i)$ are also perfect convex existentially prime complete for $\forall\exists$-sentences Jonsson theories. Then, if their hybrid $H([T]_1, [T]_2)$ is a model consistent with $[T]_i$, then $H([T]_1, [T]_2)$ is a perfect class from $JSp(A)/\bowtie$ for $i = 1, 2$.

Theorem 2. Let $[T]_1, [T]_2$ satisfy the conditions of Theorem 1 and $[T]_1, [T]_2$ be ω-categorical. Then their hybrid $H([T]_1, [T]_2)$ is also a ω-categorical class from $JSp(A)/\bowtie$.

All concepts that are not defined in this abstract can be extracted from [1,2].

[1] A.R. Yeshkeyev, M.T. Kassymetova, ***Jonsson theories and their classes of models***, Name of series, Karaganda: Publisher KSU, 2016 [in Russian].

[2] A.R. Yeshkeyev, N.M. Mussina, ***Properties of hybrids of Jonsson theories***, Bulletin of the Karaganda University. - Seria of "Mathematics". - Karaganda, 2018. - 4 (92). - P. 99-104.