# Some Remarks on Theories Without Finite Cover Property

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Let $M$ be a model of a language $L$ with complete theory $T$ without finite cover property, $A \subset M$, $M^* = (M, L \cup \{P^1\})$ be a model of language $L^* = L \cup \{P^1\}$, such that $P^1(M^*) = A$. We prove that $\forall l < \omega$, $\forall \bar{\alpha}, \bar{\beta} \in (M \setminus A)^l$,

$$[tp(\bar{\alpha}|M) = tp(\bar{\beta}|M) \Longleftrightarrow tp_*(\bar{\alpha}|M) = tp_*(\bar{\beta}|M)] \ (**)$$

iff there are not $A$-definable formulas $E(x, y, \bar{z}), D(\bar{z})$ such that

(1)$\forall \bar{\beta} \in D(M^{l(\bar{z})}),\ E(x, y, \bar{\beta})$ is relation of equivalence.

(2) $\exists \bar{\beta}_1, \bar{\beta}_2 \in (M \setminus A)^{l(\bar{z})} \cap D(M^{l(\bar{z})})$ such that we have

(a) Every $E(x, y, \bar{\beta}_1)$-class meets with $A$ and there is $E(x, y, \bar{\beta}_2)$-class does not meet with $A$.

(b) $\forall a, a' \in A,\ [E(a, a', \bar{\beta}_1) \Longleftrightarrow E(a, a', \bar{\beta}_2]$.

E.Bouscaren proved (**), when $A$ is an elementary submodel of $M$ and $T$ is superstable theory ([1], Proposition 2.1).

[1] E. Bouscaren, *"Dimensional order property and pairs of models"*, **Annals of Pure and Applied Logic** 41 (1989), pp.205-231.

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