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Announcements of new results

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ANNOUNCEMENTS OF NEW RESULTS

(of authors having an address in Czech Republic)

A STRONG CONDITION FOR COMPATIBLE RELATIONS

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It is already known that varieties having factorable congruences (i.e. the Fraser-Horn property), factorable tolerances and factorable reflexive compatible relations are nontrivial Mal'cev classes. However any variety with factorable subalgebras is trivial. Now we state

Theorem 1. *For a variety V , the following conditions are equivalent:*

- (1) *factorable subalgebras in $A \times B$, $A, B \in V$, form an up-hereditary system;*
- (2) *the universal relation $A \times A$ on any $A, B \in V$ is a compact element in the tolerance lattice $\text{Tol } A$;*
- (3) *there are unary terms $u_1, \dots, u_n, v_1, \dots, v_n$ and a $(2+n)$ -ary term p such that*

$$\begin{aligned}x &= p(x, y, u_1(z), \dots, u_n(z)) \\ y &= p(x, y, v_1(z), \dots, v_n(z))\end{aligned}$$

are identities in V .

Corollary 1. *Any variety V from Theorem 1 has factorable reflexive compatible relations, in particular, V has the Fraser-Horn property.*

Corollary 2. *Let V be a variety from Theorem 1, $u_1, \dots, u_n, v_1, \dots, v_n$ unary terms from part (3) of this theorem. Then a homomorphism $h : A \times B \rightarrow C \times D$, $A, B, C, D \in V$, is factorable iff $h(u_i(a), v_i(b)) = \langle u_i(c), v_i(d) \rangle$, $1 \leq i \leq n$, hold for some $\langle a, b \rangle \in A \times B$ and $\langle c, d \rangle = h(a, b)$.*