ANNOUNCEMENTS OF NEW RESULTS

(of authors having an address in Czech Republic)

A STRONG CONDITION FOR COMPATIBLE RELATIONS

Jaromír Duda (616 00 Brno, Kroftova 21, Czech Republic; received January 31, 1995)

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* $\operatorname{Tol} A$*;*
(3) *there are unary terms $u_1, \ldots, u_n$, $v_1, \ldots, v_n$ and a $(2+n)$-ary term p such that*

$$x = p(x, y, u_1(z), \ldots, u_n(z))$$
$$y = p(x, y, v_1(z), \ldots, v_n(z))$$

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, $u_1, \ldots, u_n$, $v_1, \ldots, v_n$ unary terms from part (3) of this theorem. Then a homomorphism $h : A \times B \to C \times D$, $A, B, C, D \in V$, 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 $\langle c, d \rangle = h(a, b)$.*