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Locally finite varieties of groups arising from Cross varieties: Corrigendum

Sheila Oates Macdonald

One condition on D was omitted from the statement of Theorem B in the paper [1], namely that $(QS-1)D \subseteq \underline{\underline{U}}$ (and the corresponding condition in Theorem A). The proof of the theorem clearly requires that this be so and it is not difficult to see that such a D can always be chosen. However, Dr R.M. Bryant has pointed out that not only is the theorem true as it stands, but indeed the conditions can be relaxed slightly to allow D to be any group such that

$$\underline{\underline{V}} = \operatorname{var}(\underline{\underline{U}}, D) .$$

It is sufficient to prove:

THEOREM. *If* $\underline{\underline{V}} = \operatorname{var}(\underline{\underline{U}}, D)$ *is a Cross variety with* $\underline{\underline{U}}$ *maximal in* $\underline{\underline{V}}$ *, and if* D *can be generated by* d *elements, then there exists a critical group,* $\check{D}$ *, on at most* d *generators such that*

$$\underline{\underline{V}} = \operatorname{var}(\underline{\underline{U}}, \check{D}) \text{ and } (QS-1)\check{D} \subseteq \underline{\underline{U}} .$$

Proof. Choose $\check{D}$ in $\underline{\underline{V}}$ of minimal order such that $\underline{\underline{V}} = \operatorname{var}(\underline{\underline{U}}, \check{D})$. I claim that $(QS-1)\check{D} \subseteq \underline{\underline{U}}$ (and, *a fortiori*, $\check{D}$ is critical); for if $(QS-1)\check{D} \nsubseteq \underline{\underline{U}}$, then using the fact that $\underline{\underline{U}}$ is maximal in $\underline{\underline{V}}$ we see that

$$\underline{\underline{V}} = \operatorname{var}(\underline{\underline{U}}, H)$$

for some $H \in (QS-1)\check{D}$, contradicting the minimality of $\check{D}$. It remains to show that $\check{D}$ has $\le d$ generators. Now $D \in \underline{\underline{V}} = \operatorname{var}(\underline{\underline{U}}, \check{D})$ and so, by a standard argument, $D \simeq G/N$, where G is a subdirect product of groups in $\underline{\underline{U}}$ and copies of $\check{D}$ and $N \le \Phi(G)$. The last condition shows that G , and hence $\check{D}$, being a homomorphic image of G , has at most d generators, as required.

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Reference

[1] Sheila Oates Macdonald, "Locally finite varieties of groups arising from Cross varieties", *Bull. Austral. Math. Soc.* 4 (1971), 211-215.

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A remark on compact semigroups having certain decomposition spaces embeddable in the plane: Corrigendum

R.P. Hunter and L.W. Anderson

Through an editorial error, the second sentence in the penultimate paragraph of [1] does not make sense. The first line in that paragraph should read:

"It now follows that K/G separates the plane, where K is, as usual," .

Reference

[1] R.P. Hunter and L.W. Anderson, "A remark on compact semigroups having certain decomposition spaces embeddable in the plane", *Bull. Austral. Math. Soc.* 4 (1971), 137-139.

Editor's note, dated 25 January 1971.