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CORRIGENDUM TO "FINITE GROUPS WITH WEAKLY S-SEMIPERMUTABLY EMBEDDED SUBGROUPS"

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In [1], the statements of Lemma 2.9 and Lemma 2.10 are incorrect. Also the proof of the last step in Theorem 3.1 is in need of revision. Lemma 2.9 and Lemma 2.10 contained superfluous lines and are presented here as they should appear in the original article.

Lemma 2.9. *Let G be a group and M a subgroup of G.*

(i) *If M is normal in G, then $F^*(M) \leq F^*(G)$.*

(ii) *$F^*(G) \neq 1$ if $G \neq 1$; in fact, $F^*(G)/F(G) = soc(F(G)C_G(F(G))/F(G))$.*

(iii) *$F^*(F^*(G)) = F^*(G) \geq F(G)$; if $F^*(G)$ is solvable, then $F^*(G) = F(G)$.*

(iv) *Suppose K is a subgroup of G contained in $Z(G)$, then $F^*(G/K) = F^*(G)/K$.*

Lemma 2.10. *Let A and B be subgroups of G satisfying $G \neq AB$, if $AB^g = B^gA$ holds for all $g \in G$, then A or B is contained in a proper normal subgroup of G.*

In the last step the proof of Theorem 3.1 of [1], lines 6 through 12 on page 117 of [1] should be revised as follows:

Then by Lemma 2.3, $P_1 \cap T$ is S-quasinormal in G. Thus by (3), $P_1 \cap T \leq O_p(G) = 1$. Hence $|P \cap T| \leq p$. By a well-known result of Huppert (see Satz IV.2.8 in [2]), T is p-nilpotent from which it follows that G is p-nilpotent, a contradiction. Now we suppose that $P_1 \cap T$ is S-semipermutable in G. Since $N \leq O^p(G) \leq T$, $P_1 \cap N = (P_1 \cap T) \cap N$. Note that $p = 2$ and that $|N_2| \geq 4$; thus $P_1 \cap N > 1$. Applying Lemma 2.11, we easily see that $P_1 \cap N$ is S-semipermutable in N. Then by Lemma 2.10, N has a proper normal subgroup M with $M > 1$. Moreover, N is a direct product of some non-abelian simple groups and so $P_1 \cap N \leq M$. On the other hand, P_1 is a maximal subgroup of P from which it follows that $|(N/M)_p| \leq p$ and hence N/M is p-nilpotent. This contradicts (4) and completes the proof of the theorem.

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References

[1] Z. C. Shen, J. S. Zhang and S. L. Wu, *Finite Groups with weakly S-semipermutably embedded subgroups*, Int. Electron. J. Algebra 11 (2012), 111-124.

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