BULL. AUSTRAL. MATH. SOC. 20M05
VOL. 9 (1973), 479-480.

Free generators in free inverse semigroups: Corrigenda

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In [1], Theorem 2.2, a necessary and sufficient condition is given for a subset of an inverse semigroup to generate a free inverse subsemigroup. However one very obvious further condition is omitted. The result should read as follows.

THEOREM 2.2. *Let* K *be a subset of an inverse semigroup* S *. Then* K *is a set of free generators for* $\langle K \rangle$ *if and only if the following conditions are satisfied:*

(K1) $K \cap K^{-1} = \emptyset$;

(K2) *if* $Y \in K \cup K^{-1}$ *and* $YY^{-1} \geq F_1 \ldots F_n$ *where*

$F_j = Y_{j1} \ldots Y_{jn(j)} Y_{jn(j)}^{-1} \ldots Y_{j1}^{-1}$ *for some* $Y_{jk} \in K \cup K^{-1}$

such that $Y_{jk} \neq Y_{jk+1}^{-1}$ *for* $k = 1, \ldots, n(j) - 1$,

$j = 1, \ldots, n$, *then* $Y = Y_{j1}$ *for some* j .

The condition (K1) was omitted from the result stated in [1]. It is clearly necessary, from the first part of the proof in [1], since θ is an isomorphism. The condition is tacitly assumed in the converse part of the theorem on page 415 when it is assumed that the mapping θ is one-to-one on $Xf \cup (Xf)^{-1}$.

In all subsequent results of the paper that appeal to this theorem, (K1) is trivially satisfied.

Received 3 October 1973. The author would like to thank Professor W.D. Munn for pointing out to him the omission here corrected.

Reference

[1] N.R. Reilly, "Free generators in free inverse semigroups", *Bull. Austral. Math. Soc.* 7 (1972), 407-424.

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