ERRATUM

In: "Homomorphisms of sandwich semigroups and sandwich near-rings"

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Note: Due to an error in the production process a page in the Magill and Misra article was inadvertently omitted. The missing page should have fallen between page 180 of the article and the last page of text (which is the existing page 181). This missing text follows on the facing page.

But $1, b \in Q \setminus (A \cup B)$ and since α is injective on $Q \setminus (A \cup B)$, we have $\alpha(1) \neq \alpha(b)$. Since h is not injective, φ cannot be an automorphism and, consequently, φ is an example of a left zero covering monomorphism from $N(Q, Q, \alpha)$ into itself which is not an automorphism.

Despite the existence of examples like the previous one, it would probably be worthwhile to look for classes of spaces and groups such that if α is a continuous surjection from such a group G onto such a space X (additional conditions could even be placed on α), h is a continuous surjection of X onto itself, t is a topological isomorphism of G and $\alpha = h \circ \alpha \circ t$, then h is a homeomorphism. Spaces and groups with such properties would yield results like the following one which follows immediately from Theorem 2.17.

Theorem 3.5. *Let α and β be two generalized odd degree polynomials and suppose there exists a left zero covering homomorphism φ from $N(R, R, \alpha)$ into $N(R, R, \beta)$ and a left zero covering homomorphism ψ from $N(R, R, \beta)$ into $N(R, R, \alpha)$. Then both φ and ψ are isomorphisms onto $N(R, R, \beta)$ and $N(R, R, \alpha)$, respectively.*

Following is the near-ring analogue of Corollary 2.18.

Corollary 3.6. *Let α be a generalized odd degree polynomial. Then each left zero covering endomorphism of $N(R, R, \alpha)$ is an automorphism of $N(R, R, \alpha)$.*

Corollary 3.3 tells us that under certain conditions, an epimorphism from one sandwich near-ring onto another must be an isomorphism. Our closing example shows what can happen if α is not required to be somewhere prefinite.

Example 3.7. Define a mapping α from R^2 onto R by $\alpha(x, y) = x$ and let δ denote the identity map on X . Define $\varphi(f) = \alpha \circ f$ and note that the following diagram commutes.

$$\begin{array}{ccccc} R & \xrightarrow{f} & R^2 & \xrightarrow{\alpha} & R \\ \uparrow \delta & & \alpha \downarrow & & \delta \uparrow \\ R & \xrightarrow{\varphi(f)} & R & \xrightarrow{\delta} & R \end{array}$$

Then φ is a homomorphism from $N(R, R^2, \alpha)$ into $N(R, R, \delta) = N(R)$. Furthermore, for any $g \in N(R)$, define $f(x) = (g(x), 0)$. Then

$$\varphi(f)(x) = \alpha \circ f(x) = \alpha(g(x), 0) = g(x).$$

Thus, $\varphi(f) = g$ and φ is an epimorphism. Evidently,

$$\text{Ker } \varphi = \{f \in N(R, R^2, \alpha) : \text{Ran}(f) \subseteq \text{Ker } \alpha\}.$$

References

- [1] Cezus, F. A., K. D. Magill, Jr. and S. Subbiah, *Maximal ideals of semi-groups of endomorphisms*, Bull. Austral. Math. Soc. (2) 12 (1975), 211-225.
- [2] de Groot, J., *Groups represented by homeomorphism groups, I*, Math. Annalen 138 (1959), 80-112.