PROCEEDINGS OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 61, Number 1, November 1976

ADDENDUM TO "ORDER IN A SPECIAL CLASS OF RINGS AND A STRUCTURE THEOREM"

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For brevity a (not necessarily associative or commutative) ring A is called *zero-product-associative* if and only if a product of elements of A which is equal to zero remains equal to zero no matter how its factors are associated.

THEOREM. *Let A be a (not necessarily associative or commutative) zero-product-associative ring. Then $(A, \leqslant)$, with $x \leqslant y$ defined as $xy = x^2$, is an infinitely distributive (i.e., $r \sup_{i \in K} x_i = \sup_{i \in K} rx_i$ for any index set K) partially ordered set if and only if A has no nonzero nilpotent element.*

PROOF. The "if" is proved in [1, Theorem 2]. We prove the "only if" even without using infinite distributivity. Let A be partially ordered as indicated above and let $x^2 = 0$ for some $x \in A$. But then $x \cdot 0 = x^2 = 0 \cdot x = 0^2$ implying $x \leqslant 0$ and $0 \leqslant x$ which in turn imply $x = 0$. Hence A has no nonzero nilpotent element.

REFERENCES

1. A. Abian, *Order in a special class of rings and a structure theorem*, Proc. Amer. Math. Soc. **52** (1975), 45–49.

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