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ERRATUM TO "RINGS IN WHICH EVERY IDEAL CONTAINED IN THE SET OF ZERO-DIVISORS IS A D-IDEAL", COMMUN. KOREAN MATH. SOC. 37 (2022), NO. 1, PP. 45–56

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Abstract. In this erratum, we correct a mistake in the proof of Proposition 2.7. In fact the equivalence (3) $\Longleftarrow$ (4) "R is a quasi-regular ring if and only if R is a reduced ring and every principal ideal contained in $Z(R)$ is a 0-ideal" does not hold as we only have $Rx \subseteq O(S)$.

In the proof of [1, Proposition 2.7], we only have $Rx \subseteq O(S)$. Hence, (1) $\Longleftrightarrow$ (2) $\Longrightarrow$ (3). But the implication (3) $\Longrightarrow$ (4) does not hold. We are grateful to Professor Warren McGovern for pointing this mistake. Thus, we correct [1, Proposition 2.7] as follows:

Proposition. *Let R be a ring. Then R is a reduced AA-ring if and only if R is either an integral domain or von Neumann regular.*

Proof. Assume that R is a reduced AA-ring and let $x \in Z(R)$. Then $Ann(x^2) \subseteq Ann(x)$ and therefore $x \in Rx^2$. Hence, $xR = eR$ for some idempotent element $e \in R$. Assume that R is not an integral domain. Let $0 \neq x \in Z(R)$ and e be an idempotent element of R such that $xR = eR$. We will prove that every regular element is unit. Let $s \in Reg(R)$. So, $Ann(se) = Ann(e)$ and thus $seR = Ann^2(se) = Ann^2(e) = eR$. Also, we have $s(1-e)R = (1-e)R$. It follows that $seR + s(1-e)R = R$ and hence s is a unit element of R. Thus R is a von Neumann regular ring. The converse is clear. □

References

[1] A. Anebri, N. Mahdou, and A. Mimouni, *Rings in which every ideal contained in the set of zero-divisors is a d-ideal*, Commun. Korean Math. Soc. **37** (2022), no. 1, 45–56. https://doi.org/10.4134/CKMS.c200467

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