Title: Derivations with annihilator conditions in prime rings

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Let R be a prime ring of char $R \neq 2$ with a derivation d and U a noncentral Lie ideal. If $a \in R$, such that $au^s(d(u))^n u^t \in Z(R)$ for all $u \in U$ and $s(\geq 0), t(\geq 0), n(\geq 1)$ fixed positive integers, then either $a = 0$ or R satisfies S_4, the standard identity in four variables.

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