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Normal elements of degree one in Ore extensions. (English) Zbl 1010.16024
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An element c of a ring R is 'normal' if $Rc = cR$. This note concerns normal elements c of the form $dx + e$ (with $d, e \in A$) of Ore extensions $R = A[x; \sigma, \delta]$, where A is a domain. In particular it is proved that d is normal in A and that if e is regular modulo Ad then R/Rc is a domain. The author indicates how this can be applied to show that $\mathcal{O}/\mathcal{O}\Delta$ is a domain, when \mathcal{O} is the coordinate ring of $n \times n$ quantum matrices over a field F and Δ is the quantum determinant. A similar conclusion can be deduced for the analogous factor of the multiparameter ring of quantum matrices. The lemma has found recent application in work of *K. R. Goodearl* and *T. H. Lenagan* [*Duke Math. J.* 103, No. 1, 165-190 (2000; [Zbl 0958.16025](#))].

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MSC:

[16S36](#) Ordinary and skew polynomial rings and semigroup rings
[17B37](#) Quantum groups (quantized enveloping algebras) and related deformations

Cited in **5** Documents

Keywords:

Ore extensions; normal elements; quantum matrices; domains

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