Cubic skew lattices in rings of matrices

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A multiplicative band in a ring of matrices is called a ∇-band if it is closed under the cubic join operation $x\nabla y = x + y + xy - xyx - yxy$. If operation ∇ is associative on a given ∇-band S, then S forms a *cubic skew lattice*. We will give an example of a ∇-band in $M_n(F)$ that does not yield a skew lattice, state an exact condition for a pure ∇- band to form a skew lattice, and examine certain properties of cubic skew lattices in rings (of matrices).