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Rings that are nearly associative, by K. A. Zhevlakov, A. M. Slin'ko, I. P. Shestakov and A. I. Shirshov, translated by Harry F. Smith, Academic Press, New York, 1982, xi + 371 pp., $6.00. ISBN 0-1277-9850-1

The study of nonassociative algebras was originally motivated by certain problems in physics and other branches of mathematics, and even today the main motivation for studying some problems in the area is the applications. However, most types of nonassociative algebras are now studied more for their own sake.

The first class of nonassociative algebras to be investigated systematically was the class of Lie algebras, which arose out of the study of Lie groups. A nonassociative algebra L with product $[\,,]$ is defined to be a Lie algebra if it satisfies the identities

$$[x, y] = -[y, x], \qquad [[x, y], z] + [[y, z], x] + [[z, x], y] = 0.$$

If A is any associative algebra, we define $A^{(-)}$ to be the algebra obtained from A by replacing the associative multiplication in A by the new multiplication $[\,,]$ defined in terms of the associative multiplication by $[a, b] = ab - ba$. Then $A^{(-)}$ is a Lie algebra, and so is any subalgebra of $A^{(-)}$ (that is, any subspace of A closed under $[\,,]$). Conversely, any Lie algebra over a field arises as a subalgebra of an algebra $A^{(-)}$ constructed from some associative algebra A. The methods which are used for studying Lie algebras come out of this special connection with associative algebras and are thus somewhat different from the methods that work best for other classes of nonassociative algebras. Also, partly because of the nature of the principal applications of Lie algebras, the