

Right representations of (right distributive) near-ring radicals

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For right near-rings, i.e., the right distributive law is assumed, the canonical approach to representation theory is via the left N -groups (in ring theory, this would be a left module). The classical Jacobson radicals for near-rings have all used this left representation approach. In fact, it has been shown that any near-ring radical can be obtained as an intersection of annihilators of certain left N -groups as a generalization of a similar result by Andrunakievič and Rjabuhin (1964) for rings. For rings one may use either left or right modules, but for near-rings the collective folklore wisdom is that for right near-rings, you use left N -groups (and for left near-rings, right N -groups). However, here we will show how to define right N -groups for right near-rings and then give a method using intersections of annihilators of these right N -groups to produce radicals. More significantly, it is shown that this is not just an academic exercise: all near-ring radicals can be obtained in this way.

¹Joint work with Ravi Srinivasa Rao