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Title: Outer inverses, minus partial orders, and triplet invariance

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In the paper, we obtain an explicit formula for the outer inverses of a regular element in an arbitrary ring. It becomes calculable for outer inverses. We characterize the triplet ba^-c (resp. ba^+c) invariant under all inner inverses a^- (resp. reflexive inverses a^+) of a in a semiprime ring. It is also proved that if R is a regular ring and $a, b, c \in R$, then the triplet $b\hat{a}c$ is invariant under all outer inverses $\hat{a}$ of a if and only if $\mathrm{E}[a]\,\mathrm{E}[b]\,\mathrm{E}[c] = 0$. Here, for $x \in R$, $\mathrm{E}[x]$ is the smallest idempotent in the extended centroid of R such that $x = \mathrm{E}[x]x$. These answer two questions in Hartwig and Patrício [12].

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