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Reducible inertially arbitrary matrix patterns

An n by n nonzero (resp. sign) pattern $\mathcal{A}$ is a matrix with entries in $\{*, 0\}$ (resp. $\{+, -, 0\}$). The inertia of a matrix A is the ordered triple (a_1, a_2, a_3) of nonnegative integers where a_1 (resp. a_2 and a_3) is the number of eigenvalues of A with positive (resp. negative and zero) real part. $\mathcal{A}$ is inertially arbitrary if each nonnegative integer triple (a_1, a_2, a_3) with $a_1 + a_2 + a_3 = n$ is the inertia of a matrix with nonzero (resp. sign) pattern $\mathcal{A}$. Some observations regarding which inertias $\mathcal{A}$ and $\mathcal{B}$ may allow to guarantee $\mathcal{A} \oplus \mathcal{B}$ is inertially arbitrary are presented. It is shown that there exists non-inertially-arbitrary nonzero (resp. sign) patterns $\mathcal{A}$ and $\mathcal{B}$ such that $\mathcal{A} \oplus \mathcal{B}$ is inertially arbitary.