The (b, c)-inverse of products and lower triangular matrices

Yuanyuan Ke

Department of Mathematics, Southeast University, Nanjing, CHINA
[keyy086@126.com]

Let S be a semigroup and $b, c \in S$. The concept of (b, c)-inverses was introduced by Drazin in 2012. It is well known that the Moore-Penrose inverse, the Drazin inverse, the Bott-Duffin inverse, the inverse along an element, the core inverse and dual core inverse are all special cases of the (b, c)-inverse. In this paper, a new relationship between the (b, c)-inverse and the Bott-Duffin (e, f)-inverse is established. The relations between the (b, c)-inverse of paq and certain classes of generalized inverses of pa and aq, and the (b', c')-inverse of a are characterized for some $b', c' \in S$, where $p, a, q \in S$. Necessary and sufficient conditions for the existence of the (B, C)-inverse of a lower triangular matrix over an associative ring R are also given, and its expression is derived, where B, C are regular triangular matrices.