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The upper triangular algebra loop of degree 4

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Abstract: A natural loop structure is defined on the set U_4 of unimodular upper-triangular matrices over a given field. Inner mappings of the loop are computed. It is shown that the loop is non-associative and nilpotent, of class 3. A detailed listing of the loop conjugacy classes is presented. In particular, one of the loop conjugacy classes is shown to be properly contained in a superclass of the corresponding algebra group.

Keywords: algebra group; quasigroup; loop; supercharacter; fusion scheme

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