

**Title :** Non-unique factorization in a class of non-commutative monoids

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**Abstract:**

The theory of non-unique factorizations has its origin in algebraic number theory. We use several invariants of this theory to study factorizations in a class of non-commutative and non-cancellative monoids.

Among the best investigated invariants in non-unique factorizations theory is the system of sets of lengths together with elasticities. We will determine explicitly the system of sets of lengths (the structure theorem and the realization theorem) and the elasticities in the case of a class  $\{B_n = \langle a, b \mid ba = b^n \rangle\}_{n \geq 1}$  of non-commutative monoids. The monoid  $B_2$  is the only half-factorial monoid in the class  $\{B_n\}$ .