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Semigroup and monoid structures of β -languages

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Abstract. β -languages of order n have been introduced by the authors of [5] and their equivalence with the semi-deterministic push-down automaton (SDPDA) languages of order n has been established in [5, 6]. In this paper, we make a study of various closure properties of β -languages. We show that the class of β -languages of order n forms a semigroup under union ($n \geq 2$) and concatenation ($n \geq 1$). We further show that the class of β -languages of order n together with the empty language $\{\lambda\}$ forms a monoid under union ($n \geq 2$) and concatenation ($n \geq 1$).

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