

## On the number of idempotents in certain semigroups of finite full contractions

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**Abstract:** Let  $X_n = \{1, 2, 3, \dots, n\}$  and  $T_n$  be the full transformation semigroup on  $X_n$ , that is the semigroup of all full transformation of the set  $X_n$ . A transformation  $\alpha$  in  $T_n$  is said to be a contraction if  $|\alpha(x) - \alpha(y)| \leq |x - y|$  for all  $x, y \in X_n$ . The transformation  $\alpha$  in  $T_n$  is order preserving if  $x \leq y \Rightarrow \alpha(x) \leq \alpha(y)$  for all  $x, y \in X_n$ . In this talk we denote by  $E(CT_n)$  and  $E(OCT_n)$  the subsemigroups of  $T_n$  consisting respectively of idempotents of all contraction and idempotent of all order preserving contraction in  $T_n$  and obtain formula for the order.

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