

# Classification of the T-avoiding permutations and generalizations to other Coxeter groups

Joint Mathematics Meetings  
Undergraduate Student Poster Session

Boston, MA, January, 2012

Joseph Cormier, Plymouth State University  
Zachariah Goldenberg, Plymouth State University  
Jessica Kelly, Plymouth State University

**Abstract:** We say that a permutation  $w$  has property T if there exists  $i$  such that either  $w(i) > w(i+1)$ ,  $w(i+2)$  or  $w(i+2) < w(i)$ ,  $w(i+1)$ . A permutation  $w$  is T-avoiding if neither  $w$  or  $w^{-1}$  have property T. We will present a classification of the T-avoiding permutations in the symmetric group, which is a Coxeter group of type  $A$ . In addition, we will discuss generalizations to other Coxeter groups and classify the T-avoiding elements in Coxeter groups of types  $B$ .

This research is directed by Dr. Dana C. Ernst of Plymouth State University.