

RELATION BETWEEN THE VERTICES OF THE PERMUTATION POLYTOPE AND ELEMENTS OF THE SYMMETRIC GROUP

SHATHA ASSAAD SALMAN & BATOOL ALI HAMEED

Applied Science Department, Mathematics and Computer Applications, University of Technology, Iraq

ABSTRACT

A permutation polytope is the convex hull of permutation matrices. An example of permutation polytope is the Birkhoff polytope which is all doubly stochastic matrices, this polytope is defined as the convex hull of all permutation matrices. The aim of this paper is to prove an open conjecture about Birkhoff polytope and symmetric group, we want to prove that there is a one-to-one map from the vertices of the Birkhoff polytope and the symmetric group S_n .

KEYWORDS: Birkhoff Polytope, Permutation Polytope, Symmetric Group