Abstract. The cycle index polynomial is described for the action of the full isometry group of the $n$-dimensional hypercube on its $q$-dimensional cells. This group action is interpreted as $C_2^n \times S_n$ acting on the set of unit basis vectors in $\mathbb{R}^n$ and their opposites. A kind of generating function that yields all these polynomials at once is obtained by Möbius inversion. The same technique is applied to the simpler case of the $n$-dimensional simplex.


Keywords: Pólya theory, cycle index, hypercube, simplex, Möbius function.

Further information may be obtained from http://www.wkap.nl/