

# Determinant formulas for symmetric polynomials of eigenvalues

Jules Jacobs

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## Abstract

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## 1 Introduction

**Theorem 1.1.** *Let  $\mathbb{K}$  be a finite index set, and let  $A^{(k)}$  be  $n \times n$  matrices for  $k \in \mathbb{K}$ . Then the quantity*

$$\sum_{K \in \mathbb{K}^{n \times n}} p_K \det_{ij}(A_{ij}^{(K_{ij})}) \quad (1)$$

*is independent of the basis of the  $A^{(k)}$  if  $p_K$  is symmetric (i.e.  $p_K = p_{K'}$  if  $K'$  is the same as  $K$  up to a row and column permutation).*