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Interpretation of the permanent as the sum of the weights of the injections of an m -element set into an n -element set ($m \leq n$). (English. Russian original) [Zbl 0617.05019](#)
Cybernetics 21, 586-591 (1985); translation from *Kibernetika* 1985, No. 5, 21-24 (1985).

The properties of the permanent are investigated by means of classification of partial mappings of an m -element set into n -element set ($m \leq n$). Ryser's and Egorychev's well-known formulas of the permanent expansion are obtained and their equivalence is shown. The combinatorial content of the polarization formula of polyadditive symmetric function is discovered, and it is proved that the polarization representation is the necessary and sufficient condition of the polyadditive symmetric function.

The author notes that A. M. Kamenetskij has independently obtained these conclusions.

Reviewer: [S.S.Agayan](#)

MSC:

- 05B20 Combinatorial aspects of matrices (incidence, Hadamard, etc.)
- 15A15 Determinants, permanents, traces, other special matrix functions

Keywords:

weight; permanent; polyadditive symmetric function

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