

A heuristic method for bi-decomposition of partial Boolean functions

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Abstract: The problem of bi-decomposition is reduced to search for a pair of complete bipartite subgraphs (bicliques) in an orthogonality graph of a ternary matrix that specifies a given function. Each biclique is assigned with a set of arguments of the given function. According to each of bicliques, a Boolean function is constructed whose arguments are the variables from the set, which is assigned to the biclique. The obtained functions form a solution of the bi-decomposition problem.

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