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Recursive decomposition and bounds of the lattice of Moore co-families. (English)

Zbl 1311.06003

Ann. Math. Artif. Intell. 67, No. 2, 109-122 (2013).

Summary: A collection of sets on a ground set U_n ($U_n = \{1, 2, \dots, n\}$) closed under intersection and containing U_n is known as a Moore family. The set of Moore families for a fixed n is in bijection with the set of Moore co-families (union-closed families containing the empty set) denoted \mathbb{M}_n . In this paper, we propose a recursive definition of the set of Moore co-families on U_n . Then we apply this decomposition result to compute a lower bound on $|\mathbb{M}_n|$ as a function of $|\mathbb{M}_{n-1}|$, the Dedekind numbers and the binomial coefficients. These results follow the work carried out by *P. Colomb* et al. [Lect. Notes Comput. Sci. 5986, 72-87 (2010; Zbl 1274.05013)] to enumerate the number of Moore families on U_7 .

MSC:

06A15 Galois correspondences, closure operators (in relation to ordered sets)

05A15 Exact enumeration problems, generating functions

06B05 Structure theory of lattices

Cited in **1** Review
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Keywords:

closure systems; Galois connections; knowledge spaces; lattices; Moore families; Moore co-families

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