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A different approach to Hadamard's maximum determinant problem

Let $n > 0$ be an integer, and D_n a subset of non-negative integers given by the collection of all values $|d|$ such that d is the determinant of an n-by-n 0-1 matrix. The spectrum problem asks for an alternate characterization of D_n, and generalizes the problem of the title.

An improvement is given on a result of Clements and Lindstroem about a large value in D_n. It is shown that D_n is not always an interval of integers, suggesting the subproblem of finding the largest interval contained in D_n; some results in this direction are shown. One conjecture is that solving the subproblem will solve the title problem.