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DECOMPOSING 2-COLORED BOOLEAN LATTICE INTO 2-COLORED  
CHAINS OF LENGTH 2

We consider the following problem: Let  $L$  be a finite boolean lattice. Each of its elements is colored either blue or red, with the following restrictions: (a) an element  $x$  is blue if and only if  $-x$  is red, and (b) if an element  $x$  is blue, than any element  $y$  such that  $y < x$  is also blue. The question is whether there exists a decomposition of  $L$  into blue-red pairs. Precisely: can lattice  $L$  be decomposed into disjoint chains of length 2, each consisting of a blue and a red element? This question was originally formulated by P. Mazur in terms of products of prime numbers.

We give the solution to this problem.