The Theory of Computation

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Solution Manual

Chapter 6, Problem 6.21

No alteration is needed in the construction used in the proof of Cook's theorem, but we may want to review the machinery just a bit. Basically, all of our clauses are generated in groups, each group indexed by 1, 2, or 3 indices. This means that we can produce all of the variables and all of the clauses through a small constant number of blocks, each block consisted of 1, 2, or 3 nested loops running through simple indices; the body of the innermost loop simply prints out the clause for that block, indexed through the loops indices. Thus all that need be kept in memory are the values of the loop indices, which takes logarithmic space.