

Integer programming on a simplex

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We revisit the lattice reformulation suggested by Aardal, Hurkens and Lenstra. In particular, we compare the volume of a box that contains a lattice reformulation of the knapsack set to the volume of a box containing the original formulation. The derivation of an expression for the volume of the box containing the reformulation links to earlier results on the width of the knapsack reformulation, and gives a partial explanation to why the reformulation may be computationally easier to solve when using standard enumeration techniques.