

Sample question about the Branch and Bound Algorithm

Which of the following describes best the definition of the functions $F_k(\mathbf{b})$ used in the the Branch and Bound algorithm:

1. These functions can be computed recursively and then the original optimum is obtainable by calling the function $F_k(\mathbf{b})$ with $k = 0$; $\mathbf{b} = \mathbf{0}$.
2. Via these functions the original optimization problem is replaced by a sequence of simpler ones.
3. $F_k(\mathbf{b})$ is the optimum value of the original function $f(\mathbf{x})$ over a restricted set, in which the first k coordinates of \mathbf{x} are fixed according to \mathbf{b} .
4. These functions make it possible to incorporate an upper bound function into the exhaustive search. As a result, possibly large parts of the exhaustive search can be eliminated, by eliminating the recursive call when it cannot bring an improvement.