## Original problem

min

s.t.  $g_1(x) \le b_1$ 

## Lagrangian subproblem

 $\min \quad f(x) + \sum_{i=1}^{k} \lambda_i (g_i(x) - b_i)$ s.t.  $g_{k+1}(x) \le b_{k+1}$ 

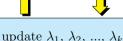


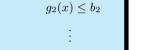


 $q_m(x) < b_m$ 









 $g_m(x) \leq b_m$