

Let  $F$  be a compact subset of  $\mathbb{R}^n$ .

Consider

$$\begin{array}{ll} \text{Min} & f(x) \\ \text{s.t.} & x \in F. \end{array}$$

Under mild assumptions, we can equivalently solve

$$\begin{array}{ll} \text{Min} & t \\ \text{s.t.} & \left\{ \begin{array}{l} f(x) \leq t \\ x \in F \\ l \leq t \leq u. \end{array} \right. \end{array}$$

From now on, we consider only

$$\begin{array}{ll} \text{Max} & c^T x \\ & x \in F \end{array}$$

where  $F$  is compact.