An Extension of the Multicut L-Shaped Method

Svyatoslav Trukhanov

Industrial Engineering
Texas A&M University
College Station, TX

Texas-2005, College Station

Outline

Two-stage stochastic linear program with recourse

$$\min c^T x + \sum_{s=1}^{|S|} p_s q_s^T y_s$$

$$s.t.\ Ax = b$$

$$T_s x + W_s y = r_s,\ \forall s = 1, \cdots, |S|$$

$$x \geq 0, y_s \geq 0,\ \forall s = 1, \cdots, |S|$$

where $x \in \mathbb{R}^{n_1}$, $y_s \in \mathbb{R}^{n_2}$ are decision variables, $c \in \mathbb{R}^{n_1}$, $q_s \in \mathbb{R}^{n_2}$, $b \in \mathbb{R}^{m_1}$, $r_s \in \mathbb{R}^{m_2}$ are given vectors and $A \in \mathbb{R}^{m_1 x n_1}$, $T_s \in \mathbb{R}^{m_2 x n_1}$, $W_s \in \mathbb{R}^{m_2 x n_2}$ are given matrices. S is the set of possible outcomes (scenarios) and p_s is the probability of scenario s.