outrata_1990_ex2

This problem was introduced in [1, page 274]. It has six variants depending on the choice of $H(x)$ and Ω that can be tested by loading the different coefficient data provided by this library.

$$\begin{aligned} \underset{x,y}{\text{minimise}} \quad & \frac{1}{2}\left((y_1-3)^2+(y_2-4)^2\right) \\ \text{subject to} \quad & x \geq 0 \\ & y \in \underset{(y_1,y_2)\in\Omega}{\arg\min} \frac{1}{2} y^\top H(x) y - (3+1.333x)y_1 - xy_2 \\ & \Omega = \left\{ \begin{array}{lrl} (y_1,y_2)\in\mathbb{R}^2_+ \mid & -0.333y_1+y_2 & \leq 2, \\ & y_1-0.333y_2 & \leq 2. \end{array} \right\} \end{aligned}$$

References

[1] Jiří V Outrata. On the numerical solution of a class of stackelberg problems. *Zeitschrift für Operations Research*, 34(4):255–277, 1990.