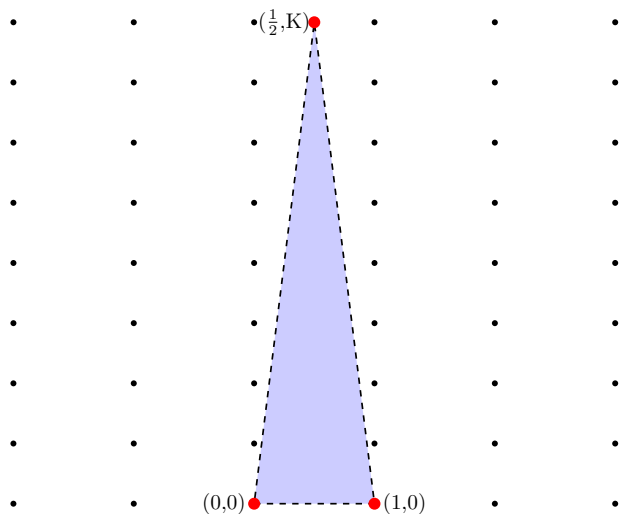


LP RELAXATION VS. ILP RELAXATION

Claim

LP relaxation's answer can be arbitrarily larger than the ILP's answer.



$$\begin{array}{llll} \max & x_2 & & \\ \text{s.t} & x_2 & \geq & 0 \\ & 2Kx_1 - x_2 & \geq & 0 \\ & -2Kx_1 - x_2 & \geq & -2K \\ & x_1, x_2 & \in & \mathbb{Z} \end{array} .$$