Analytical Center of 2D Polytope: $\max_{\mathbf{x}} \sum_{i=1}^{5} \log(1 - \mathbf{a}_i^T \mathbf{x}) + \sum_{j=1}^{2} \log(1 - x_j^2)$ \mathbf{a}_2 1.5 \mathbf{a}_3 \mathbf{a}_1 1.0 0.5 x_2 0.0 \mathbf{X}^* -0.5 \mathbf{a}_{4} -1.0 \mathbf{a}_5 -1.5-1.0-0.50.0 0.51.0 1.5

 x_1