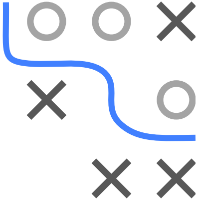
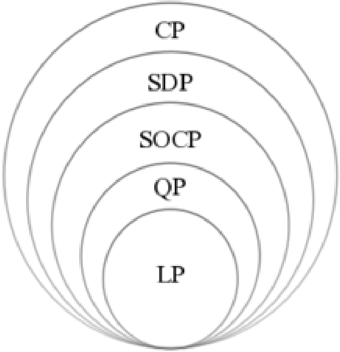
Optimization in Machine Learning



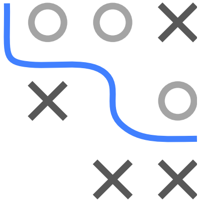
Algorithms for linear programs



Learning goals

- Definition
- Max. Likelihood
- Normal regression
- Risk Minimization

SIMPLEX ALGORITHM



The Simplex algorithm is the most important method for solving Linear programming. It was published in 1947 by Georg Dantzig.

Basic idea: start from an arbitrary corner of the polytope. Run along this edge as long as the solution improves. Find a new edge, ...

Output: a path along the corners of the polytope that ends at the optimal point of the polytope.

Since linear programming is a **convex** optimization problem, the optimal corner found in this way is also a global optimum.