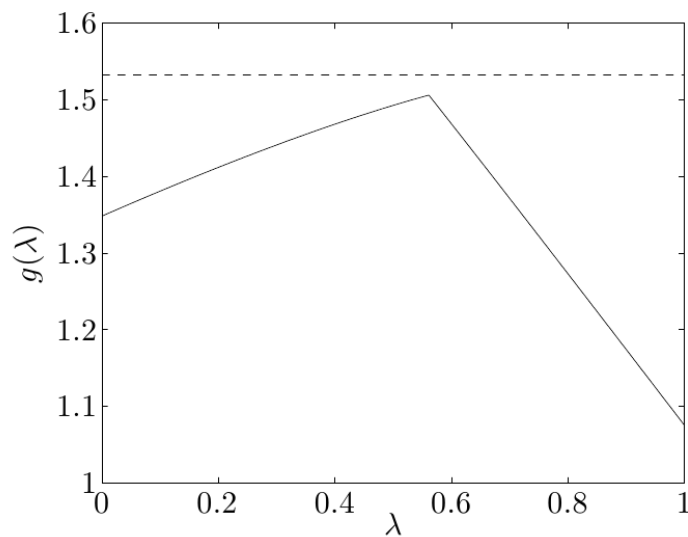
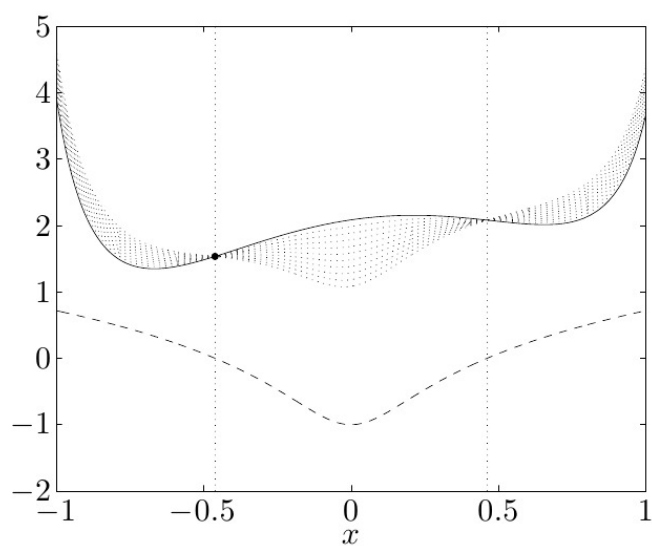
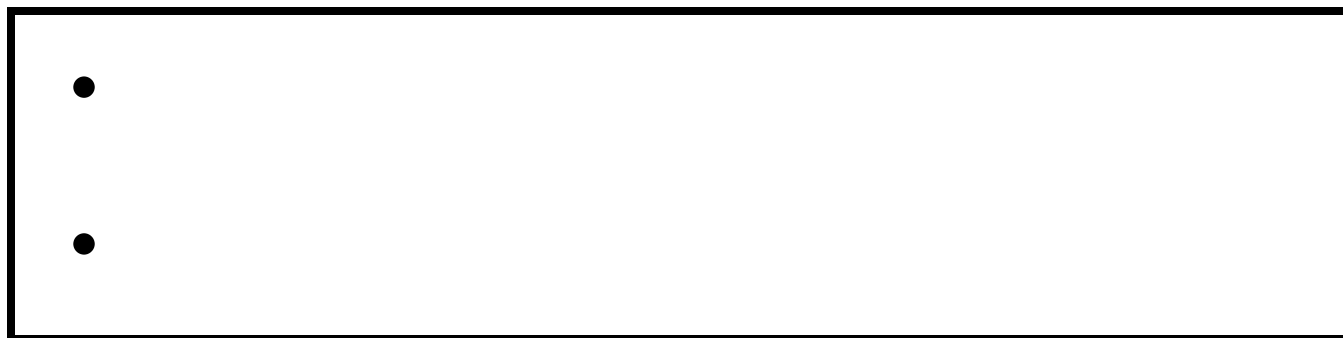

5. DUALITY

THE LAGRANGE DUAL FUNCTION

Given the optimization problem

we define the Lagrangian as

and the Lagrange dual function as



THE LAGRANGE DUAL PROBLEM

Optimization problem

Lagrange dual problem

LP (primal)

LP (dual)

Weak duality

Strong duality

OPTIMALITY CONDITIONS

Complementary slackness

KKT conditions

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PERTURBATION AND SENSITIVITY ANALYSIS

A global inequality

Local sensibility analysis

DUALITY AND GENERALIZED INEQUALITIES

Optimization problem

Lagrange dual function

Lagrange dual problem

Strong duality