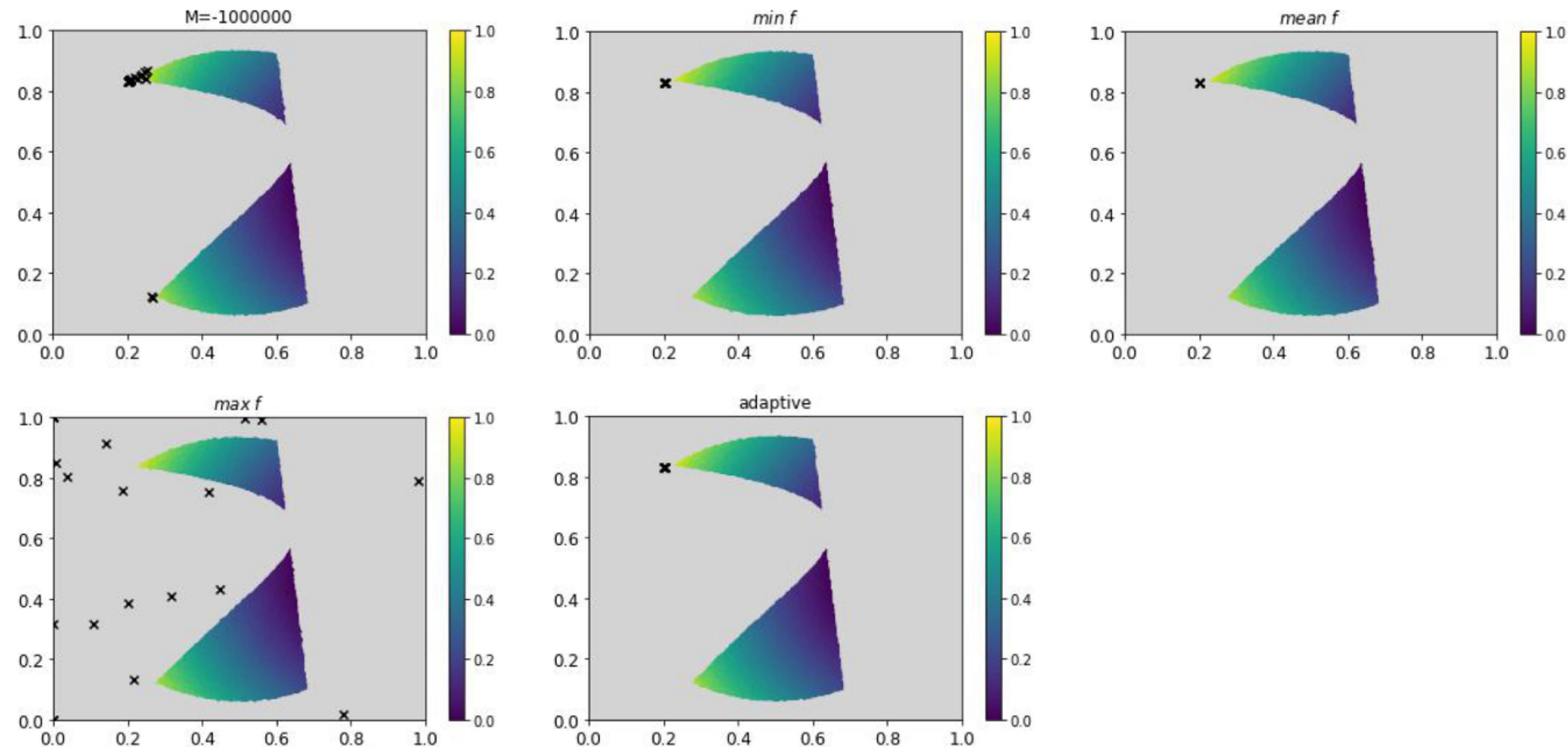


Impact of Penalty Parameter M -1



Impact of Penalty Parameter M-2

M is very negative

- Strong penalty for infeasible points
- cKG becomes overly conservative, avoids boundary regions
- Fails to explore areas near constraint limits

M is too large

- Infeasible points treated as good as optimal ones
- cKG ignores constraints completely
- Recommends only infeasible solutions

Adaptive M

$$M = \min_x \mu_n(x)$$

- Always prefers feasible over infeasible cKG ignores constraints completely
- Still explores near constraint boundary