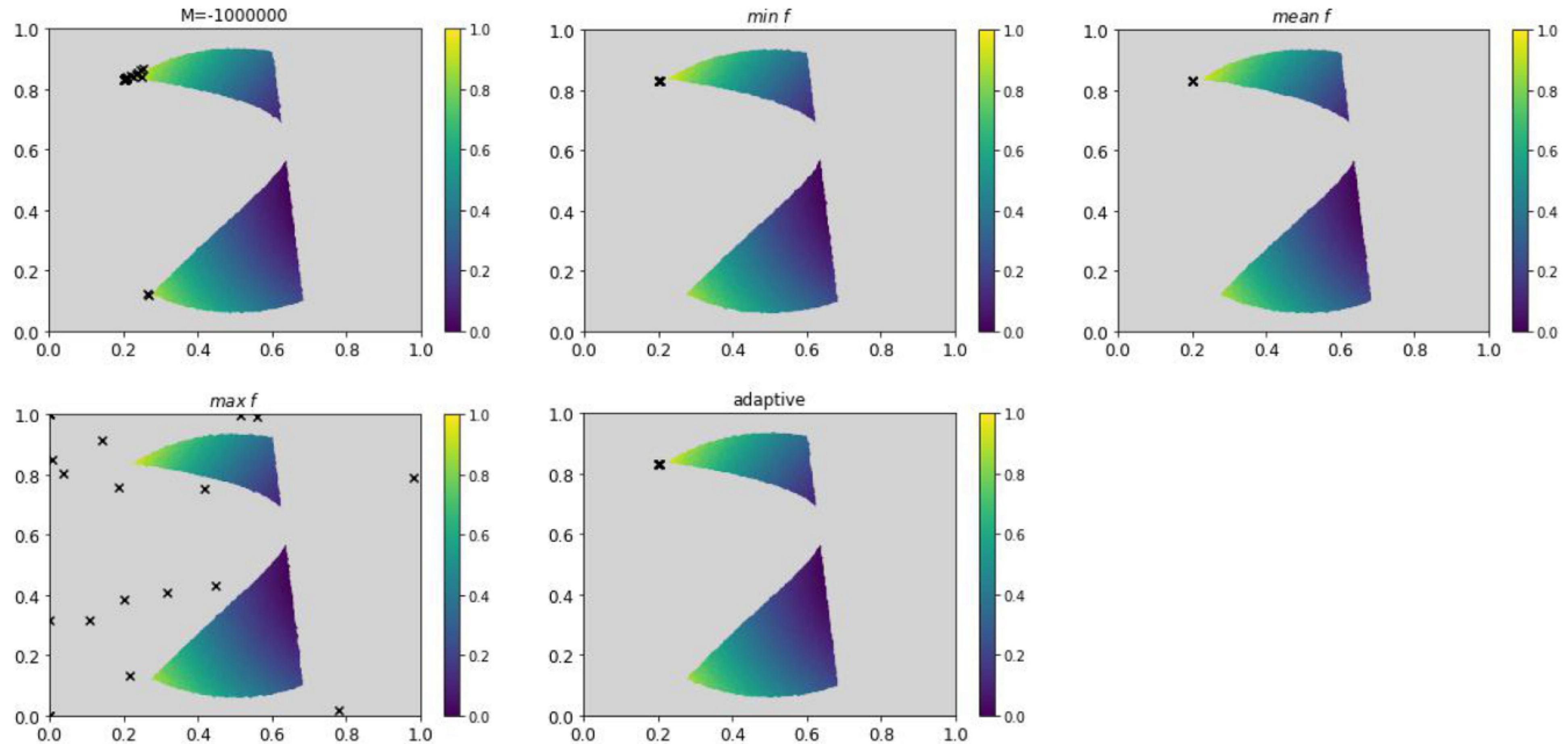


# Impact of Penalty Parameter M-1



# 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