

ϵ -approximations of F , $\text{conv}(F)$

$$F(\epsilon) := \left\{ x \in C_0 : p(x) \leq \epsilon, \forall p \in \mathcal{P}_F \right\}$$

$$\text{c.relax}(F(\epsilon/2), G) := \bigcap_{x_c \in G} B(x_c, \rho(x_c, F(\epsilon/2)))$$

large ball
centered at
an arbitrary point
in C_0

Kojima & Takeda [1999]:

$$\text{conv}(F) \subseteq \text{c.relax}(F(\epsilon/2), G) \subseteq \text{conv}(F(\epsilon)),$$

for not too large $\epsilon > 0$.