Let's go back to combinatorial optimization.

Assume $\operatorname{diam}(F) \geq 1$. $\operatorname{diam}(C_0) \leq \sqrt{n}$

$\bar{\nu}_{lip}$ for $\boxed{-x_j^2 + x_j \leq 0}$ over $[0,1]^n$ is ≤ 1.

$\bar{\nu}_{nc} = 1$. We get

$$O\left(\frac{n^5}{\varepsilon^4} \ln\left(\frac{1}{\varepsilon}\right)\right)$$ iteration bound.

NOTE: n iterations suffice if $D_2 = S^n$;

but we may use much simpler relaxations here with small D_2.