Lect. 11, 7 July 2016 11-1

obj. function = $|V_1| + |V_2| + \cdots + |V_n|$

rather than $V^T V = V_1^2 + V_2^2 + \cdots + V_n^2$

framework for LP problems: all variables/unknowns must be ≥ 0

requires new variables to keep all ≥ 0

$\Rightarrow$ slack variables

$\min z = c^T x$

$c^T \quad = z$

x

subject to $Ax = b$

$x \geq 0$

m [A] n $=$ b

x

always underdetermined

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m [A_1 | A_2] $=$

m n

solve for first m variables, assume the rest $\emptyset$

rearrange order in parent vect.

Solve for first m var, ...

if solution vector all ≥ 0, Then member of feasible set

Then compute obj. function

Smallest value of obj. function $\Rightarrow$ our solution

exhaustive search $\binom{n}{m} = \frac{n!}{m!(n-m)!}$

$\Rightarrow$ solution has only m nonzero values

rest are $= 0$

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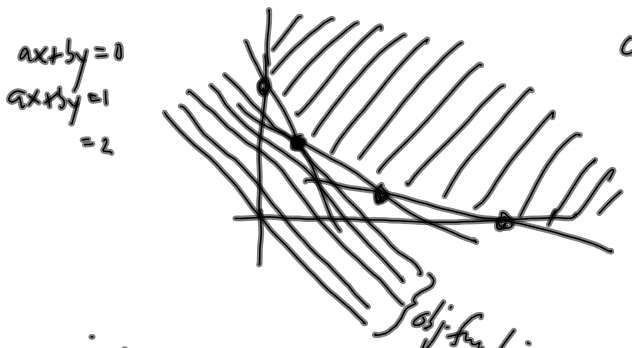
11-3



corner pts ⇒ basic solutions

Simplex: find some basic solutions
Then discard one variable
bring one new variable
guarantee that z gets smaller
when cannot make z smaller,
you are done

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11-4

[x, v] = L1 (B, f) ← VAB = f

[x, v] = L2 (B, f)

for AW4, 1(c) can use

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