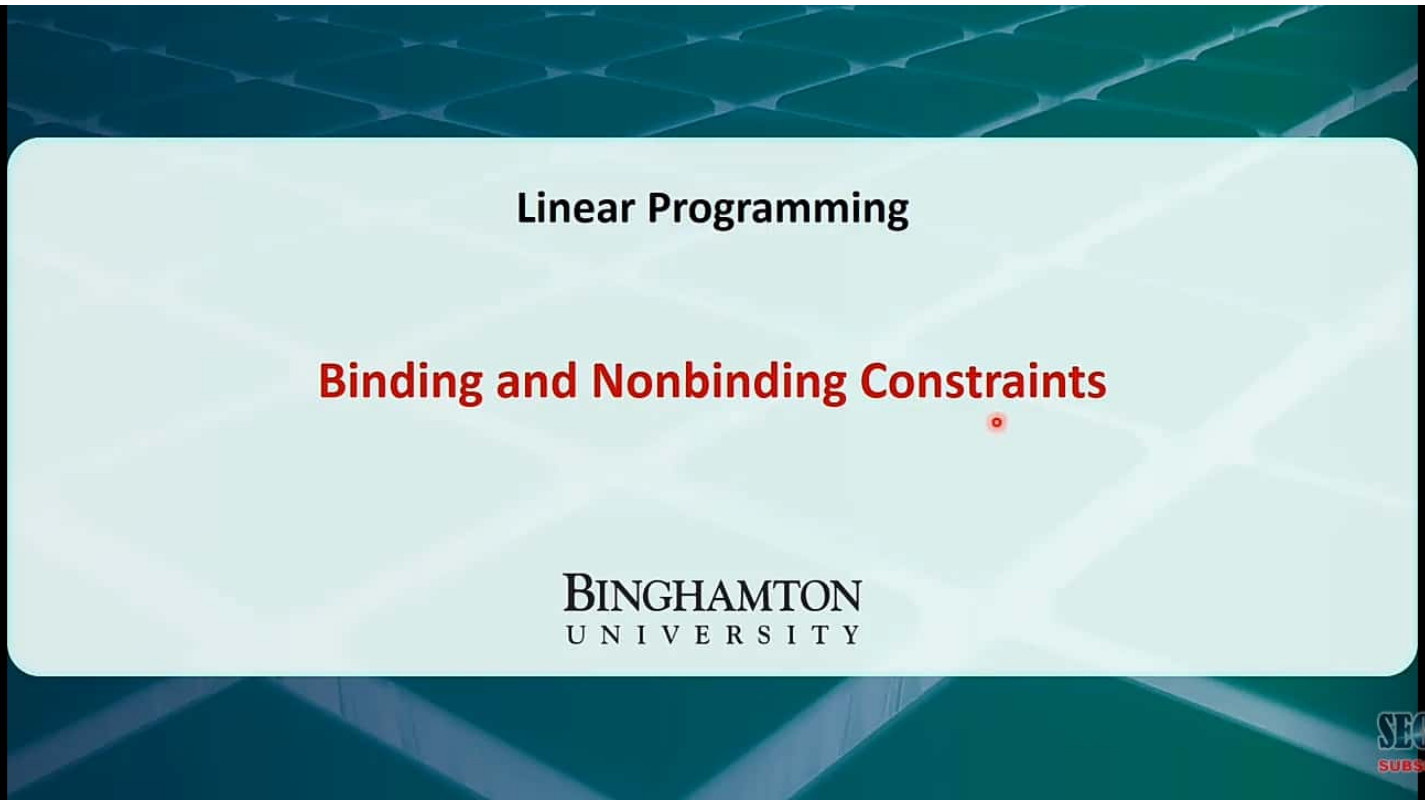
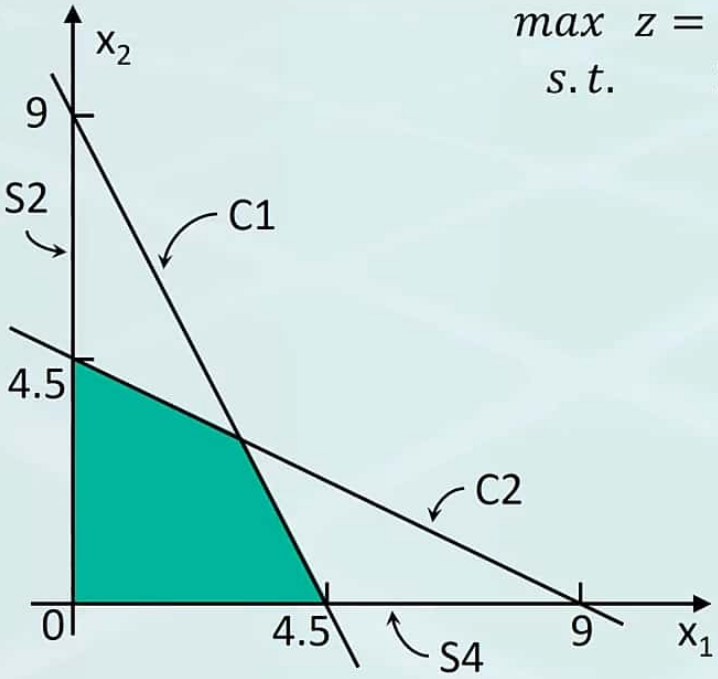


Binding & Nonbinding Constraints

- A constraint is binding if the LHS and RHS of the constraint are equal at the optimal solution
- Otherwise, it is nonbinding

Example



$$max \quad z = 3x_1 + x_2$$
$$s.t. \quad 2x_1 + x_2 \leq 9 \text{ (C1)}$$
$$x_1 + 2x_2 \leq 9 \text{ (C2)}$$
$$x_1 \geq 0 \text{ (S3)}$$
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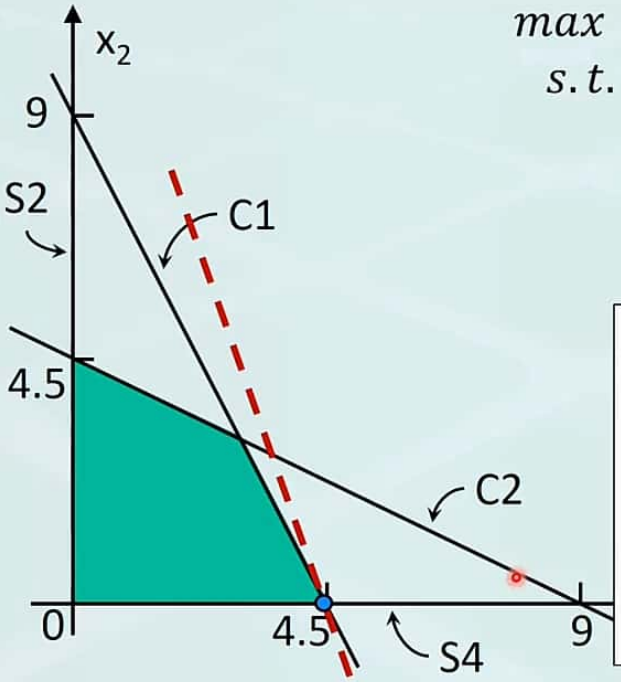

Optimal Solution: $x_1 = 4.5$, $x_2 = 0$

C1: 2*4.5+0 = 9	binding
C2: 4.5+2*0 = 4.5 < 9	nonbinding
S3: 4.5 > 0	nonbinding
S4: 0 = 0	binding

Example

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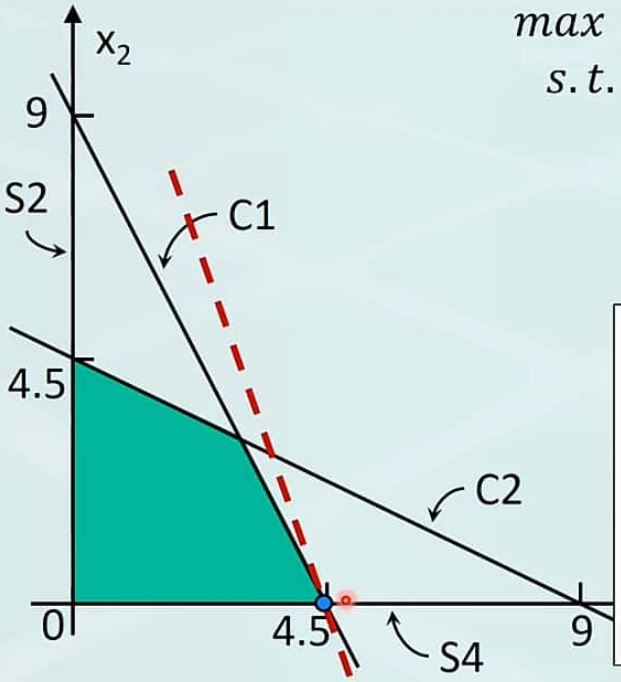

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C2: 4.5+2*0 = 4.5 < 9	nonbinding
S3: 4.5 > 0	nonbinding
S4: 0 = 0	binding

If the optimal solution is on the line, then it's binding