

These slides are by courtesy of Prof. 李稻葵 and Prof. 郑捷.

Chapter Three

Preferences

消费者偏好

Preference Relations

Three possibilities when comparing two consumption bundles, x and y :

1. The consumer **strictly prefers x to y** , denote as $x \succ y$.
2. The consumer **is indifferent between x and y** , denoted as $x \sim y$.
3. The consumer **strictly prefers y to x** , denote as $y \succ x$.

When we say the consumer **weakly prefers x to y** , denote as $x \succeq y$, we mean Case 1 or 2 above.

Some Observations

$x \succsim y$ and $y \succsim x$ imply $x \sim y$.

$x \succsim y$ and (not $y \succsim x$) imply $x \succ y$.

Assumptions about Preference Relations

Completeness: For any two different bundles x and y it is always possible to make the statement that either

$$x \succsim y$$

or

$$y \succsim x.$$

Assumptions about Preference Relations

Reflexivity: Any bundle x is always at least as preferred as itself; *i.e.*

$$x \succsim x.$$

Assumptions about Preference Relations

Transitivity:

$x \succeq y$ and $y \succeq z$ imply $x \succeq z$

Transitivity of \succeq implies that \sim and \succ are also transitive.

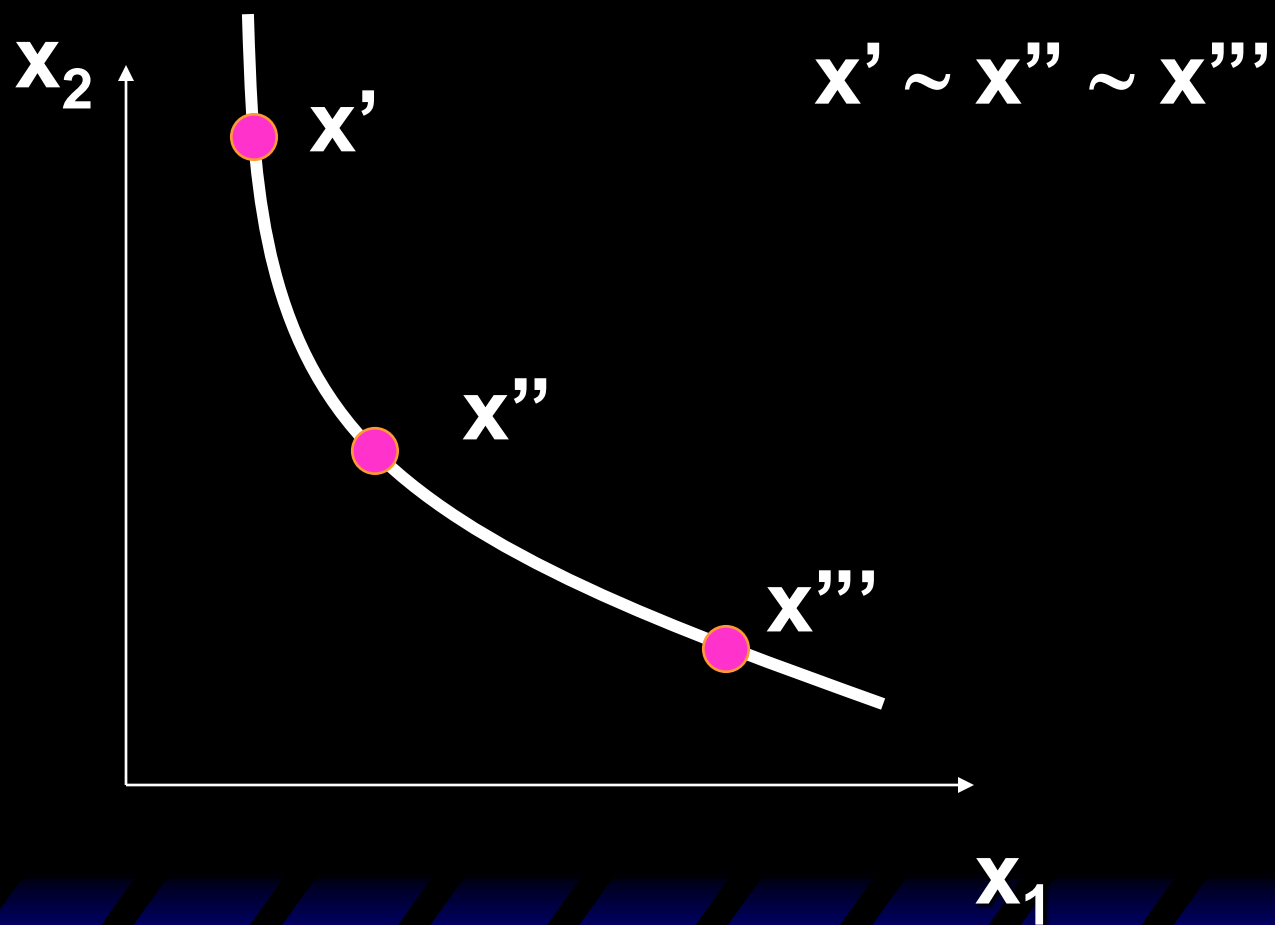
Indifference Curves

无差异曲线 (或, 无差异集)

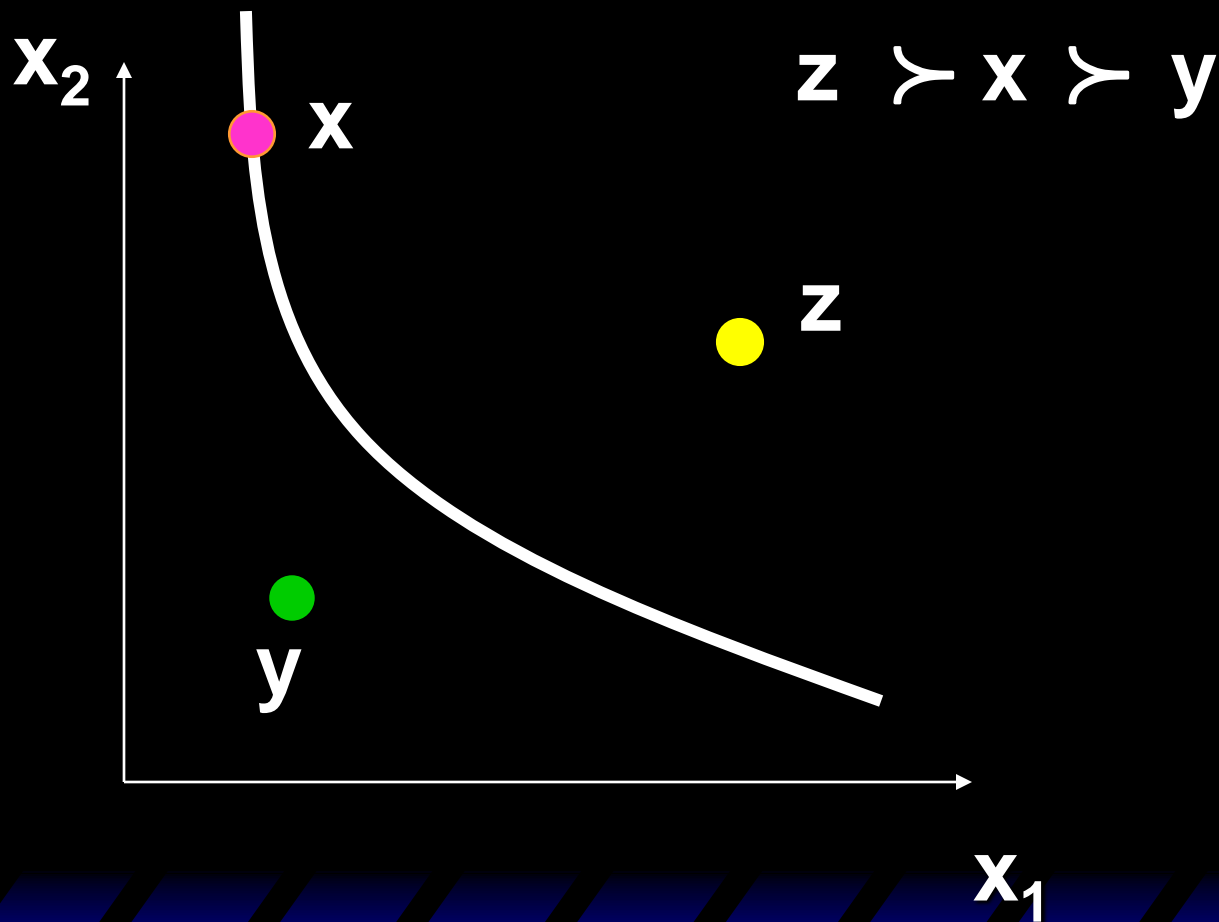
Take a reference bundle x' . The set of all bundles equally preferred to x' is the **indifference curve containing x'** ; the set of all bundles $y \sim x'$.

Since an indifference “curve” is not always a curve, a better name might be an indifference “set”.

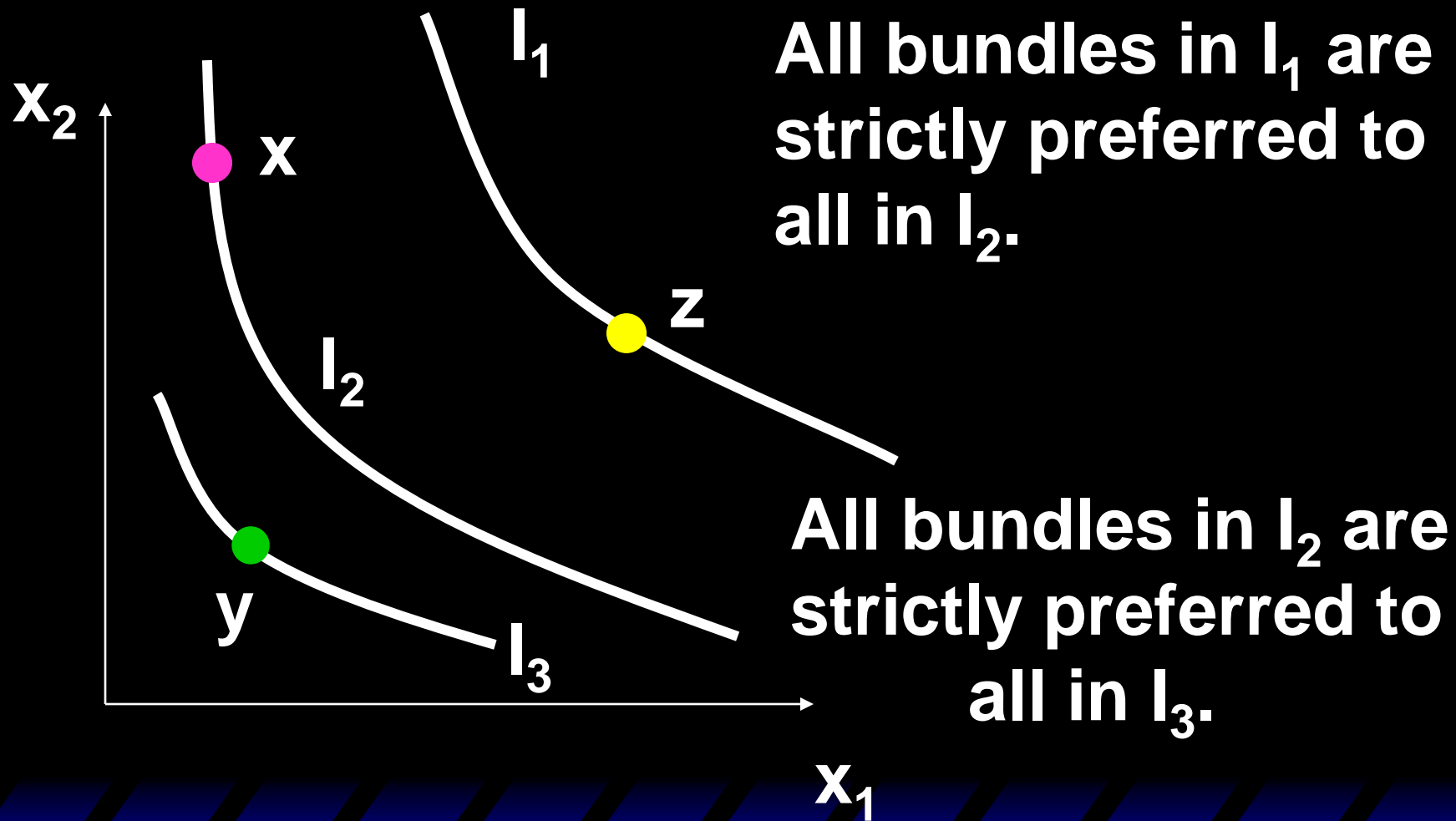
Indifference Curves



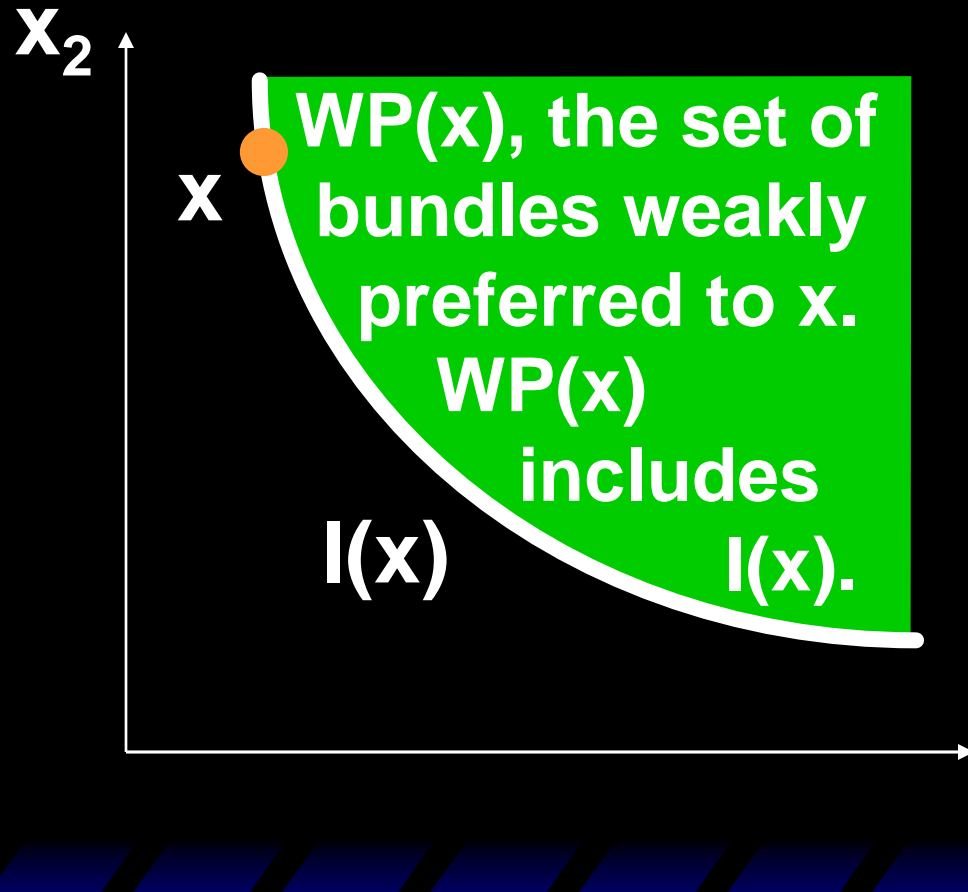
Indifference Curves



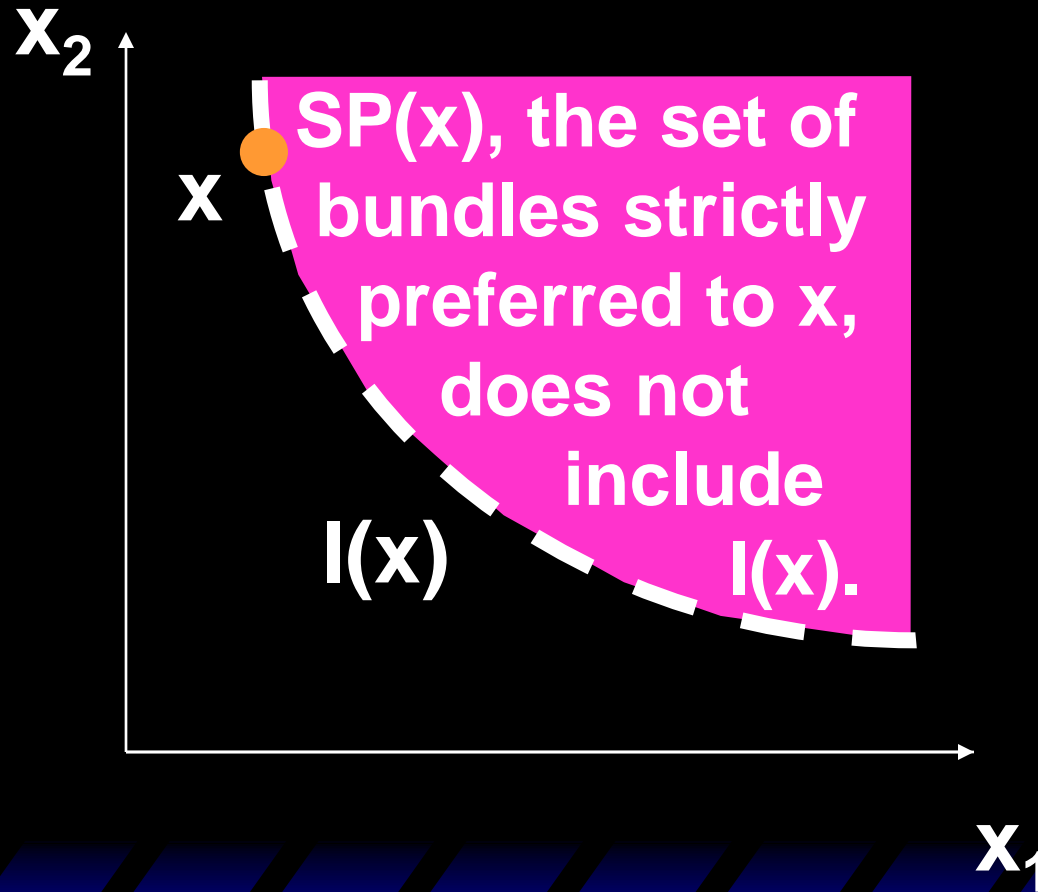
Indifference Curves



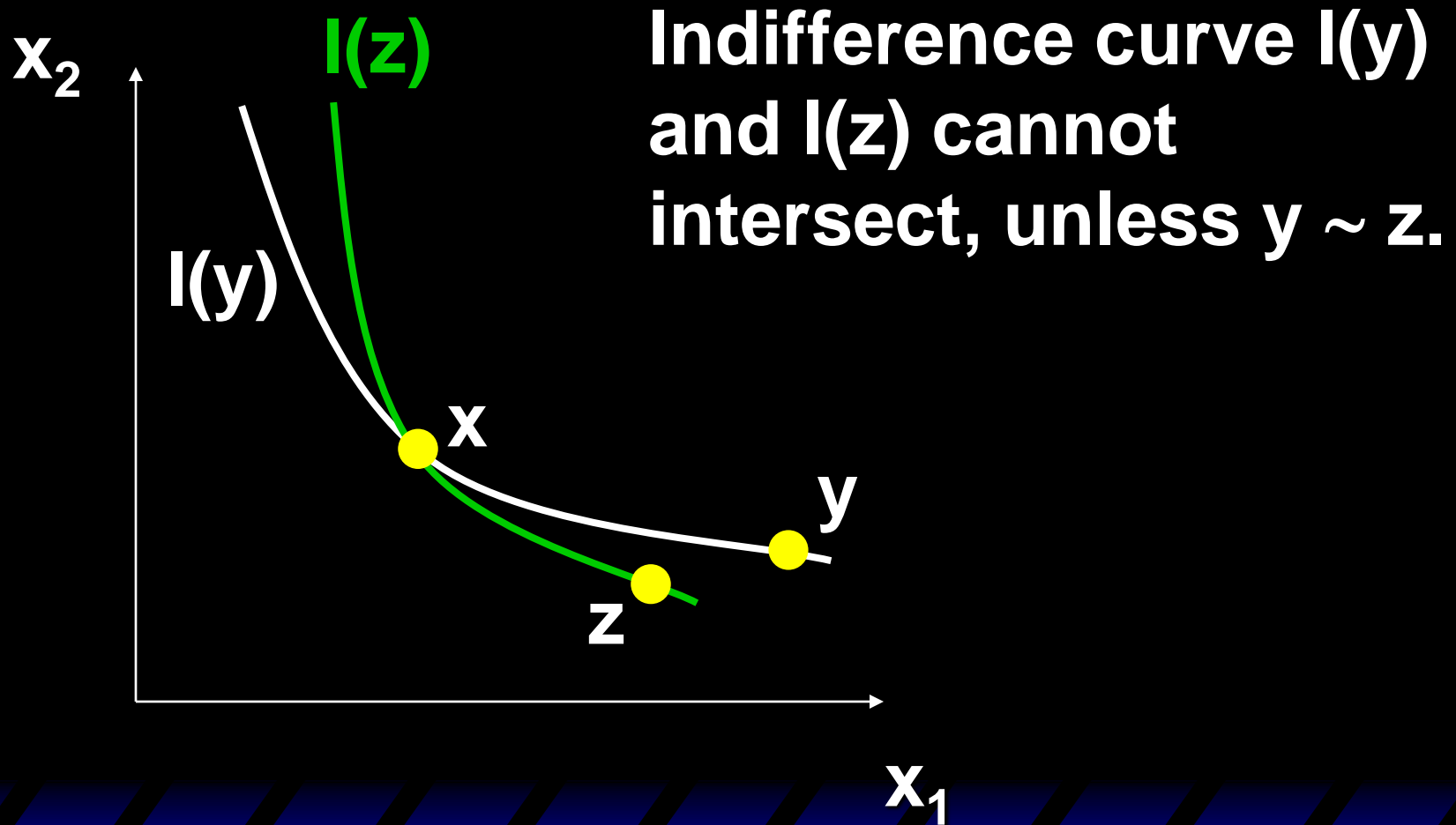
Indifference Curves



Indifference Curves



Indifference Curves Cannot Intersect



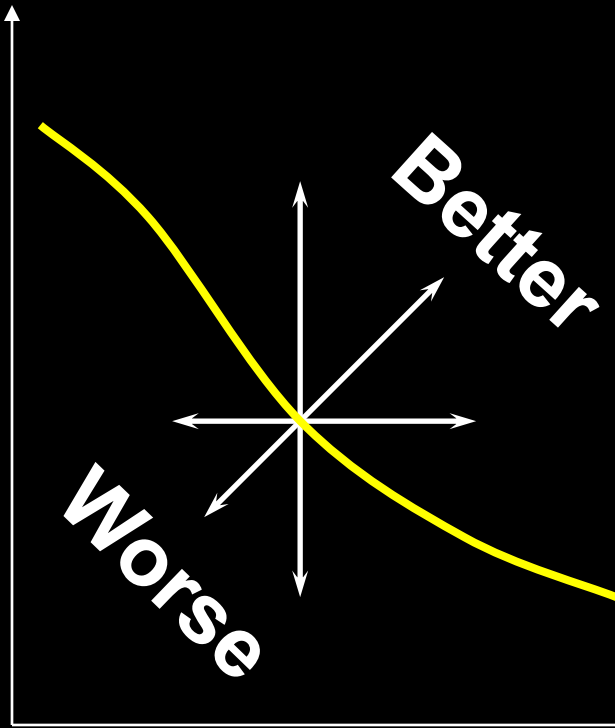
Slopes of Indifference Curves

When more of a commodity is always preferred, the commodity is a **good.**

If every commodity is a good then indifference curves are negatively sloped.

Slopes of Indifference Curves

Good 2



Two goods →
a negatively sloped
indifference curve.

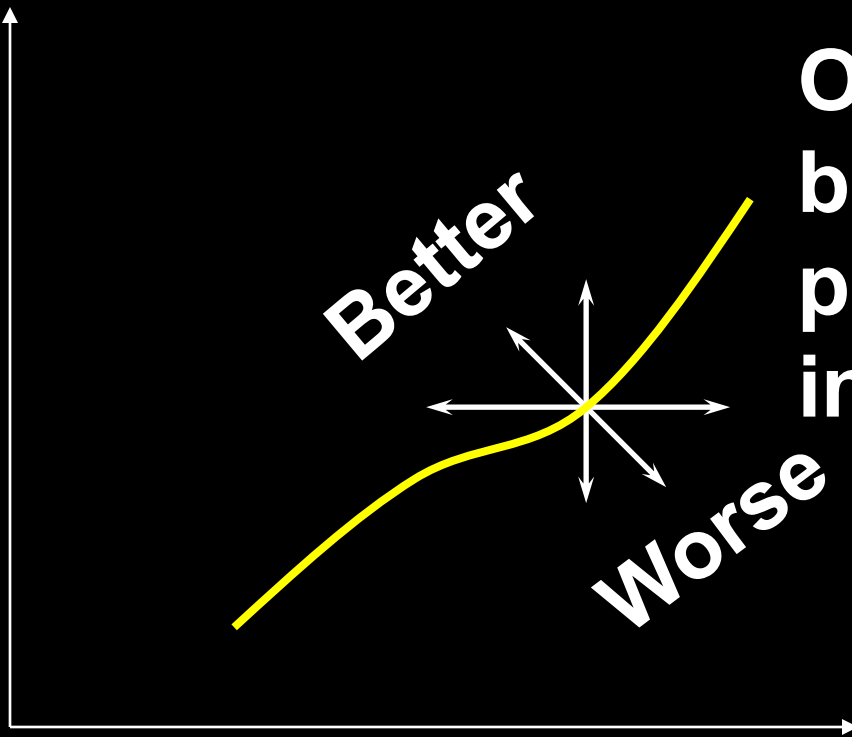
Good 1

Slopes of Indifference Curves

If less of a commodity is always preferred then the commodity is a **bad**.

Slopes of Indifference Curves

Good 2



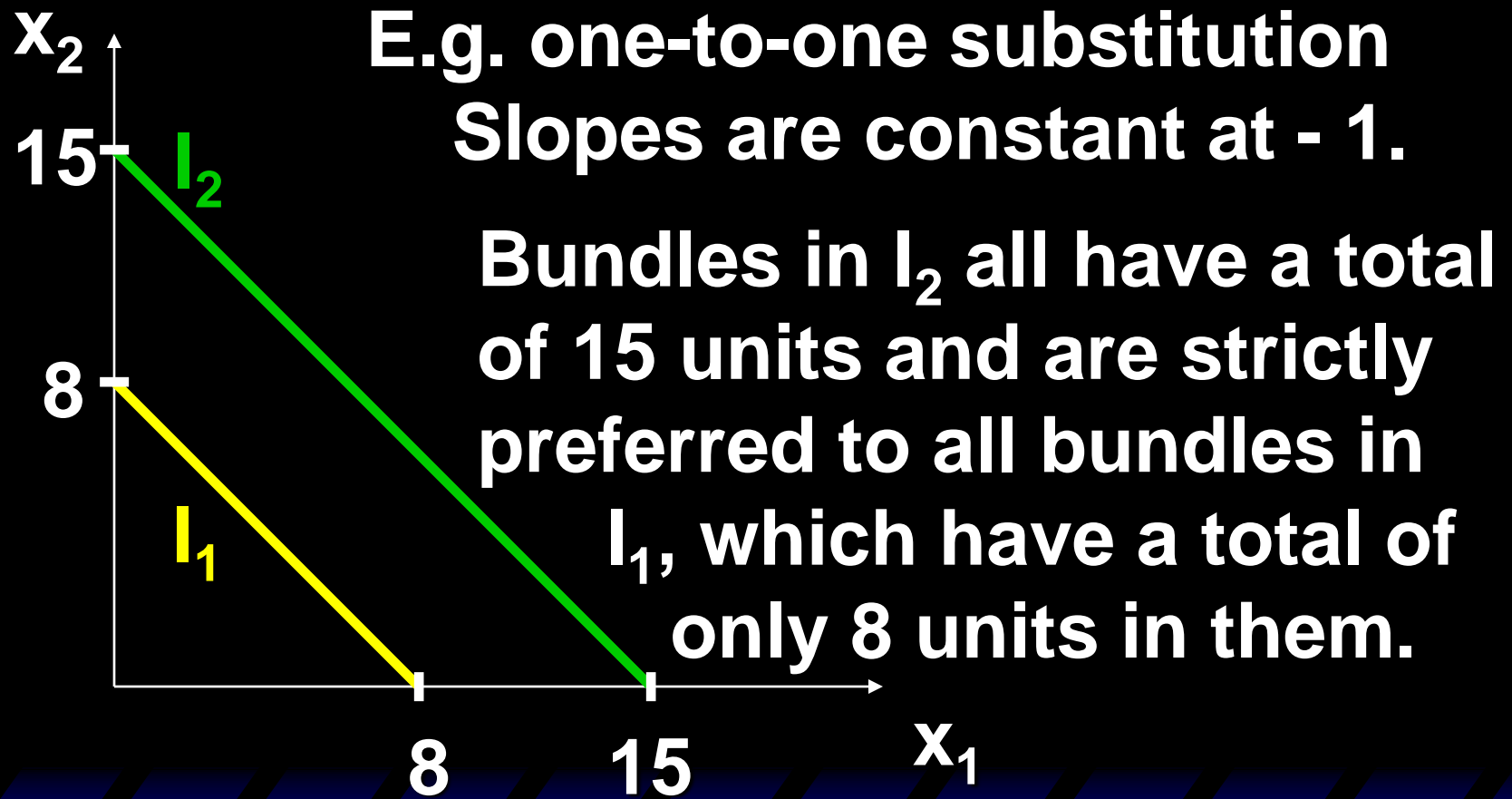
**One good and one
bad → a
positively sloped
indifference curve.**

Bad 1

Special Case of Indifference Curves: Perfect Substitutes

If a consumer is willing to substitute one good for the other at a constant rate, then the commodities are **perfect substitutes**.

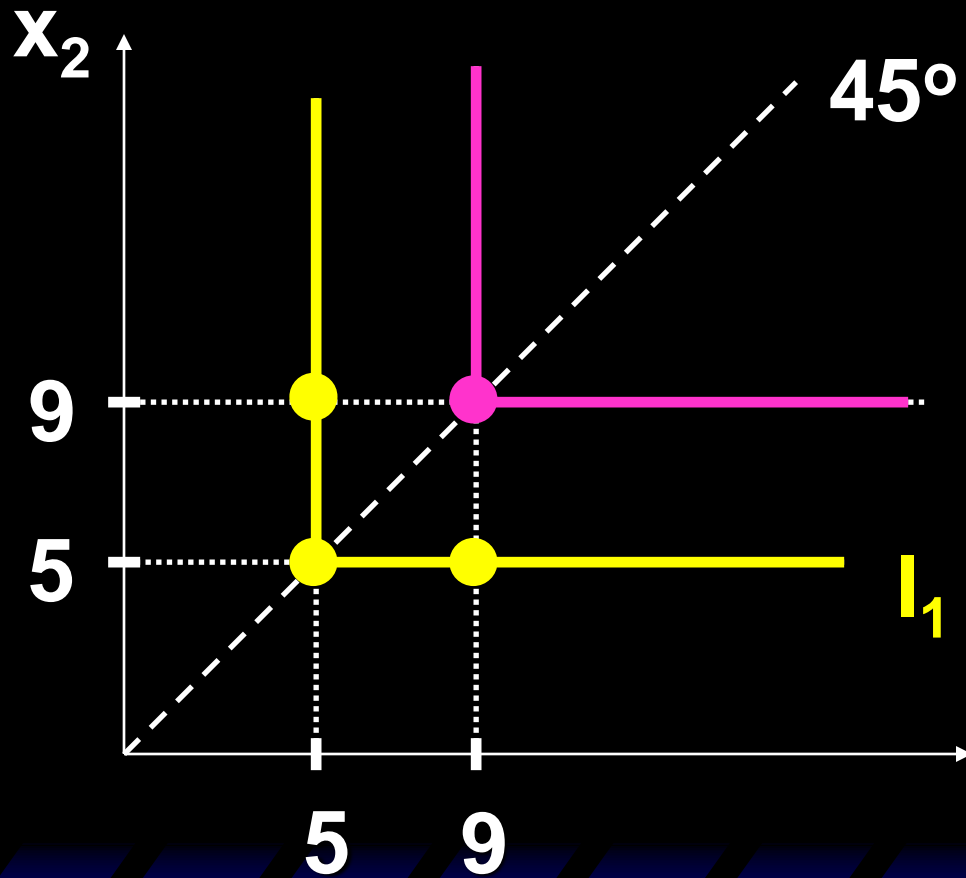
Special Case of Indifference Curves: Perfect Substitutes



Special Case of Indifference Curves: Perfect Complements

If a consumer always consumes commodities 1 and 2 in fixed proportion, then the commodities are perfect complements.

Special Case of Indifference Curves: Perfect Complements



E.g. one-to-one complementation

Since each of $(5, 5)$, $(5, 9)$ and $(9, 5)$ contains 5 pairs, each is less preferred than the bundle $(9, 9)$ which contains 9 pairs.

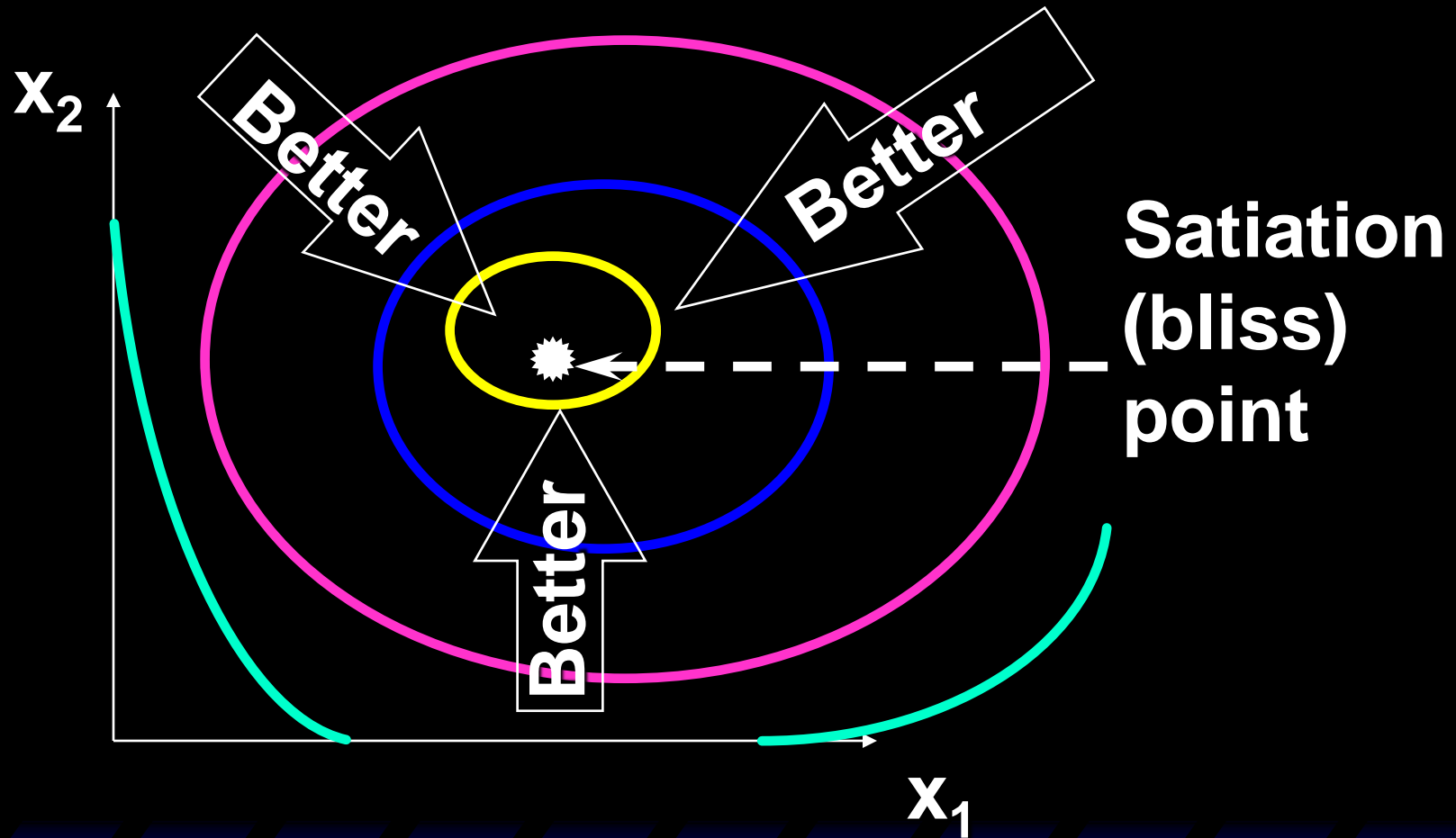
Preferences Exhibiting Satiation

A bundle strictly preferred to any other is a **satiation point** or a **bliss point**.

What do indifference curves look like for preferences exhibiting satiation?



Indifference Curves Exhibiting Satiation



Well-Behaved Preferences

A preference relation is “**well-behaved**” if it is

- **monotonic** and **convex**.

Monotonicity: More of any commodity is always preferred (*i.e.* no satiation and every commodity is a good).

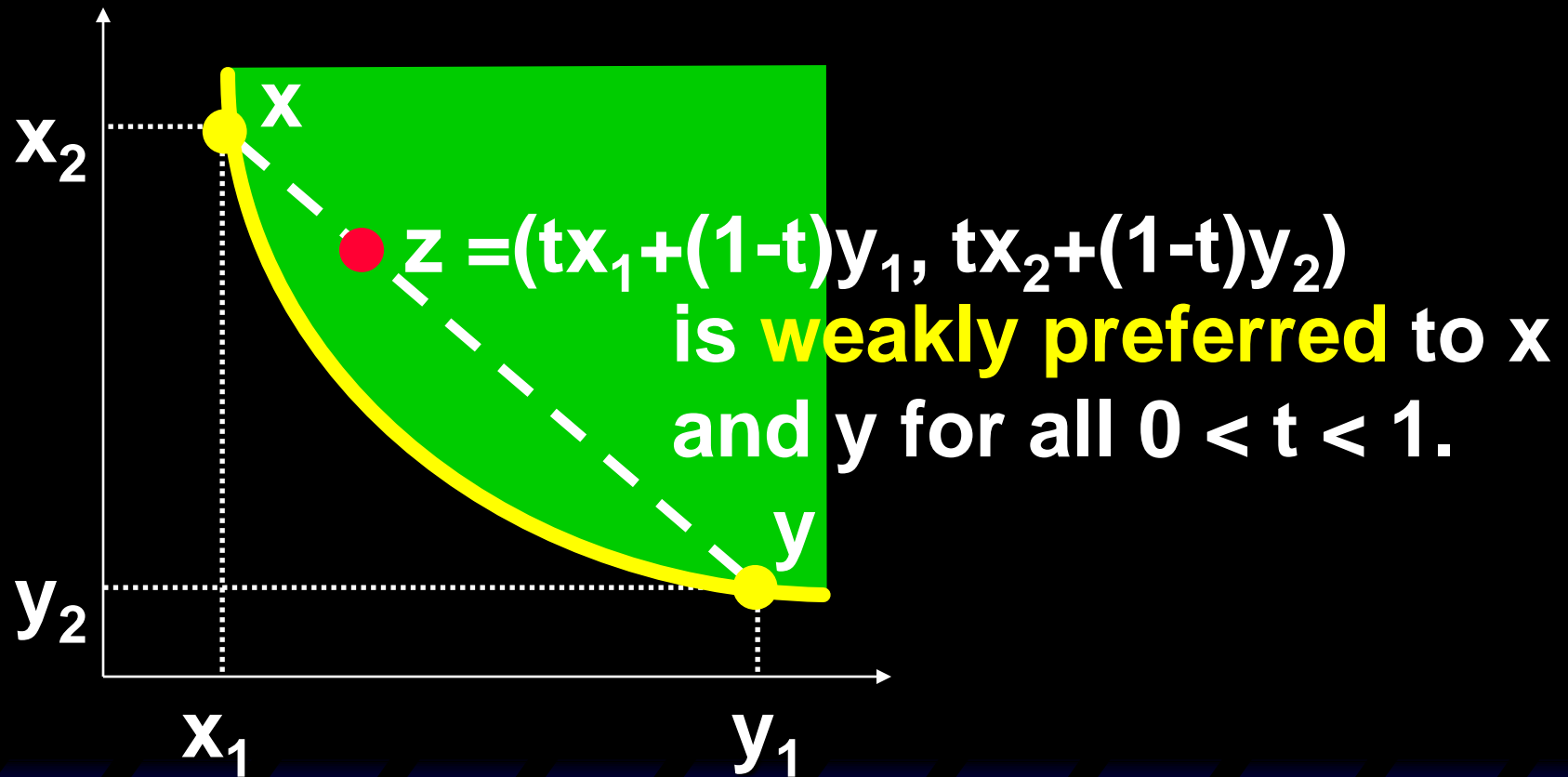
Well-Behaved Preferences

Convexity (凸性): Mixtures of two indifferent bundles are weakly preferred to the bundles themselves. E.g., the 50-50 mixture of the bundles x and y is

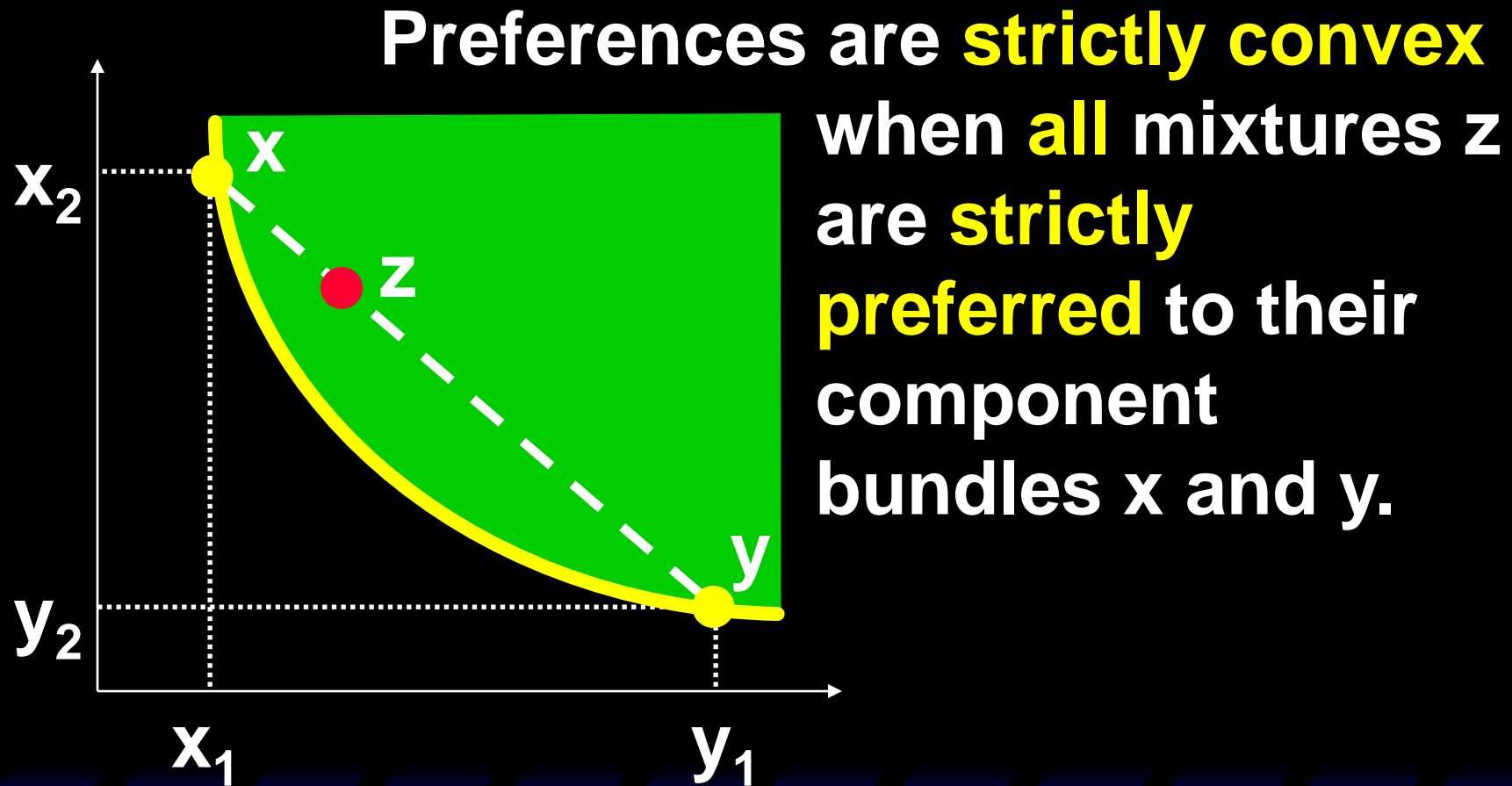
$$z = (0.5)x + (0.5)y.$$

z is weakly preferred to x or y .

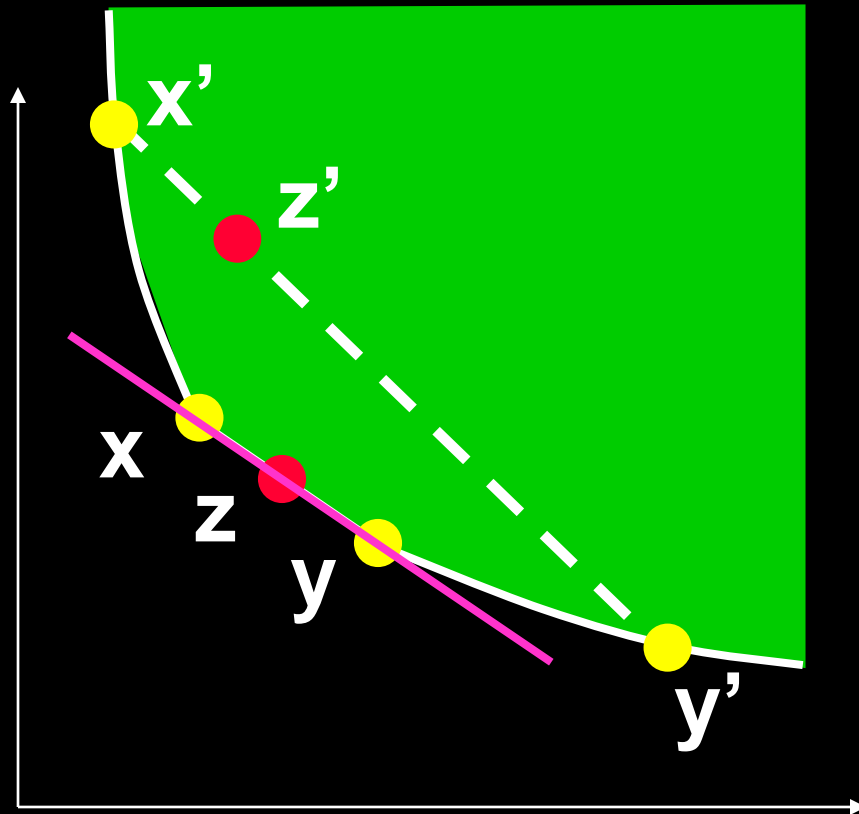
Well-Behaved Preferences -- Convexity.



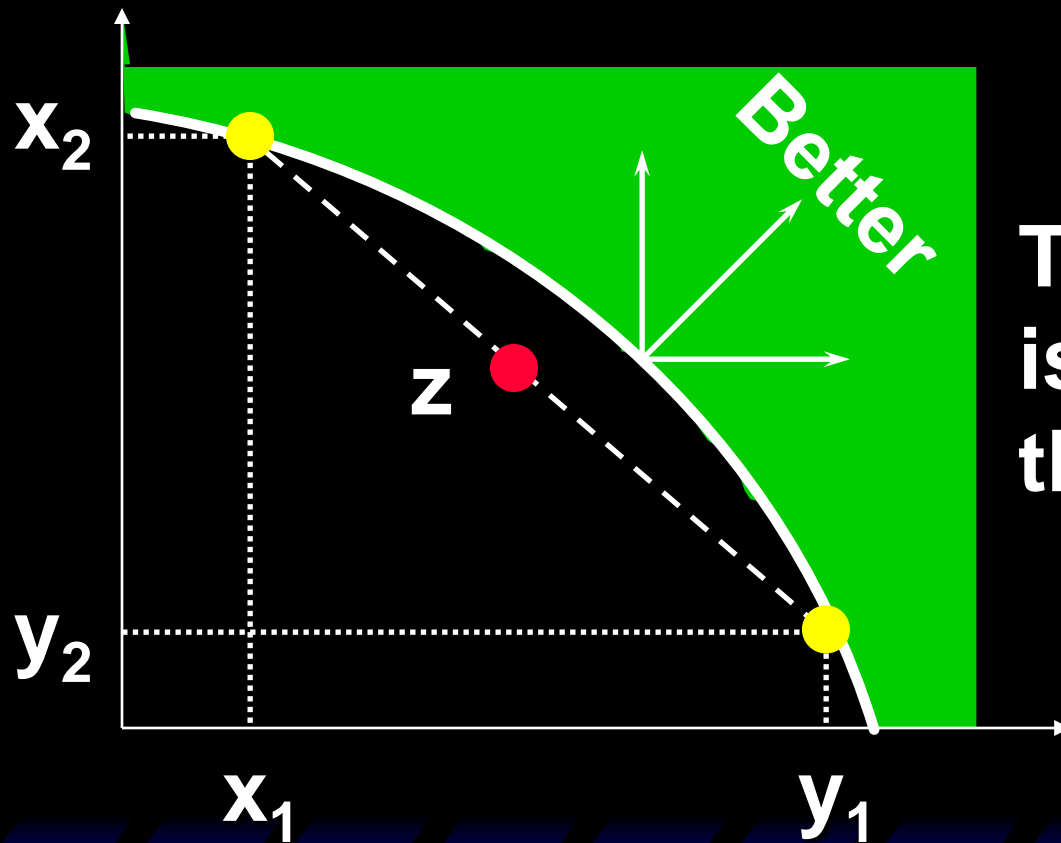
Well-Behaved Preferences -- Convexity.



Well-Behaved Preferences – Convex but not Strictly Convex

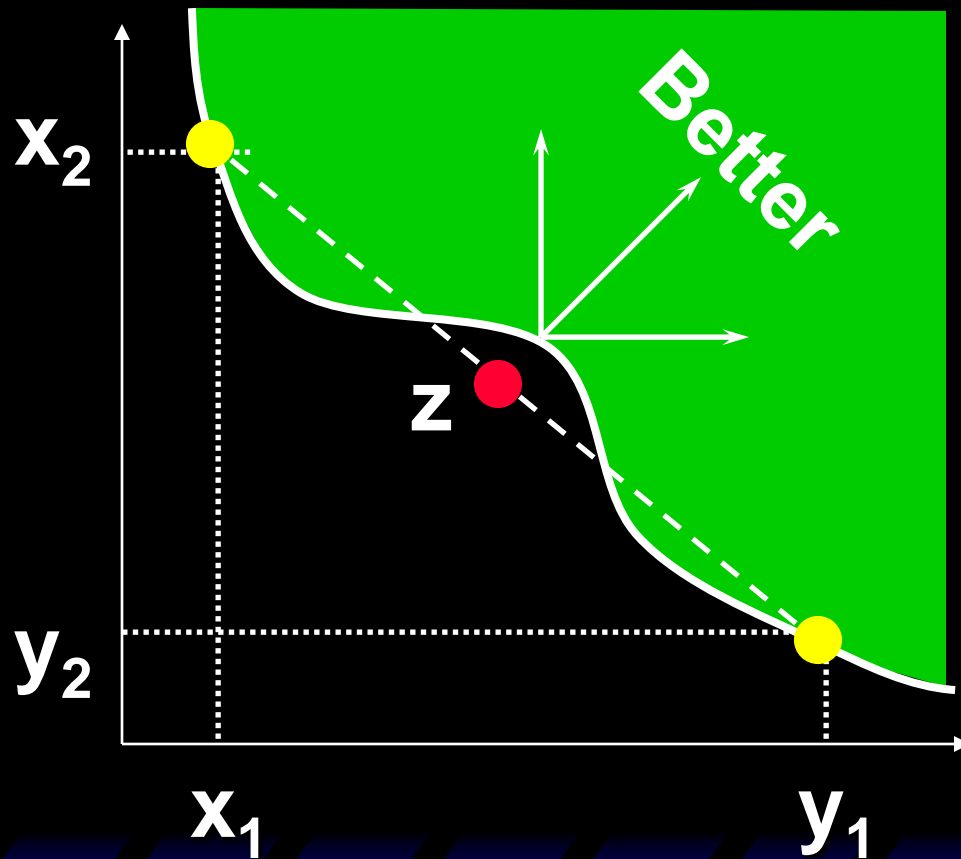


Non-Convex Preferences



The mixture z is less preferred than x or y .

More Non-Convex Preferences

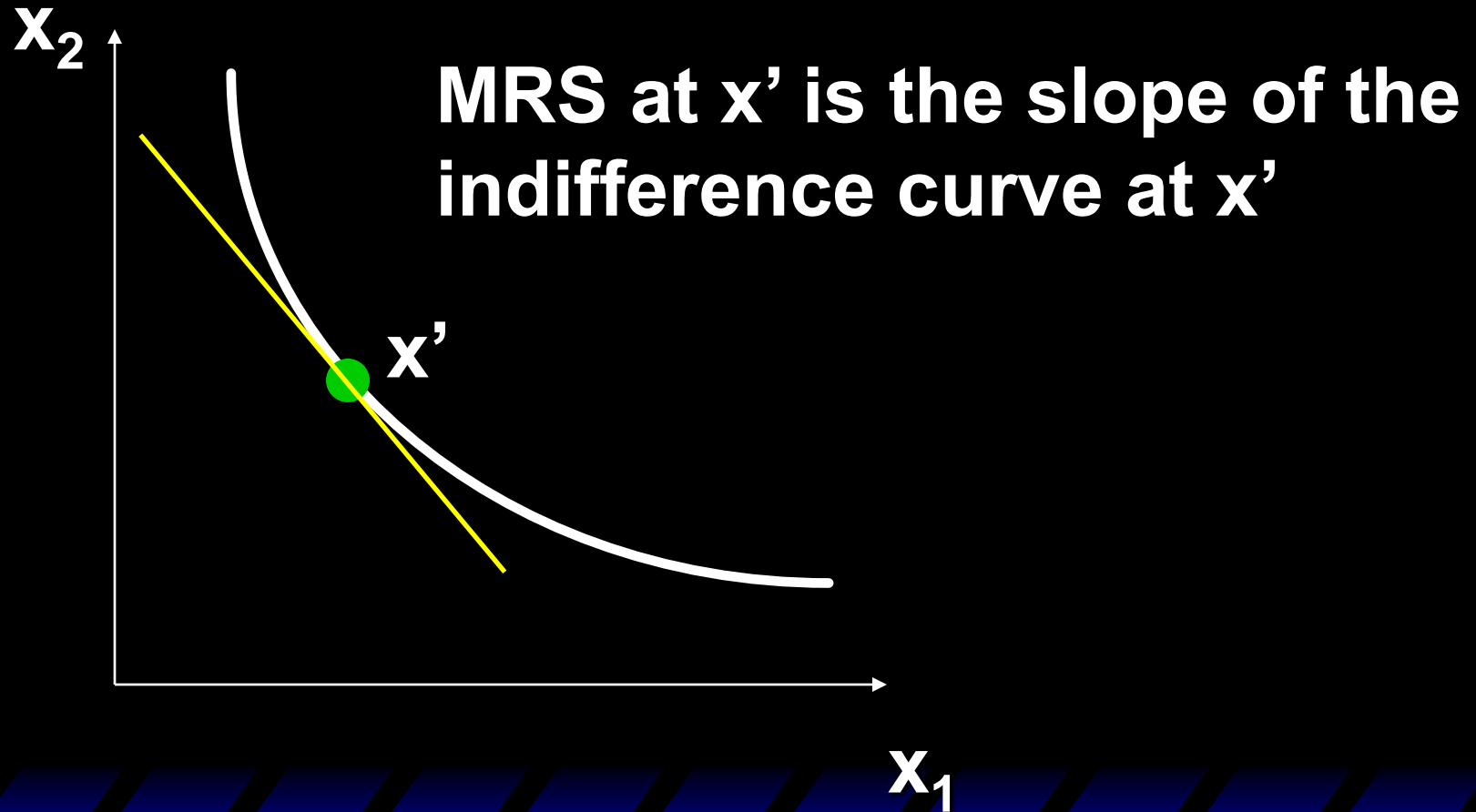


The mixture z is less preferred than x or y .

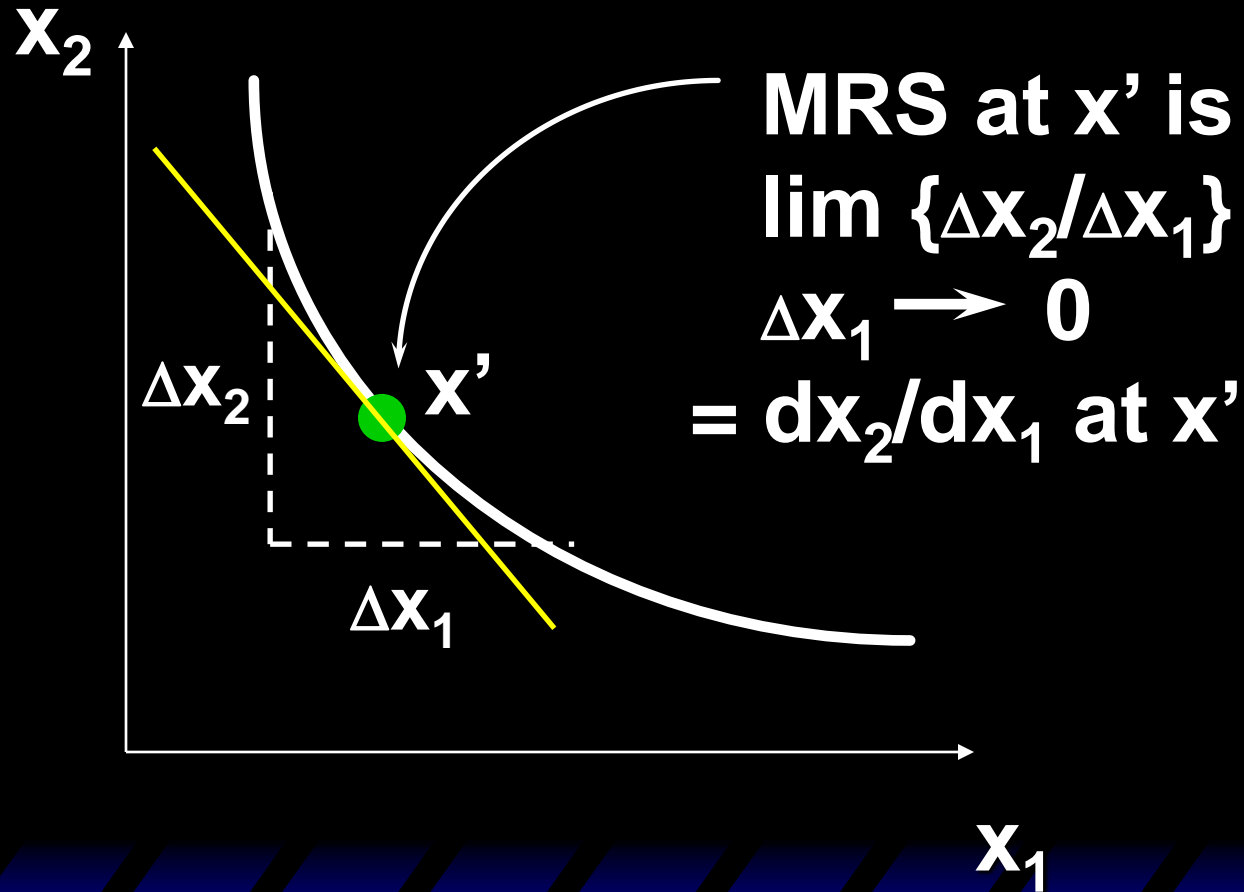
Marginal Rate-of-Substitution (边际替代率)

The slope of an indifference curve is its **marginal rate-of-substitution (MRS)** (边际替代率)

Marginal Rate of Substitution

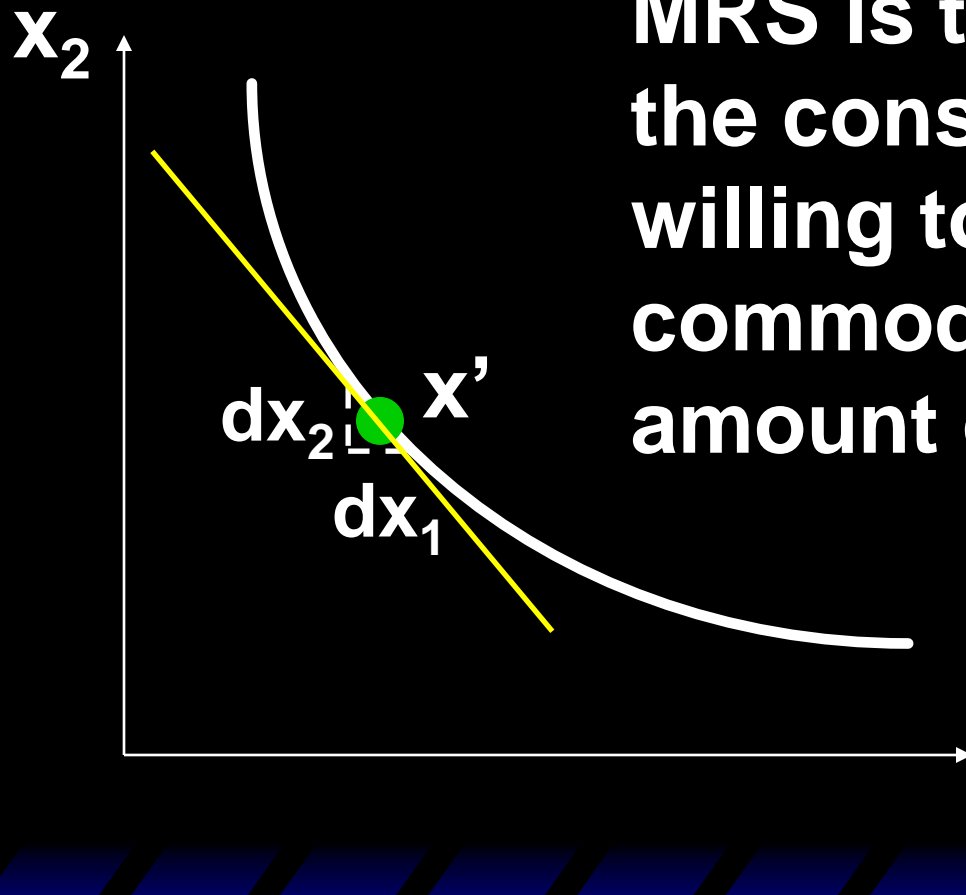


Marginal Rate of Substitution



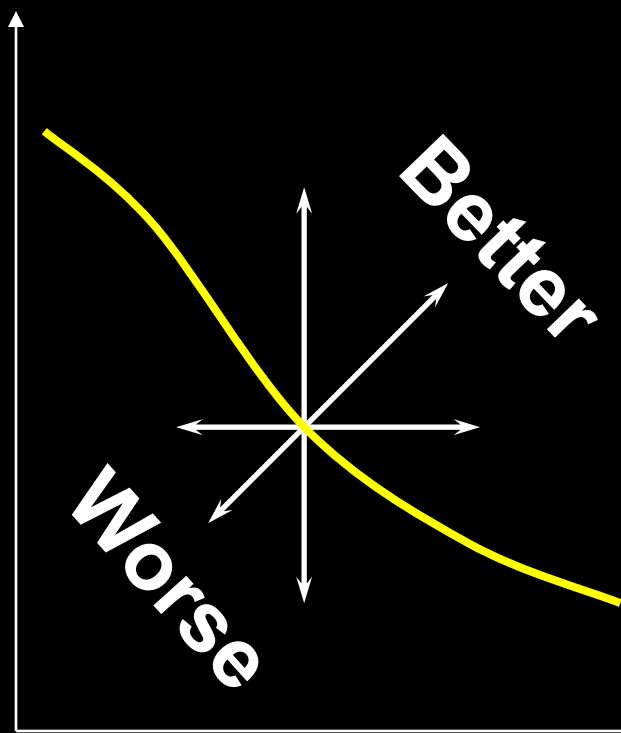
Marginal Rate of Substitution

$dx_2 = \text{MRS}' dx_1$ so, at x' ,
MRS is the rate at which
the consumer is only just
willing to exchange
commodity 2 for a small
amount of commodity 1.



MRS & Ind. Curve Properties

Good 2



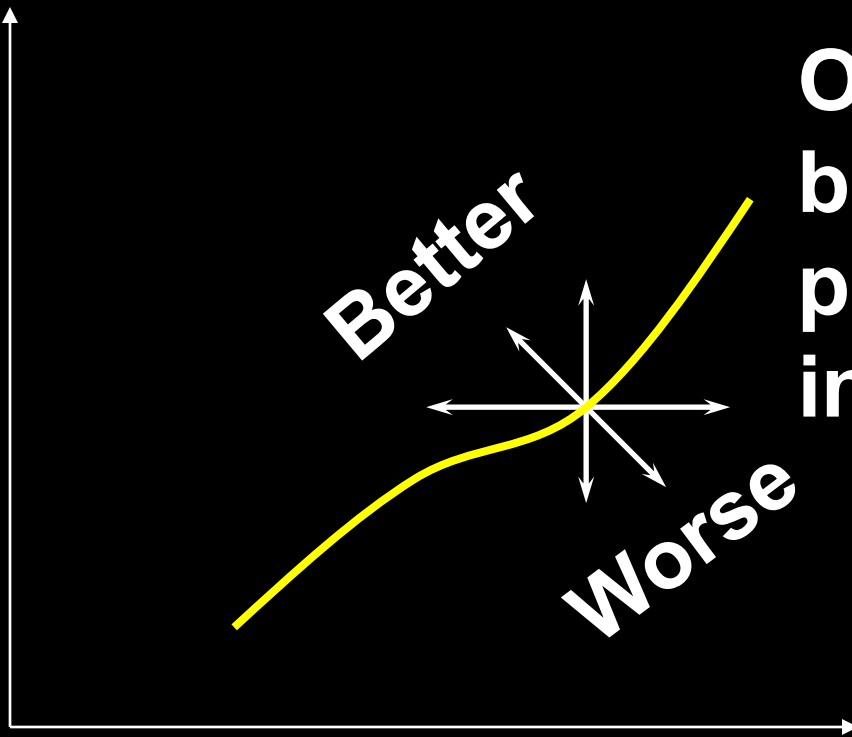
Two goods →
a negatively sloped
indifference curve

→ $MRS < 0$.

Good 1

MRS & Ind. Curve Properties

Good 2



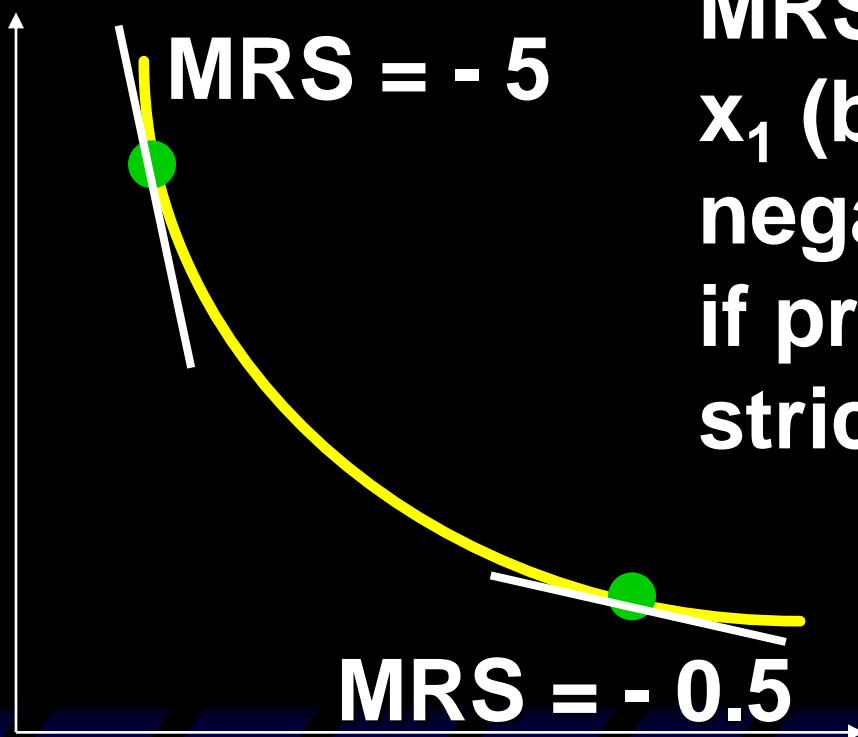
One good and one bad \rightarrow a positively sloped indifference curve

\rightarrow $MRS > 0$.

Bad 1

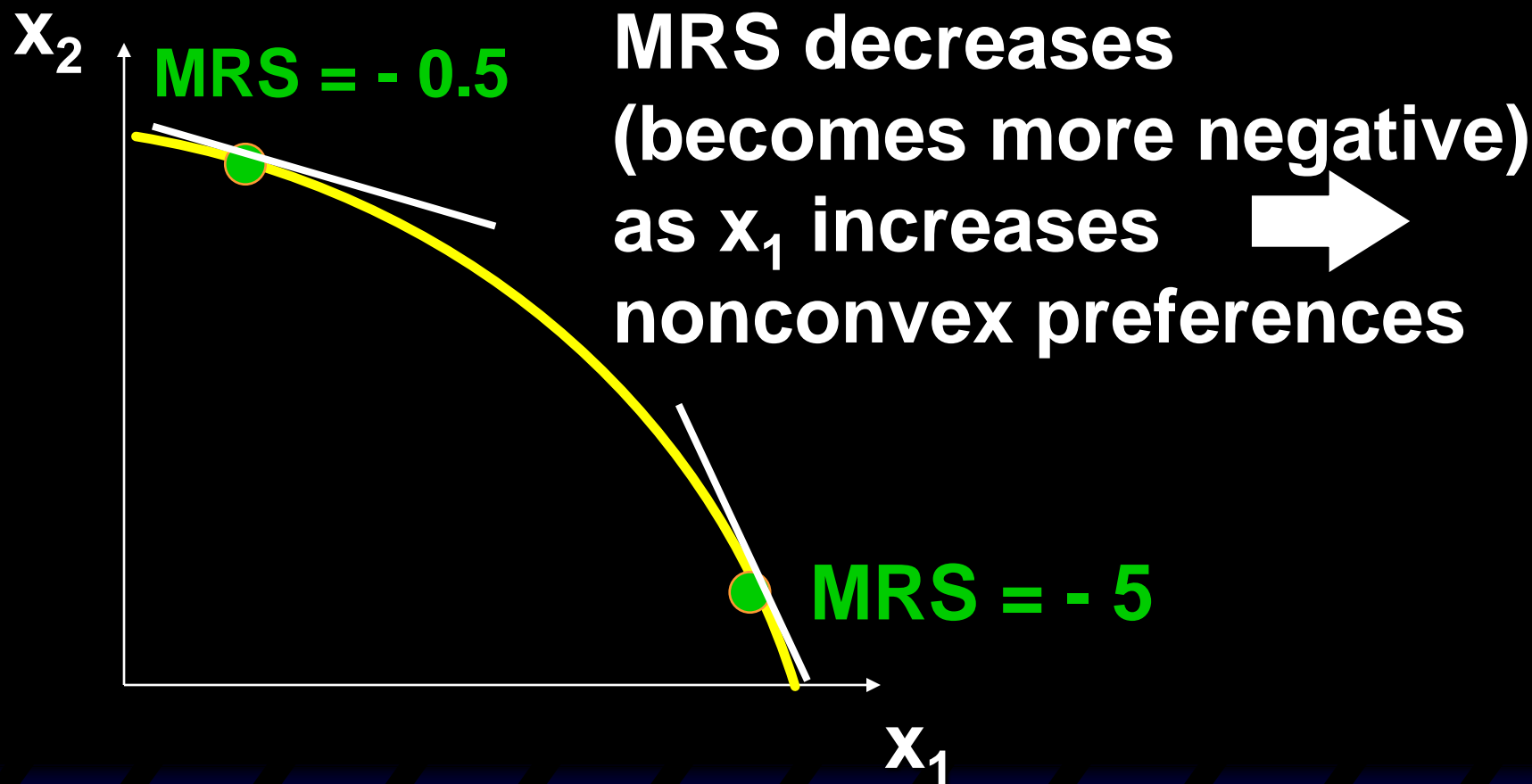
MRS & Ind. Curve Properties

Good 2

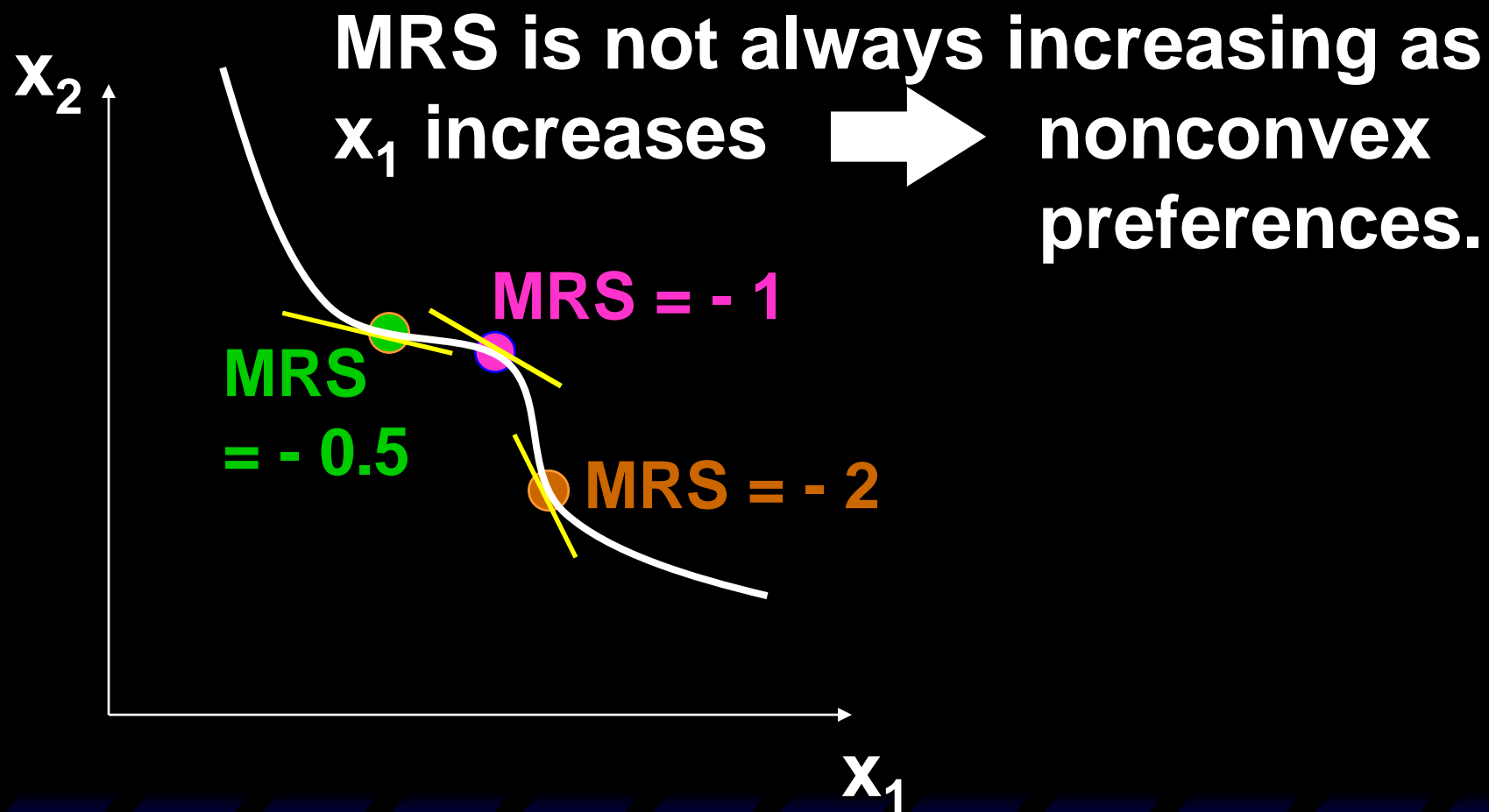


Moving along an indifference curve, MRS increases with x_1 (becomes less negative) if and only if preferences are strictly convex.

MRS & Ind. Curve Properties



MRS & Ind. Curve Properties



Summary:

The Key Concept of this Chapter

It is the indifference curve (IC)!

It consists of all the consumption bundles that are indifferent to the consumer;

The shape of an IC tells a lot about the consumer's preference:

- Its slope is called the marginal rate-of-substitution;**
- We can define convexity of a preference which corresponds to the shape of the IC.**