Chap 3 - Preferences

→ Chap 2 was all about ~~why~~ what the consumer can afford

→ This chapter is about what the consumer would like to consume

Defining preferences

→ Preferences are over consumption bundles

→ e.g. (x_1, x_2)

→ e.g (pizza, beer)

→ Think of goods not being defined just as something (e.g. beer), but by something at a given place, at a given time, in a certain state of the world

→ Notation:

→ strictly prefers:

$$(x_1, x_2) \succ (y_1, y_2)$$

→ "(x_1, x_2) is strictly preferred to (y_1, y_2)"

→ indifference:

$$(x_1, x_2) \sim (y_1, y_2)$$

→ "the consumer is indifferent b/wn (x_1, x_2) and (y_1, y_2)"

→ weakly prefers:

$$(x_1, x_2) \succeq (y_1, y_2)$$

→ "The consumer prefers or is indifferent to (x_1, x_2) compared to (y_1, y_2)"

Assumptions about preferences:

→ 3 assumptions on consumers' preferences form the basis of consumer theory:

1) Completeness
→ We assume that any 2 bundles can be compared
→ I.e., for any x-bundle and y-bundle, it must be that $(x_1, x_2) \succeq (y_1, y_2)$ or $(y_1, y_2) \succeq (x_1, x_2)$ or both

2) Reflexivity
→ Any bundle is at least as good as itself
→ i.e. $(x_1, x_2) \succeq (x_1, x_2)$ for any x-bundle

3) Transitivity
→ If $(x_1, x_2) \succeq (y_1, y_2)$ and $(y_1, y_2) \succeq (z_1, z_2)$ then $(x_1, x_2) \succeq (z_1, z_2)$.
→ I.e. if X at least as good as Y and Y at least as good as Z, then the consumer thinks that X is at least as good as Z.

→ Are these reasonable or strong assumptions?
→ Completeness seems reasonable for most choices
→ Reflexivity is trivial
→ Transitivity is tougher
→ not matter of pure logic
→ but consistent w/ normal behavior
→ if doesn't hold, then could have case where no best choice among set of options

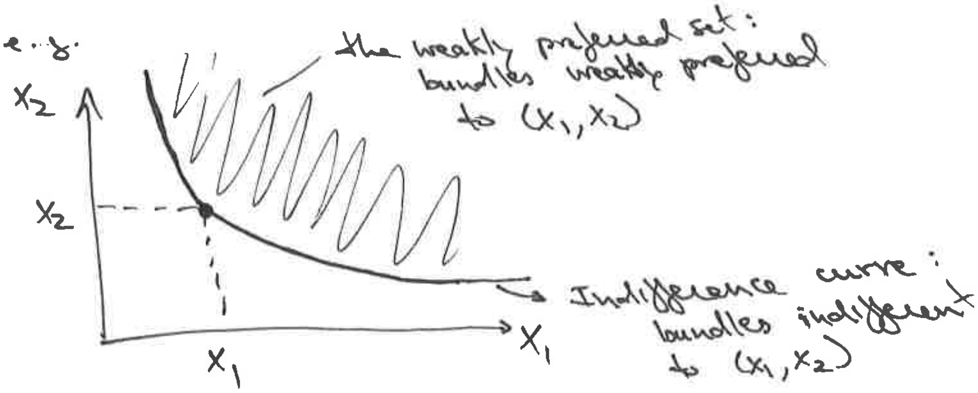
e.g. if prefer turkey sand. to tuna, tuna to egg-salad, but not prefer turkey to egg-salad?

Indifference Curves

→ indifference curves are a concept that will help us ~~consider~~ describe preferences graphically and analytically

→ An indifference curve is the boundary of the weakly preferred set
  → i.e. ~~the~~ curve is the set of consumption bundles the consumer is indifferent between

→ e.g.



→ Note: our 3 assumptions on preferences ensures that indifference curves can't cross each other (see text p. 37 for proof)

Some Examples of Common Preferences

→ Perfect substitutes

→ This is where the consumer is willing to substitute between goods at a constant rate

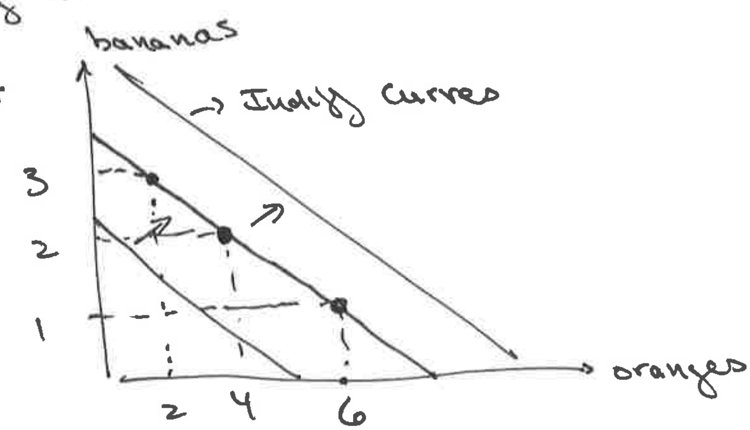
→ Note this rate doesn't have to be 1-for-1

→ The rate being constant means that it doesn't change as the quantity consumed changes

→ e.g. one is always willing to trade 2 oranges for one banana, no matter how many oranges or bananas she consumes

→ Graphically, the indiff curves for perfect substitutes will be straight lines with a slope determined by the rate at which the consumer is willing to substitute goods.

→ e.g.



→ Perfect Compliments

→ This is where the consumer always wants to consume goods together in a fixed proportion

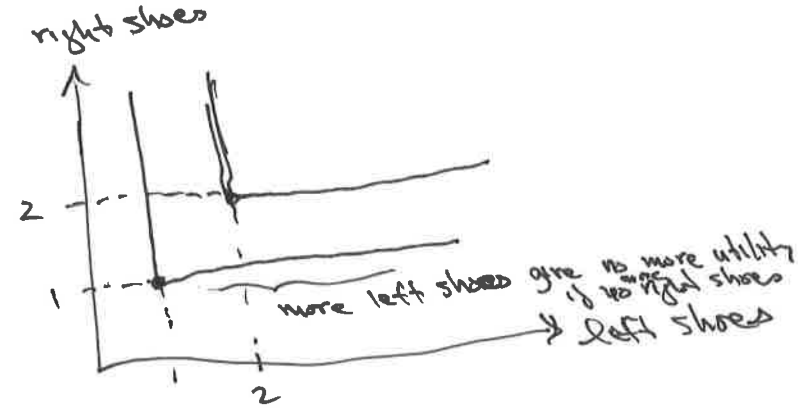
→ Note, this proportion doesn't have to be 1-for-1, just fixed (i.e. it doesn't change as total quantity changes.)

→ The name comes b/c the goods complement each other

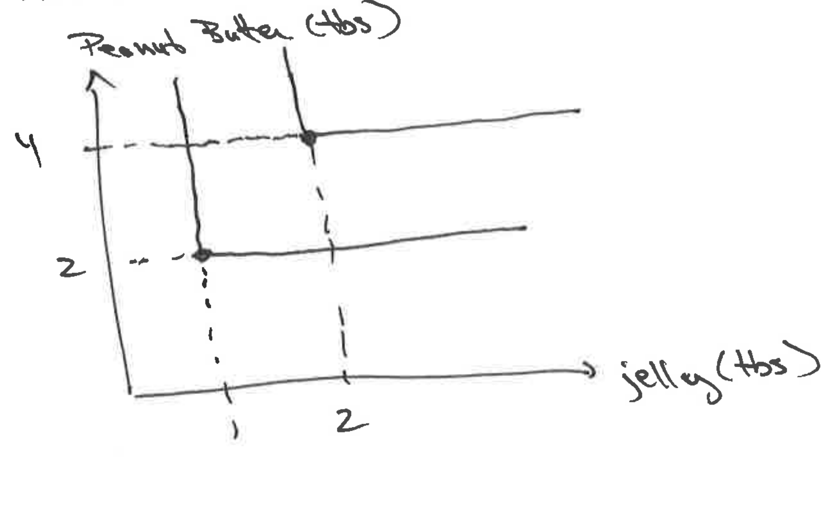
→ e.g. shoes. One always wants them in the proportion of one left shoe to one right shoe

→ Graphically, the indiff curves will have an "L-shape" with a vertex at the preferred proportion/ or ratio of consumption of one good to the other.

e.g.



e.g. Not 1-to-1 ratio:

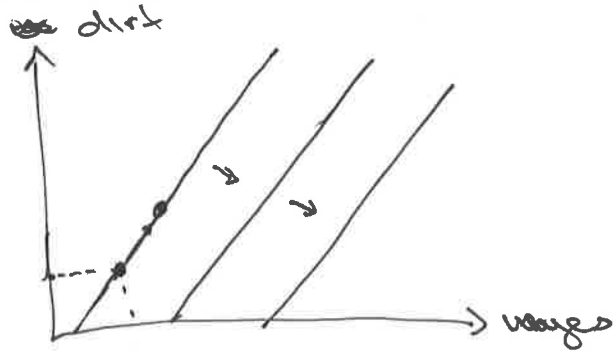


→ Bads

→ Bads are goods a consumer doesn't like

→ So a consumer would have to receive more of a "good" to be compensated for having more ~~a~~ "bad"

→ ~~consider~~ e.g. a dirty job



→ note how indifference curves slope upward

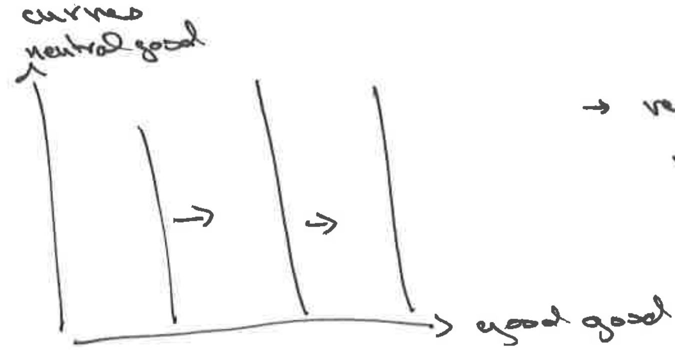
→ b/c more of bad and more of good work in diff directions in the consumer's preferences

→ Neutral goods

→ Neutral goods are goods that ~~the~~ consumer doesn't care about one way or the other

→ more of a neutral good isn't better or worse

→ indiff curves



→ vertical, since indiff to more/less of neutral good

Well-Behaved Preferences

→ when we talk about well-behaved preferences, we are talking about preferences that exhibit:

a) Monotonicity: more is better

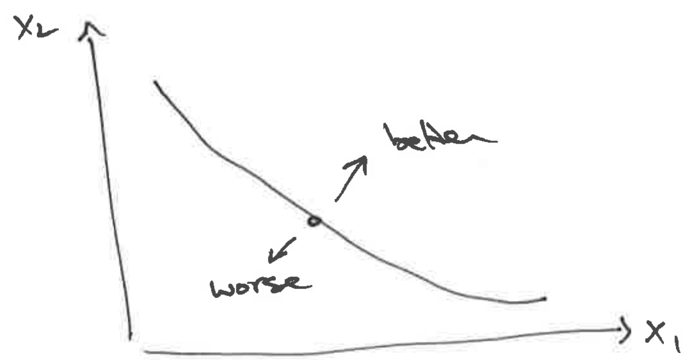
i.e. $(y_1, y_2) \succ (x_1, x_2)$ if $y_1 \geq x_1$, $y_2 \geq x_2$

and $(y_1 > x_1$ or $y_2 > x_2)$

→ more might not always be better, but the interesting questions about consumption are in the range where more is better

→ monotonicity means indifference curves have a negative slope

→ monotonicity also means we get to higher (lower) indiff curves by moving up and right (down and left)



b) Averages are preferred to extremes

→ take 2 bundles; (x_1, x_2), (y_1, y_2) then

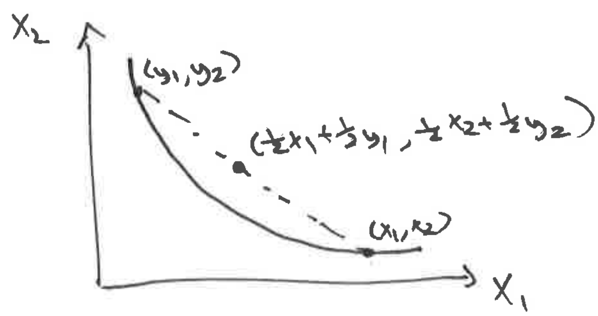
$$\left(\tfrac{1}{2}x_1 + \tfrac{1}{2}y_1,\ \tfrac{1}{2}x_2 + \tfrac{1}{2}y_2\right) \succsim (x_1, x_2)$$

and

$$\left(\tfrac{1}{2}x_1 + \tfrac{1}{2}y_1,\ \tfrac{1}{2}x_2 + \tfrac{1}{2}y_2\right) \succsim (y_1, y_2)$$

→ and this not just true for $\frac{1}{2}$, but any weighted avg

→ graphically:



→ math terminology:

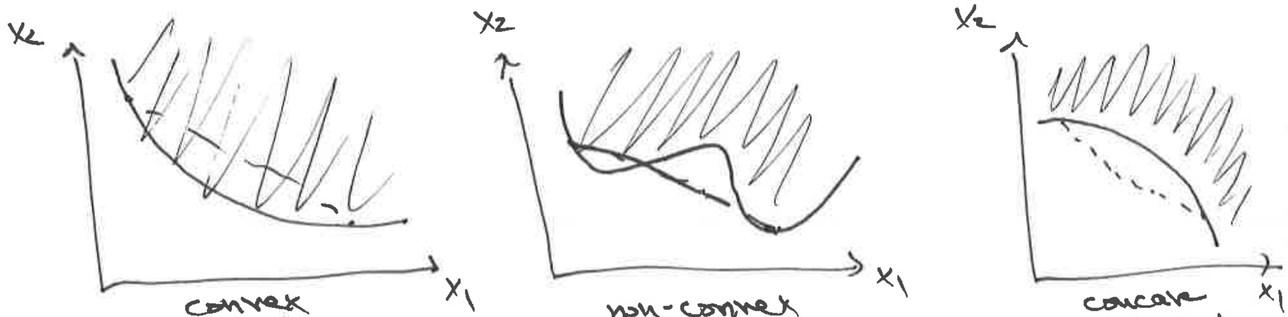
→ we call preferences like this "convex preferences"

→ why?

→ b/c a convex set is a set where a straight line btwn any two points in the set lies entirely w/in the set

→ "convex preferences" are preferences where a line btwn any 2 points in the weakly preferred set ~~also~~ lies entirely w/in the weakly preferred set

Examples:



convex ~~concave~~ prefs. | non-convex prefs | concave ~~non convex~~ prefs

→ convex prefs generally fit reality better

→ we see that people don't like to specialize in their consumption as would be implied by non-convex preferences

→ we may sometimes (often) assume strict convexity of preferences

→ this is where the weighted avg is strictly preferred to the extremes.

i.e.

$$(tx_1+(1-t)y_1,\ tx_2+(1-t)y_2) \succ (x_1, x_2)$$

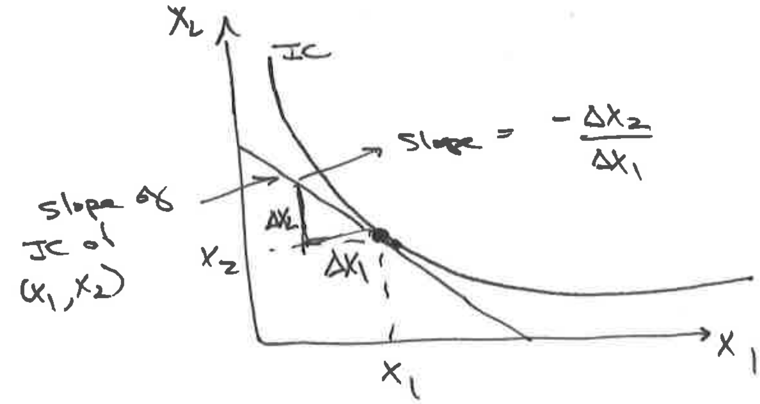
$$(tx_1+(1-t)y_1,\ tx_2+(1-t)y_2) \succ (y_1, y_2)$$

The Marginal Rate of Substitution

→ The marginal rate of substitution measures the rate at which the consumer is willing to substitute one good for another

→ this is the slope of the indiff. curve!

→ why? B/c the indiff curve is the set of ~~points~~ consump. bundles the consumer is indifferent to. So the change in X_2 as you change X_1 and move along the indiff curve gives you the rate the consumer is willing to substitute X_1 for X_2.

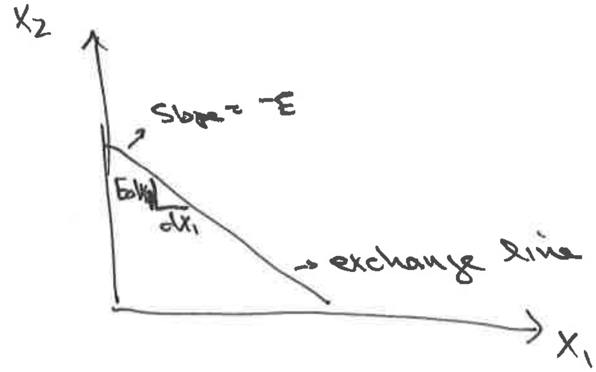


→ recall, w/ monotonic preferences, MRS ≤ 0

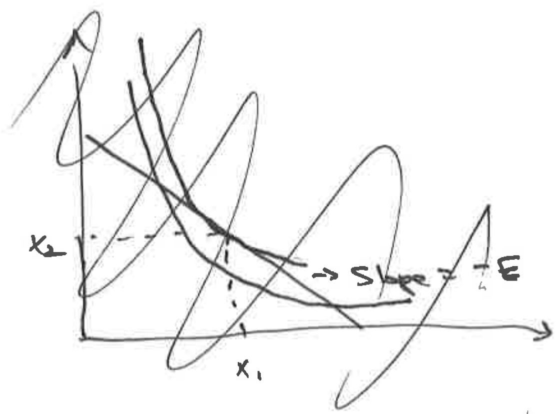
→ Consider a rate of exchange E

→ i.e. consumer gives up dX_1 units of good 1 he gets $E dX_1$ units of good 2 and, if he gives up dX_2 units of good 2, he gets $\frac{dX_2}{E}$ units of good 1

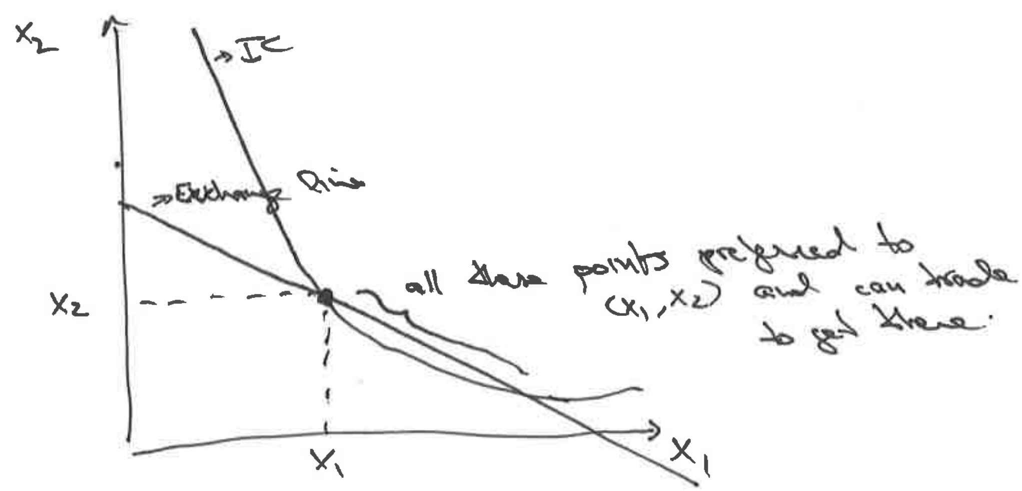
→ so these trades are represented as a consumer being able to move along a line w/ slope = $-E$



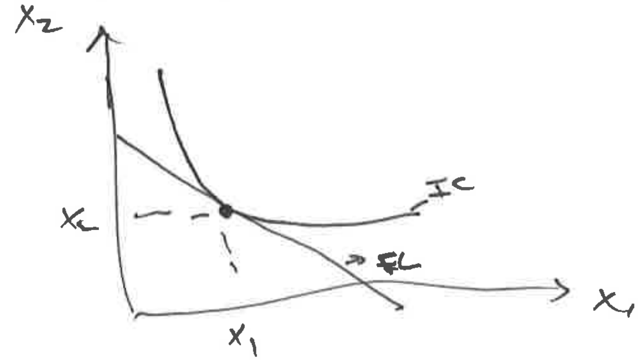
when would consumer want to remain at (X_1, X_2) give this rate of exchange?



→ If preferences monotonic and convex, then if ~~line w/ slope~~ exchange line crosses the IC, the consumer would want to move



→ so if at (x_1, x_2) and face exchange line w/ slope $-E$, it must be that exchange line tangent to IC:



→ EL just touches IC
⇒ they are tangent
⇒ they have same slope at that point
⇒ $MRS = -E$

→ last point @ MRS
→ for convex preferences, the MRS is diminishing