1 Preferences

Weak Preference.

$(2,0) \succsim (1,0)$

Strict Preference

$(2,0) \succsim (1,0)\,, (1,0) \not\succsim (2,0)$

$(2,0) \succ (1,0)$

Indifference

$(1,0) \succsim (0,1)\,, (0,1) \succsim (1,0)$

$(1,0) \sim (0,1)$

For a complete relation, for any pair of things, either one is strictly prefered to the other or they are indifferent.

a, b either $a \succsim b$ or $b \succsim a$ or both.

1.1 Representing Preferences

1.2 Example

$a \succsim b, b \succsim c, a \succsim c, a \succsim a, b \succsim b, c \succsim c$

$a \sim a, b \sim b, c \sim c$

$a \succ b, a \succ c, b \succ c$

Chain Notation: $a \succ b \succ c$

1.3 Example 2

$a \succsim a, a \succsim b, a \succsim c, a \succsim d, a \succsim e$

$b \succsim b, b \succsim a, b \succsim c, b \succsim d, b \succsim e$

$c \succsim c, c \succsim d, c \succsim e$

$d \succsim d, d \succsim c, d \succsim e$

$e \succsim e$

$a \sim b \succ c \sim d \succ e$

1.3.1 Chain Notation

$a \succ b \succ c \sim d \sim e \succ f \sim g$

$\{a, b, c, d, e, f, g\}$ what is/are best? a

$\{c, e, f, g\}$ what is/are best? c, e

$\{b, c, e, f, g\}$ what is/are best? b

1.4 Exercise 3.3

A) $a \sim b \sim c$

B) $a \sim b \succ c$, $b \sim a \succ c$

1.5 Induced Sets

1.5.1 Indifference Set ($Indifference$ Curve)

The indifference set of a particular bundle x are all the other bundles that are indifferent to it.

Formally, in set theory, we would write it this way:

$$\sim (x) = \{y | y \in X, y \sim x\}$$

Remy doesn't care about ice cream flavor he just wants more ice cream.

$(2, 0) \succ (1, 0), (2, 0) \sim (0, 2), (2, 2) \sim (4, 0)$

What are some elements of $\sim (1, 1)$?

$$(2, 0) \in \sim (1, 1), (0, 2) \in \sim (1, 1), (1.5, 0.5) \in \sim (1, 1)$$

$$(0.5, 1.5) \in \sim (1, 1)$$

Any bundle (x_1, x_2) where $x_1 + x_2 = 2$ is in the indifference set.

The indifference set $\sim (1, 1)$ also known as the indiference curve containing $(1, 1)$ is a line with slope of -1 through the bundle $(1, 1)$.

1.5.2 Strictly Prefered Set

The bundles that are strictly better than a bundle x are called the **strictly prefered set** and denoted $\succ (x)$

$$\succ (x) = \{y | y \in X, y \succ x\}$$

$\succ (1, 1)$

$$(3, 0) \in \succ (1, 1), (2, 2) \in \succ (1, 1)$$

1.5.3 Weakly Prefered Set

The bundles that are weak better than a bundle x are called the **weakly prefered set** and denoted $\succsim (x)$

$$\succsim (x) = \{y | y \in X, y \succsim x\}$$

$$\succsim (x) = \sim (x) \cup \succ (x)$$

1.5.4 Another Example

Suppose a consumer only consumes left and right shoes, and they only care about the number of useable pairs of shoes they have.

$$(1,1) \succ (0,0)$$

$$(2,1) \sim (1,1)$$

Because $(2,1)$ is still only one **useable** pair of shoes.

$$(1,10) \sim (1,1)$$

Plot $\sim (1,1)$ (all the bundles indifferent to $(1,1)$.

1.5.5 Marginal Rate of Substitution

The slope of an indifference is called the **marginal rate of substitution (MRS)**

The MRS is the amount of good 2 the consumer would be willing to give up to get one more unit of good 1.