The Theory of Choice

• Basic Model of Choice

• Some Simple Illustrations

The Basic Model

• Suppose an individual is asked to choose among the following

<table>
<thead>
<tr>
<th>Basket “A”</th>
<th>Basket “B”</th>
<th>Basket “C”</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Apples</td>
<td>2 Apples</td>
<td>1 Apple</td>
</tr>
<tr>
<td>2 Bananas</td>
<td>3 Bananas</td>
<td>4 Bananas</td>
</tr>
</tbody>
</table>

• We make some basic assumptions about how the choice will be made
Assumption of Completeness

• I prefer Basket A to Basket B
• I prefer Basket B to Basket A
• I am indifferent. The two are equally attractive.

Assumption of Completeness

• I prefer Basket A to Basket B
• I prefer Basket B to Basket A
• I am indifferent. The two are equally attractive.
• I don’t know
• Neither

Assumption of Transitivity

• If A is preferred to B and
• B is preferred to C
• Then A is preferred to C

More is Better than Less

• If Basket A contains more than Basket B, then A is preferred to B
More is Better than Less
• If Basket A contains more than Basket B, then A is preferred to B
  – Basket A: 3 Apples, 2 Bananas
  – Basket B: 2 Apples, 2 Bananas
  \[ A > B \]

Utility Functions
• The assumptions mean that individuals have a utility function \( U(A, B) \)
  • The function gives the “utility” for different combinations of (say) apples and bananas
  • If \( U(A_1, B_1) > U(A_2, B_2) \), \( (A_1, B_1) \) is preferred to \( (A_2, B_2) \)

An Example
\[ U = AB \]

<table>
<thead>
<tr>
<th>Choice</th>
<th>Apples</th>
<th>Bananas</th>
<th>Units of Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>3.5</td>
<td>4</td>
<td>14</td>
</tr>
</tbody>
</table>
## The Theory of Choice

### An Example

**Utility from Different Baskets**

<table>
<thead>
<tr>
<th>Choice</th>
<th>Apples</th>
<th>Bananas</th>
<th>Units of Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>3.5</td>
<td>4</td>
<td>14</td>
</tr>
</tbody>
</table>

\[
D > C > B = A
\]

### Modifying the Example

**Utility from Different Baskets**

<table>
<thead>
<tr>
<th>Choice</th>
<th>Apples</th>
<th>Bananas</th>
<th>Units of Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>3</td>
<td>81</td>
</tr>
<tr>
<td>D</td>
<td>3.5</td>
<td>4</td>
<td>196</td>
</tr>
</tbody>
</table>

\[
D > C > B = A
\]

### Ordinality

- \( U(\text{Basket } A) = 10 \)
- \( U(\text{Basket } B) = 7 \)
Ordinality

- $U(\text{Basket } A) = 10$
- $U(\text{Basket } B) = 7$

$A > B$

Period!

End

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