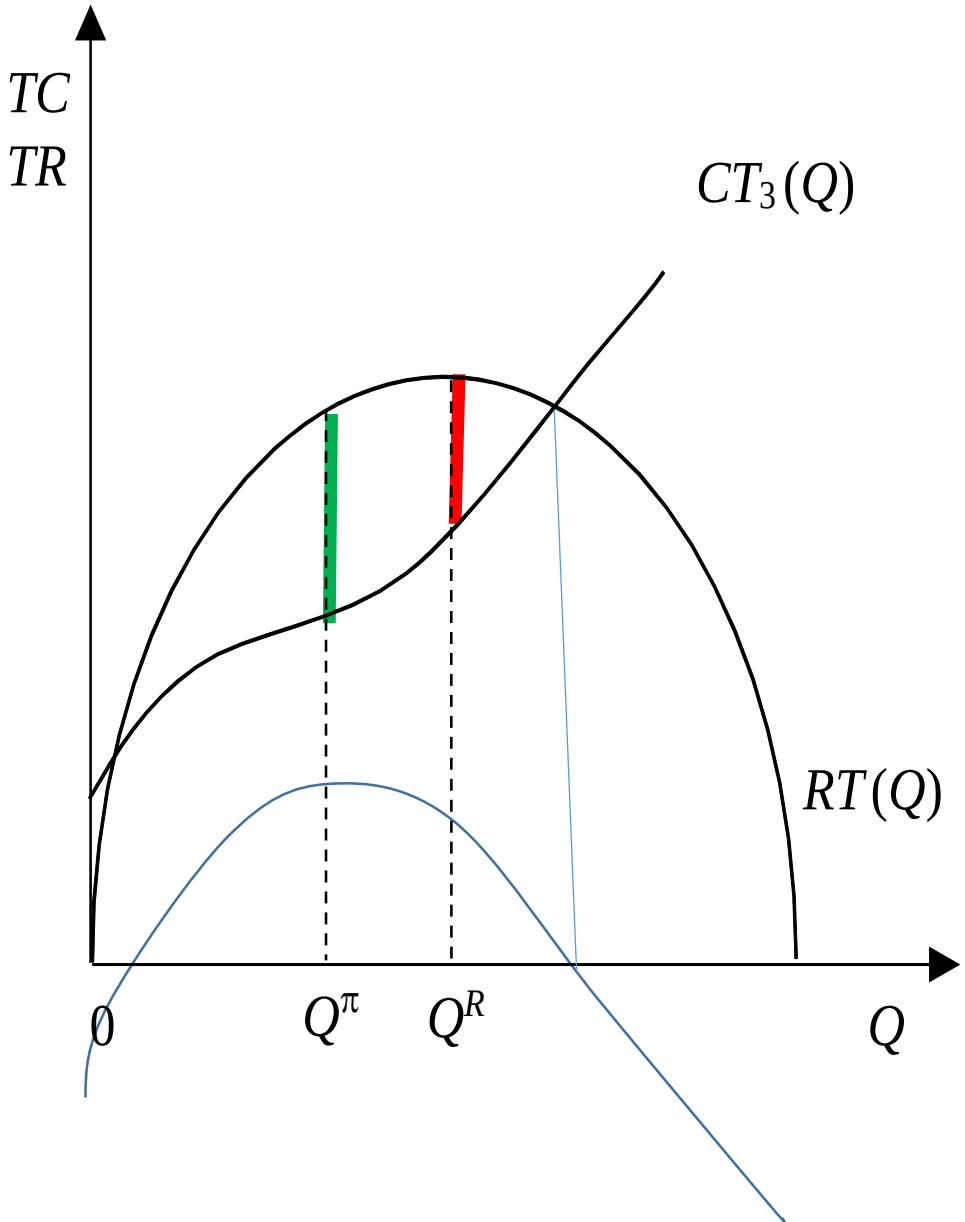
Maximizing profits vs. revenues



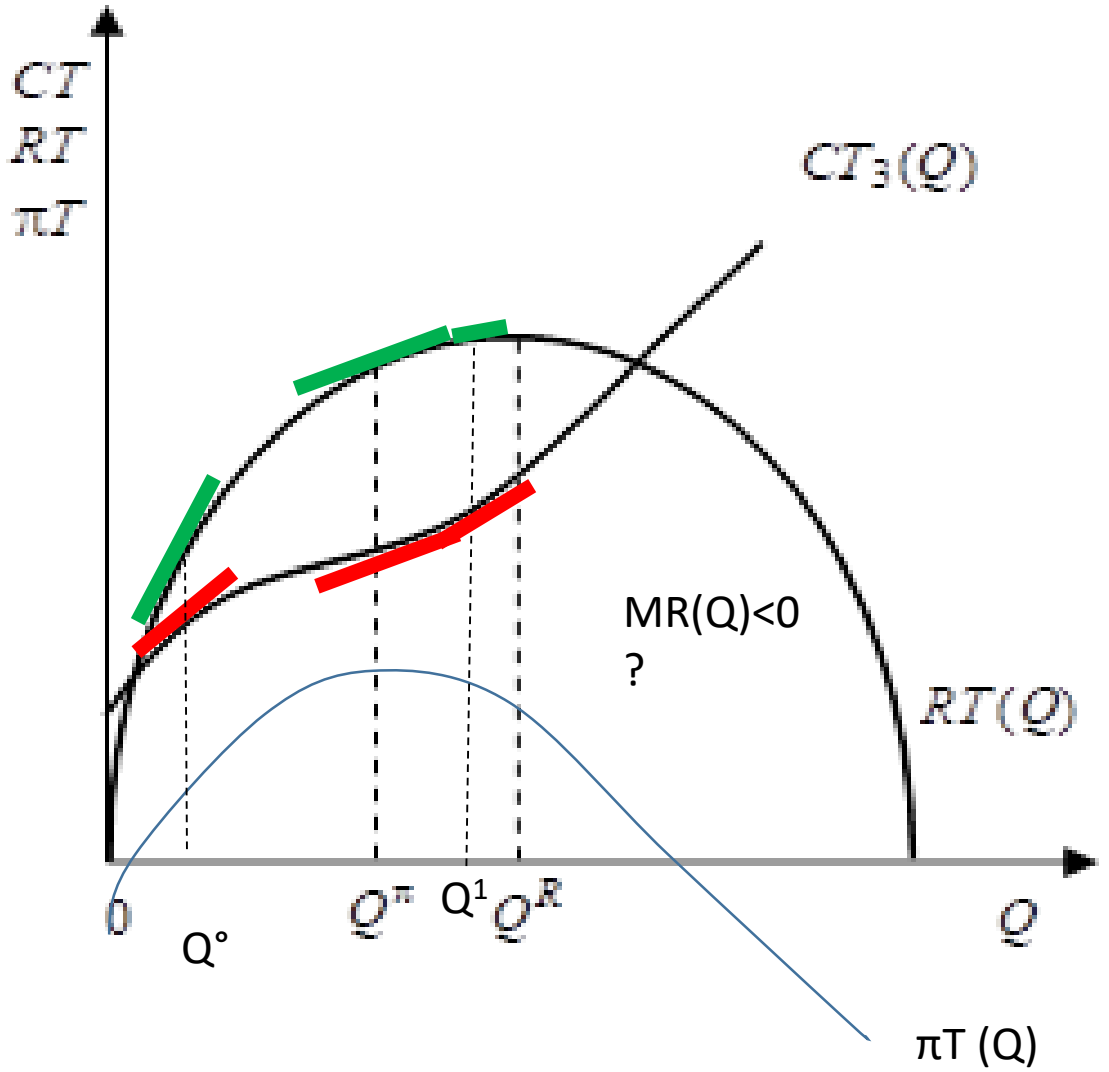
Maximizing profits

R[illegible](Q°) > C[illegible](Q°)

R[illegible](Q[1]) < Cm[illegible](Q[1])

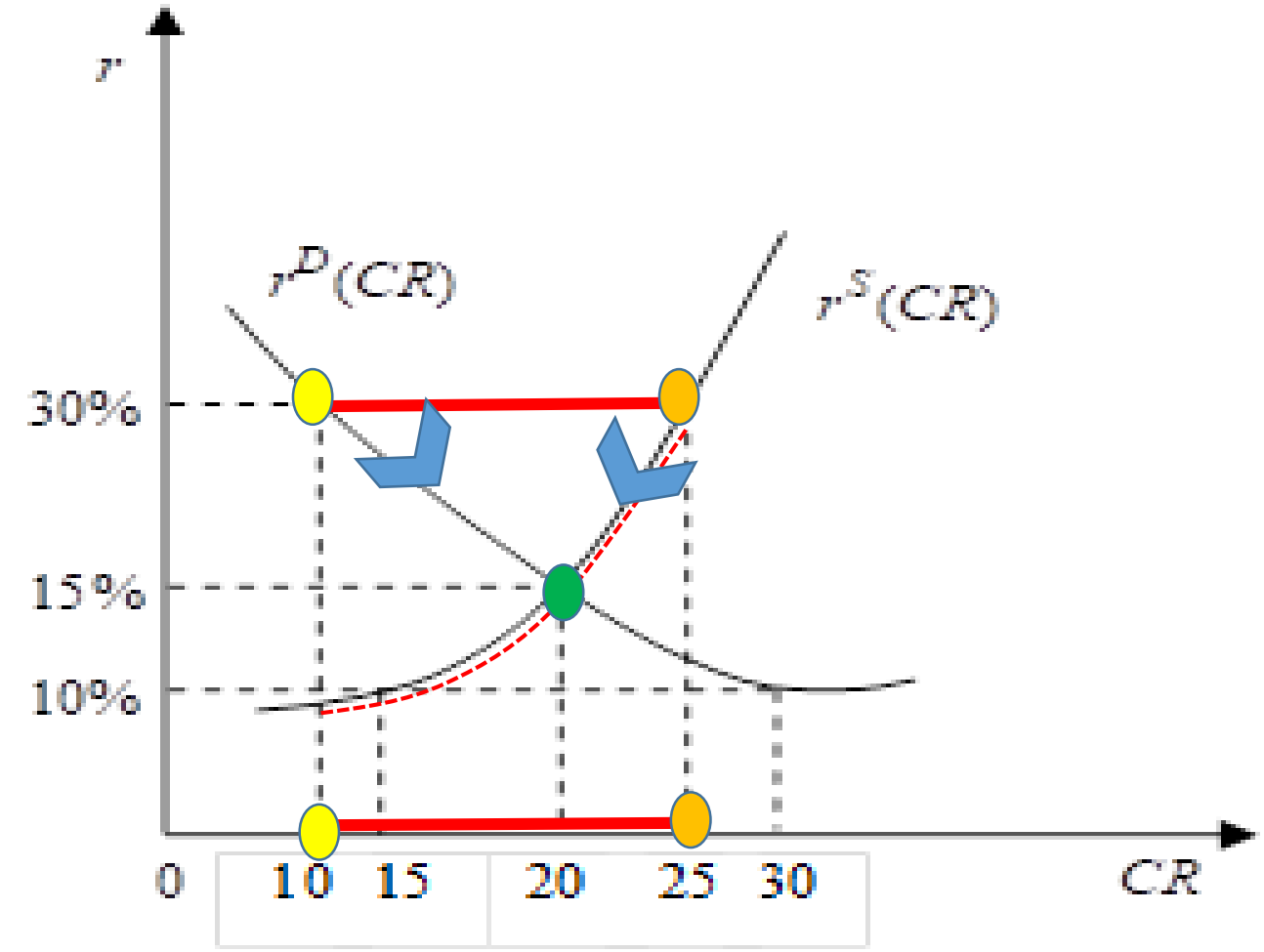
Rmg (Q^{π}) = Cmg (Q^{π})

!



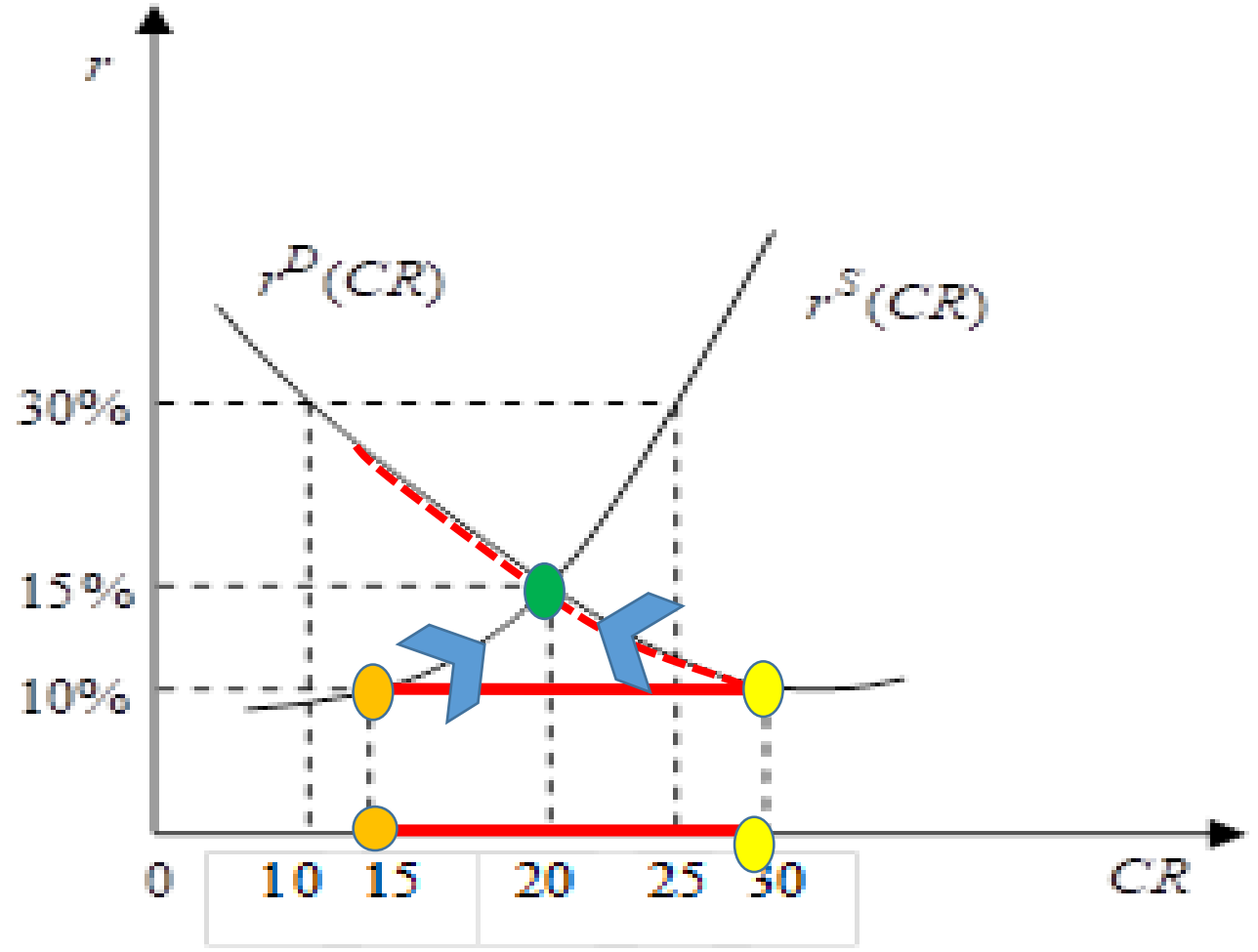
Equilibr… ia, free market

?



Equilibr… ia, free market

?



Equilibr… ia, regulated market

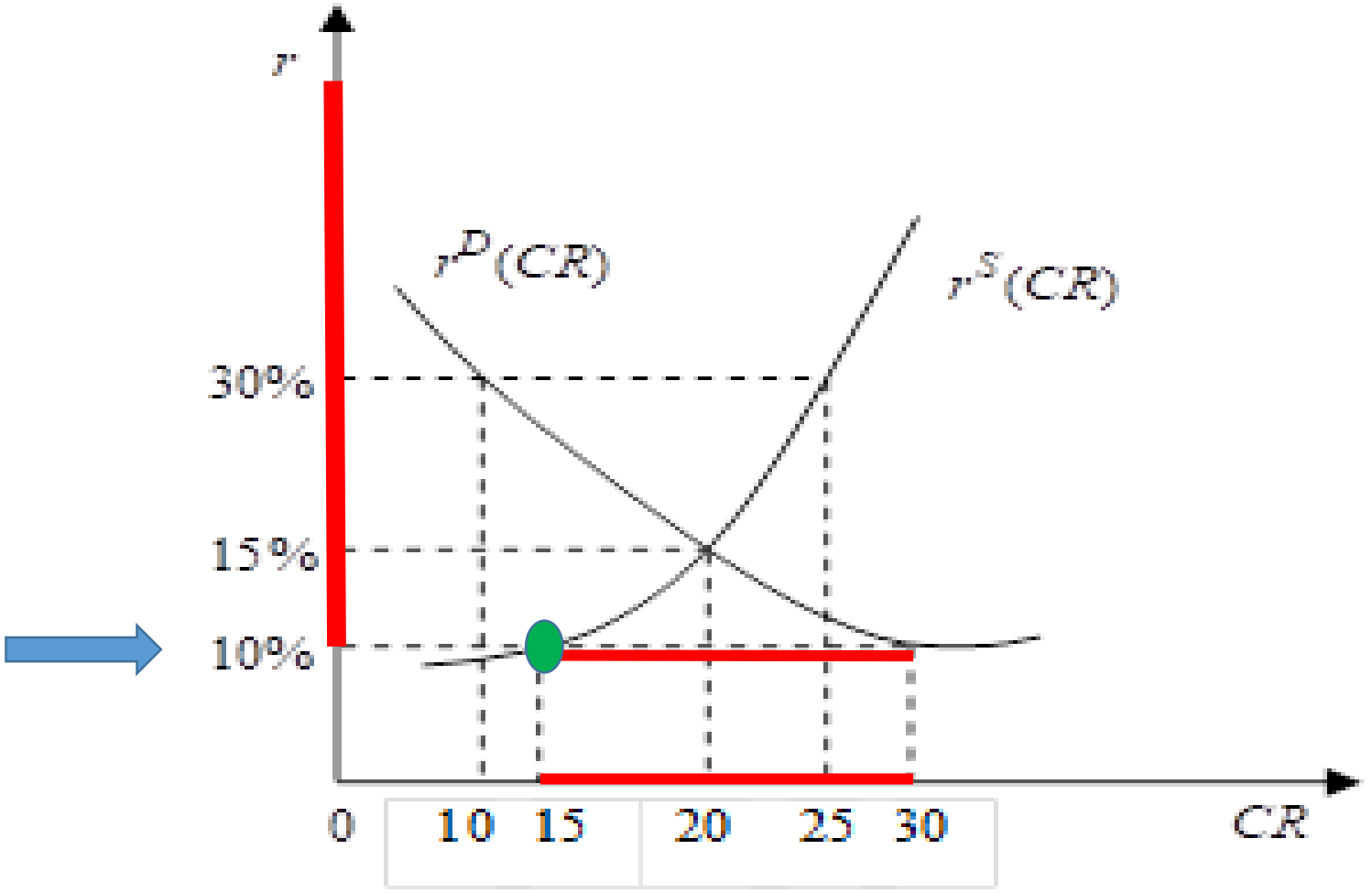
To whom (1)?
The first in
the queue?

Are we sure
about 15 bn
at 10%?

To whom (2)?
The richest?

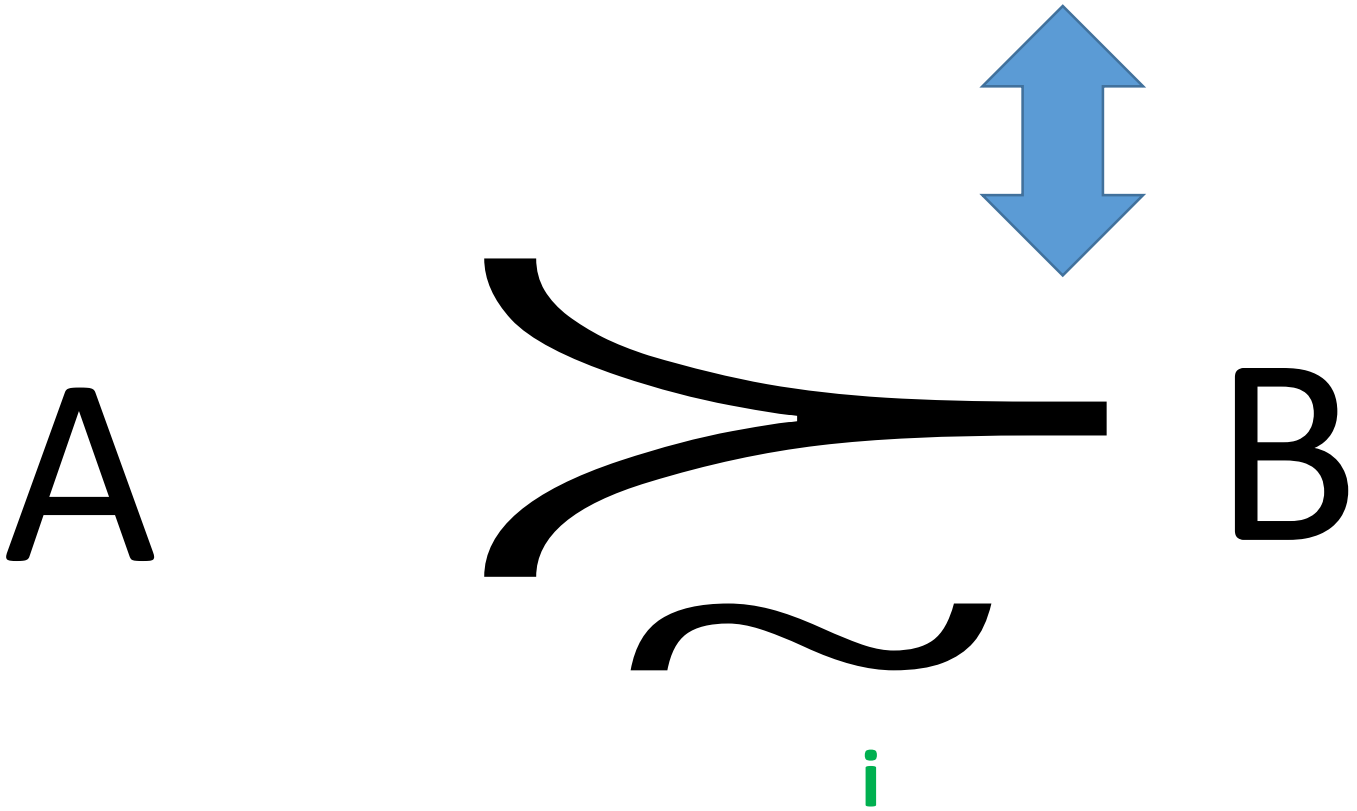
?

Helping the
poor?

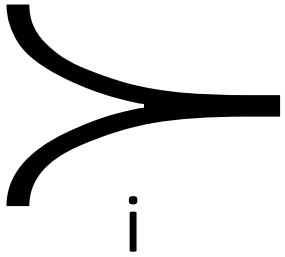


Chapter 2 - At least as liked as

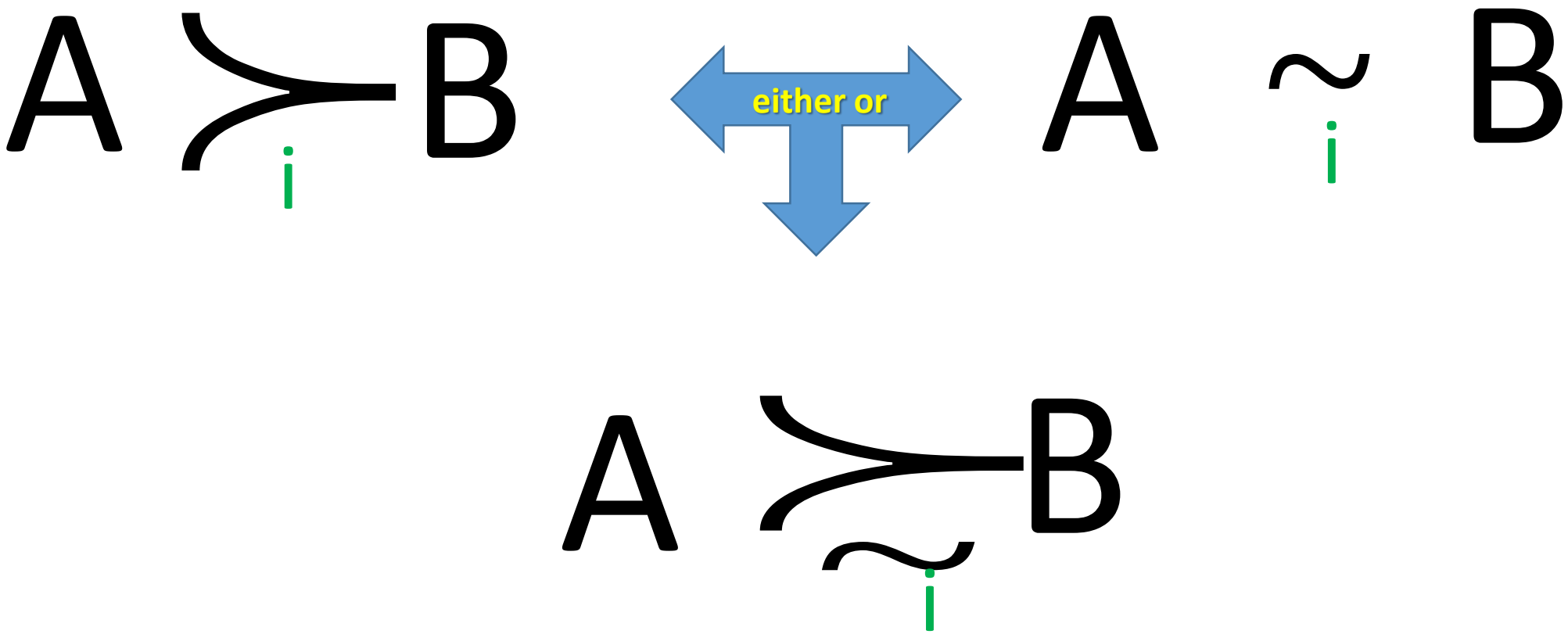
A «is at least as liked as» B by «i»



Strictly preferred to; indifferent to



A «is at least as liked as» B by «i»



Assumption 1

RATIONALITY

A.1 Completeness of the preference ordering «at least as liked as»

either $A \succsim B$ or $B \succsim A$ or both occur simultaneously. In the latter case, given the above definitions on the ordering "preferred or indifferent to", check that the individual must be indifferent between bundles A and B. This also means that if $A \succ B$ then it cannot be that $B \succ A$ (an hypothesis called of preference asymmetry).

A counter-example

Suppose you are a doctor, working in a country subject to a pandemic disease, who has been informed that 1,000 people will certainly die if left untreated. By using a vaccine you may get the following results:

- if you adopt vaccine A, it will save 600 of the 1000 people;
- if you adopt vaccine B, it will not save anyone with probability 1/4 and will save all with probability 3/4.

$A \succ B$ $B \succ A$

A or B?

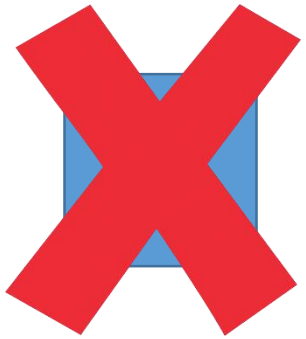
A counter-example

Suppose instead of having to choose between the following two alternatives (always in the hypothesis of certainty of death without cure):
- adopt the C vaccine which will result in the death of 400 of the 1000 people;
- adopt vaccine D which will involve death with probability 3/4 of nobody and of all with probability 1/4.

C or D?

Framing and the default option

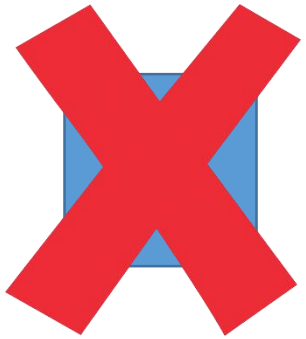
CONSENT CHOICE



I want to participate to organ donation (5)

Framing and the default option

EXIT CHOICE



I do not want to participate to organ donation (3)

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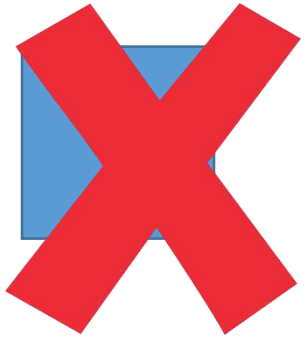
Framing: if you want to participate (5)



I want to participate to organ donation (5)

I do not want to participate to organ donation (5)

Framing: if you do not want to participate (3)

I want to participate to organ donation (0)

I do not want to participate to organ donation (3)

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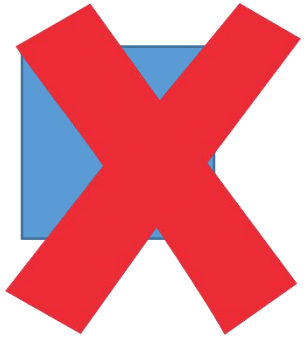
Framing: final result



I want to participate to organ donation (5)

I do not want to participate to organ donation (8)

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Binge watching

PS

Waiter: "*we have amatriciana and carbonara, dottore*";
Customer : "*amatriciana, [illegible] you*";
Waiter (back from the kitchen): "*I forgot, we also have minestrone*";
Customer : "*ah, then give me the carbonara thank you*".

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A.2 Transitivity of preferences

your preferences "preferred or indifferent to" are such that, if you do not prefer a basket Y to a basket X (which we sometimes write as $X \succsim Y$, or that X is at least equally appreciated as Y) and you do not prefer a basket Z to basket Y ($Y \succsim Z$) then you do not prefer Z to X ($X \succsim Z$).

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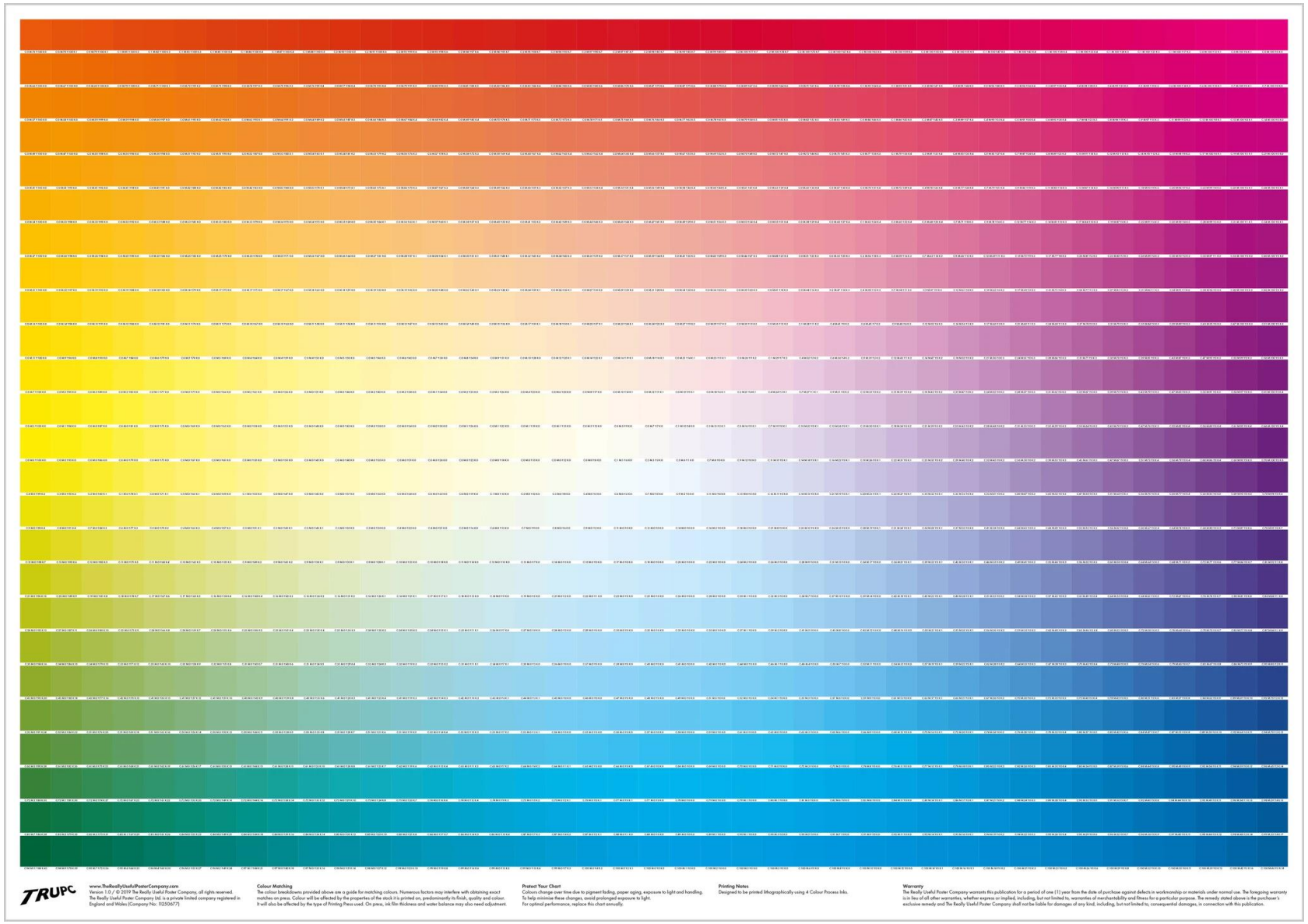
Transitivity of preferences?



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Transitivity of preferences?

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Ulysses and the sirens

the best thing would be to listen to the sirens tied to the mast of the ship thus obtaining not only to listen to them, but also not to yield to their singing and survive (basket X) rather than not listening to the sirens that guarantee that "nothing unknown or dark to us remains" (basket Y), and that the latter alternative is itself better than listening to the sirens without being tied up and therefore die (basket Z)

$$X \succsim Y \succsim Z$$

But when he actually got to the sirens, Ulysses modifies its order of preference and feels that he would ultimately prefer to die listening to the sirens free of bonds (Z) rather than listen to the sirens bound by the ties to the mat (X): $Z \succ X$. In this case we would have a dramatic non-transitivity:

$$X \succ Y \succ Z \succ X$$

Non rationality

Regrets
Addictions (chemical: immediate benefits more than compensated by harmful consequences)
Addictions (behavioral: gratifications and…)
Obsessions (relief and…)
Compulsions (relief and…)

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A.3 The consumer's goal (and her rationality)

«i» prefers A to B, (fact)

«i» will try to obtain A rather than B (goal)

«i» knows how to obtain A rather than B (rationality)

(given the economic, technological, institutional, social **constraints**)

The ordering «at least as liked as» induces choices.

Baskets of 2 goods

A ≡{3;7} A is made of 3 apples and 7 burgers

B ≡ {1;0} B is made of 1 apple and 0 burgers

Individual Utility Function

Given an individual *i*, this function $U_i(X,Y)$ will be such that, for any basket A - consisting of a combination of X_a unit of good X and Y_a unit of good Y - and any basket B - consisting of a combination of X_b unit of good X and Y_b unit of good Y - where $A \succ_i B$ (i.e. A is strictly preferred to B by the individual "i"), $U_i(X_a, Y_a) > U_i(X_b, Y_b)$. Similarly, for any basket A - consisting of a combination X_a of good X and Y_a of good Y - and any basket B - consisting of a combination X_b of good X and Y_b of good Y, where $A \sim B$ (A is indifferent to B), the utility function will be such that $U_i(X_a, Y_a) = U_i(X_b, Y_b)$.

Preferences

Continuous (another assumption)

Then the utility function

exists!

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Our consumer, John

Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	5
B	7	1	5
C	5	2	5
D	4	3	5
E	3	5	5
F	2	8	5
G	10	1	6
H	8	2	6
I	7	3	6
L	9	1	?
M	7	5	?

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From cardinal to ordinal Utility

if "before" the utility defined the preferences (if $U(A) > U(B)$ - where U was considered measurable - then $A \succ B$) "now" the preferences define the utility (if $A \succ B$ then there exists a mathematical function U such that $U(A) > U(B)$).

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Who is he?

Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	5
B	7	1	5
C	5	2	5
D	4	3	5
E	3	5	5
F	2	8	5
G	10	1	6
H	8	2	6
I	7	3	6
L	9	1	?
M	7	5	?

Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	-100
B	7	1	-100
C	5	2	-100
D	4	3	-100
E	3	5	-100
F	2	8	-100
G	10	1	-20
H	8	2	-20
I	7	3	-20
L	9	1	?
M	7	5	?

Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	100.000
B	7	1	100.000
C	5	2	100.000
D	4	3	100.000
E	3	5	100.000
F	2	8	100.000
G	10	1	1.000.000
H	8	2	1.000.000
I	7	3	1.000.000
L	9	1	?
M	7	5	?

Always John!

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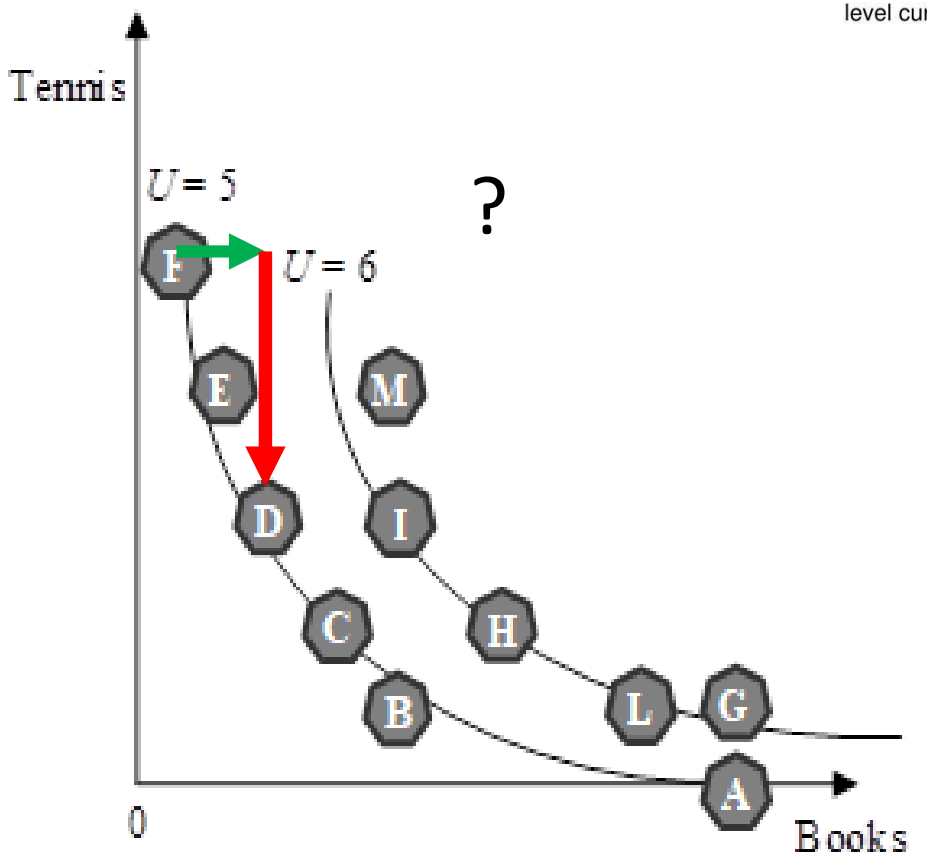
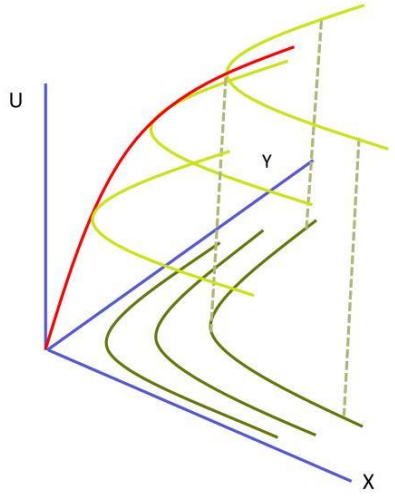
The indifference curve!

Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	5
B	7	1	5
C	5	2	5
D	4	3	5
E	3	5	5
F	2	8	5
G	10	1	6
H	8	2	6
I	7	3	6
L	9	1	?
M	7	5	?



Digression on indifference curves.

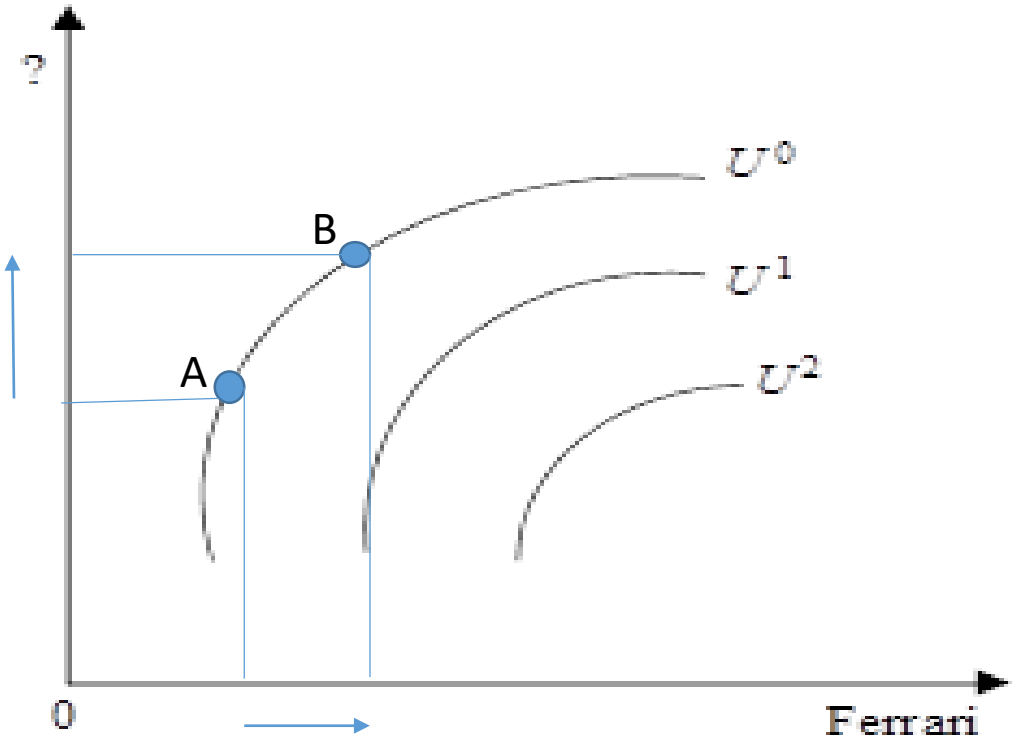
Indifference curves are often thought of as level curves projected onto the base plane



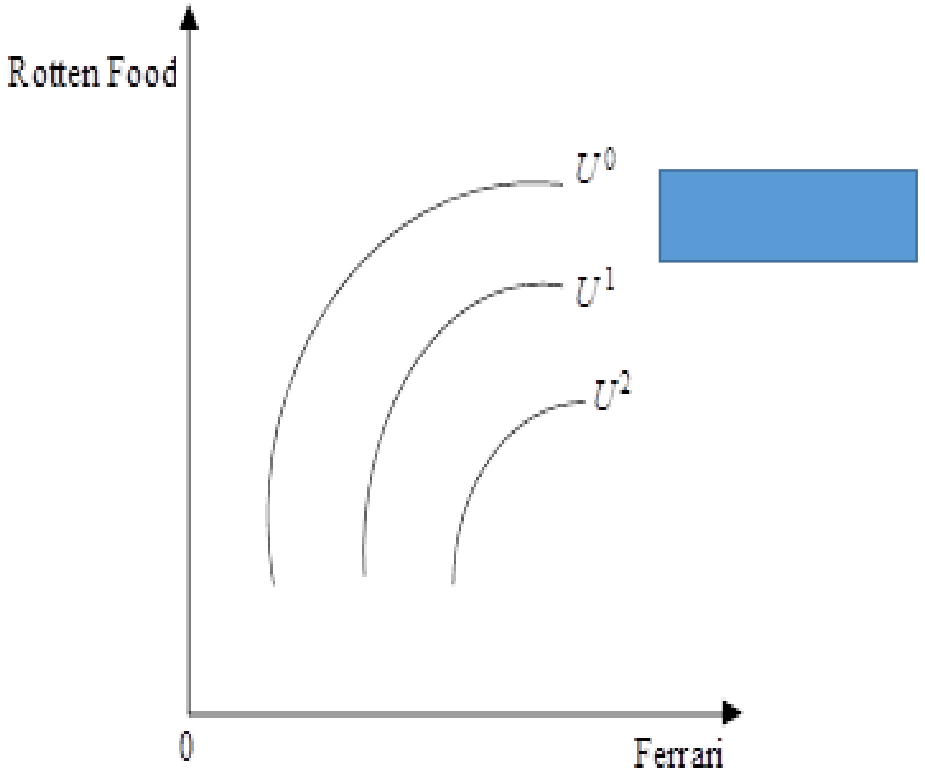
U=U(x, y)

is strictly concave as drawn

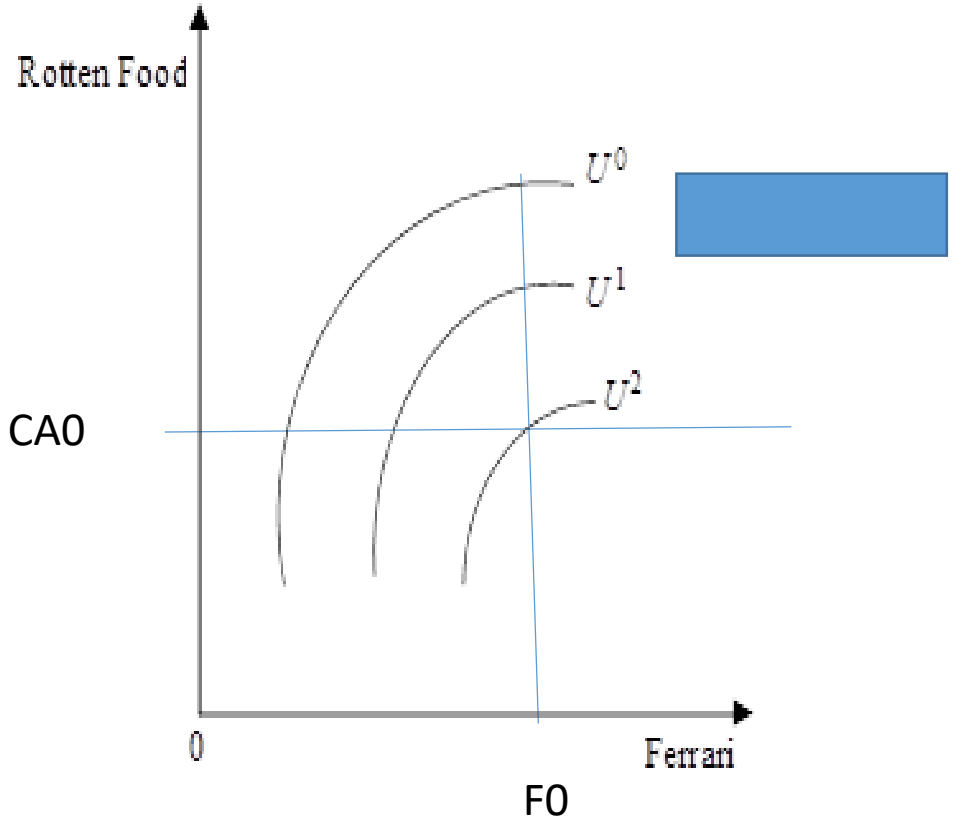
Why increasing? What is «?» ?



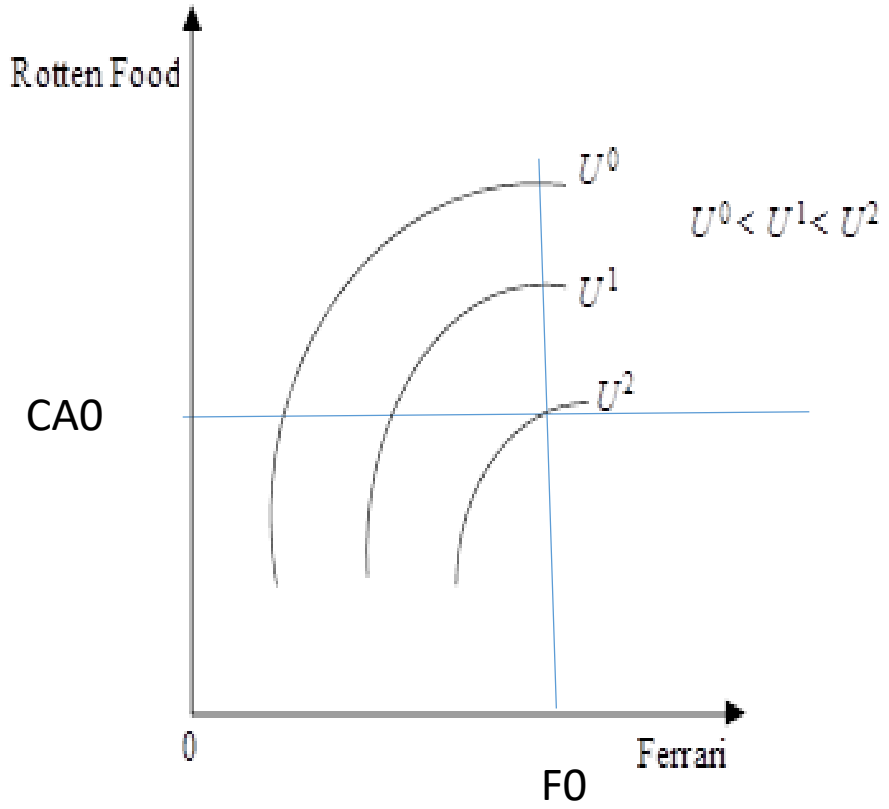
A «bad»



How bad?



How bad?



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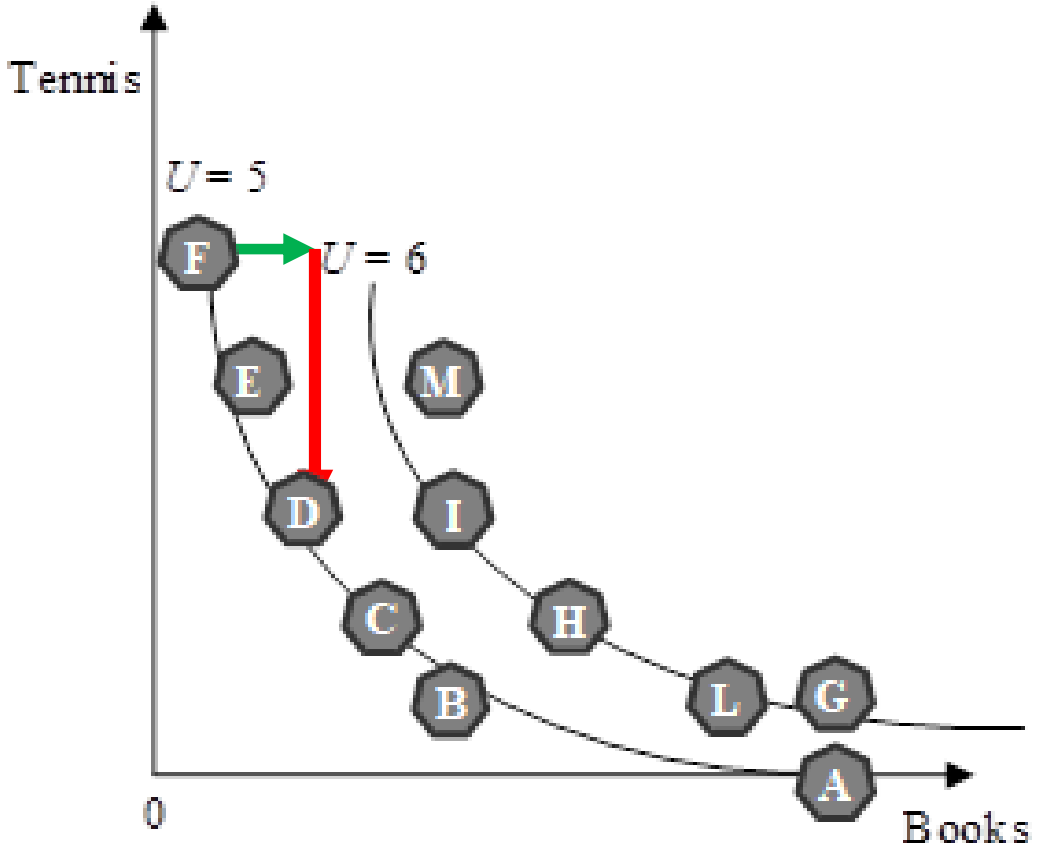
Bads exist

Karoshi

JOHN. Decreasing curves? NON SATIATION



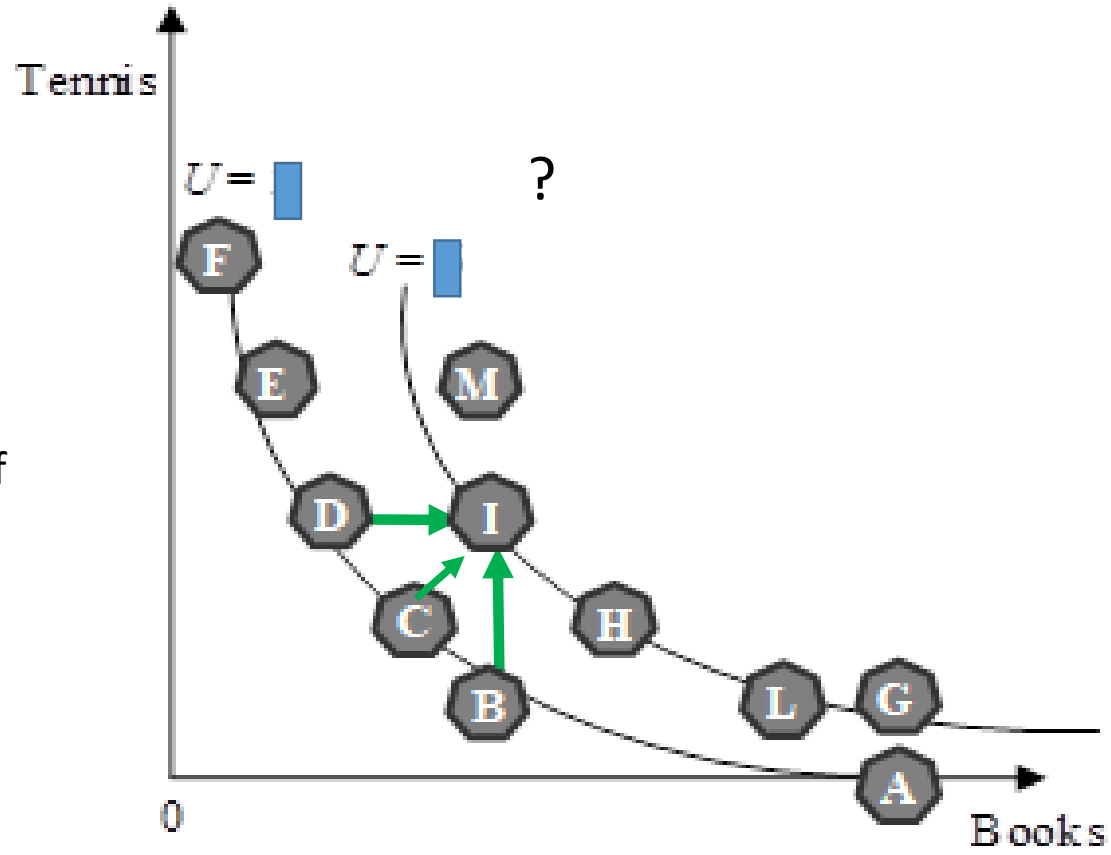
Non satiation: implications

For each basket on a lower indifference curve you can always find a basket on a then higher indifferent curve which has more of both the 2 goods!

Take basket I. Of which other basket does I have more of both goods?

So?

Ps: John and who else prefers I to C?



Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	5
B	7	1	5
C	5	2	5
D	4	3	5
E	3	5	5
F	2	8	5
G	10	1	6
H	8	2	6
I	7	3	6
L	9	1	?
M	7	5	?

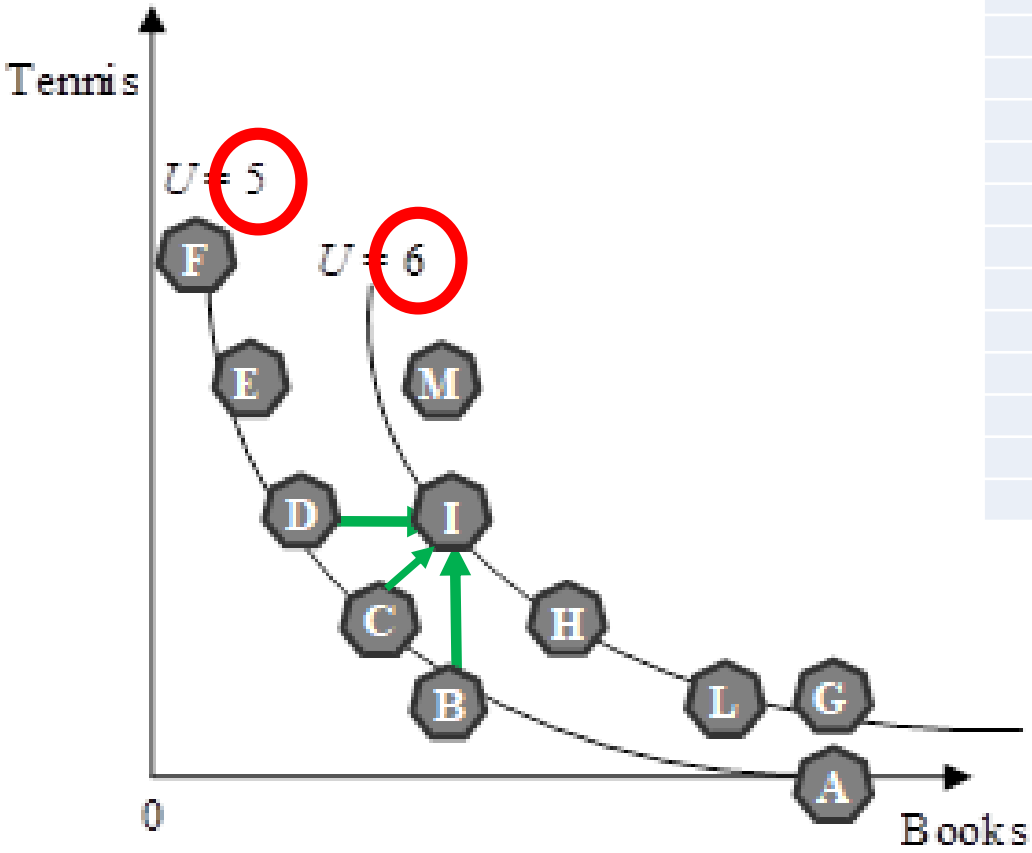
Non satiation and transitivity: implications

Careful:

I vs F?

If I $\succ$ D

And since for John D is indifferent to F then…



Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	5
B	7	1	5
C	5	2	5
D	4	3	5
E	3	5	5
F	2	8	5
G	10	1	6
H	8	2	6
I	7	3	6
L	9	1	?
M	7	5	?

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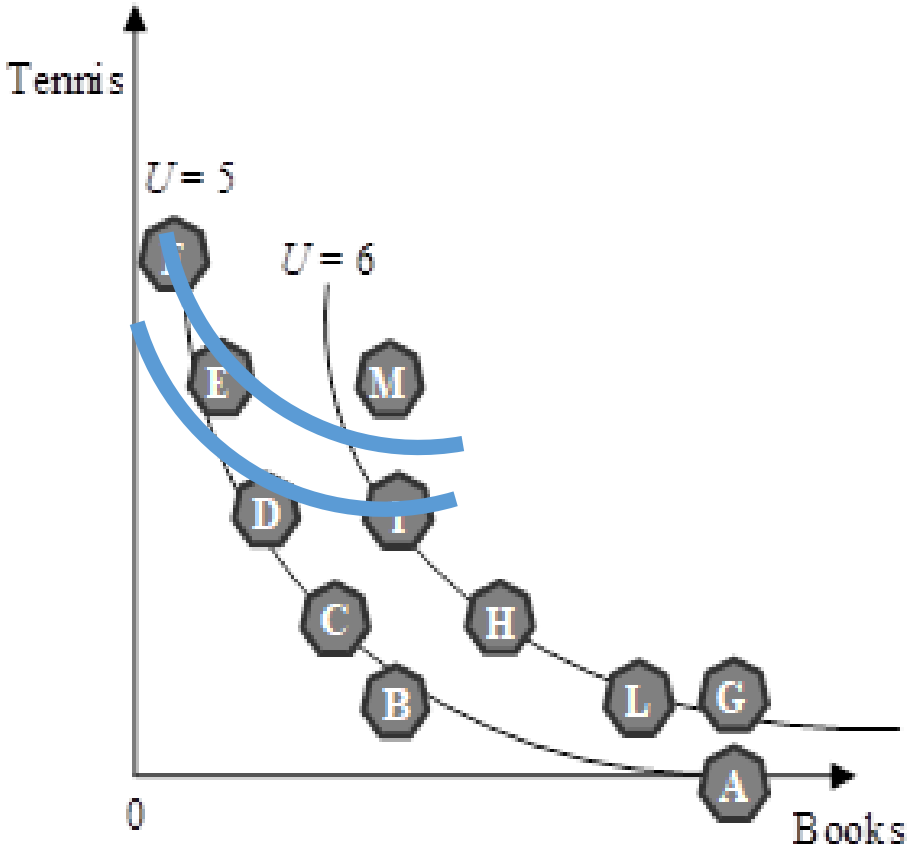
Another individual, Frank

Basket	Books (quantity B)	Tennis (hours L)	Utility
A	10	0	5
B	7	1	5
C	5	2	5
D	4	3	5
E	3	5	5
F	2	8	5
G	10	1	6
H	8	2	6
I	7	3	6
L	9	1	?
M	7	5	?



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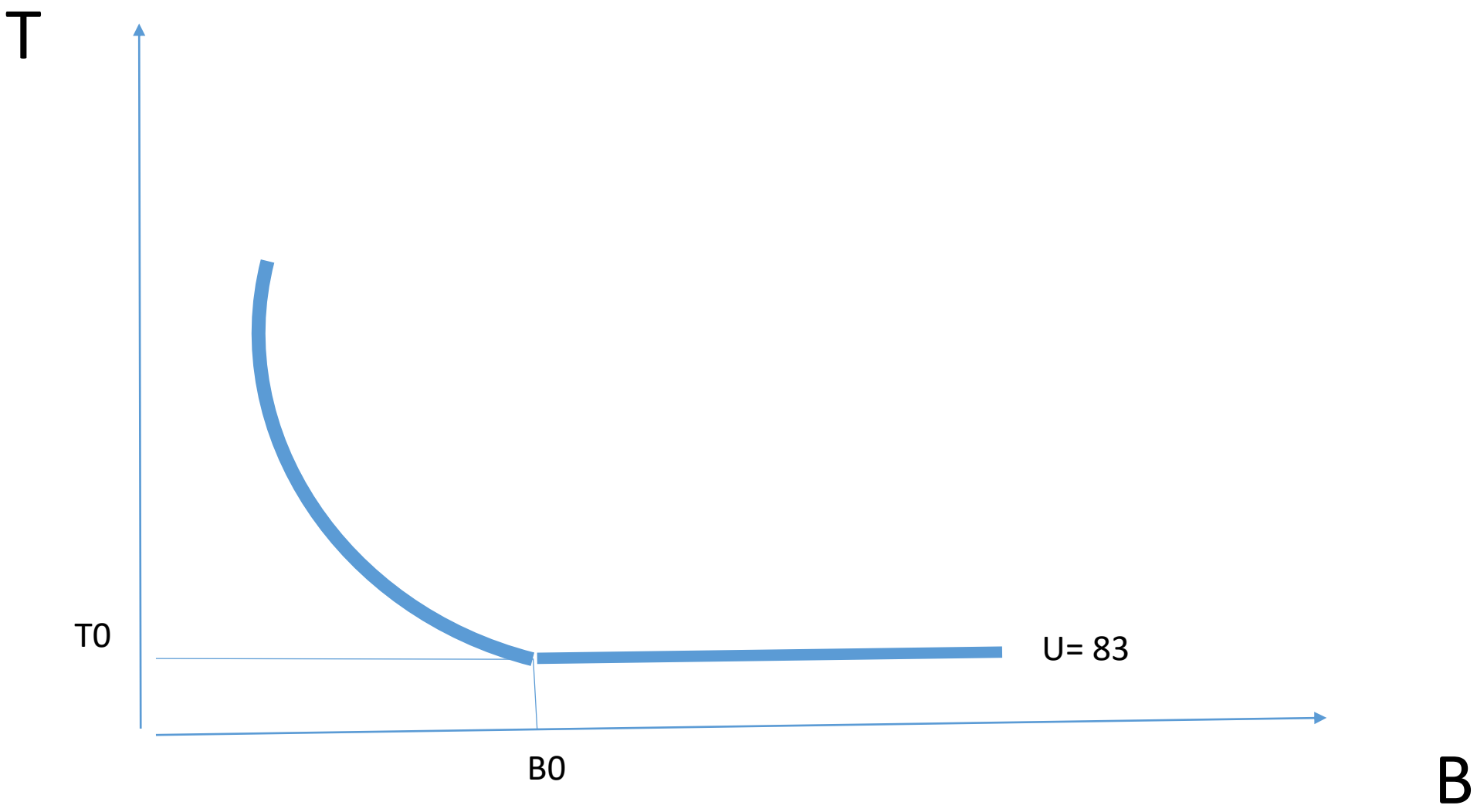
How are B and T?



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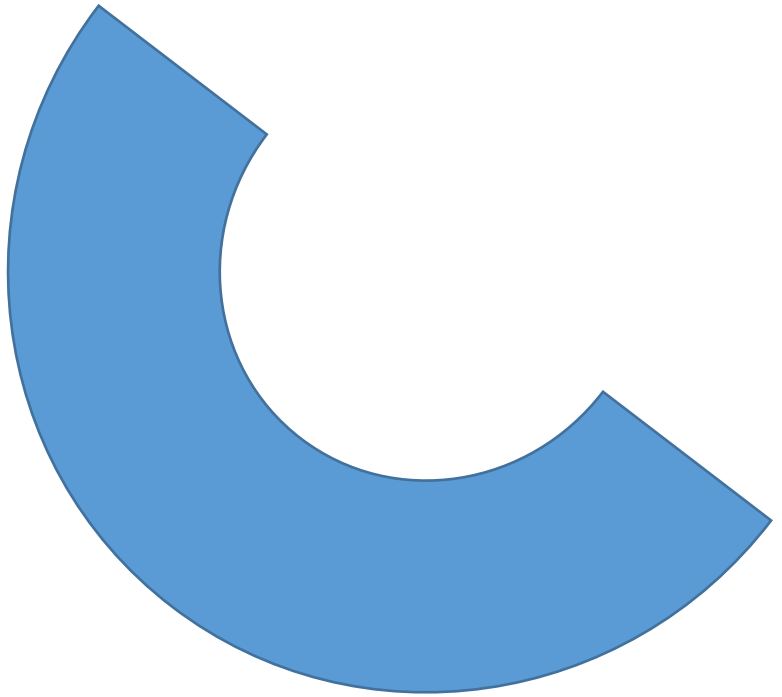
Thick curves? Satiation



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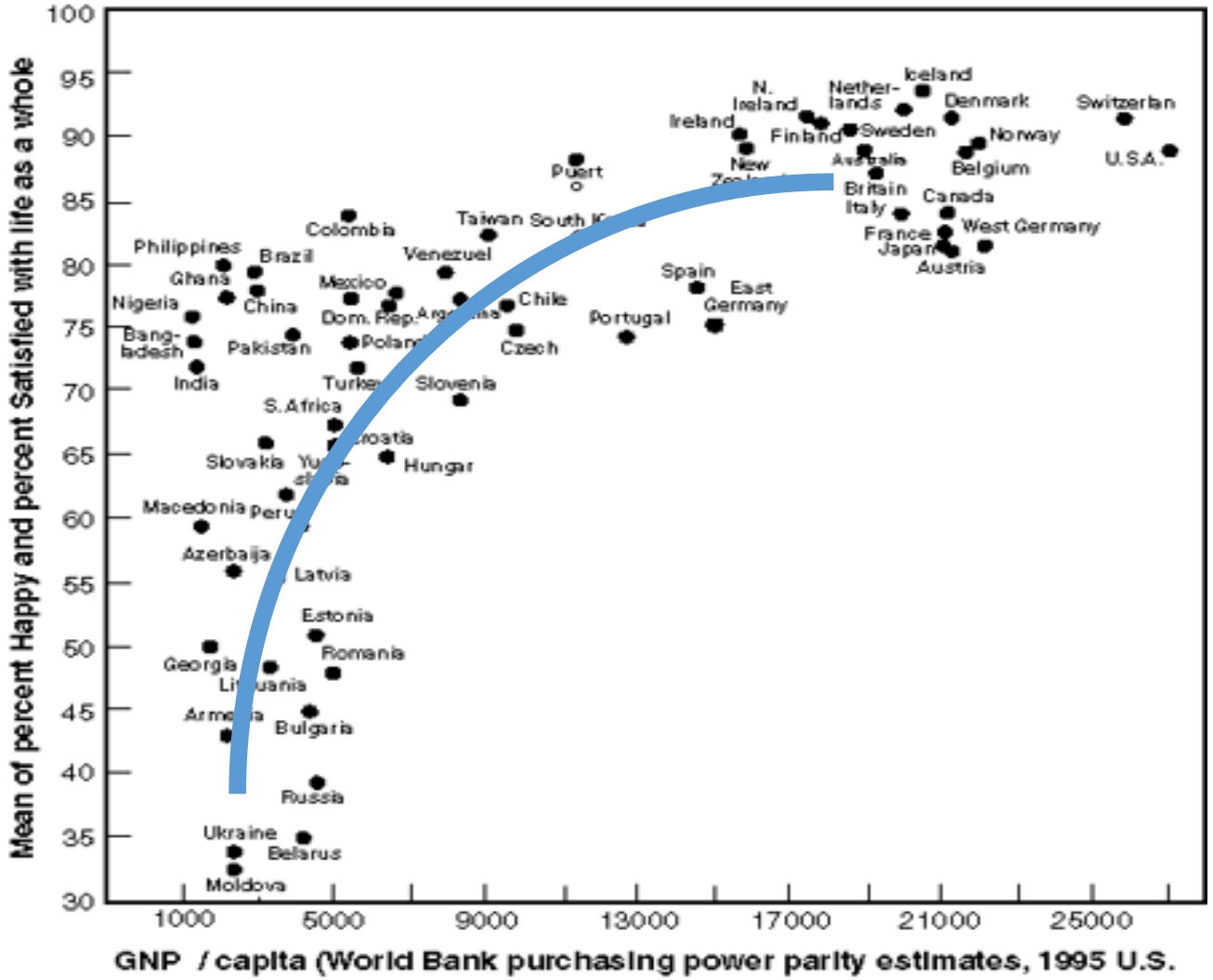
Does Money Buy Happiness?



The Ultimatum Game. Ready?

The organizer (Piga): proposes 100 million euro to be shared;

The proposer: Proposes to the counterpart how to divide it;

The counterpart: After hearing the offer of the proposer, he/she can accept or reject it (in this latter case the 100 million return to Piga).