Anthropologists know lots of facts, but aren't very good at thinking about them. Economists don't know many facts, but are very good at abstract thinking. In fact, economists can think beautiful thoughts for hours at a time, about nothing at all.

~ Theodore Bergstrom
Economist

The Role of Intention And Initiative

Keivan Monfared

Some Questions

- When was the last time that you bought a toothpaste? A toothbrush?
- The last time that you went to Costco and bought a pot or a new lawn chair? A shirt, a dress, a pair of pants?
- When was the last time you bought a phone, a laptop, a camera?
- How about a car, a house, a large amount of stock?

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- How about a car, a house, a large amount of stock?

Think about

- The choices that you had,
- And the one that you made.

And answer this

- Do you think you've got a good deal?
- Was it the best option you could get for the money you wanted to spend at the time?

More Questions

- How about that last movie you watched on Netflix?
- The several videos you watched one after each other on YouTube?
- The last song/playlist you picked on Spotify?
- How about the last piece of news you read, either on a news website or a social media?
- Oh, and think about the last book that you read, or started reading.

More Questions

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- How about the last piece of news you read, either on a news website or a social media?
- Oh, and think about the last book that you read, or started reading.

Think about
- The choices that you had,
- And the one that you made.

And answer this
- Do you think you've got a good deal?
- Was it the best use of your time?

More Questions

I also want you to think about the last time you didn't buy or didn’t do something,

- Say an airline offering you a car rental on your vacation?
- A car rental place offering a full insurance or an upgrade for a fee?
- How about a Doctors Without Borders agent on the street of a city you were visiting during your vacation asking you to donate to their cause?

More Questions

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- How about a Doctors Without Borders agent on the street of a city you were visiting during your vacation asking you to donate to their cause?

Think about

- The choices that you had,
- And the one that you made.

And answer this

- Do you think you've made the right decision?
- Was it the best thing you could (not) do with your money/time?

Yet More Questions

- How about the last time you made a friend?
  - Went on a date or declined an offer? Got married maybe?
- Do you remember the last time you voted?
  - Or the last time you influenced a law in some shape or form? Or chose not to?
- Do you remember the last time you took over a responsibility?
  - Got a job? Got promoted?
- How about the last time you got assigned a task or a project at work?
  - Didn't agree to be on a project? Took on a big responsibility

Yet More Questions

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Think about
- The choices that you had,
- And the one that you made.

And answer this
- Do you think you've made the right decision?
- Was it the best option for you?

The Real Questions

Now pick one of those times, or keep in mind a few of them, or if you've listed them all, go through them one by one:

- Did you pursue the options you had?
  - Or you only considered the ones that were presented to you?

The Real Questions

Now pick one of those times, or keep in mind a few of them, or if you've listed them all, go through them one by one:

- Did you pursue the options you had?
  - Or you only considered the ones that were presented to you?

- Did you know you want a Colgate or Sensodyne or whatever brand you bought?
  - Or you picked one of the ones "available" at the store?
- Did you want to watch The Squid Game?
  - Or it was merely a "recommendation"?
- Did you decide I'm going online to read about someone being killed, I'm gonna see how they were killed
  - Or it was the first or second thing that "came up"?
- Did you propose to go on a date / get married
  - Or you simply accepted a "proposal"?
- How about that car, house, laptop, friend, song ...?

My Choices

I figured out what I want first

I chose from one of the ones offered

My Choices

I figured out what I want first

car

stock

friend

house

I chose from one of the ones offered

music streaming service

phone

toothpaste

partner

job responsibility

The Math

In all of these scenarios there are:

- You, the “customer”, and all other people on the planet,
- And your choices, the “product”.

The question is which one gets to pick and which one gets picked, and **if it matters**.

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The question is which one gets to pick and which one gets picked, and **if it matters**.

For the sake of simplicity, let’s consider a very abstract* case of marriage.

- we have n girls and n boys who are at the right age that they're ready to get married.
  - All the girls and all the boys know each other
  - The guys are willing to get married to any of the girls
  - And the girls are willing to get married to any of the guys
  - They also all have a preference about each other.
    - Each girl has a ranking of the boys
    - And each boy has a ranking of all the girls

* Sorry for the exclusionist language

The Math

Problem Statement: Stable Marriage

- Marriage: All the girls and boys to get married
  - Each boy is married to one girl
  - And each girl is married to one boy
- Stable: Any pair of girls and a boys who are not married to each other have not ranked each other higher than their current partner
  - Otherwise they'd run away with each other

The Math

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A solution*: Use Tradition

- Guys take turn and propose to their top choice who is available at the moment
- Girls tentatively choose the top ranked person in their list who has proposed to them
- Rest of the guys are rejected and propose to the next person in their ranked list

* AKA deferred acceptance algorithm by David Gale and Lloyd Shapley

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Theorem (1962): The Algorithm Terminates

Everyone will eventually get married, and the end result is stable.

* AKA deferred acceptance algorithm by David Gale and Lloyd Shapley

An Example

Preference List

Girls	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	Adam
Charlotte	Adam	Darcy	Collins	Bingley
Dorothy	Adam	Darcy	Collins	Bingley

Boys	C 1	C 2	C 3	C 4
Adam	Bella	Alice	Dorothy	Charlotte
Bingley	Charlotte	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

An Example

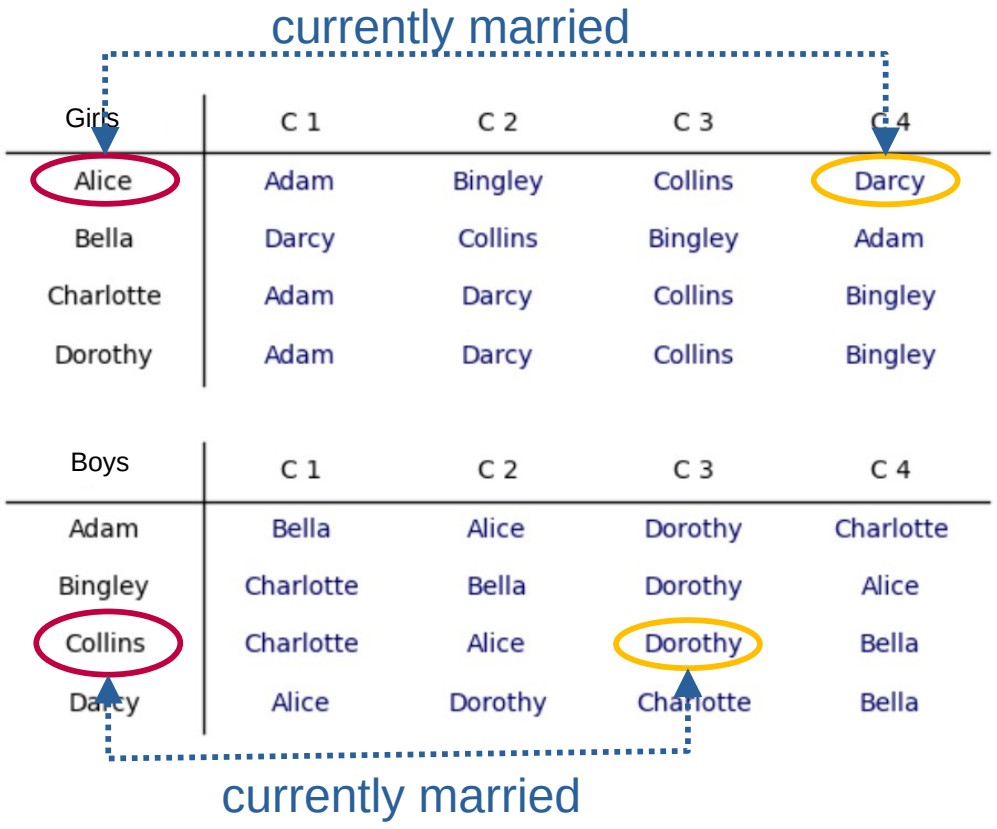
An Unstable Marriage

Girls	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	Adam
Charlotte	Adam	Darcy	Collins	Bingley
Dorothy	Adam	Darcy	Collins	Bingley

Boys	C 1	C 2	C 3	C 4
Adam	Bella	Alice	Dorothy	Charlotte
Bingley	Charlotte	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

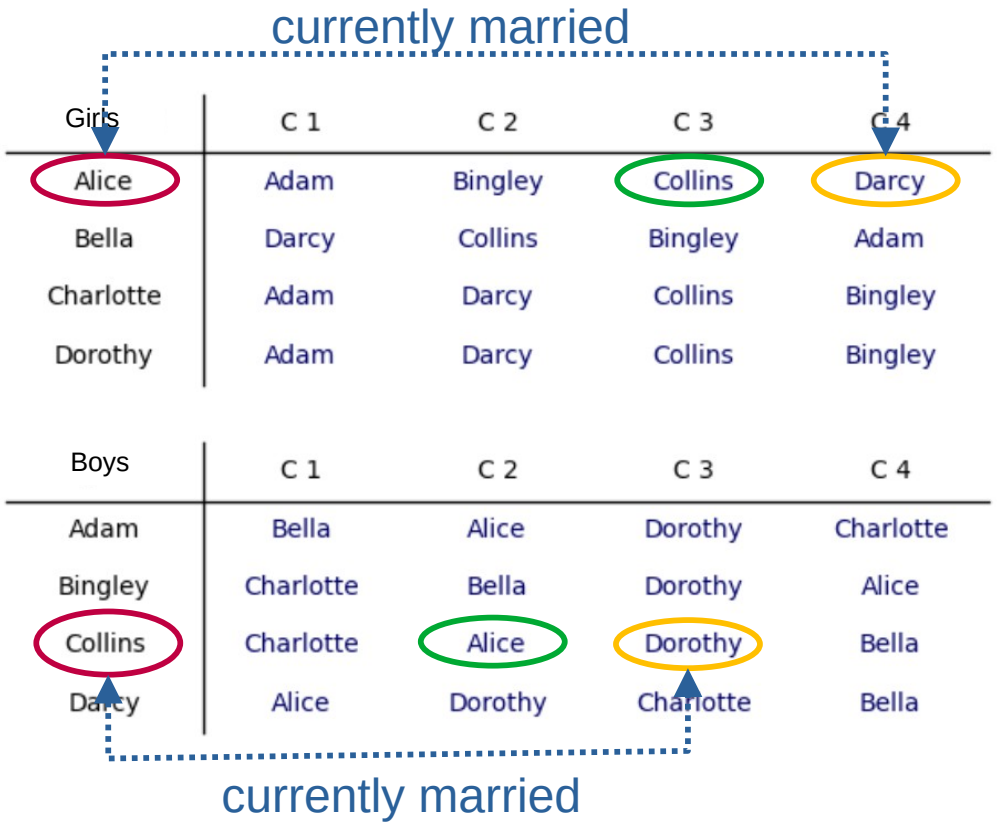
An Example

An Unstable Marriage



An Example

An Unstable Marriage



Solution

Run The Algorithm – Day 1

Day 1 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	Adam
Charlotte	Adam	Darcy	Collins	Bingley
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	Bella	Alice	Dorothy	Charlotte
Bingley	Charlotte	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Solution

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Day 1 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	Adam
Charlotte	Adam	Darcy	Collins	Bingley
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	Bella	Alice	Dorothy	Charlotte
Bingley	Charlotte	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Day 1 Responses

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	Adam
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	Bella	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Solution

Run The Algorithm – Day 2

Day 2 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	Adam
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	Bella	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Solution

Run The Algorithm – Day 2

Day 2 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	Adam
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	Bella	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Day 2 Responses

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	~~Adam~~
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	~~Bella~~	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Solution

Run The Algorithm – Day 3

Day 3 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	~~Adam~~
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	~~Bella~~	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Solution

Run The Algorithm – Day 3

Day 3 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	Darcy
Bella	Darcy	Collins	Bingley	~~Adam~~
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	~~Bella~~	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	Alice	Dorothy	Charlotte	Bella

Day 3 Responses

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	~~Darcy~~
Bella	Darcy	Collins	Bingley	~~Adam~~
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	~~Bella~~	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	~~Alice~~	Dorothy	Charlotte	Bella

Solution

Run The Algorithm – Day 4

Day 4 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	~~Darcy~~
Bella	Darcy	Collins	Bingley	~~Adam~~
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	~~Bella~~	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	~~Alice~~	Dorothy	Charlotte	Bella

Solution

Run The Algorithm – Day 4

Day 4 Proposals

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	~~Darcy~~
Bella	Darcy	Collins	Bingley	~~Adam~~
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	~~Bella~~	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	~~Alice~~	Dorothy	Charlotte	Bella

Day 4 Responses

Received	C 1	C 2	C 3	C 4
Alice	Adam	Bingley	Collins	~~Darcy~~
Bella	Darcy	Collins	Bingley	~~Adam~~
Charlotte	Adam	Darcy	Collins	~~Bingley~~
Dorothy	Adam	Darcy	Collins	Bingley

Proposed	C 1	C 2	C 3	C 4
Adam	~~Bella~~	Alice	Dorothy	Charlotte
Bingley	~~Charlotte~~	Bella	Dorothy	Alice
Collins	Charlotte	Alice	Dorothy	Bella
Darcy	~~Alice~~	Dorothy	Charlotte	Bella

More Math

Theorem: The Solution is Optimal for Proposers
Guys find their best possible stable partner

Theorem: The Solution is Pessimal for Receivers
Girls' partners are their worst stable partner

More Math

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Guys find their best possible stable partner

Theorem: The Solution is Pessimal for Receivers
Girls' partners are their worst stable partner

Fix:
Let girls propose and guys accept/reject

This way you'll get to the other extreme end: guys get their worst choice and girls get their best.

For more read the 2008 paper "A Survey of the Stable Marriage Problem and Its Variants" by Iwama, Kazuo; Miyazaki, Shuichi (PDF)

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Question:
Are there solutions that are "good" for both sides?

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Question:
Are there solutions that are "good" for both sides?

The more important question:
How does this affect our lives and choices?

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Back To Our Choices

I figured out what I want first

car

stock

friend

house

I chose from one of the ones offered

music streaming service

phone

toothpaste

partner

job responsibility

Our Choices

- Made a friend
- Went on a date or declined an offer
- Got married
- Voted
- Influenced a law in some shape or form, or chose not to
- Took over a responsibility?
- Got a job
- Got promoted
- Got assigned a task or a project at work
- Didn't agree to be on a project
- Took on a big responsibility
- Decided about the type of a government you want to rule the country you live in
- ...

Your Experience

- What are some cases in your life that
  - You did take the initiative and an intention in mind
  - You think you could but didn’t?
    - did/would it make a difference?
- What about the cases that you didn’t have a control/choice?
- What if you don’t know your “ranking” or even all the available options?
- Also, do we have to “optimize” everything?

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Thank You!!

and I am neither an anthropologist nor an economist
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