UW-L

[Rationality.]

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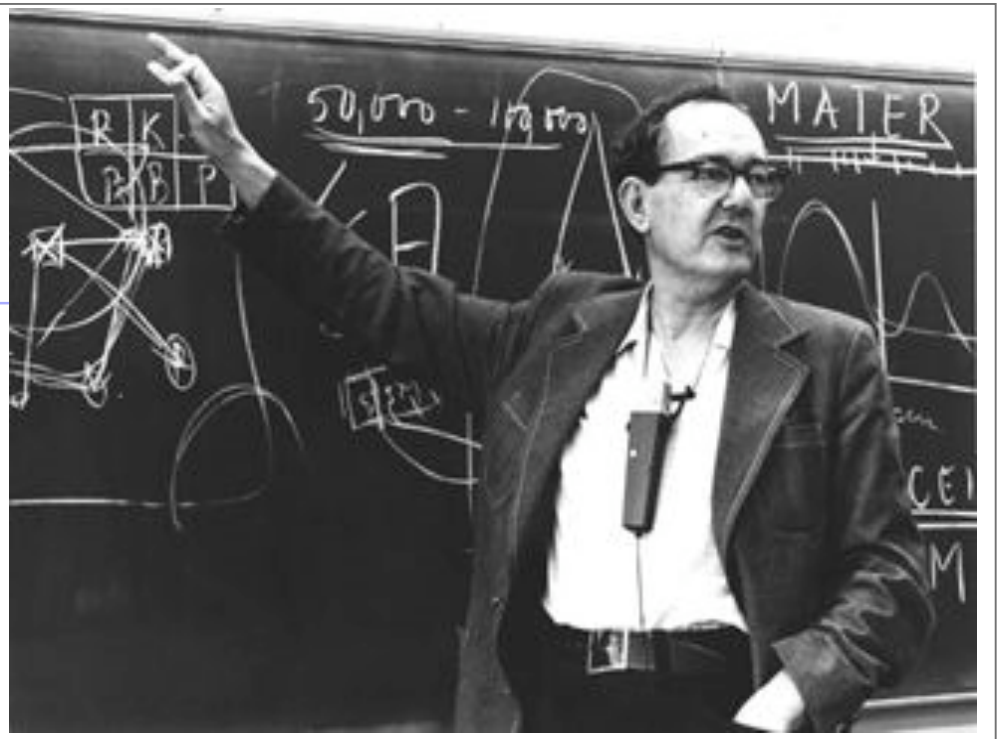
Getting started

- Everyday, everyone of us makes numbers of decisions:
  - some of these are rather “mechanical”
  - other decisions imply a choice
  - and a few of them are “creative” in kind
- What does this mean?

Keywords

- rationality
- maximization
- utility



Herbert A. Simon won the Nobel prize for Economics in 1978. He studied administrative behavior and management, human rationality, organizational psychology and sociology, and has been founder of modern cognitive sciences (former artificial intelligence). His work has been inspired by multidisciplinary connections. One of these examples can be considered his work on computer software, together with Alan Newell.

Example

- Suppose you take the A Train to the university
  - Why did you take the A Train?
    - it is the fastest way to get there
    - I haven't the car, and this is the only way for me to get to the university
    - It is the cheapest mean of transportation
    - There I always meet my sweetheart
- What did you do when you provide such a kind of answer?

YOU RATIONALIZE YOUR BEHAVIOR!

Rationality

- “[R]ationality is concerned with the selection of preferred behavior alternatives in terms of some system of values whereby the consequences of behavior can be evaluated” (Simon, 1997, p. 84).

… in other words

- Rationality means
  1. the selection of alternatives
  2. through a system of values (i.e. weights or choice drivers)
  3. that allows individual to make decisions
  4. and to make evaluations on potential and actual consequences of behavior (or actions)
- It involves two main cognitive activities:
  - problem-solving
  - decision-making

Alternative selection

- “Alternative selection, has to do with alternative searching.”
  - Nothing could be selected when alternatives are not considered
  - The alternative searching process is fundamental to decision-making
- Many alternatives must be generated “artificially”

Kinds of rationality

- Epistemic rationality
  - Rational belief
    - a generally reliable mental process
  - Rational inference
    - a conclusion follows some given premises
- Rationality of Action
  - A good action for us to perform

Example

- Suppose your classmate tells you that: "**You have to study hard from 25 different papers if you want to get an A!!!**"
  - You believe him, and your belief is rational (*epistemic r.*) because you have reliable mental processes of him as a brilliant undergraduate student
  - You infer that he studied on 25 papers (*r. inference*)
  - Your "good" and "rational" action is that of studying hard on 25 papers (*r. action*)

Theoretical and practical reasoning

- Theoretical reasoning
  - It is aimed at acquiring rational beliefs about the world using rational inferences
- Practical reasoning
  - It is what we ordinarily call “judgment” and is aimed at selecting rational actions

Procedural rationality

- "[W]e must give an account not only of *substantive rationality* – the extent to which appropriate courses of action are chosen – but also *procedural rationality* – the effectiveness, in light of human cognitive powers and limitations, of the *procedures* used to choose actions" (Simon, 1978, p. 9; italics in the original text).

Rational approach

1. Define the main criteria for selection
2. Find all announcements that match your ideal-type
3. Call and visit all the apartments or houses you find
4. Be sure that, by the end of your visits, no new announce has been published
5. Once you visited every single house you benchmark them, and make your choice

Rule-of-Thumb approach

1. Define the main criteria for selection
2. Check for announcements
3. While you look for them, you begin visiting
4. At a point, you stop your search because you find something that fits your needs

Two rationalities

- If alternatives are not exogenous, then we have the following two scenarios:
  - the individual creates a map of every possible alternatives, due to the choice he did, and he is ***fully-rational***
  - the individual isn't able to generates the whole universe of alternatives, i.e. "he/she is capable of bounded rationality only."

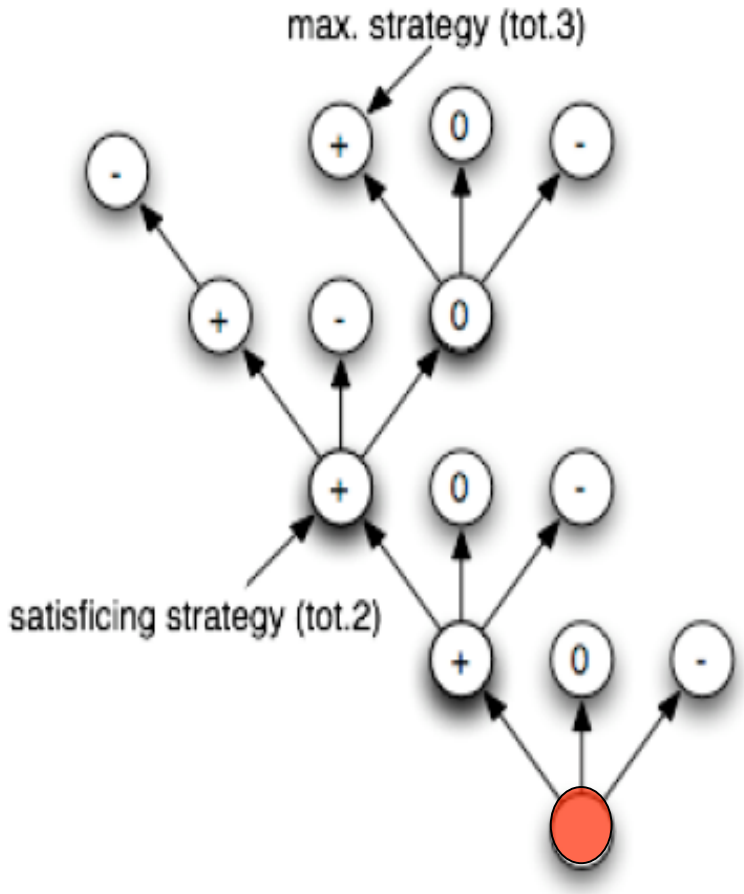
… "how people *ought* to behave, not how they *do* behave" (Simon, 1959, p. 254)

Bounded rationality

- “[R]ationality is bounded when it falls short of omniscience. And the failures of omniscience are largely failures of knowing all the alternatives, uncertainty about relevant exogenous events, and inability to calculate consequences” (Simon, 1979, p. 502).

The decision tree

- **Nodes**: positions
- **Branches**: alternative moves
- Every move leads to known ***payoffs***:
  - (+1) win
  - (0) null
  - (-1) loose



The decision tree revisited