Rational Choice Too Demanding?

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ity Quiz

1. Which city is largest city in the United States? A. Helena, B. New York City, C. Harrisburg, D. Albany, or E. Sacramento.

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- 2. Which city is largest city in France?
 - A. Bayonne,
 - B. Dunkerque,
 - C. Paris,
 - D. Mulhouse, or
 - E. Perpignan.

City Quiz

- 3. Which city is largest city in Japan?
 - A. Kitakata,
 - B. Numata,
 - C. Shiroishi,
 - D. Takayama, or
 - E. Tokyo.

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4. Which city is largest city in China? A. Shanghai, B. Garze, C. Nagqu, D. Rizhao, or E. Ningjin.

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This quiz should have been extremely easy (provided that you did not over think things). Why is that?

Are the requirements of rational choice theory too demanding to be of use to real people?

"Bounded" Rationality

Herbert Simon (**Carnegie Mellon** alert!) believes that the traditional demands of rational choice are unrealistic. Human beings have a limited amount of mental computational resources, and so human rationality is necessarily "bounded" by severe constraints. Simon therefor proposes to modify the theory of rational choice in light of these constraints.



One method for "bounded" reasoning that Simon proposes is **satisficing**. According to this, a person just searches the options until they find an option that is *satisfactory* or just "good enough". This is in contrast to the standard process of optimization, which demands always choosing the *best*.



Satisficing is far less demanding than optimization. First and foremost, it requires a much simpler value function: v(x) need only return either 1 (acceptable) or 0 (unacceptable) for each option x.

This is sometimes known as setting an **aspiration level**, where anything above that level has a value of 1 and anything below it has a value of 0.



Second, such a value function may only require a simple utility function u(c) that also only returns a 1 or a 0 for each possible outcome c.

Given diminishing marginal utility, this simple function may satisfactorily approximate a more detailed utility function.



Third, conjunctive or disjunctive thresholds may then use these simple utility functions in order to determine the overall value (1 or 0) for each option. This means that a fully complete and transitive

ordering of the options is not necessary for choice.

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Finally, the procedure for selecting an option may . . .

1. Pick the first satisfactory option that is found,

2. Note all the possible satisfactory outcomes, and then picking an option only leading to these, or

3. Note all the possible satisfactory outcomes, and then invent or discover an option only leading to these satisfactory outcomes.



Simon recognizes that after a long search, no satisfactory option may be found. He does not believe that this is a problem, however. After a fruitless search, the person should lower their aspiration levels so that an option may be found more quickly.

Other "Bounded" Processes

There are many other versions of "bounded" reasoning that have been suggested since Simon suggested this alternative to the "global" or more exhaustive understandings of rational choice.

Truncated Search

There are many methods of **truncated search**, where the choice is essentially made from a relatively limited subset of the options. This saves the decision maker from having to analyze every single option.

One form of truncated search says to pick the best option found in a random sample of all the options. If there are a 100 options, and you choose the best from a random sample of 20 options, you are still 68% likely to select one of the five overall best options.

Recognition Heuristic

When very poorly informed about the alternatives, the **recognition heuristic** says to simply rely on *name recognition* by choosing the first option that you recognize.

The can work quite well when selecting the city with larger population, or even when choosing a stock that is likely to increase in price.

Elimination by Aspects

According to elimination by aspects, the decision maker picks an attribute of the options that is salient and then sets a threshold on that attribute. Then any options below that threshold are eliminated from consideration. If only one option is left, this is chosen; if there are multiple options left, then a second salient attribute is chosen with a threshold to further eliminate options, and so on.

Advertising tries to get you to do this!

Take the Best (Lexicographic)

According to take the best, the decision maker reviews the attributes of the options, and then uses the most-important attribute to choose the best option according to it. If there are multiple "winners", then the second-most important attribute is identified and the best remaining alternative according to that attribute is chosen, and so on.

Advertising also tries to get you to do this!

Consequences of Satisficing

One important consequence of satisficing is that the *order* the options are examined matters. If a person stops looking and chooses at the first satisfactory option, then they might have chosen differently had they seen the options in a different order.

Think about how Google searches work, along with the hiring process for many entry-level jobs and even when choosing a dress from a rack.

City Quiz

Which is further north?

- A. Cape Town, South Africa,
- B. Key West, United States of America,
- C. Doha, Qatar,
- D. Sydney, Australia, or
- E. Sanaa, Yemen.



We will look at Isaac Levi, who believes that being too demanding is not sufficient reason for rejecting any given norm of rational choice.