

http://www.faz.net/-gsf-77zvr

HERAUSGEGEBEN VON WERNER DINKA, BERTHOLD KOHLER, GÜNTHER NONNENMACHER, FRANK SCHIRRMACHER, HOLGER STELTZNER

Frankfurter Allgemeine Feuilleton

Aktuell Feuilleton Debatten

Game theory

How game theory will solve the problems of the Euro Bloc and stop Iranian nukes

27.03.2013 · Automated capital markets, investment banks or hedge funds use the models of game theory to make decisions on the Euro crisis and to forecast conflicts between Euro states. Politicians take it for a reaction of the „market“ and play along. But the rules have never been intended for this. A premonition.

Von ARIEL RUBINSTEIN

Artikel

I have devoted most of my life to economic theory and game theory. I believe that I would like to do some good for humankind and, in particular, for the people in Israel, the country where I was born and where I make my home. I would like to make an impact and redress injustices. Ostensibly, all this should motivate me to utilize my professional knowledge in order to bring some relief to the world. But, the thing is, that is not how I feel.



© POLARIS / STUDIOX

Is he thinking the way I think that he thinks? In diplomacy, too, game theory is applied: Barack Obama and Benjamin Netanjahu

I probably should start again with an answer to the question: What is game theory? Game theory has a sexy name, but it is actually no more than a collection of concepts and models about rational human behavior in strategic situations – that is, in situations in which the considerations of a rational player depend on how he assumes other players will behave. The rational player must step into the shoes of the other players, who also face a similar task. This circuitousness is the source of the complication (and the interest) in game theory. Game theory tries to inject content into the concept of rationality in a context in which the meaning of rationality is unclear.

Weitere Artikel

Kann die Spieltheorie die Probleme der Eurozone lösen und das iranische Atomprogramm aufhalten

Die Rolle der Spieltheorie in der Euro-Krise

F.A.Z.-Column by Emanuel Derman: Little Big Data

F.A.Z.-Column by Emanuel Derman: The Lives of Others

F.A.Z.-Column by Emanuel Derman: Misbehavioral Psychology (English Version)

Here is a typical game theory situation called the Hide and Seek Game: A cruel ruler can hide in one of four palaces (marked 1, 2, 3 and 4) positioned along a river that flows from west to east. Palace 2 is painted gold, while the three other palaces are white. The seeker can attack only one palace. The rational hider will try to hide in the palace he believes the seeker is least likely to attack. The rational seeker will attack the palace he believes the hider is most likely to choose as a hideout. Game theory asks: How do the hider and seeker construct their beliefs in a way that is consistent with the assumption that their opponent is also rational? Game theory's "prediction" about the outcome is that the seeker's chance of catching the hider is one out of four (25%).

A nearly magical connection

The heart of game theory is not empirical science. It does not study how people actually behave in strategic situations. It is doubtful whether it is even possible to generalize about the way people will behave in a situation like the Hide and Seek Game. After all, people are diverse. There is experimental evidence indicating that among students who

play a virtual game of Hide and Seek, about 40% of the hiders and seekers choose the white Palace 3 in the center; about 25% choose the gold Palace 2, while the rest (35%) are divided between Palace 1 and Palace 4, located at the two extremes. In these experiments, the seeker has a 30% chance of finding the hider – that is, a significantly higher likelihood than the 25% “predicted” by game theory. It is reasonable to assume that similar results would be found among this newspaper’s readers, but the figures would change after the readers become aware of this fact. And this, of course, reflects a central difficulty in the ability to predict, a difficulty that characterizes social sciences in general: People, unlike rocks, flowers and butterflies, listen to those who make predictions.

Game theory is written in a mathematical language. This offers some advantages: The formal language demands precision, allows for the removal of erroneous associations and thoroughly scrutinizes assertions. Personally, the nearly magical connection between the symbols and the words in game theory is what captivated me. But there are also disadvantages: The formal language greatly limits the audience that really understands it; the abstraction blurs factors that natural thought takes into account and the formality creates an illusion that the theory is scientific.

A collection of fables and proverbs

Game theory fascinates me. It addresses the roots of human thought in strategic situations. However, the use of concepts from natural language, together with the use of ostensibly “scientific” tools, tempt people to turn to game theory for answers to questions such as: How should a system of justice be built? Should a state maintain a system of nuclear deterrence? Which coalition should be formed in a parliamentary regime? Nearly every book on game theory begins with the sentence: “Game theory is relevant to ...” and is followed by an endless list of fields, such as nuclear strategy, financial markets, the world of butterflies and flowers, and intimate situations between men and women. Articles citing game theory as a source for resolving the world’s problems are frequently published in the daily press. But after nearly forty years of engaging in this field, I have yet to find even a single application of game theory in my daily life.

Some of the arguments for using game theory do nothing more than attach labels to real-life situations. For example, some contend that the Euro Bloc crisis is like the games called Prisoner’s Dilemma, Chicken or Diner’s Dilemma. The crisis indeed includes characteristics that are reminiscent of each of these situations. But such statements include nothing more profound than saying that the euro crisis is like a Greek tragedy. While the comparison to a Greek tragedy is seen as an emotional statement by detached intellectuals, the assignment of a label from the vocabulary of game theory is, for some reason, accepted as a scientific truth.

In my view, game theory is a collection of fables and proverbs. Implementing a model from game theory is just as likely as implementing a fable. A good fable enables us to see a situation in life from a new angle and perhaps influence our action or judgment one day. But it would be absurd to say that “The Emperor’s New Clothes” predicts the path of Berlusconi ...

More “useful” than any of its models

There is a similarity between the practical status of game theory and that of logic. It is doubtful whether a logician would be of help to a judge who is trying to ascertain the truth. I would not recommend replacing judges with philosophers or mathematicians. Similarly, I would not appoint a game theorist to be a strategic advisor.

The search for the practical meaning of game theory derives from the perception that academic teaching and research directly benefit society. This is not my worldview. Research universities, particularly in the fields of the humanities and social sciences, are part of a cultural fabric. Culture is gauged by how interesting and challenging it is, and not by the benefit it brings. I believe that game theory is part of the culture that ponders the way we think. This is an ideal that can be achieved in many ways – literature, art, brain research and yes, game theory too. If someone also finds a practical use for game theory, that would be great. But in my view, universities are supposed to be “God’s little acre,” where society fosters what is interesting, intriguing, aesthetic and intellectually challenging, and not necessarily what is directly beneficial.

And incidentally, during the past decade, the book and film *A Beautiful Mind* contributed to the popularity of game theory, even though they (fortunately) did not purport to explain it. (*A Beautiful Mind* tells the story of John Nash, for whom the central concept of game theory – Nash equilibrium – is named.) However, the author Sylvia Nasar and the director Ron Howard succeeded in another mission: They turned the public's attention to the inferior status of the mentally ill and gave hope to those who are struggling with mental illness. In this way, they made game theory more "useful" than any of its models.

Remember the title of the article? I tricked you. I was not sure that the title "Why game theory doesn't solve the problems of the Euro Bloc and won't stop Iranian nukes" would entice you to read the article, so I acted strategically and attached a misleading title. I did not get the idea for doing so from game theory.



Ariel Rubinstein

© ADD A FRIEND

Quelle: F.A.Z.

Hier können Sie die Rechte an diesem Artikel erwerben

Frankfurter Allgemeine
ZEITUNG FÜR DEUTSCHLAND

© Frankfurter Allgemeine Zeitung GmbH 2013
Alle Rechte vorbehalten.