



Curriculum Vitae Professor Dr Reinhard Selten

Name: Professor Dr Reinhard (Justus Reginald) Selten

Life Dates: 5 October 1930 - 23 August 2016



Image: Markus Scholz | Leopoldina

Reinhard Selten was a German mathematician, economist, and Nobel laureate. He worked in the field of experimental economics, and he was chiefly concerned with the theory of bounded rationality as well as with game theory and its applications.

At first, he developed normative theories for which actors were considered fully rational. He supplemented this work with research on descriptive theories that help to explain the behaviour of actors. In the early 1980s, he introduced experimental economic research into the field and is therefore considered one of this research direction's founders in Germany - together with the sociologist and economist Heinz Saueremann. In his experiments, he let subjects make economic decisions in a controlled environment. His aim was to develop new theories to better describe and predict subjects' limited rational behaviour.

For his work on game theory, he was the only German to receive the Nobel Prize in Economics, officially known as the "Alfred Nobel Memorial Prize in Economic Sciences", in 1994, together with the US mathematician John Forbes Nash Jr. and the Hungarian-US economist John Harsanyi.

Academic and Professional Career

Reinhard Selten studied mathematics at Johann Wolfgang Goethe University in Frankfurt am Main, Germany until 1957. Following this, he worked there as a research associate under the economist and sociologist Professor Heinz Saueremann- In 1961, he handed in his PhD-Thesis in mathematics.

From 1967 to 1968, he was Visiting Professor at the School of Business Administration of the University of California, Berkeley (USA). In 1968, his habilitation in economics followed at the Johann Wolfgang Goethe University in Frankfurt am Main. In 1969 he received a call to a Professorship in the

economics section of Freie Universität Berlin, Germany. In 1972 he accepted a professorship at the Institute of Business Mathematics at Bielefeld University, Germany. In 1984 he became a professor at the Department of Economics at the Rheinische Friedrich-Wilhelms-Universität in Bonn (Germany), where he conducted research until his death in 2016.

Honors and Awarded Memberships

Reinhard Selten received numerous honours for his scientific research. Among them are the Alfred Nobel Memorial Prize in Economic Sciences (1994), the Grand Cross of Merit with Star and Shoulder Ribbon of the Federal Republic of Germany (1995), the Order of Merit of the State of North Rhine-Westphalia (1996), the State Prize of the State of North Rhine-Westphalia (2000) and the Order Pour le mérite for Sciences and Arts (2006).

Universities at home and abroad awarded him honorary doctorates, among them were the University of Bielefeld (1989), Johann Wolfgang Goethe University Frankfurt am Main (1991), University of Graz, University of Wrocław and Jiaotong University Shanghai (all 1996), Norwich University Northfield, USA (1997), École normale supérieure de Cachan, Paris (1998), University of Innsbruck (2000), University of Hong Kong (2003), University of Osnabrück (2006), Georg-August University Göttingen (2009) and University of Białystok (2010). Furthermore, he became honorary senator of the Rheinische Friedrich-Wilhelms-Universität Bonn in 2007.

Reinhard Selten was a member of many scientific societies and academies, such as the Nordrhein-Westfälischen Akademie der Wissenschaften und der Künste, Academia Europaea (1990), and the German National Academy of Sciences Leopoldina (2012). Reinhard Selten was furthermore a member of the Econometric Society as well as the European Economic Association (EEA), for which he acted as president for many years.

Moreover, he was a founding member of the International Academy of Sciences of San Marino, associate member of the Berlin-Brandenburg Academy of Sciences and Humanities, foreign honorary member of the American Academy of Arts and Sciences (1992) and the National Academy of Sciences (1996) as well as honorary member of the American Economic Association (AEA).

Nobel Prize

Reinhard Selten was awarded the Nobel prize in economics in 1994 for two papers that he had already published in 1965 and 1975. Here, he accomplished a breakthrough in the field of game theory: the first paper further developed the concept of subgame perfect equilibrium, which is a refined version of the Nash-equilibrium. The Nash-equilibrium is central to game theory and was developed by the US-American mathematician John Forbes Nash Jr. It describes a combination of strategies. Central to them all is that each participant chooses a strategy within the game that makes it unviable for everyone to deviate from their own strategy.

In a second paper, Reinhard Selten then coined the concept of trembling hand perfect equilibrium. It was published under the title “A Model of Slight Mistakes”. It was designed to determine an equilibrium’s susceptibility to a player’s mistakes. According to Reinhard Selten’s theory, no mistakes are made in a game if the players act rational. But in reality, this assumption collides with the possibility of wrong decisions by an opponent, which has to be accounted for.

The introduction of both concepts into scientific research drastically reduced the number of Nash-equilibriums by excluding untrustworthy threats. This makes predictions for many games, such as markets, more precise and sensible. Reinhard Seltens’s work significantly contributed to the applicability of game theory to many areas of economic research. Furthermore, game theory thus found its application in the social sciences and even in biology.

Zur Person

Reinhard Selten was born on October 5th in Breslaw (today Wroclaw). His father was of Jewish faith and, despite his blindness, ran a press article rental business modelled on a reading circle. In the mid-1930s he was forced by legislation from the national-socialist regime to close his business. He died in 1942 after a severe illness.

His son Reinhard was considered “a half Jew” and forced to leave grammar school. In 1945, just before the train connections were suspended, he left his hometown together with his mother, sisters, and brother as they feared the approaching Red Army. Via stations in Saxony and Austria, the family flew to northern Hessen, where Reinhard Selten completed his degree with honours in 1951 attending the Geschwister Scholl Gymnasium in Melsungen, Germany.

In 1959 he married Elisabeth Langreiner, who he met during his activities with the international constructed language Esperanto. The couple remained childless and lived in Königswinter near Bonn, Germany. Both spoke Esperanto and devoted themselves to its propagation and use. Reinhard Selten even wrote books in Esperanto and in 2009 ran as the German frontrunner for “Europe-Democracy-Esperanto (EDE)”.

In his honours, the German Verein für Socialpolitik in Berlin annually awards the Reinhard Selten Award to young authors. Furthermore, in 2019 the University of Bonn commemorated him with a Reinhard Selten Street on its campus.

Reinhard Selten died on August 23rd, 2016, in the polish city of Poznan.