

Chauvenet Prize

The Chauvenet Prize, consisting of a prize of \$1,000 and a certificate, is awarded to the author of an outstanding expository article on a mathematical topic. First awarded in 1925, the Prize is named for William Chauvenet, a professor of mathematics at the United States Naval Academy. It was established through a gift in 1925 from J.L. Coolidge, then MAA President. Winners of the Chauvenet Prize are among the most distinguished of mathematical expositors.

Kimmo Eriksson and Jonas Eliasson

“The Chicken Braess Paradox,” *Mathematics Magazine*, 92 (2019), No. 3, 213–221. doi.org/10.1080/0025570X.2019.1571375

Eriksson and Eliasson structure this paper around a story of a simple street network, the regional council member who tries to solve a traffic problem intuitively (and fails miserably), and the council member who finally succeeds in solving it using mathematics. The Braess Paradox is the phenomenon that making one street in a network faster can result in slower travel overall, as the drivers change their behavior in a way that can lead to more congestion. This is an example of a collective action problem or social dilemma, similar in many ways to the tragedy of the commons. As the authors explain, it has been documented in practice as well as receiving much mathematical study. The novel idea here is the introduction of a single-lane road which is nevertheless open for traffic in both directions, leading to the idea of playing “Chicken” as in the title.

This clearly and entertainingly written paper could serve as a nice introduction to game theory, but also has concepts which are likely new even to those who already know the basics. The fact that one of the authors is a traffic engineer allows a natural comparison of the ways in which game theorists and transportation specialists think about concepts. Yet despite this, the paper is remarkably free of jargon from either mathematics or traffic science. Eriksson and Eliasson have produced a work which can and should be appreciated by readers at all mathematical levels.

Responses

Kimmo Eriksson: When I first heard about the Braess paradox, at a conference, I was absolutely flabbergasted. I could not stop thinking about this paradox. This thinking led me to an extension, the “Chicken Braess paradox” which I felt deserved being presented to a wider audience. To include an ap-

plied perspective, I brought in my friend Jonas as a coauthor. We also received some excellent advice from the editor of Mathematics Magazine. Thanks to their help, I now have the incredible honor of having my name on the list of Chauvenet prize winners, a list that reads like a Who's Who of my greatest idols in mathematics!

Jonas Eliasson: Receiving a prize from a mathematics association makes me especially happy and proud. I was one of those kids that read mathematics books as a child, idolizing people like Hardy or Smale as other children idolized people like Maradona or David Bowie. After my MSc, however, I realized I wanted to engage with social sciences, and found transportation science: a field where mathematics, engineering, economics and political science meet to tackle difficult and important problems. But mathematics is still where I come from and where I feel most at home—and that's why being recognized by a mathematicians' association makes me so immensely proud and honoured!

Biographical Sketches

Kimmo Eriksson is a professor of mathematics at Mälardalen University in Sweden and a researcher at the Institute for Futures Studies. At age 25, he received his PhD degree in mathematics. At age 50, he received a second PhD degree in social psychology. Originally an algebraic combinatorialist, his current research combines mathematics and psychology to understand contemporary cultural evolution of moral attitudes and social norms. He is also a fan of comic opera. He has written the libretto to five one-act operas, four of which he has produced on stage; the fifth one is planned to be performed as entertainment on his 60th birthday party.

Jonas Eliasson is professor of transport systems at Linköping University (Sweden), and director of Transport Accessibility at the Swedish National Transport Administration. Previously, he was the director of the Stockholm City Transportation Administration, and professor of transport systems analysis at the Royal Institute of Technology. His research interests focus on transport modeling, economics and policy. He has been engaged as expert advisor to urban and national governments around the world regarding strategic transportation issues, for example leading the design of the Stockholm congestion pricing system. In his spare time, he is a pianist, organist, choir conductor and music composer.