Minimizing the Carry-Over Effect to reach maximum fairness

Roel Lambers, Eindhoven University of Technology

Abstract

When Fabio Caruana won the Wijk aan Zee chess tournament in 2020, suggestion was that he was helped by his Norwegian rival, Magnus Carlsen. The schedule used for the 14-player round robin tournament was such, that Caruana would face opponents in the round after they played Magnus – thus, picking up exhausted left-overs and presumably winning with more ease. The presence of this type of advantage in scheduling is measured in a so-called the Carry-Over Effect, and it was particularly high for this chess tournament. Ideally, the COE of a schedule is minimum, whereas in this case it was in fact maximum.

It is not easy at all to find schedules on sets of players that have minimum COE – for only a handful of instances optimal values are known. In this talk, we discuss ways of efficiently looking for 'perfect' schedules on any number of N players.