

Voters and spins – on the mathematics of fair representation

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The Council of ministers is the most important legislative body of the European Union. Each member state of the EU is represented by one delegate in the Council. The representatives of the states have different voting weights depending on the population of the respective country. A similar system applies to the governing bodies of the ‘Bretton Woods institutions’, namely the International Monetary Fund and the World Bank.

What is a ‘fair’ representation of a country in such an institution? We argue that a reasonable meaning of ‘fair’ is that the Council’s decision is as close as possible to a decision by public vote. This is realized if the voting weight of a state is proportional to the expected margin between supporters and opponents of a proposal in that state.

If we assume that the voters in a state cast their vote independent (in the sense of probability) of each other then fair voting weights in the Council are proportional to the square root of the country’s population (Penrose square root law).

In this talk we discuss the model of independent voting as well as other voting models which have a correlation structure of the voters. These models are strongly motivated by models of statistical mechanics.

For details see the paper cited below and references given there.

Reference: Kirsch, W.: On Penrose’s square-root law and beyond, math.PR/0611418 in arxiv.org