

Quantization of extensive games

Jarosław Pykacz and Piotr Frąckiewicz

Institute of Mathematics, University of Gdańsk, (Poland)
Institute of Mathematics, Polish Academy of Sciences, Warsaw (Poland)
pykacz@mat.ug.edu.pl, P.Frackiewicz@impan.gov.pl

Although theory of quantum games is still *'in statu nascendi'* and there is still a lot of disagreement sometimes concerning even its most basic notions, it seems that Eisert-Wilkens-Lewenstein [1] protocol for quantization of static 2-person games is generally accepted and it found application in numerous papers. On the contrary, the problem of quantization of sequential (extensive) games was tackled in very few papers till now.

We propose a protocol for quantization of extensive games based on the existing in classical game theory equivalence between strategic and extensive forms of a game and on the suitable generalization of the EWL protocol.

Technical details skipped in the talk can be found in [2] and [3].

References

- [1] J. Eisert, M. Wilkens, and M. Lewenstein, *Quantum games and quantum strategies*, Phys. Rev. Lett. **83** (1999) 3077 – 3080.
- [2] P. Frąckiewicz, *Quantum realization of extensive games*, arXiv:1008.3966v1 (2010).
- [3] P. Frąckiewicz, *Application of the EWL protocol to decision problems with imperfect recall*, arXiv:1012.0806v4 (2011).