

Steven Clontz

Applications of limited information strategies in Menger's game

Comment.Math.Univ.Carolin. 58,2 (2017) 225 –239.

Abstract: As shown by Telgársky and Scheepers, winning strategies in the Menger game characterize σ -compactness amongst metrizable spaces. This is improved by showing that winning Markov strategies in the Menger game characterize σ -compactness amongst regular spaces, and that winning strategies may be improved to winning Markov strategies in second-countable spaces. An investigation of 2-Markov strategies introduces a new topological property between σ -compact and Menger spaces.

Keywords: Menger property; Menger game; σ -compact spaces; limited information strategies

AMS Subject Classification: 03E35, 54D20, 54D45, 91A44

REFERENCES

- [1] Arhangel'skii A.V., *From classic topological invariants to relative topological properties*, Sci. Math. Jpn. **24** (2002), no. 1, 153–201.
- [2] Hurewicz W., *Über eine Verallgemeinerung des Borelschen Theorems*, Math. Z. **24** (1926), no. 1, 401–421.
- [3] Kunen K., *Set Theory. An Introduction to Independence Proofs*, Studies in Logic and the Foundations of Mathematics, 102, North-Holland Publishing Co., Amsterdam-New York, 1980.
- [4] Scheepers M., *Concerning n -tactics in the countable-finite game*, J. Symbolic Logic **3** (1991), no. 3, 786–794.
- [5] Scheepers M., *A direct proof of a theorem of Telgársky*, Proc. Amer. Math. Soc. **123** (1995), no. 11, 3483–3485.
- [6] Scheepers M., *Combinatorics of open covers. I. Ramsey theory*, Topology Appl. **69** (1996), no. 1, 31–62.
- [7] Steen L.A., Seebach J.A., *Counterexamples in topology*, Dover Publications, Inc., Mineola, NY, 1995; reprint of the second (1978) edition.
- [8] Telgársky R., *On games of Topsøe*, Math. Scand. **54** (1984), no. 1, 170–176.