THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Foundations of Computer Science Seminar

Room 155, Ziskind Building
on Monday, Jun 10, 2019
at 14:30

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Technion

Twenty (simple) questions

Abstract:

20 questions is one of the simplest examples of a combinatorial search game: Alice thinks of an English word, and Bob's job is to figure it out by asking Yes/No questions. The worst-case complexity of the game is clearly $\log n$, so to spice things up, we assume that Alice chooses her input according to some distribution known to Bob, and Bob now aims to minimize the expected number of questions.

An optimal solution to this problem was found already in 1952. However, the optimal strategy could ask arbitrarily complex Yes/No questions. We ask what happens when we constrain Bob to asking only "simple" questions, and what happens if Alice is allowed to lie a few times.

Joint work with Yuval Dagan (MIT), Ariel Gabizon, Daniel Kane (UCSD) and Shay Moran (IAS).