

How to eat $\frac{4}{9}$ of a pizza

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Alice and Bob alternately take slices of the round pizza in such a way that after first slice every chosen piece has to be adjacent to some previously-taken. The slices may be of various sizes. Dan Brown in 1996 asked whether Alice can get always at least $\frac{1}{2}$ of the pizza. This is easily verified for pizzas with even number of slices. Curiously, if the pizza has odd number of slices (and Alice takes one more slice than Bob) things can get worse for Alice. We provide a strategy for Alice that gurantees her at least $\frac{4}{9}$ of any pizza. This is best possible and settles the conjecture of Peter Winkler.

(Joint work with Kolja Knauer and Torsten Ueckerdt)