

62. A microworld series.

Each year, residents of Central Frontenac closely follow the puckball series between the Arden Aardvarks and the Sharbot Lake Sharks. The first team to win four games in a series gets the prize cup, so that, as with the Stanley Cup, there can be anywhere from four to seven games. The teams are of equal skill, so that each team has the same chance of winning as the other. Which is more likely to occur – that the series finishes with the sixth game or that seven games have to be played to determine the winner?

Rather than think of all the ways the tournament can proceed, let us ask what it takes to get to a sixth game. If no one wins in five games, then one team must have won three and the other two. For the sake of argument, suppose the Aardvarks are winning so far with three games.

A seventh game is necessary if and only if the Sharks win the sixth game. Otherwise, the tournament ends with the sixth game. Since each team has an equal chance of winning the sixth game, we see that the probability that the series ends in six games is equal to the probability that it ends in seven.