Summary: A world record at an Atlantic City casino and the distribution of the length of the crapshooter's hand

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A woman rolled the die 154 times before she finally sevened-out in a game of craps. That means she rolled either a 4, 5, 6, 8, 9, or 10 on her first roll and then it took her exactly 153 more rolls to roll either a 7 or to match her original roll. The number is the sum of her roll on two seperate dice. While the initial estimates of the probability of the specific outcome that occured were between 1 in 3.5 billion and 1 in 1.56 trillion, the actual probability was decided to be 1 in 5.6 billion. The length of the shooters hand is a random number which they have denoted as L. A good approximation of the probability of sevening-out in no fewer than n rolls is $\bar{t}(n) = P(L \geq n) = \bar{c}_1(\bar{e}_1)^{n-1}$. One application of this estimated probability is $P(L = n) = t(n) - t(n-1) = \sum_{j=1}^{4} c_j e_j^{n-1}(1 - e_j)$. $\bar{t}(n)$ is the probability of sevening-out in at least n rolls and $\bar{c}_1$ and $\bar{e}_1$ are constant approximations of the eigenvalues (e_1, e_2, e_3, e_4) and the constants (c_1, c_2, c_3, c_4). $\bar{c}_1 = 1.211844813$ and $\bar{e}_1 = 0.862473752$.