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Poisson Approximation to the Distribution of the Number of Consecutive Records

Abstract: Let I_1, I_2, \dots be an infinite sequence of independent Bernoulli random variables with $E(I_n) = \frac{1}{n}$ for $n = 1, 2, \dots$. We say that a record occurs at n if $I_n = 1$. Let $N = \sum_{n=1}^{\infty} I_n I_{n+1}$ denote the number of consecutive records in the sequence I_1, I_2, \dots . It is well known that N has Poisson distribution. We will reprove this result and then consider some related problems.