Frequencies Passages and Waiting.

(s_i, y_i) is a given sample, where the suite of events is s_i, and $f : x_i \to y_i$
$f(g(x_i)) \ = f \circ g(x_i)$

We define a probability distribution function $\forall x_i$ that is discrete and finite.
In this case we address a distribution, and all called a randomized result.

About the sample distribution: there are at least two parameters μ and σ
If we repeat the sampling for statistic A and B, and we get by the central limit theorem that $\sigma_A < \sigma_B$, then statistic A is to be chosen. This result makes us interested in the sample size n. (and also the distribution). We recall that the sampling distribution is inversely proportional to sample size, namely there is the rapport $\sigma : \sqrt{n}$. We set a reduction of σ by $\frac{1}{2}$, then we have to increase n by 4. The progression is $(\frac{1}{2};4),(\frac{1}{3};9)\ldots(\frac{1}{n};n^2)$. If $n \geq 30$, then the sample is large.
Regularly data is a frequency distribution.
Cheybshev said that $\frac{3}{4}$ results fall in $(\bar{x}-2s;\bar{x}+2s)$, and $\frac{8}{9}$ in $(\bar{x}-3s;\bar{x}+3s)$
If $n \geq 30$, the frequency is normal, and we have a $z$score of $\frac{x-\bar{x}}{\sigma}$.

Say, that from $s_1 s_2, \ldots s_n$, s_1 would be out of range (wrong in domain), then it may be $x_1 \to \bar{x} - 3s$, which would make sense (and we are out of range).We say x_1 comes from a distribution, and $\bar{x}$ and σ from another.

Passage and Path.

($X = X_1 + X_2 \ldots + X_n$ where X_i and X has a distribution with parameter n and p)
We assign $\Pr(X_i) = C_{n,x_i} p^{x_i}(1-p)^{n-x_i}$ and observe that $\Pr(X) = \Pr(\sum X_i) = np$ and $\sigma = npq$
In this problem we have a set of n, with proportion p, and $x_i \in [0;n] \cap \mathbb{N}$ and $x_i = X_i$. Another way to set the quantities is to say the step is p, time n and availability x_i.

Waiting.

There the time is $[0;t]$, the number of events x_i in time, and close to λ in all.
$e^x = 1 + x + \frac{x^2}{2!} + \ldots$ and $e^{\lambda}e^{-\lambda} = 1 = \frac{\lambda e^{-\lambda}}{1!} + \ldots + \frac{\lambda^n e^{-\lambda}}{n!} + \ldots$

$$E\left(\frac{1}{e^{\lambda}} \sum p(x)\right) = E(\frac{e^x}{e^{\lambda}}) = 1$$

The number if x_i in event E_i in t, set in $i \leq n$ (recall $x_i = i$), giving $p(x) = \frac{\lambda^{x_i}}{x_i!}e^{-\lambda}$
that must be skewed to the left, as for a large threshold $\frac{\lambda^{x_i}}{x_i!}$ will become very small.

Experience.

$1 + x^1 + x^2 + \ldots = \frac{1}{1-x}$ as x and $x^k \in (-1;+1)$ for $k \in \mathbb{N}$, and $1 : (1-x)$,
as all : false.