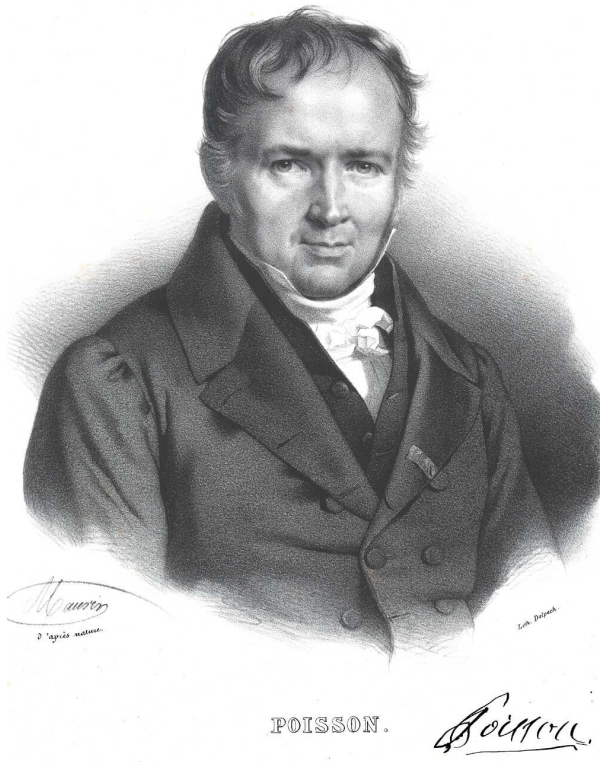
Cannlytics

Cannabis Data Science

Saturday Morning Statistics #14

March 5th, 2022

"Life is good for only two things: doing mathematics and teaching it."



– Siméon–Denis Poisson (1781 – 1840)

A Brief History of Siéon–Denis Poisson

- Work on integrals, calculus, probability theory.
- Published more than 300 works.
- Contemporary of
  - Joseph Louis Lagrange
  - Pierre–Simon Laplace
  - Jean Baptiste Joseph Fourier

Siméon–Denis Poisson (1781 – 1840) in 1804.

The Poisson Distribution

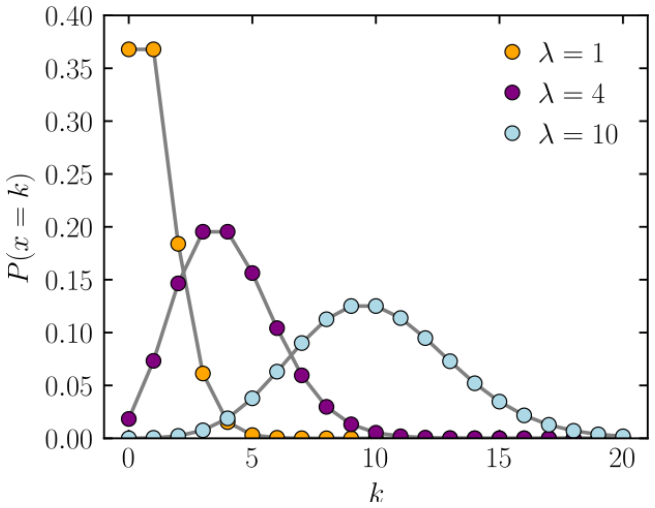
A discrete random variable, y, has a Poisson distribution, denoted

$$y \sim Po(\lambda),$$

if its probability mass function is

$$f_{Po}(y|\lambda) = \frac{\lambda^y e^{-\lambda}}{y!},$$

where $\lambda > 0$ and $y = 0, 1, 2, \ldots$



Here, k is the number of occurrences and λ is the expected rate of occurrences.

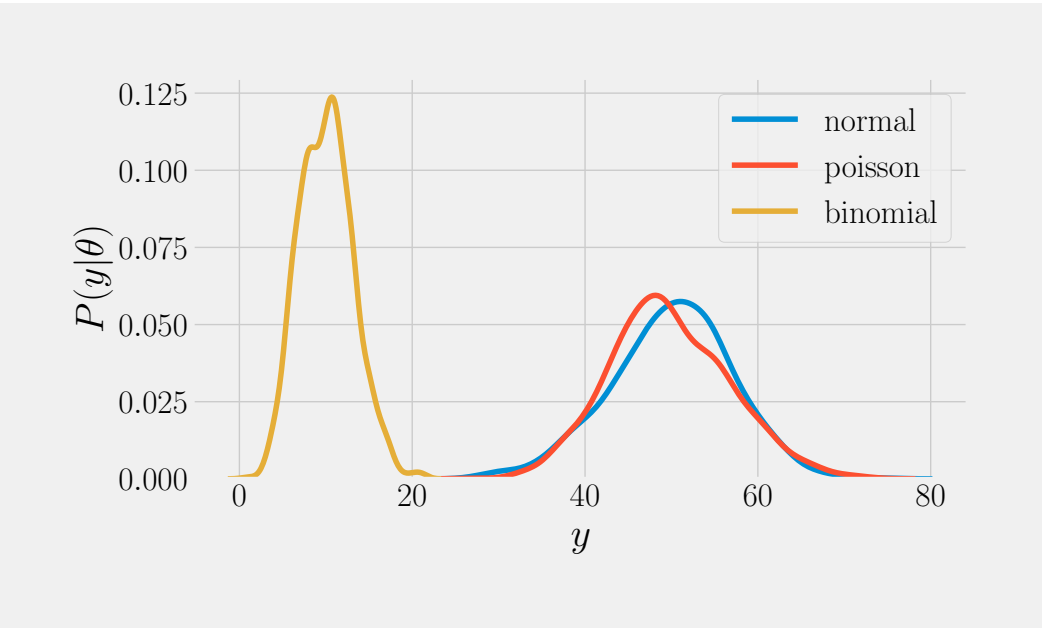
Fun fact: The mean and variance of the Poisson distribution are equal to the expected rate of occurrences

$$E(Y) = \lambda$$
$$Var(Y) = \lambda$$

Modeling Discrete Data

- The **Poisson distribution** is used to model discrete data arising from continuous trials.

- The **binomial distribution** is used to model discrete trials.



Fun fact: Given certain parameters, the **binomial distribution** and **Poisson distribution** approximate a **normal distribution**.

Question of the Day: Beverage Preferences

- Does age or any other factor affect people's preferences for liquid edibles?

Homemade cannabutter that can be used as an intermediary product. For example, in a cup of *butter coffee*.

🙏 Thank you for coming.

Lessons of the Day

- Have the right model for the task at hand.
- We can get a good pulse of cannabis markets with count-based models.