Overview

A Crisis in Discretown

We need good data and good statistical thinking in order to make good predictions.

Random variables and distributions are among the most useful concepts in all of probability and statistics. This unit introduces *discrete* random variables and distributions, and the next unit introduces *continuous* random variables and distributions.

As seen when applying probability models to study the hypertangleosis crisis in Discretown, two especially useful discrete distributions are the *Binomial* (explored in this unit) and the *Poisson* (introduced in this unit, and explored in more detail in Unit 5). Not only are the Binomial and Poisson useful in their own rights, they serve as powerful building blocks for more realistic models.

Combining statistical and scientific thinking, we can iteratively build good models that help us estimate unknown quantities and predict future observations.

Learning Objectives

In this unit, you will:

- Learn the meaning of discrete random variables and their distributions, both intuitively and mathematically
- Study the stories and properties of the Bernoulli, Binomial, and Hypergeometric distributions
- Learn to avoid category errors