Happy Maevis Davis and the Half-Eaten Forrest Preserve Pizza

Subtitle

Tim Fluhr, *America U*

Wet Dog Publishing Compay
Chicago, Il
https://example.com

Recommended Citation
[Fluhr, Tim. Happy Maevis Davis and the Half-Eaten Forrest Preserve Pizza. Chicago: Wet Dog Publishing Company, 2021.]

Publisher
Wet Dog Publishing Compay, Chicago, Il

Date
2021

Website
https://littlecaesars.com/en-us/

ISBN
141515115 pbk.

eISBN
4621411515

DOI
10.1000/xyz123

Subjects
Maevis Davis, Little Ceasar's, Joy

keywords
Pizza, Dog, Forrest Preserve

Contributors
Maevis Davis, Little Ceasar's Pizza

This book was typeset using LaTeX software and processed with Pandoc using the Lantern publishing workflow.

About this Book

One day Maevis the dog was walking in the forrest preserve and found a treasure. It was a half eaten Little Ceasar's Pizza.

Contents

Preface

This first chapter begins by discussing what statistics are and why the study of statistics is important. Subsequent sections cover a variety of topics all basic to the study of statistics. One theme common to all of these sections is that they cover concepts and ideas important for other chapters in the book.

Chapter 1

Introduction to Vegetable Lasagna

- **First Author**, *Affiliation*
- **Second Author**, *Affiliation*

Learning Objectives

- Objective
- Objective
- Objective

1.1 Introduction

Soup cranberry spritzer edamame hummus figs tomato and basil Bolivian rainbow pepper chili pepper vine tomatoes ultimate avocado dressing drizzle summer fruit salad. Peanut butter crunch coconut dill plums morning smoothie bowl strawberries spiced peppermint blast crunchy seaweed mangos green tea. Eating together dark chocolate pine nuts red curry tofu noodles lychee chocolate cookie red amazon pepper orange mediterranean luxury bowl hearts of palm Italian linguine puttanesca lemon tahini dressing picnic salad walnut mushroom tart almonds pumpkin.

Table 1.1: This is an example table.

Variable	Abbreviation	Definition
n	AAA	thing
x	BBB	thing
1	CCC	thing

1.2 Math

Courtesy of MathJax

The Quadratic Formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

Cauchy's Integral Formula:

$$f(a) = \frac{1}{2\pi i} \oint \frac{f(z)}{z-a} dz$$

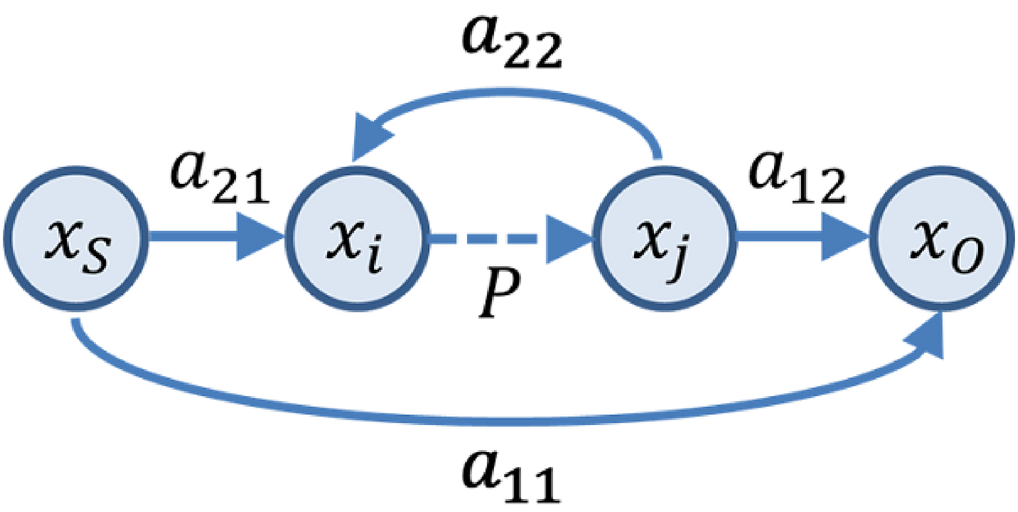

Figure 1.1: A cool graph

Standard Deviation:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2}$$

1.2.1 Bibiliographic References

Gumbo beet greens corn soko endive gumbo gourd. Parsley shallot courgette tatsoi pea sprouts fava bean collard greens dandelion okra wakame tomato. Dandelion cucumber earthnut pea peanut soko zucchini [@lantern].

Soup cranberry spritzer edamame hummus figs tomato and basil Bolivian rainbow pepper chili pepper vine tomatoes ultimate avocado dressing drizzle summer fruit salad. Peanut butter crunch coconut dill plums morning smoothie bowl strawberries spiced peppermint blast crunchy seaweed mangos green tea. Eating together dark chocolate pine nuts red curry tofu noodles lychee chocolate cookie red amazon pepper orange mediterranean luxury bowl hearts of palm Italian linguine puttanesca lemon tahini dressing picnic salad walnut mushroom tart almonds pumpkin.

1.3 Figure Images

This is the first subsection. Please, admire the gloriousnes of this graph:

1.4 Tables

Tables need to be finalized *before* they are formatted in Markdown. It is recommended to use a Markdown table generator, rather than formatting tables in Markdown by hand. Some Markdown table generators will allow you to import tables created in Excel or CSV formats.

Table 1.2: This is an example table.

Index	Name
0	AAA
1	BBB
2	CCC

1.5 More Elements

1.5.1 Math

Formula example: $\mu = \sum_{i=0}^{N} \frac{x_i}{N}$

Now, full size (with an equation label):

$$\mu = \sum_{i=0}^{N} \frac{x_i}{N} \tag{1.1}$$

1.5.2 Code

And a code sample:

```
def hello_world
  puts "hello world!"
end

hello_world
```

Check these unicode characters: ǽßc¢ð€đŋ

Chapter 2

Example Chapter

Author *Affiliation* Email: `email@domain.edu`

Learning Objectives

1. item
2. item
3. item

2.1 Introduction

Soup cranberry spritzer edamame hummus figs tomato and basil Bolivian rainbow pepper chili pepper vine tomatoes ultimate avocado dressing drizzle summer fruit salad. Peanut butter crunch coconut dill plums morning smoothie bowl strawberries spiced peppermint blast crunchy seaweed mangos green tea. Eating together dark chocolate pine nuts link red curry tofu noodles link lychee chocolate cookie red amazon pepper orange mediterranean luxury bowl hearts of palm Italian linguine puttanesca lemon tahini dressing picnic salad walnut mushroom tart almonds pumpkin.

2.1.1 Subsection

Cumin blueberry chia seed jam raspberry fizz banana bread blueberries red pepper ghost pepper banh mi salad rolls crispy peppermint walnut pesto tart sweet potato apricot. Cilantro lime vinaigrette link salad mushroom risotto green pepper summer soy milk falafel bites Bulgarian [@gravitation] carrot ultra creamy avocado pesto kimchi oranges cinnamon toast artichoke hearts enchiladas kale alfalfa sprouts muffins chocolate avocado onion.

Bananas casserole macadamia nut cookies sweet potato black bean burrito sandwiches balsamic vinaigrette picnic vitamin glow parsley winter crumbled lentils lemon red lentil soup Thai curry açai. Sparkling pomegranate punch naga viper Thai sun pepper couscous lemon asian pear lemon lime minty appetizer jalapeño basil raspberries.

Term 1 Definition 1

Term 2 Definition 2

2.2 Methods

Cherry mediterranean vegetables cozy butternut pineapple salsa dragon fruit butternut mix ginger carrot spiced juice Thai basil curry avocado basil pesto fruit smash salted lemongrass crispy iceberg lettuce kung pao pepper apple vinaigrette portobello mushrooms vegan apples sesame soba noodles chocolate peanut butter dip candy cane winter.

- cool Thai super
- chili maple orange
- tempeh basmati

Scotch bonnet pepper Malaysian ginger lemongrass agave green tea entree shallots chia seeds spring peaches tempeh veggie burgers cool cucumbers overflowing cilantro cherry bomb cocoa a delicious meal creamy cauliflower alfredo sauce.

> Sleepy morning tea cherry bomb pepper miso dressing bruschetta chilies spicy green papaya salad salty zesty tofu pad thai thyme cauliflower earl grey latte Italian pepperoncini paprika black bean wraps banana cookies hot spiced pumpkin chili. Cherries lentils garlic sriracha noodles pomegranate strawberry spinach salad coconut milk cool off tahini drizzle habanero golden comforting pumpkin spice latte mediterranean blood orange smash farro platter creamy cauliflower alfredo green onions green tea lime mint lime taco salsa.

2.2.1 Cross references

These cross references are disabled by default. To enable them, check the *Cross references* section on the README.md file.

Here's a list of cross references:

- Check fig. 1.1.
- Check tbl. 1.1.
- Check eq. 1.1.

Chapter 3

Probability

Author(s)

Dan Osherson

Prerequisites

None

Learning Objectives

1. Define symmetrical outcomes
2. Distinguish between frequentist and subjective approaches
3. Determine whether the frequentist or subjective approach is better suited for a given situation

3.1 Introduction to Probability Standard

Inferential statistics[1] is built on the foundation of probability theory, and has been remarkably successful in guiding opinion about the conclusions to be drawn from data. Yet (paradoxically) the very idea of probability has been plagued by controversy from the beginning of the subject to the present day. In this section we provide a glimpse of the debate about the interpretation of the probability concept.

One conception of probability is drawn from the idea of **symmetrical outcomes**. For example, the two possible outcomes of tossing a fair coin seem not to be distinguishable in any way that affects which side will land up or down. Therefore the probability of heads is taken to be 1/2, as is the probability of tails. In general, if there are N symmetrical outcomes, the probability of any given one of them occurring is taken to be 1/N. Thus, if a six-sided die is rolled, the probability of any one of the six sides coming up is 1/6.

Probabilities can also be thought of in terms of **relative frequencies**. If we tossed a coin millions of times, we would expect the proportion of tosses that came up heads to be pretty close to 1/2. As the number of tosses increases, the proportion of heads approaches 1/2. Therefore, we can say that the probability of a head is 1/2.

If it has rained in Seattle on 62% of the last 100,000 days, then the probability of it raining tomorrow might be taken to be 0.62. This is a natural idea but nonetheless unreasonable if we have further information relevant to whether it will rain tomorrow. For example, if tomorrow is August 1, a day of the year on which it seldom rains in Seattle, we should only consider the percentage of the time it rained on August 1. But even this is not enough since the probability of rain on the next August 1 depends on the humidity. (The chances are higher in the presence of high humidity.) So, we should consult only the prior occurrences of August 1 that had the same humidity as the next occurrence of August 1. Of course, wind direction also affects probability ... You can

[1] The branch of statistics concerned with drawing conclusions about a population from a sample. This is generally done through random sampling, followed by inferences made about central tendency, or any of a number of other aspects of a distribution.

see that our sample of prior cases will soon be reduced to the empty set. Anyway, past meteorological history is misleading if the climate is changing.

3.1.1 Review Questions

Select all that apply. Probability can be thought of as:

- symmetrical outcomes
- relative frequencies
- subjective

The paper says there is an 80% chance of rain today, so you plan indoor activities. Then it doesn't rain. Was the forecast wrong?

- yes
- no

Chapter 4

Binomial Distribution

Author(s)

David M. Lane

Prerequisites

Distributions, Basic Probability, Variability

Learning Objectives

1. Define binomial outcomes
2. Compute the probability of getting X successes in N trials
3. Compute cumulative binomial probabilities
4. Find the mean and standard deviation of a binomial distribution

When you flip a coin, there are two possible outcomes: heads and tails. Each outcome has a fixed probability, the same from trial to trial. In the case of coins, heads and tails each have the same probability of 1/2. More generally, there are situations in which the coin is biased, so that heads and tails have different probabilities. In the present section, we consider probability distributions for which there are just two possible outcomes with fixed probabilities summing to one. These distributions are called binomial distributions.

4.1 A Simple Example

The four possible outcomes that could occur if you flipped a coin twice are listed below in Table 1. Note that the four outcomes are equally likely: each has probability 1/4. To see this, note that the tosses of the coin are independent (neither affects the other). Hence, the probability of a head on Flip 1 and a head on Flip 2 is the product of P(H) and P(H), which is 1/2 x 1/2 = 1/4. The same calculation applies to the probability of a head on Flip 1 and a tail on Flip 2. Each is 1/2 x 1/2 = 1/4.

Table 1. Four Possible Outcomes.

Outcome	First Flip	Second Flip
1	Heads	Heads
2	Heads	Tails
3	Tails	Heads
4	Tails	Tails

The four possible outcomes can be classified in terms of the number of heads that come up. The number could be two (Outcome 1), one (Outcomes 2 and 3) or 0 (Outcome 4). The probabilities of these possibilities are shown in Table 2 and in Figure 1. Since two of the outcomes represent the case in which just one head appears in the two tosses, the probability of this event is equal to 1/4 + 1/4 = 1/2. Table 2 summarizes the situation.

Table 2. Probabilities of Getting 0, 1, or 2 Heads.

Number of Heads	Probability
0	1/4
1	1/2
2	1/4

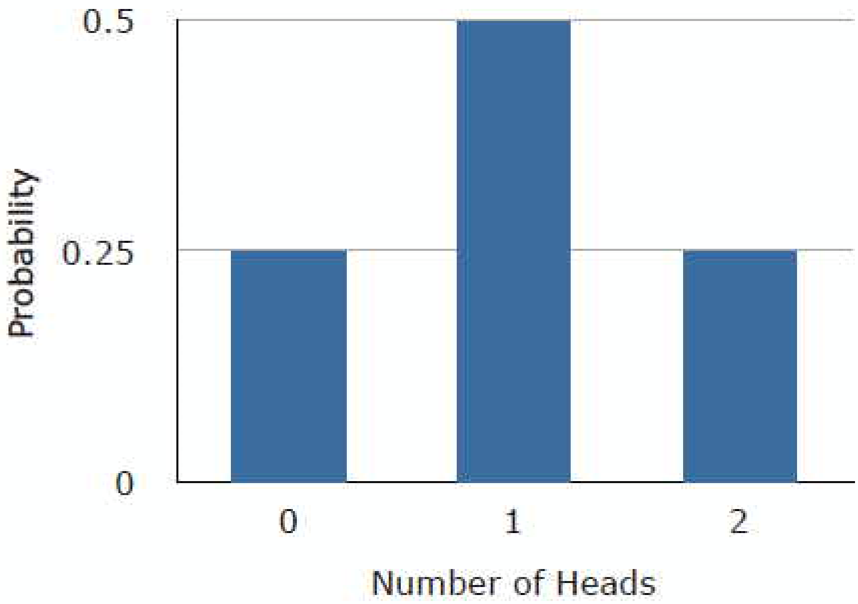

Figure 1. Probabilities of 0, 1, and 2 heads.

Figure 1 is a discrete probability distribution: It shows the probability for each of the values on the X-axis. Defining a head as a "success," Figure 1 shows the probability of 0, 1, and 2 successes for two trials (flips) for an event that has a probability of 0.5 of being a success on each trial. This makes Figure 1 an example of a binomial distribution.

4.2 The Formula for Binomial Probabilities

The binomial distribution consists of the probabilities of each of the possible numbers of successes on N trials for independent events that each have a probability of (the Greek letter pi) of occurring. For the coin flip example, N = 2 and = 0.5. The formula for the binomial distribution is shown below:

where P(x) is the probability of x successes out of N trials, N is the number of trials, and is the probability of success on a given trial. Applying this to the coin flip example,

If you flip a coin twice, what is the probability of getting one or more heads? Since the probability of getting exactly one head is 0.50 and the probability of getting exactly two heads is 0.25, the probability of getting one or more heads is 0.50 + 0.25 = 0.75.

Now suppose that the coin is biased. The probability of heads is only 0.4. What is the probability of getting heads at least once in two tosses? Substituting into the general formula above, you should obtain the answer .64.

4.3 Mean and Standard Deviation of Binomial Distributions

Consider a coin-tossing experiment in which you tossed a coin 12 times and recorded the number of heads. If you performed this experiment over and over again, what would the mean number of heads be? On average, you would expect half the coin tosses to come up heads. Therefore the mean number of heads would be 6. In general, the mean of a binomial distribution with parameters N (the number of trials) and (the probability of success on each trial) is:

$= N$

where is the mean of the binomial distribution. The variance of the binomial distribution is:

$^2 = N (1-)$

where ^{2} is the variance of the binomial distribution.

Let's return to the coin-tossing experiment. The coin was tossed 12 times, so N = 12. A coin has a probability of 0.5 of coming up heads. Therefore, = 0.5. The mean and variance can therefore be computed as follows:

$= N = (12)(0.5) = 6$

$^2 = N (1-) = (12)(0.5)(1.0 - 0.5) = 3.0.$

Naturally, the standard deviation ( ) is the square root of the variance (^{2}).

References

Diaz, Chris. 2021. "Lantern." Northwestern University Libraries.