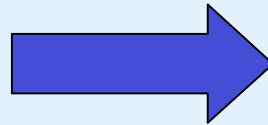


Math 140

Introductory Statistics



Maria R. D'Orsogna

Statistical Work

Data Exploration

Curiosity, examination, patterns, questions?

Tools: graphs, averages, pie charts...

Are the features I see what I expect?

Inference

(making inferences from data)

Can the observed features be reasonably attributed to chance?

Data from Tables

Variables - columns

Characteristics of each case
Allows us to see the **variability**

Cases - rows
Subjects and
objects
of statistical
investigation

Row	Job Title	Pay	Seniority	Round	Age
2	EngClerk	H	1.5	6	25
3	EngTech	H	12.4	6	38
4	Chemist	S	36.8	1	69
...					
...					

Cases = individual Westvaco employees
Variables = Job title, pay, layoff round

Understanding Variability

To understand the properties of the cases we look at their **distribution**

What are the values of the parameters of interest?

How do they occur?

How can we study the distribution?

Understanding Variability

To understand the properties of the cases we look at their **distribution**

What are the values of the parameters of interest?

How do they occur?

How can we study the distribution?

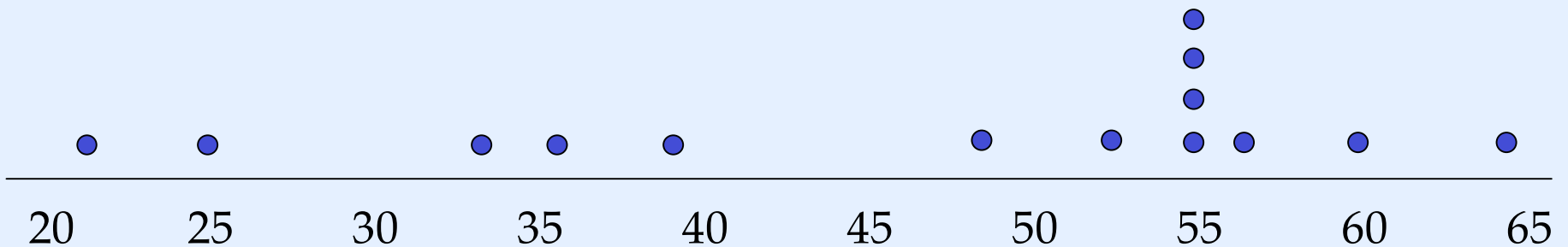
1. Let's look at the table real hard
2. Let's graph in a dot plot

Data

Row	Job Title	Age
1	Eng Clerk	25
2	Eng Tech II	38
3	Eng Tech II	56
4	Secretary	48
5	Eng Tech II	53
6	Eng Tech II	55
7	Eng Tech II	59
8	Parts Crib Attendant	22
9	Eng Tech II	55
10	Eng Tech II	64
11	Technical Secretary	55
12	Eng Tech II	55
13	Eng Tech II	33
14	Eng Tech II	35

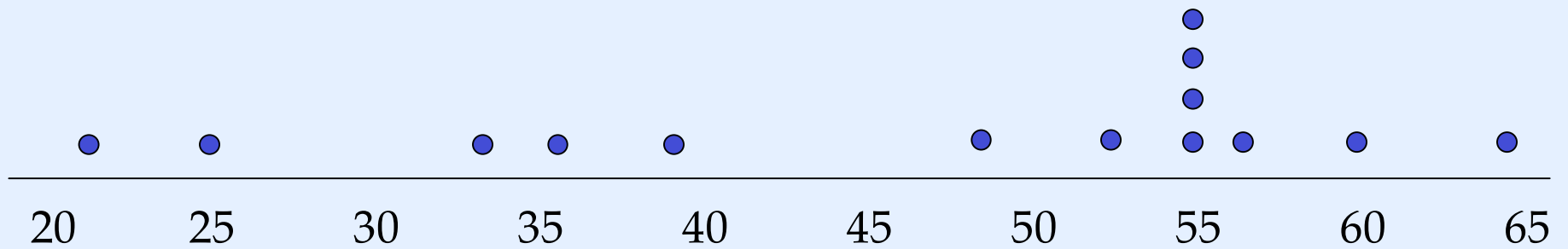
Dot Plots

Each case is represented by a dot located according to the numerical value of the variable we are investigating

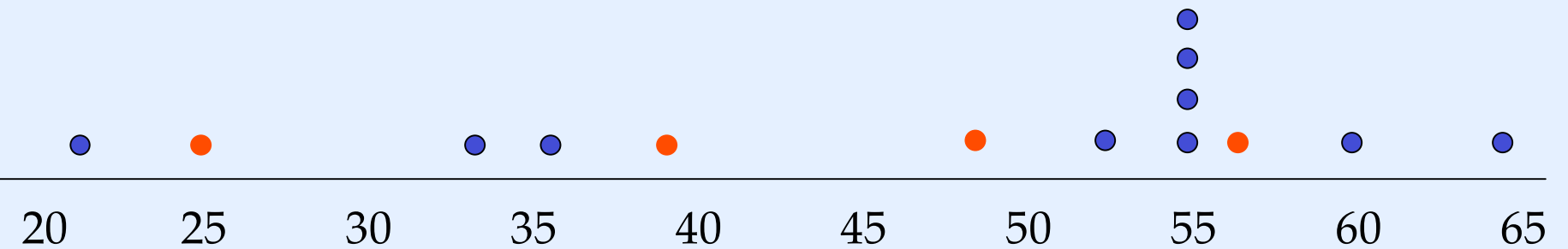


1.1) Age

Comparing dot plots



1.2) Age



1.3) Age laid off (blue), retained (red)

Discussion: was Mr. Martin discriminated against?

Suppose you were on the jury of the Martin vs. Westvaco case. How would you use the information in the table to decide if Westvaco tended to lay off older workers?

Does the dot plot in Display 1.3 show a clear-cut case of age discrimination in layoffs of hourly workers at Westvaco, a possible case of age discrimination, or no discrimination?

Other considerations?