

DEFN: DATA

DEFN: STATISTIC(S)

- . summary of data

- . about variation

why might we not be able to conclude definitely?

Q: How does Statistics differ from Math?

Some statisticians like to ask: who, what, when, where, why, how?

WHO=respondents, subjects, participants, cases

WHAT=observations

DEFN: Quantitative vs. Qualitative values

(numerical) (categorical)

{do Qual today}

Examples?

BE SKEPTICAL!

ASK QUESTIONS!

THINK OF WHAT CAN GO WRONG!

ISSUE: Data Overload

SOLUTION: Data Summary

How Do You Organize Your Life? Piles
Example: closet

DEFN: A data table showing pile counts is a **Frequency table**.

DEFN: A data table showing pile percentages is a **Relative Frequency table**.

DEFN: A **Bar Chart** is a picture of data piles (note: area should accurately depict counts)

DEFN: A **Pie Chart** is a picture of data piles showing fractions of the whole.

DEFN: A data table showing pile counts for 2 categories is a **Contingency table**.

Q: Can we show percentages in a contingency table?

INDEPENDENT?

How is the data **distributed** = what do the piles look like = what is the distribution

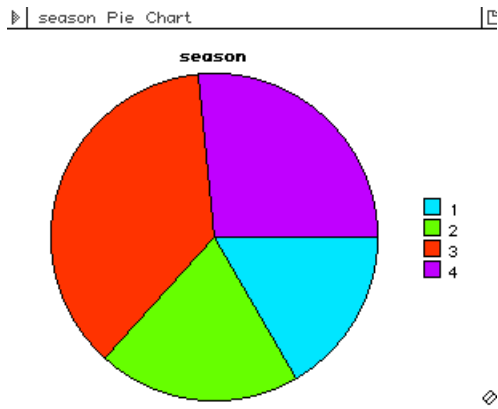
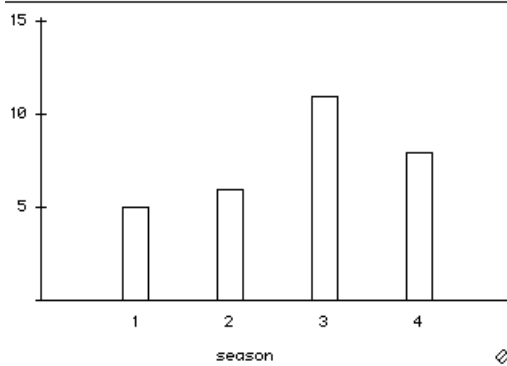
DEFN: In contingency tables (2 category type) a **marginal distribution** refers to only one of the 2 values.

DEFN: In contingency tables (2 category type) a **conditional distribution** refers to specifying a value of 1 of the values and considering what's happening with the other.

NOTE: If 2 conditional distributions are the same for 2 different specified values of the second category then we use the term “independent” values = variables = categories.

Consider this example

SEASON	COUNT	%
1	5	16.7
2	6	20.0
3	11	36.7
4	8	26.6



Sex/season	1	2	3	4	
F	4	3	7	7 (17.9%)	21 (53.8%)
M	4	6	5	3	18 (46.2%)
	8	9	12	10	39

Conditional distribution of season given sex=female

Season	Count	%
1	4	19.1
2	3	14.3
3	7	33.3
4	7	33.3

Conditional distribution of season given sex=male

Season	Count	%
1	4	22.2
2	6	33.3
3	5	27.8
4	3	16.7

Credit hours

STEMS	LEAVES
0-30	XXXXX
31-60	XX
61-90	XXXXXX
91+	XXX

Ages

STEMS	LEAVES
10	
20	1,0,2,8,8,1,1,0,3,3,1,3,7,8
30	9
40	
50	3