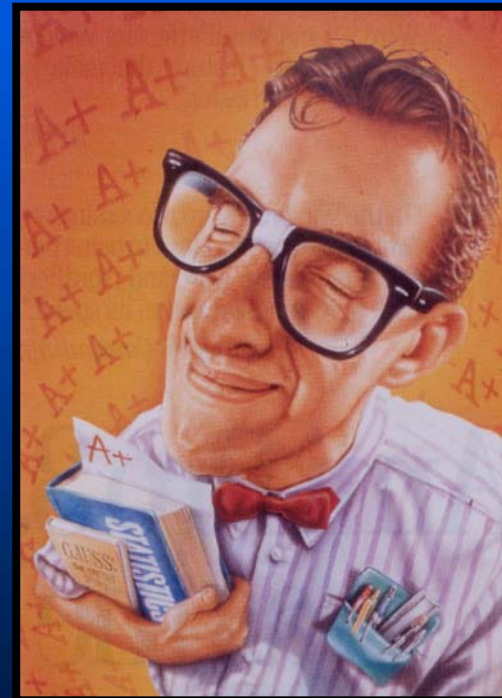


How to Pick the Correct Statistic

Follow
the roadmap

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Ask Yourself 3 Things

1. What type of data is it?
2. Number of comparison groups?
3. Are the groups independent (or are they matched)?

Continuous Data

- Data obtained by measuring
- Height, weight, age, blood pressure
- Values are not restricted to certain values but by the accuracy of the measuring instrument
- Weight: kg, mg, nanograms....
- Values are usually compiled as means

Nominal Data

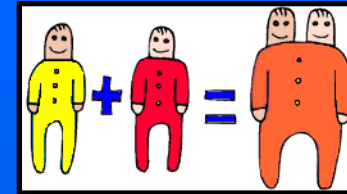
- Data which fits into categories
- Sex: male / female
- Pregnancy: yes / no
- Counts are compiled as a proportions

- Pregnancy Rate = 35%
- Proportion voting for Liberals = 60%

Ordinal Data

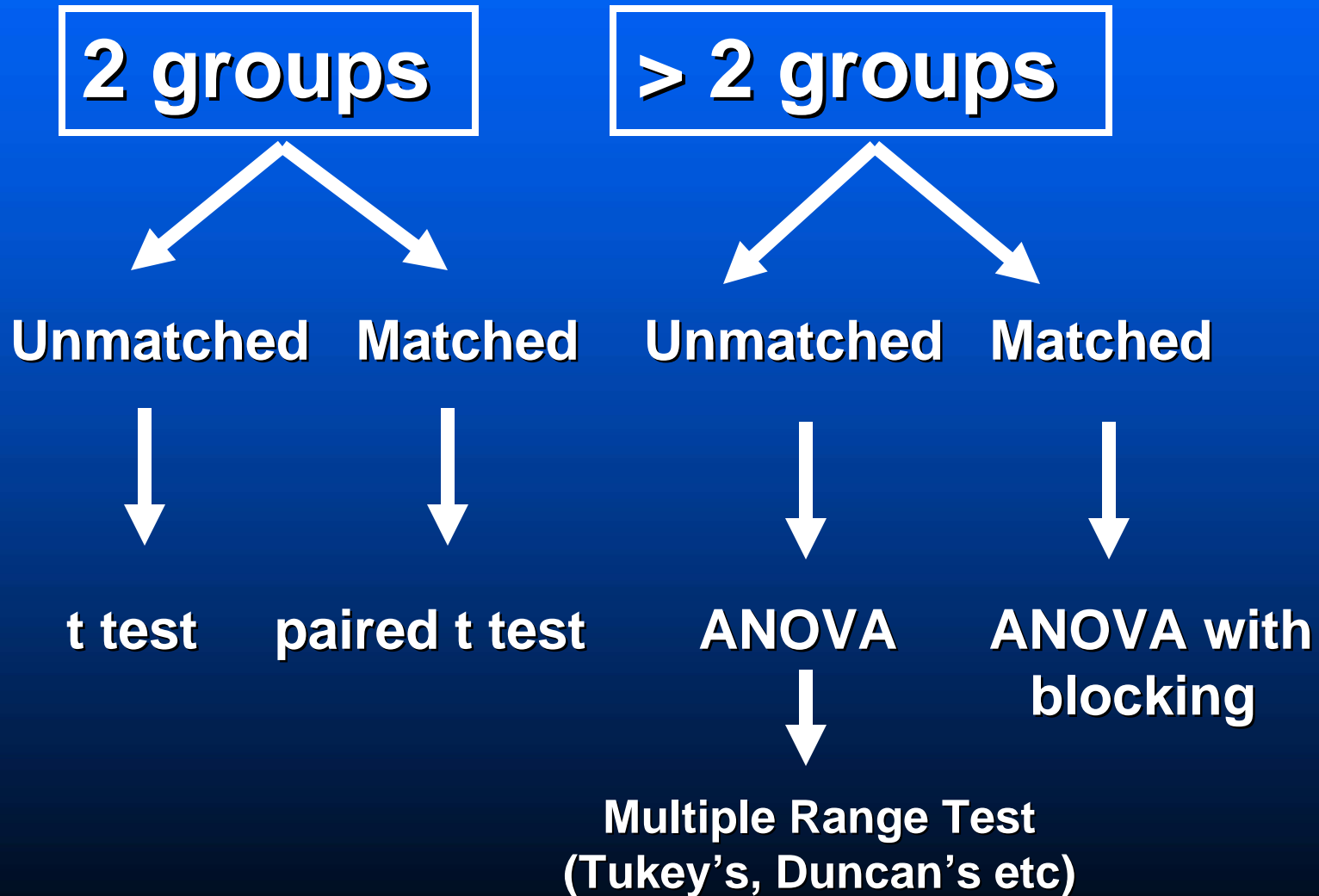
- **Categorical data with levels that can be ordered**
- **Pain: mild / moderate / severe**
- **Data often analyzed as ranks: 1, 2, 3**

What is matching?



- Observations or measurements made on the same subject (or on individually matched subjects) are said to be “matched” or “paired.”
- Examples: Before and after measurements in the same subject. Cases matched to controls on a confounding factor such as age.
- Matching needs to be considered in selecting the proper statistical test.
- Many tests (t test, ANOVA, Fisher’s exact test) assume independence.

Continuous Data



Nominal Data

2 groups
2 outcomes
(2 x 2 table)

>2 groups or
> 2 outcomes
(example: 3x3 table)

Unmatched

Matched

Unmatched

Fisher's
Exact Test

McNemar's
Test

Chi square Test

Ordinal Data

2 groups

> 2 groups

Unmatched

Matched

Unmatched

Matched

**Mann-Whitney U
or
Median Test**

**Wilcoxon
matched-pairs
signed-ranks test**

**Kruskal-Wallis
1-way ANOVA**

**Friedman
2-way ANOVA**

Source

Extracted from the following textbook:

Richard K. Reigelman. Studying a Study and Testing a Test. How to read the medical literature. Little, Brown and Company, Boston, 1981.