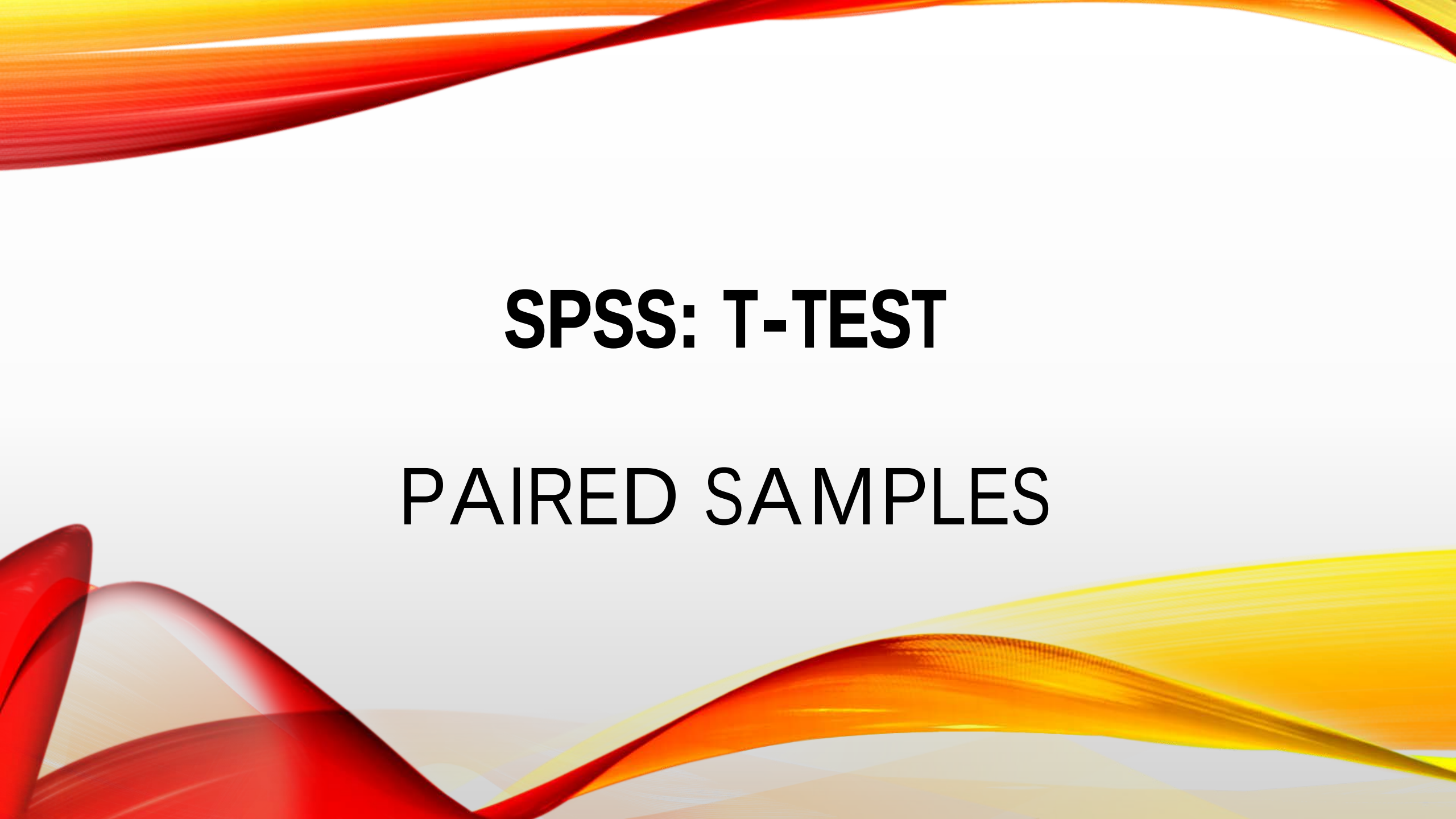




SPSS: T-TEST

PAIRED SAMPLES



T-TEST ANALYSIS

- Within-subjects design = Paired samples t-test
- Compares the mean scores on some continuous variable for ***the same groups of participants on two occasions / across two conditions***
 - *One group of participants; two levels/conditions*



THINGS TO REMEMBER

- T-tests are used when you have only **two levels** to an independent variable.
- Parametric test – relies on a number of assumptions relating to data
- The t-test tests the probability that the two sets of scores (for your two conditions) came from the same population.
 - A significant finding ($p < .05$) allows us to determine that they did not come from the same population, and are significantly different

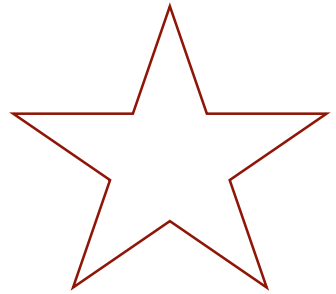


ASSUMPTIONS AND REQUIREMENTS FOR DATA

1. The DV should be measured on a continuous scale – interval or ratio
2. Random sampling should be employed where possible
3. Independence of observations:
 - a) Each measurement should not be influenced by any other measurement
 - b) Situations that involve group data collection, or where participants interact with one another, may require more specialist techniques.
4. Normal distribution of scores on the DV

STUDY EXAMPLE

- Exploring differences in reaction times to circular warnings and triangular warnings in vehicles
- NOTE: we need...
 - One set of participants that provides *two* sets of scores
 - One for circular warnings, one for triangular warnings
 - You still have **one categorical IV** (shape of warning: circle / triangle) and **one continuous DV** (reaction time measured for both conditions)





RESULTS

$t \text{ (df)} = \text{t-value}, p < / > .05$

$t \text{ (19)} = 3.19, p < .05$

$t \text{ (19)} = 3.19, p = .005$

INTERPRETING RESULTS

- A paired samples t-test was conducted in order to assess differences in reaction times (in milliseconds) to visual warnings presented in cars; circular and triangular. Results show that participants responded significantly quicker to circular warnings ($M = 21.36\text{ms}$, $SD = 3.07$) than triangular warnings ($M = 23.69\text{ms}$, $SD = .84$); $t(18) = 3.19$, $p < .05$ (or $p = .005$).