**T test vs Wilcoxon rank-sum test**

The independent samples t-test assumes that the data in both groups are normally distributed and have equal variances.

**When to use the Wilcoxon rank-sum test**

* **Non-normality:** If your data are not normally distributed, or if you suspect they are not, the Wilcoxon rank-sum test is a suitable alternative.
* **Unequal variances:** If the variances between the two groups are significantly different, the Wilcoxon test is more robust.
* **Non-parametric data:** If your data are not interval or ratio scaled (e.g., ordinal data), the Wilcoxon test is appropriate.

**How the Wilcoxon test works**

Instead of comparing the means like the t-test, the Wilcoxon rank-sum test compares the ranks of the observations from both groups, making it less sensitive to outliers and non-normal distributions.

**Usage:**

While the Wilcoxon test is more robust, it is generally less powerful than the t-test when the assumptions of the t-test are met.

**Non-Parametric Data**

Non-parametric data, in the context of statistics, refers to data that doesn't follow a specific, known distribution (like the normal distribution) and for which we don't assume any particular parameters, relying instead on methods that focus on ranks or frequencies rather than means or standard deviations

# T Test

sample mean; pulled variance; number of elements in sample

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variance of sample 1; DOF of sample 1