

Student's t-Test for Paired Samples

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This version of Student's t -test evaluates whether two dependent (paired) samples are statistically different. The only required input is the data matrix.

1 Equation:

$$t = \frac{d}{\sqrt{\frac{s^2}{n}}}$$

Where:

- d = mean difference between paired observations
- s^2 = variance of the differences
- n = sample size

The variance of the differences is given by:

$$s^2 = \frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n - 1}$$

2 Files:

1. Program
2. Source code
3. This tutorial

3 Usage and example

The program performs the test at a 5% significance level.

```
1. Enter the matrix containing the two paired datasets;
2. Run "testetDep1matrix"

# Output:
1. "tval" - calculated t statistic;
2. "tcr5%" - critical (tabulated) t value at 5%;
3. "pval" - p-value of the test
```

Table — Observed values for groups A and B (Vieira, 2000).

Group								
A	2	3	5	1	4	2	7	6
B	7	6	8	6	8	7	10	9

The results are identical to those obtained using the HP50G's internal form-based input and built-in algorithm.



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