

# How can I plot ANOVA cell means in Stata?

Authored by  
**stats writer**

July 1, 2024

## RECOMMENDED CITATION

stats writer (2024). *How can I plot ANOVA cell means in Stata?*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=164310>

ANOVA (Analysis of Variance) is a statistical test used to compare means of three or more groups. In Stata, the command "anova" can be used to conduct ANOVA tests and obtain the overall F-statistic and p-value. However, in order to gain a better understanding of the differences between the groups, it is helpful to visualize the individual cell means. This can be done by using the "margins" command in Stata, which calculates the means for each level of the independent variable and plots them on a graph. By specifying the "over" option, the means for each group can be displayed on the same graph, allowing for easy comparison. This method provides a visual representation of the ANOVA results, making it easier to interpret and communicate the findings.

## How can I plot ANOVA cell means in Stata? | Stata FAQ

**There are two ways in which you can plot ANOVA cell means:**

**Let's begin with the anovaplot.ado program. You can download it by typing search anovaplot (see How can I use the search command to search for programs and get additional help? for more information about using search).**

**Now, let's read in an example dataset, crf24, adapted from Kirk (1968, First Edition).**

**use <https://stats.idre.ucla.edu/stat/stata/faq/crf24>**

**anova y a b a\*b**

**Number of obs = 32 R-squared = 0.9214**

**Root MSE = .877971 Adj R-squared = 0.8985**

**Source | Partial SS df MS F Prob > F**

-----+-----

**Model | 217.731 40.22 0.0000**

|

**a | 3.125 1 3.125 4.05 0.0554**

**b | 194.5 3 64.8333333 84.11 0.0000**

**a\*b | 19.375 3 6.45833333 8.38 0.0006**

|

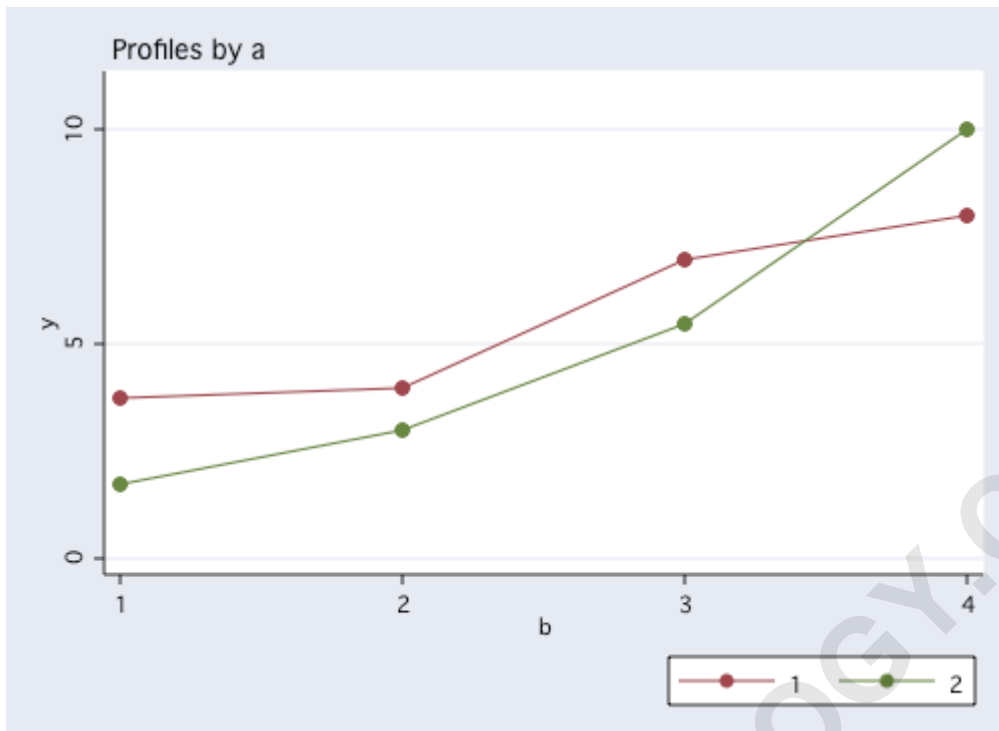
**Residual | 18.5 24 .770833333**

-----+-----

**Total | 235.5 31 7.59677419**

**Now, let's plot the cell means.**

**anovaplot b a, scatter(msym(none))**



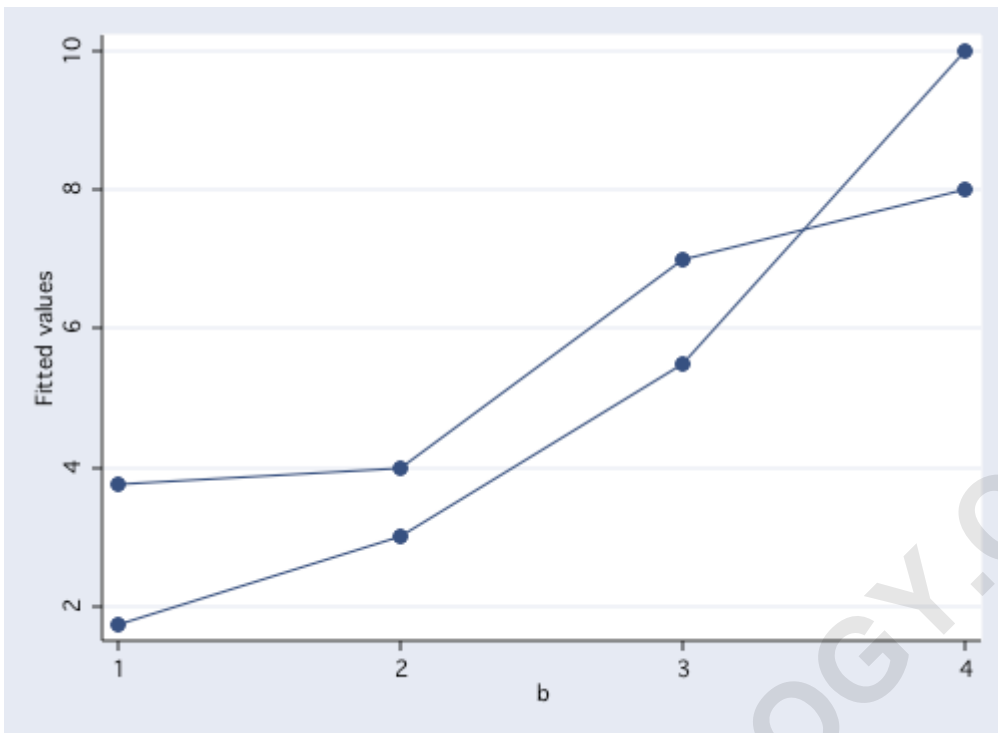
The graph illustrates the interaction effects in the 2 x 4 factorial ANOVA.

Now, let's look at the sequence of Stata commands which can be used to produce these graphs.

`predict yhat`

`sort a b`

`graph twoway scatter yhat b, connect(L)`



In order to do this plot of the cell means it is necessary to predict the cell means using `predict yhat`.

Next the data are sorted on `a` and `b` and then `yhat` is graphed versus `b` with the points connected by a line for each level of `a` (the `c(L)` option: Note the upper case "L").