Working with SPSS

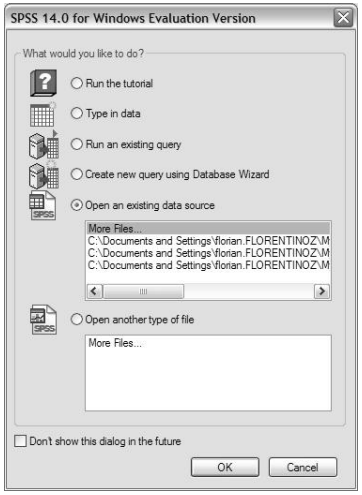
Getting to know your data and checking assumptions of ANOVA

I'm using data from a self-paced reading study I did for my first GP here.

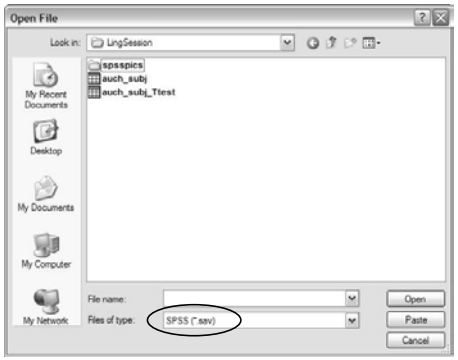
Two factors (2 x 2 within subjects design)

1. presupposition (auch) or not (vorher)
2. Relative clause with Obj-Subj or Subj-Obj order (this affected whether the presupposition was satisfied)

We are looking at reading times for the clause containing the presupposition trigger.

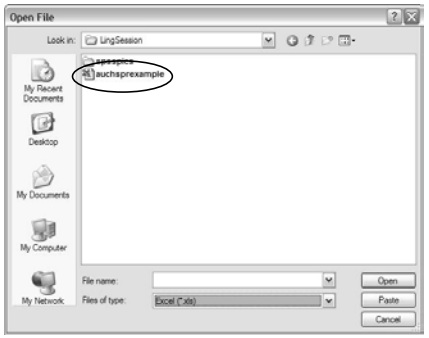


- This screen will open when you run SPSS
- Just Click OK

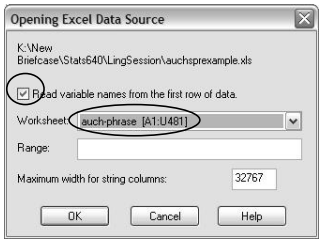


Now all the SPSS files in the folder you are looking at are displayed

To open an excel file, Change the file type to be displayed to 'Excel(*.xls)'

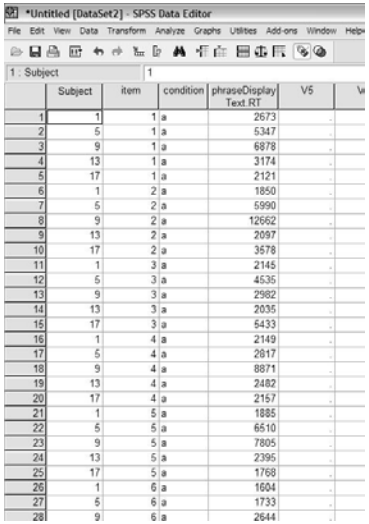


Choose the Excel File that contains Your data and Open it



If the file contains Multiple tabs, you'll Have to choose which tab to open (renaming them in Excel will help you recognize them here)

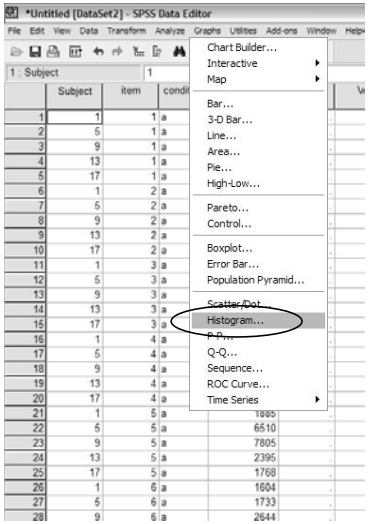
If you have named your variables in Excel in the first row, check the checkbox on the top left.



Making a Histogram

This is the complete set of data points.

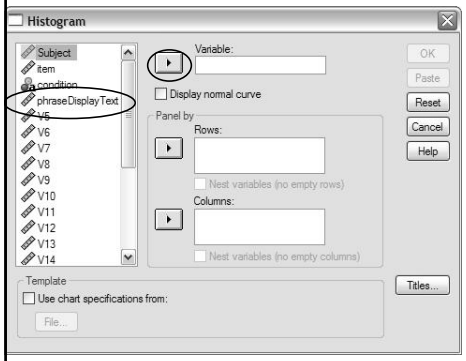
To inspect your data, it's a good idea to make histograms for the different conditions, to get a first impression of the data.



Making a Histogram

Under 'Graphs', click on 'Histogram'!

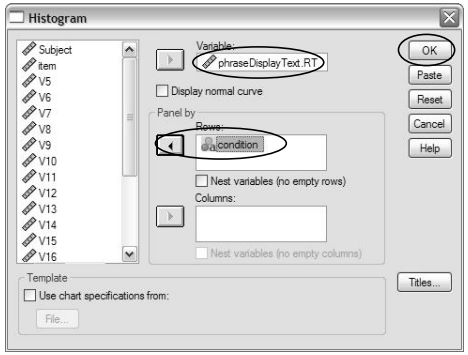
Making a Histogram



This window will open.
Now you have to put in the variable and decide how to organize your data

Highlight one of the items on the left, and click on the arrows to add them to the different fields

Making a Histogram

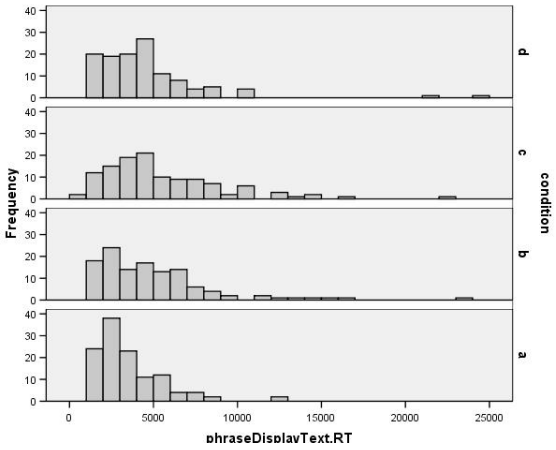


My dependent variable here is the reading time.

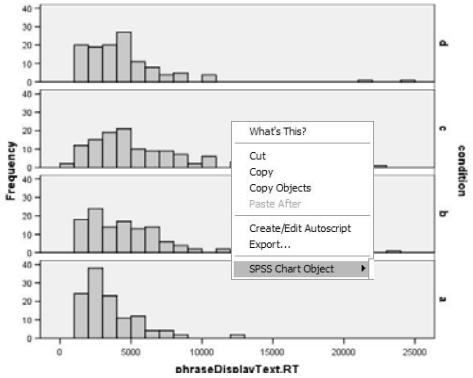
I chose to organize the data points by condition.

Click OK

… and then you get this in the SPSS Output viewer

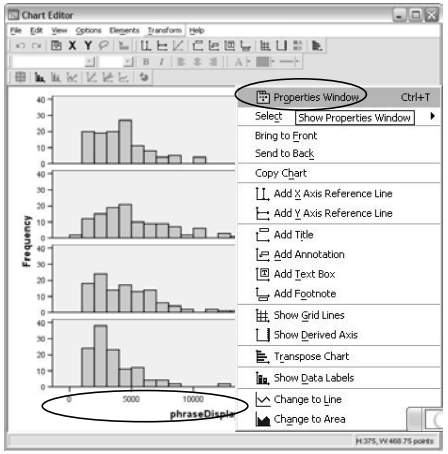


Formatting the Histogram



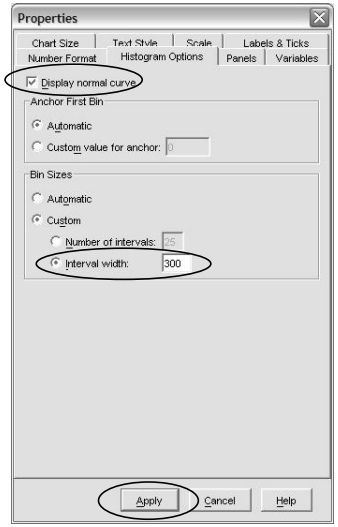
Right-click on the chart and click on 'SPSS Chart Object' – 'Open' to edit the Histogram

Formatting the Histogram



A new window opens.

Right-click on the X-Axis and choose 'Properties Window'



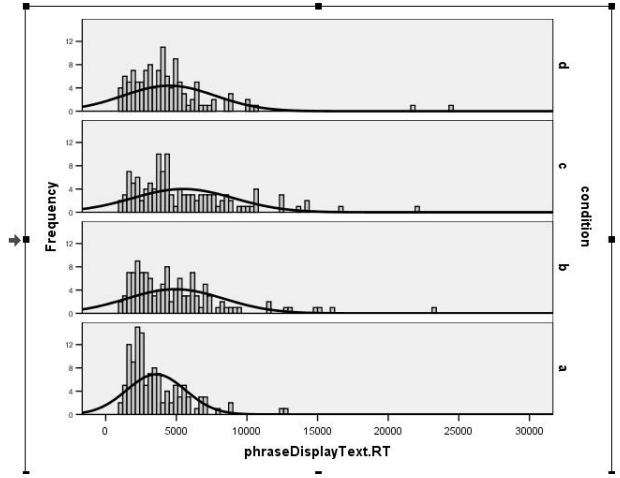
Formatting the Histogram

Under 'Histogram Options', you can change the intervals for the histogram.

You can also choose to display a normal curve.

When you're done, click 'Apply'

… and the chart in the SPSS Output viewer changes to this



What to do with the Histogram

- The histogram gives you a first overview of your data
- You can spot outliers and see whether the different conditions differ in the way the data points are distributed in them
- There are different things one can do with outliers:
  - Throw them out, adjust them artificially…
- First, check if there was some sort of error.
- Next, you can try to run the analysis with the outliers. If your results work out, then there's nothing to worry about
- If your analysis doesn't work out, talk to someone about dealing with the outliers!

What to do with the Histogram

- You can also check whether any assumptions that the ANOVA is based on are violated.

- These include:
  - homogeneity of variance
  - Skew
  - kurtosis

- BUT: ANOVA's are very robust in these respects - at most, the accuracy of the analysis is affected to some extent!