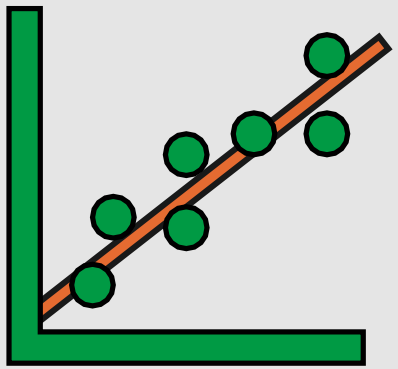
Making Magnificently Good Graphs: SPSS

BERDC Special Topics Talk 3, Part 4



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DAKOTA CANCER COLLABORATIVE ON TRANSLATIONAL ACTIVITY

Dr. Mark Williamson

Biostatistics, Epidemiology, and Research Design Core

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Overview

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- We'll cover how to make great looking graphs in SPSS
- We'll start by creating basic graphs, then explore how to upgrade by modifying various elements
- Take the pre-test here https://und.qualtrics.com/jfe/form/SV_e5JnbgUz6mW12K2
- Get the SPSS dataset here https://med.und.edu/daccota/_files/docs/berdc_docs/mmgg_spss_dataset.csv
- Get the PDF version here https://med.und.edu/daccota/_files/pdfs/berdc_resource_pdfs/mmgg_spss.pdf
- Stay tuned for a summative treat at the end

Elements:

I. **Labels**
II. **Axes**
III. **Colors and Shapes**
IV. **Dots, Lines, and Text**
V. **Other**

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Getting Set Up

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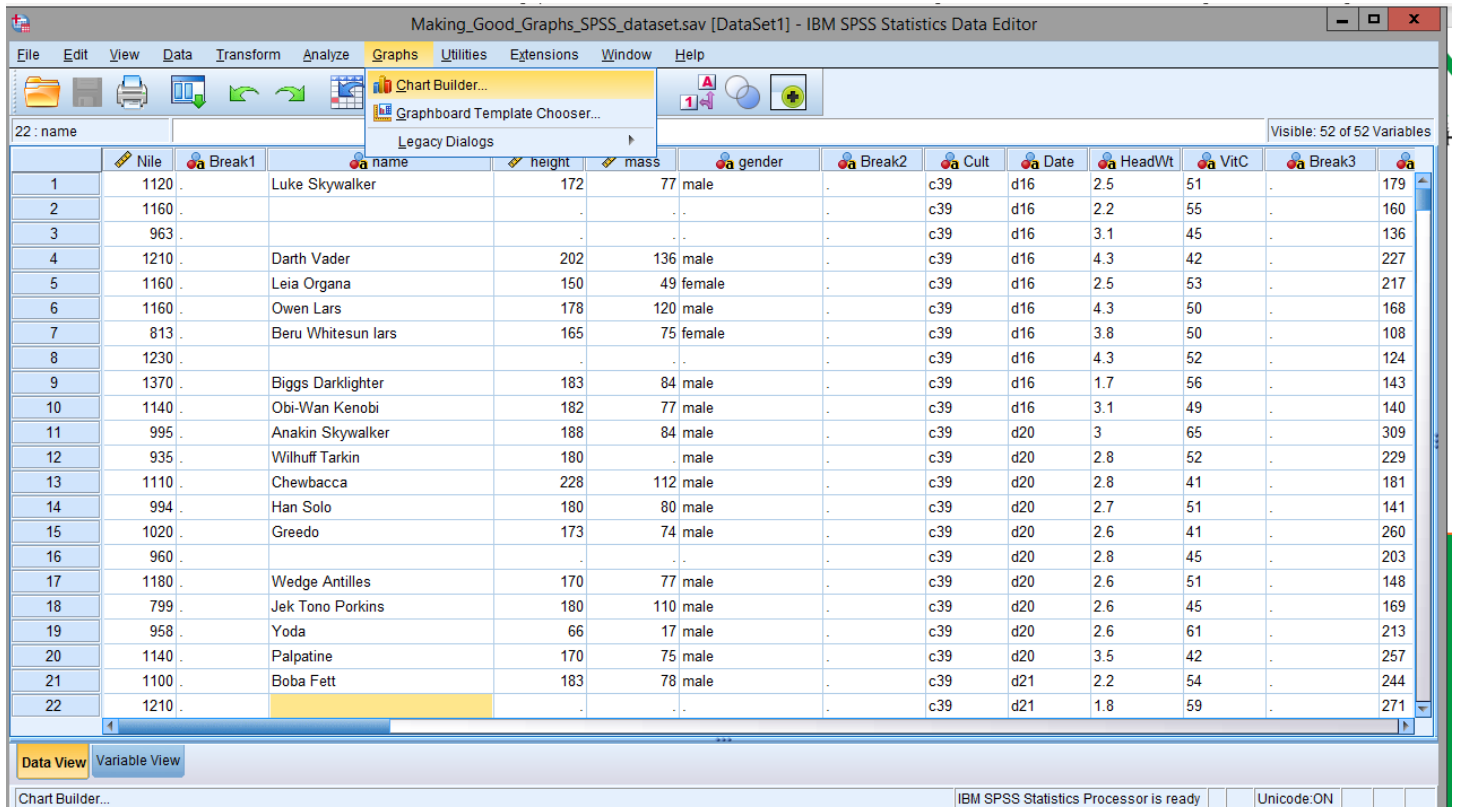
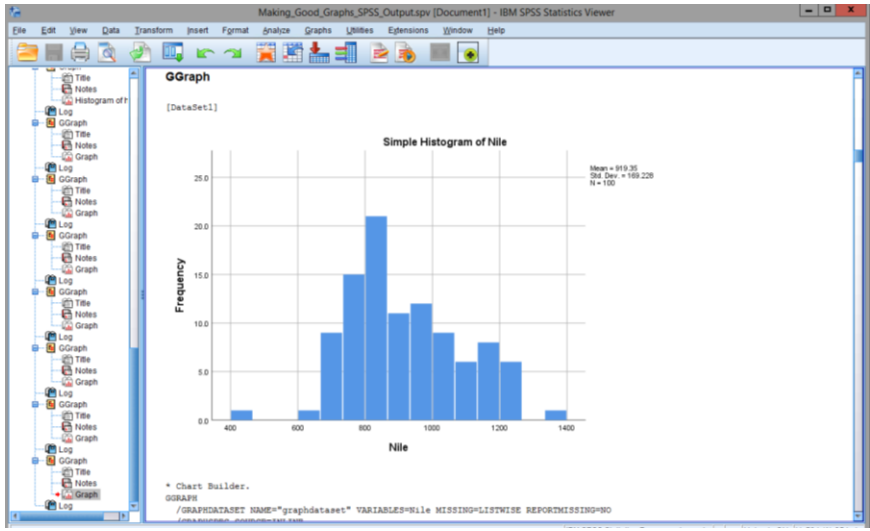
SPSS

Graphs -> Chart Builder



	Nile	Break1	name	height	mass	gender	Break2	Cult	Date	HeadWt	VitC	Break3	
1	1120	.	Luke Skywalker	172	77	male	.	c39	d16	2.5	51	.	179
2	1160	.		.	.	.	.	c39	d16	2.2	55	.	160
3	963	.		.	.	.	.	c39	d16	3.1	45	.	136
4	1210	.	Darth Vader	202	136	male	.	c39	d16	4.3	42	.	227
5	1160	.	Leia Organa	150	49	female	.	c39	d16	2.5	53	.	217
6	1160	.	Owen Lars	178	120	male	.	c39	d16	4.3	50	.	168
7	813	.	Beru Whitesun lars	165	75	female	.	c39	d16	3.8	50	.	108
8	1230	.		.	.	.	.	c39	d16	4.3	52	.	124
9	1370	.	Biggs Darklighter	183	84	male	.	c39	d16	1.7	56	.	143
10	1140	.	Obi-Wan Kenobi	182	77	male	.	c39	d16	3.1	49	.	140
11	995	.	Anakin Skywalker	188	84	male	.	c39	d20	3	65	.	309
12	935	.	Wilhuff Tarkin	180	.	male	.	c39	d20	2.8	52	.	229
13	1110	.	Chewbacca	228	112	male	.	c39	d20	2.8	41	.	181
14	994	.	Han Solo	180	80	male	.	c39	d20	2.7	51	.	141
15	1020	.	Greedo	173	74	male	.	c39	d20	2.6	41	.	260
16	960	.		.	.	.	.	c39	d20	2.8	45	.	203
17	1180	.	Wedge Antilles	170	77	male	.	c39	d20	2.6	51	.	148
18	799	.	Jek Tono Porkins	180	110	male	.	c39	d20	2.6	45	.	169
19	958	.	Yoda	66	17	male	.	c39	d20	2.6	61	.	213
20	1140	.	Palpatine	170	75	male	.	c39	d20	3.5	42	.	257
21	1100	.	Boba Fett	183	78	male	.	c39	d21	2.2	54	.	244
22	1210	.		.	.	.	.	c39	d21	1.8	59	.	271



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Histograms

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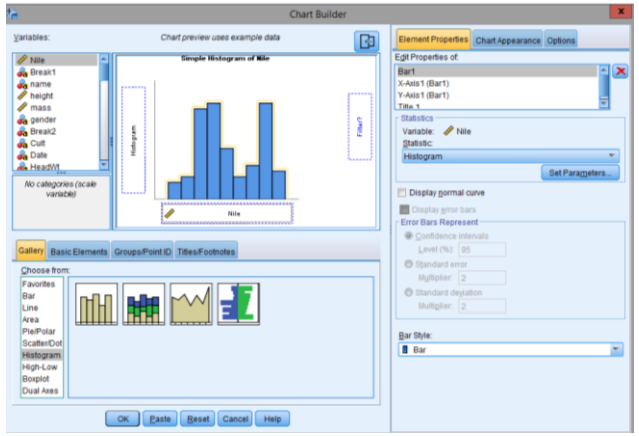
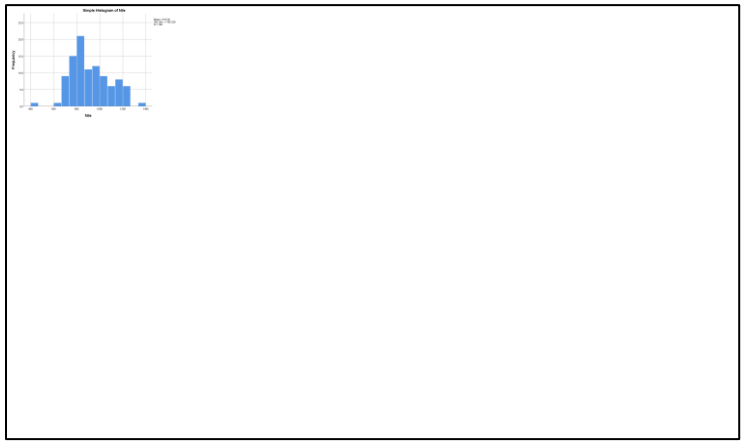
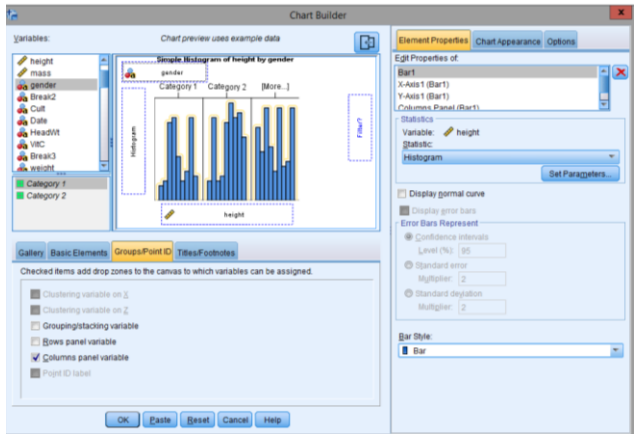
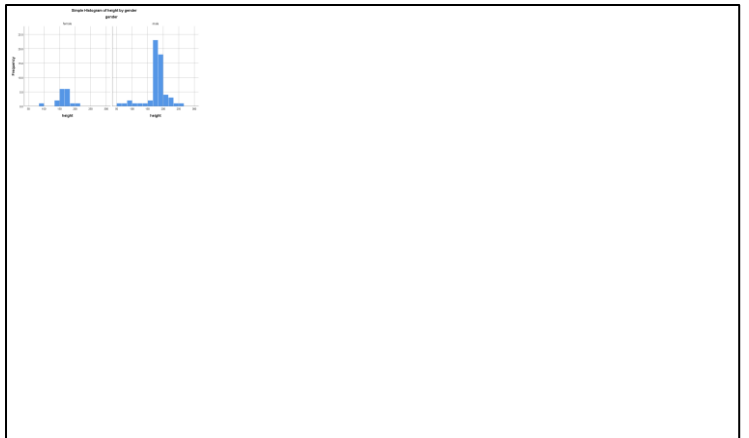
I. Simple histogram





II. Two-way histogram





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Histograms cont.

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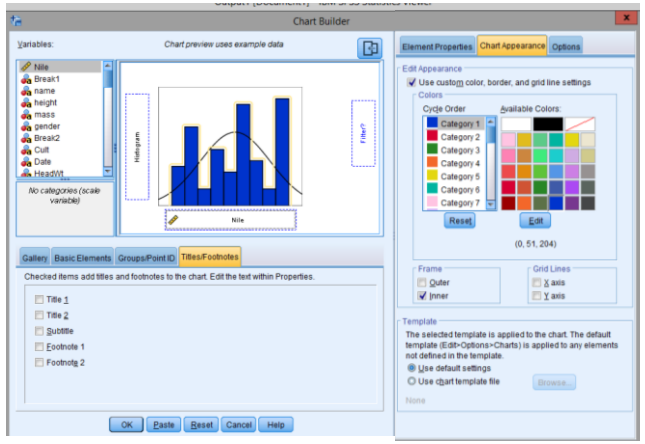
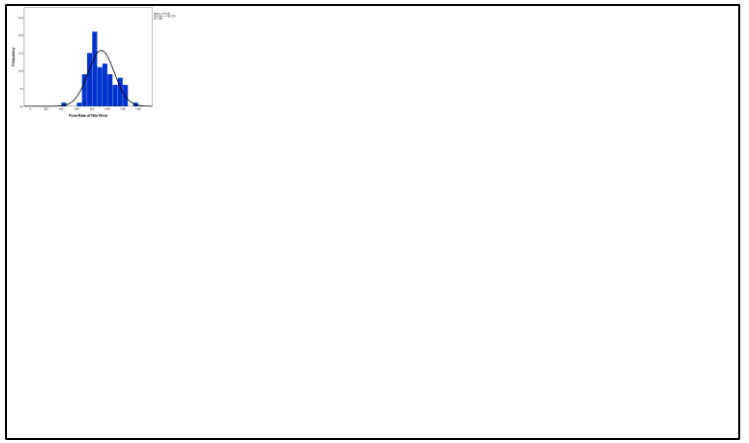
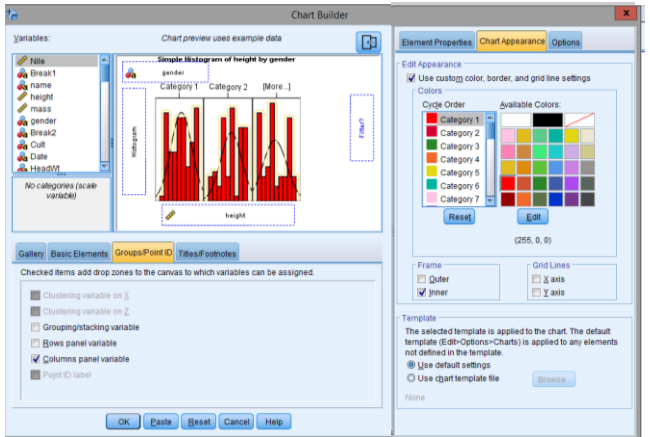
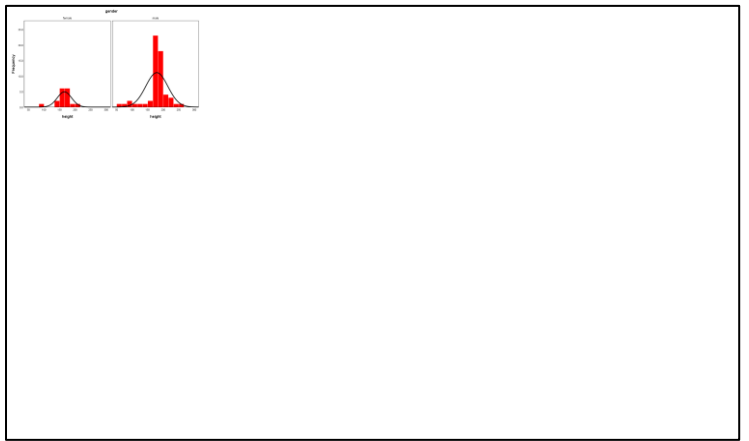
I. Simple histogram upgraded





II. Two-way histogram upgraded





Exploration: ***using the height (x-axis) and gender (panel), compared paneling between row and columns***

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Boxplots

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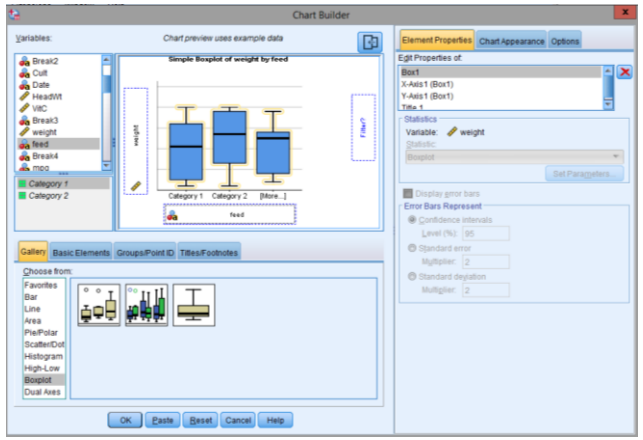
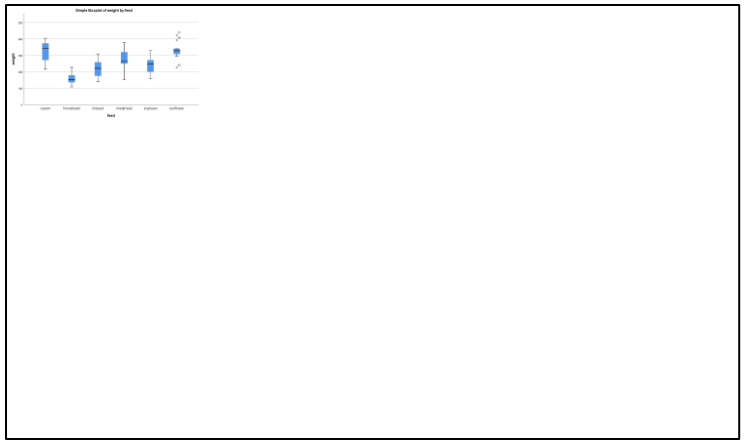
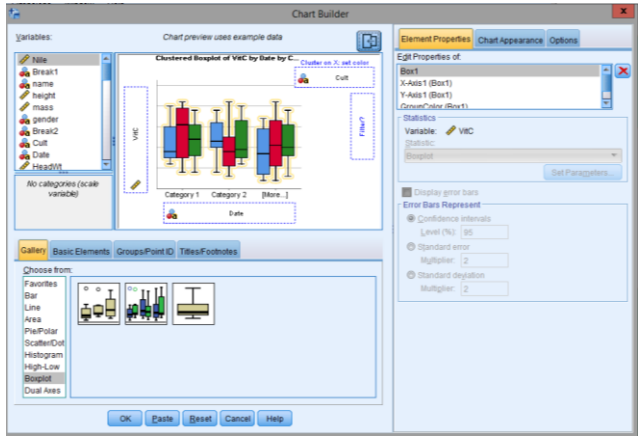
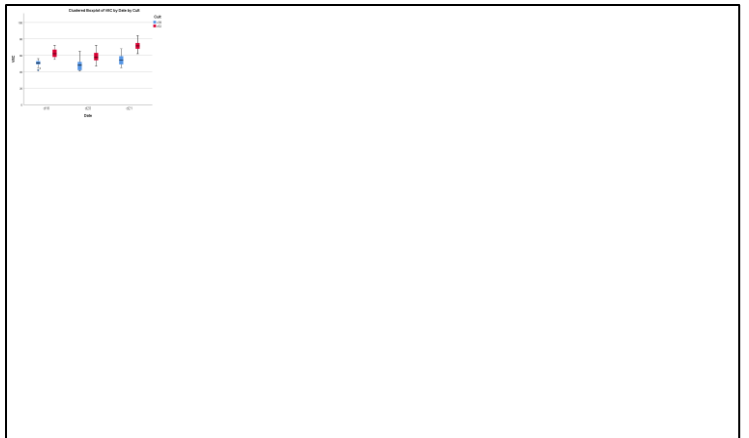
I. Simple boxplot





II. Two-way boxplot





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Boxplots cont.

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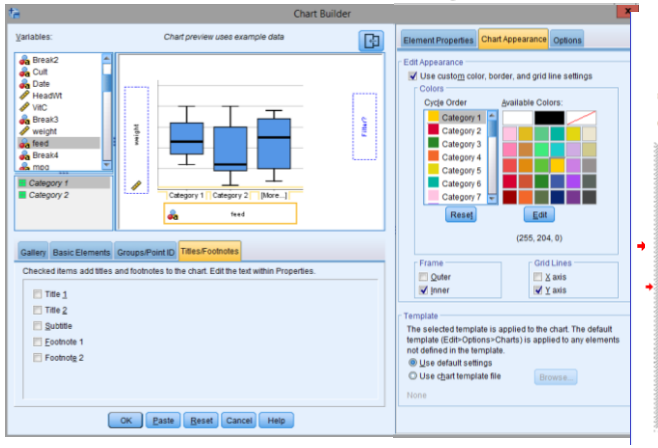
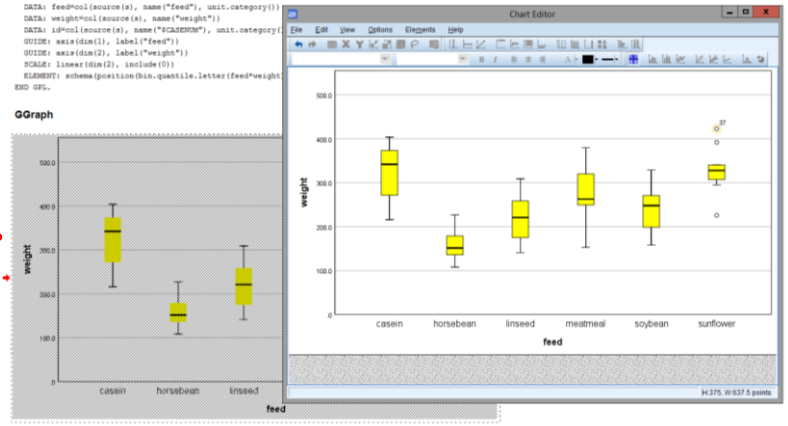
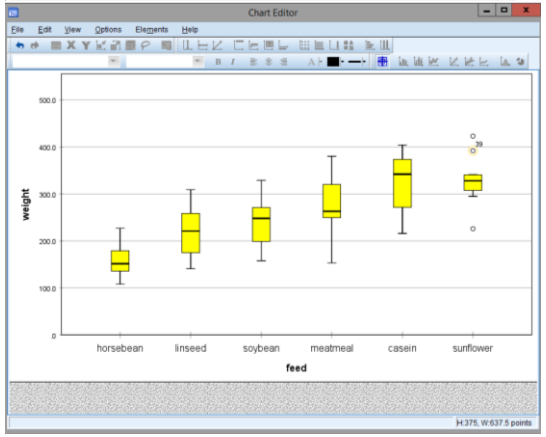
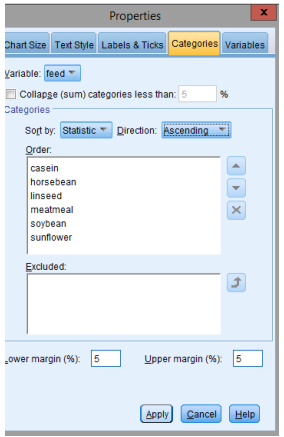
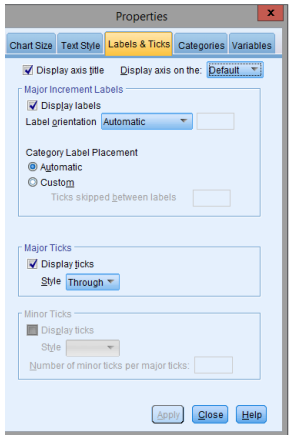
I. Simple boxplot upgraded

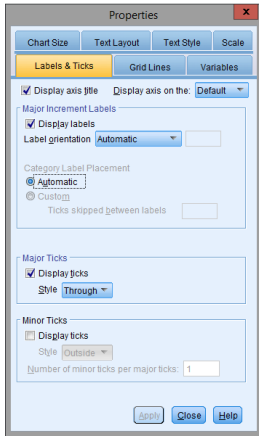


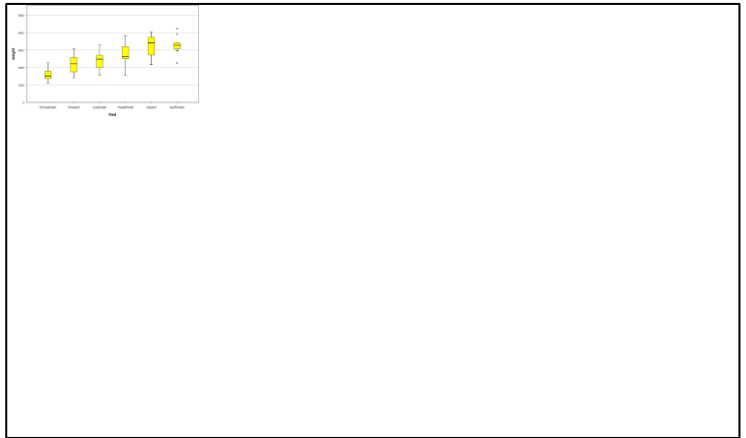












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Boxplots cont. 2

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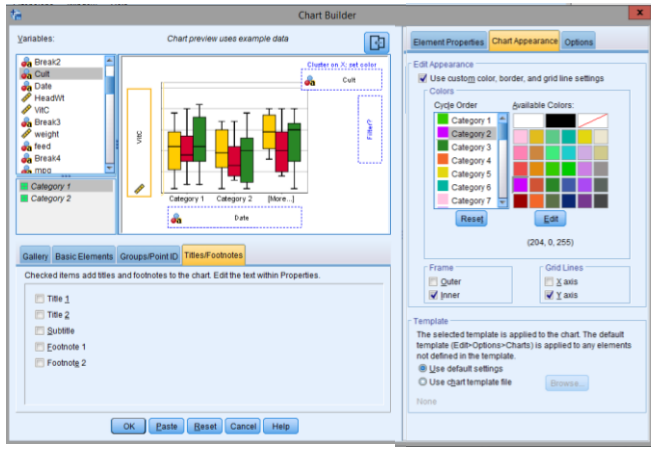
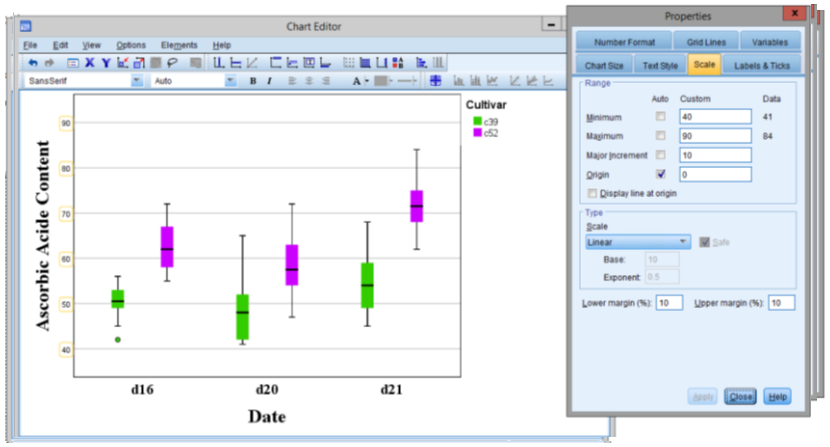
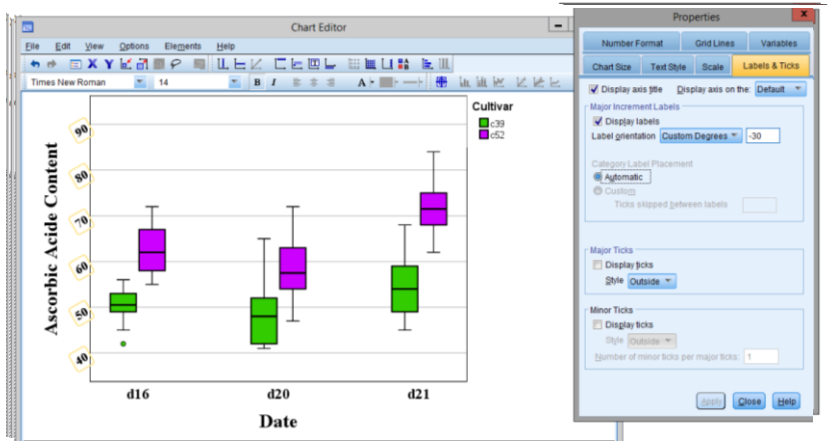
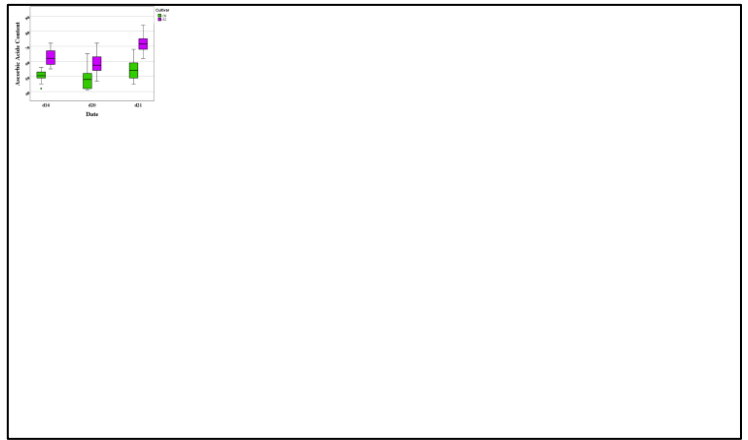
II. Two-way boxplot upgraded









Exploration: *try creating a two-way box plot of head weight (HeadWt) across Cultivar (Cult) and Date (Date), then make the boxes as large as possible*

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Bar plots

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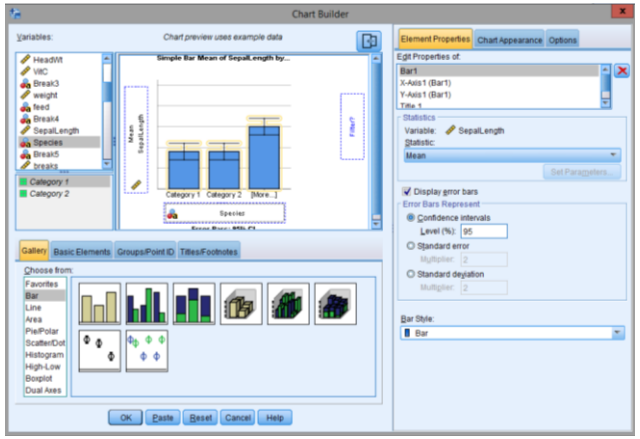
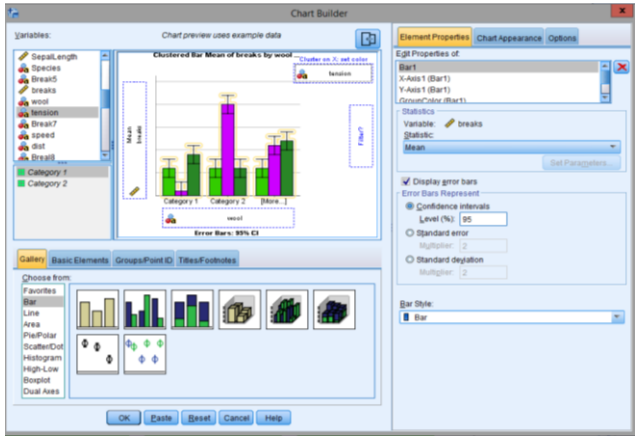
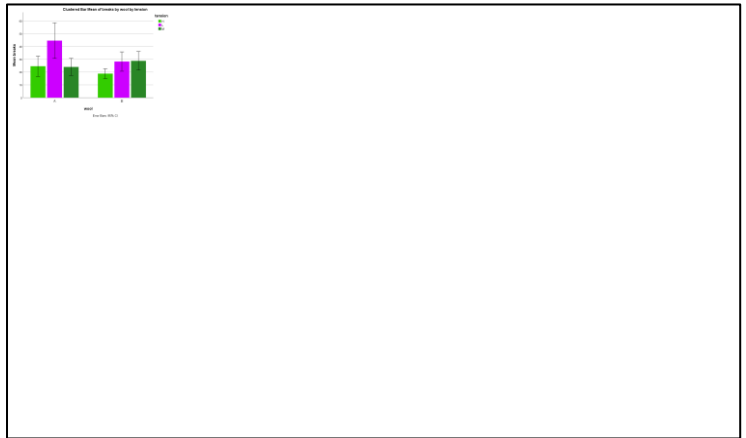
I. Simple bar plot



II. Two-way bar plot





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Bar plots cont.

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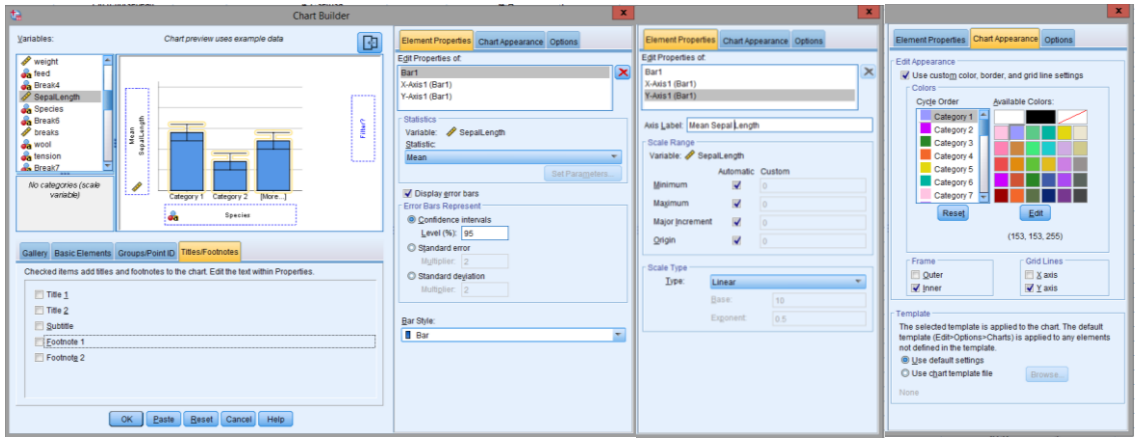
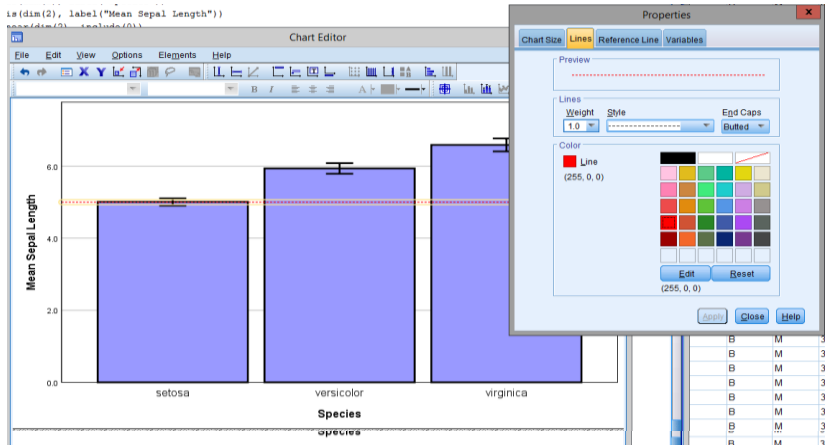
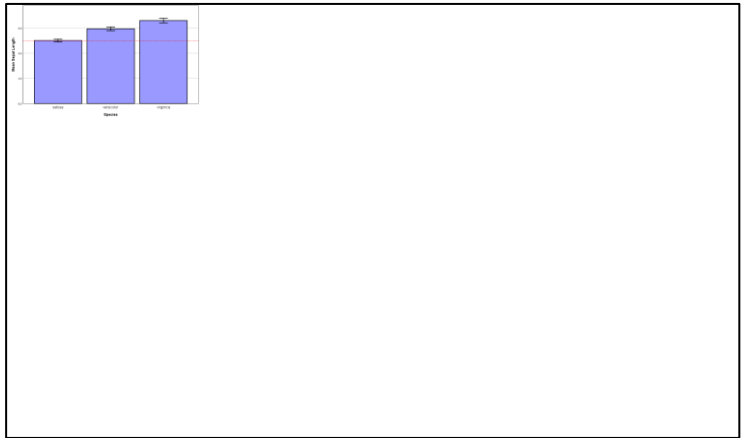
I. Simple bar plot upgraded







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Bar plots cont. 2

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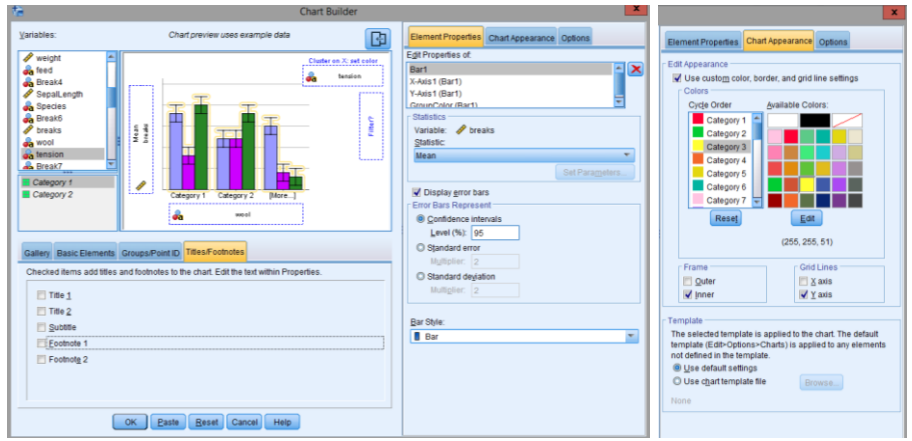
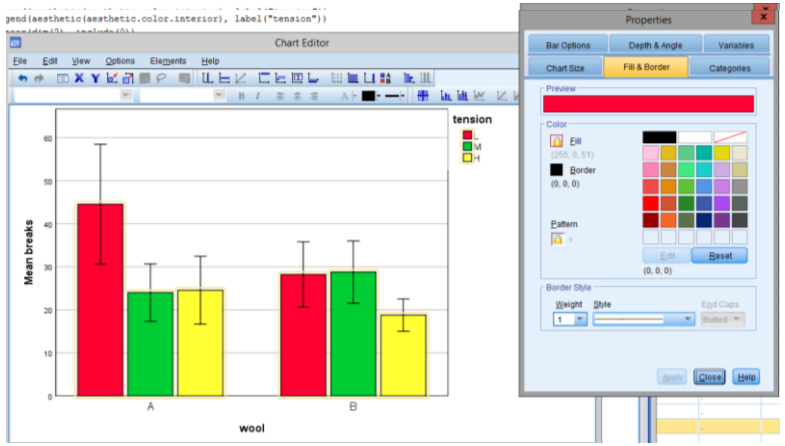
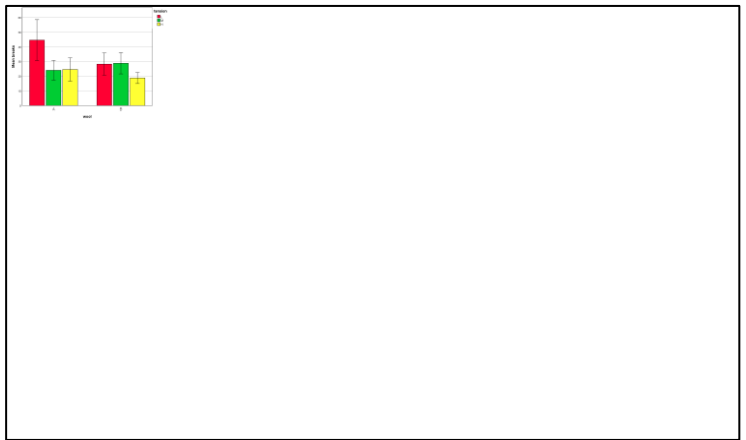
II. Two-way bar plot upgraded





Stat Hacks



Exploration: *using the warp breaks data (breaks, wool, tension), try creating stacked bar plot rather than a clustered one*

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Scatter plots

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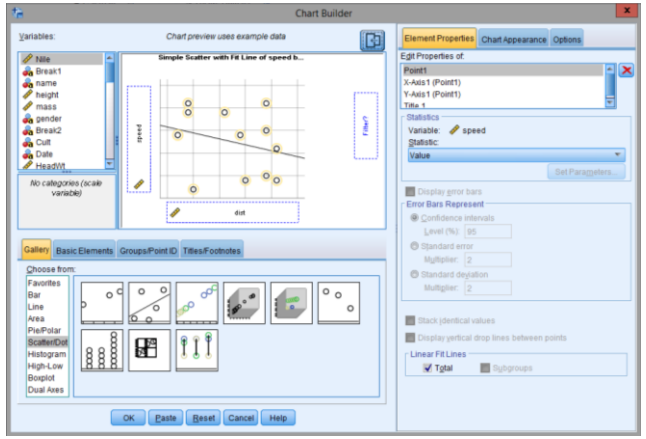
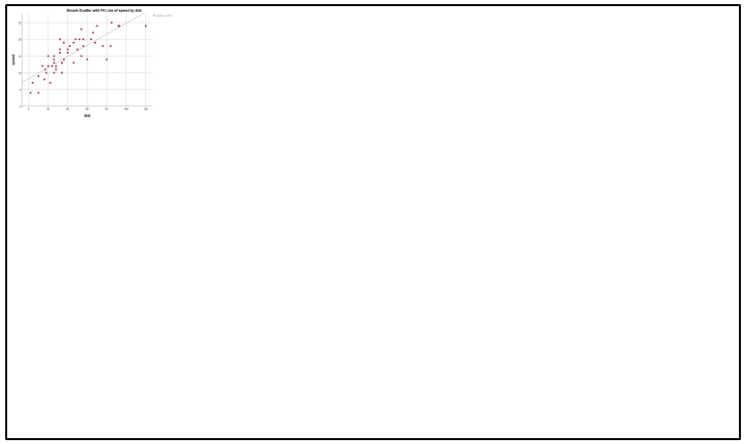
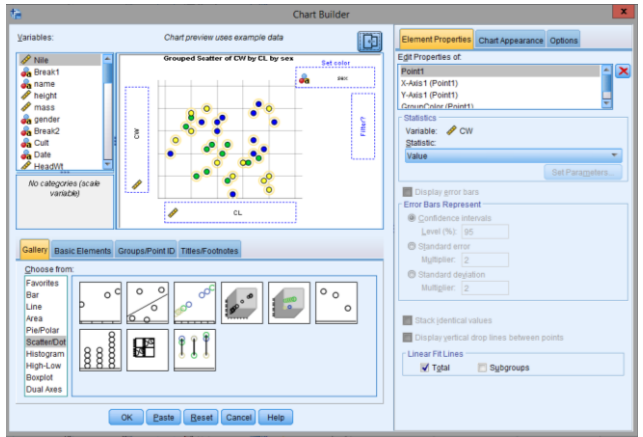
I. Simple scatter plot





II. Two-sample scatter plot



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Scatter plots cont.

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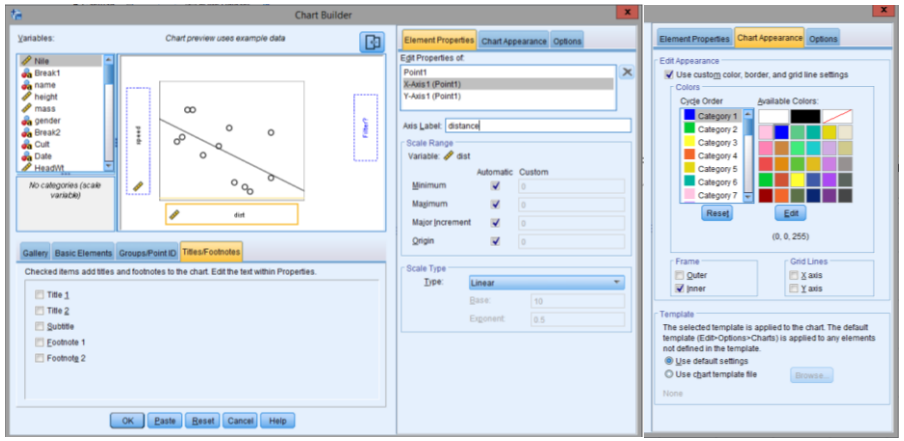
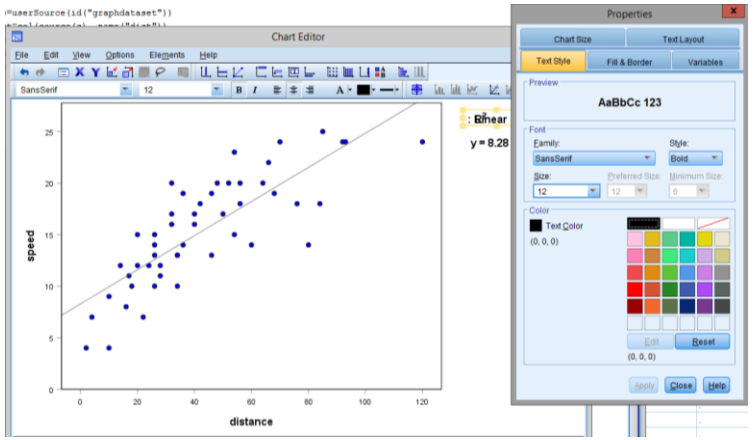
I. Simple scatter plot upgraded





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Scatter plots cont. 2

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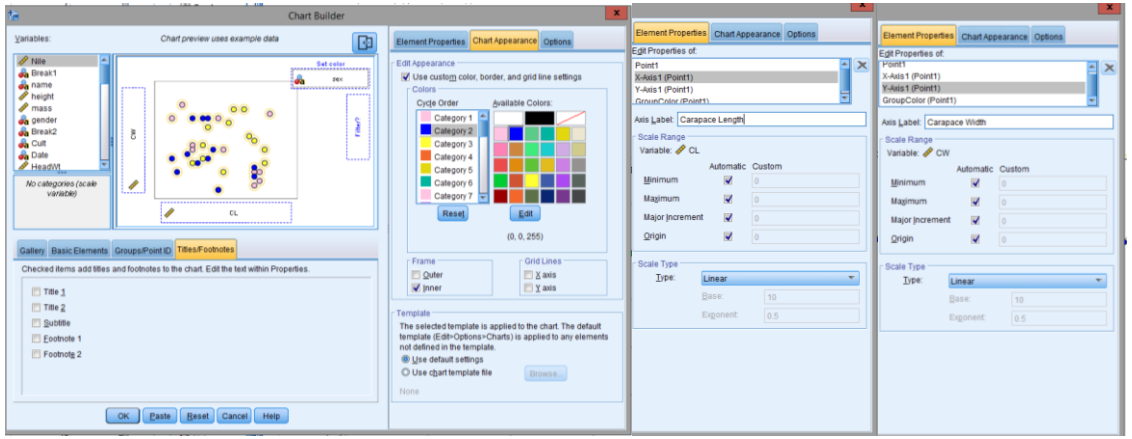
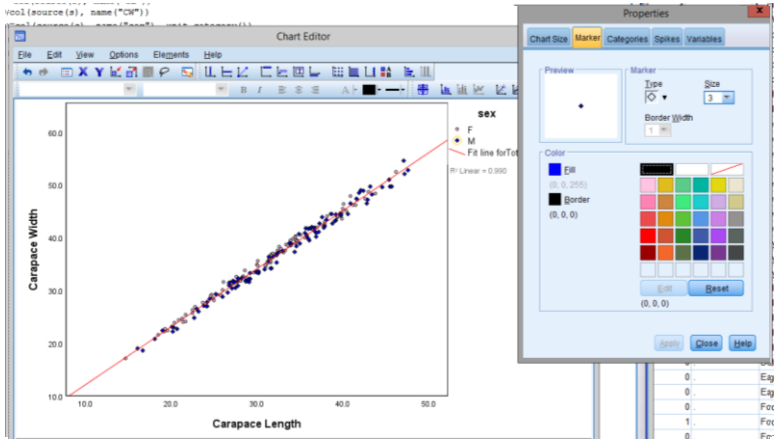
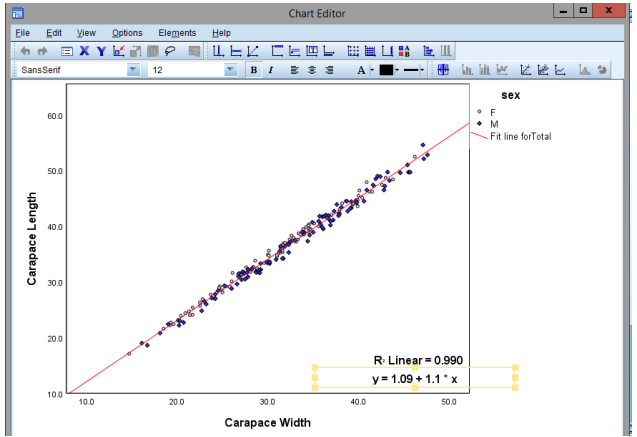
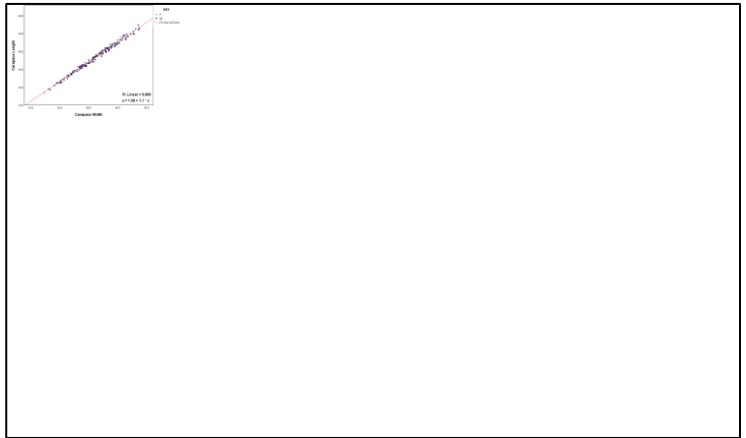
II. Two-sample scatter plot upgraded

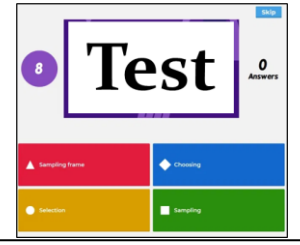




Pitfall Alerts







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Pitfall Alerts

Other plots

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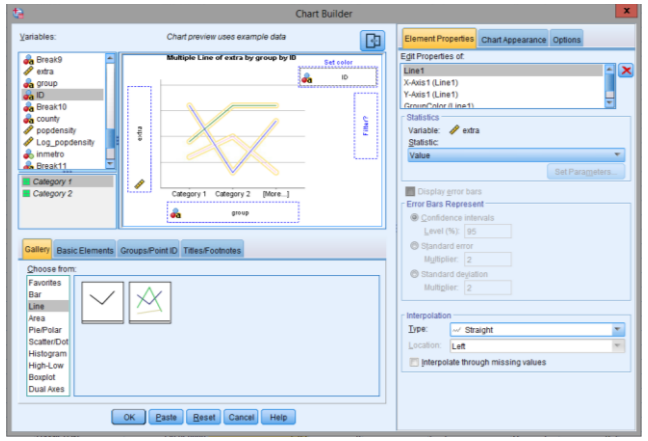
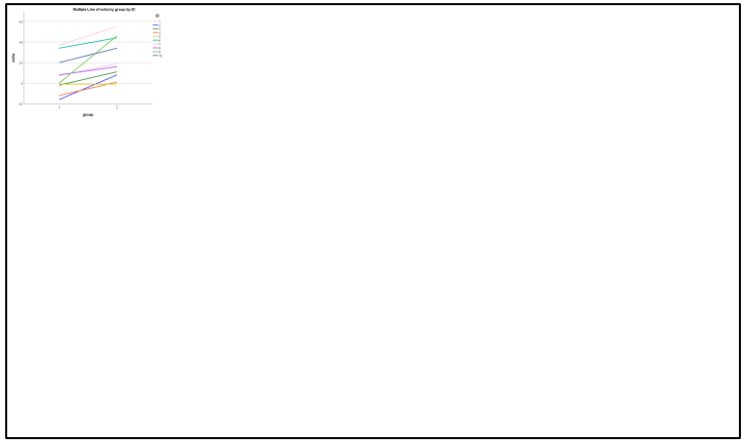
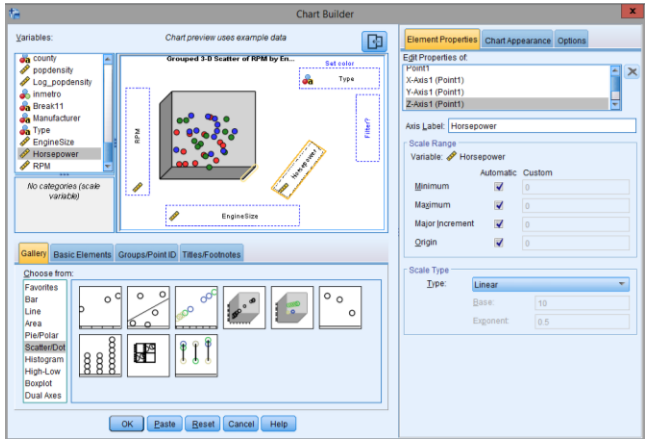
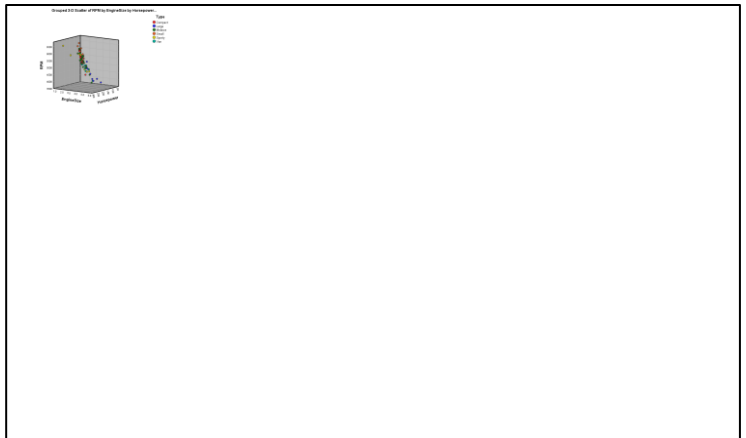
I. Spaghetti plot





II. 3-D scatter plot





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Other plots cont.

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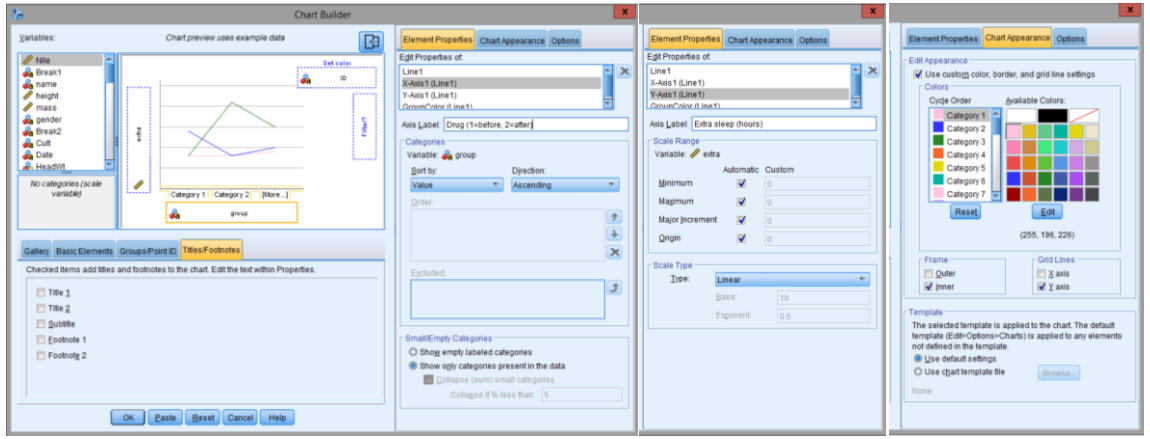
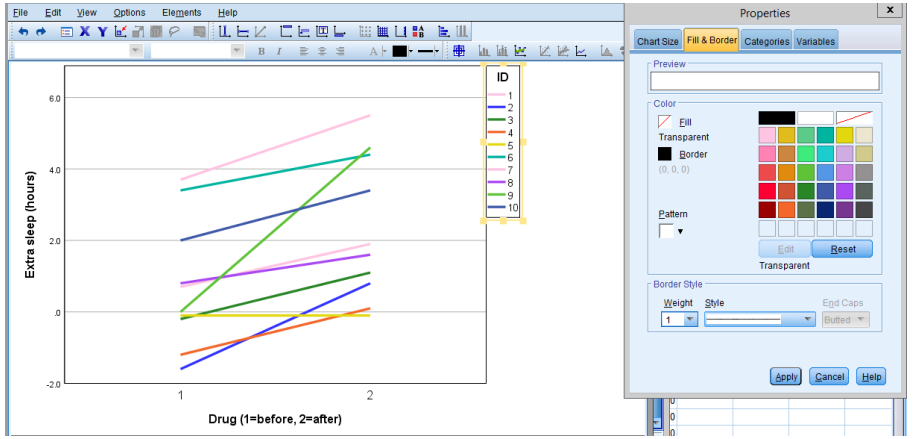
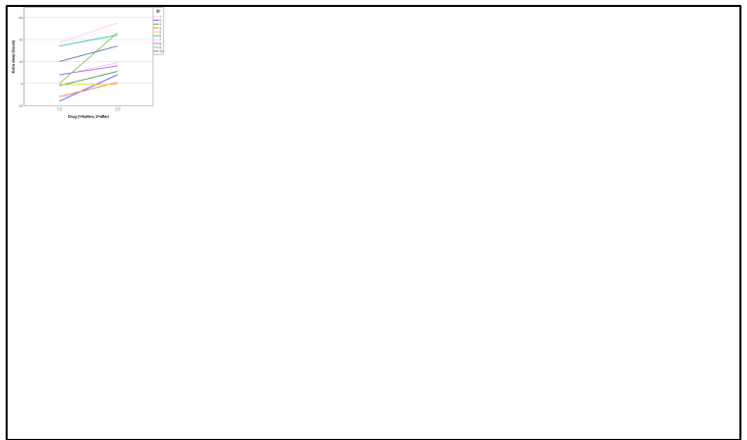
I. Spaghetti plot upgraded







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Other plots cont. 2

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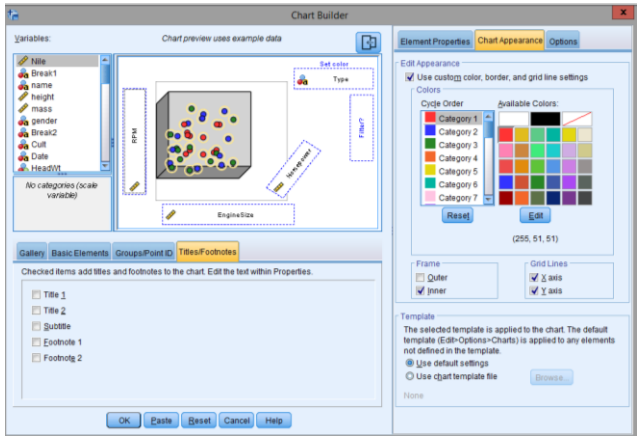
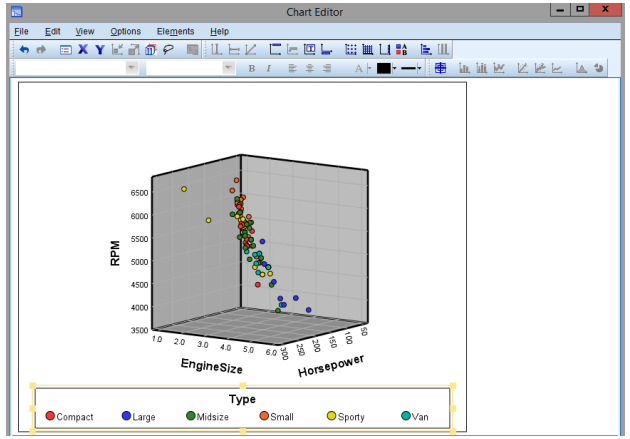
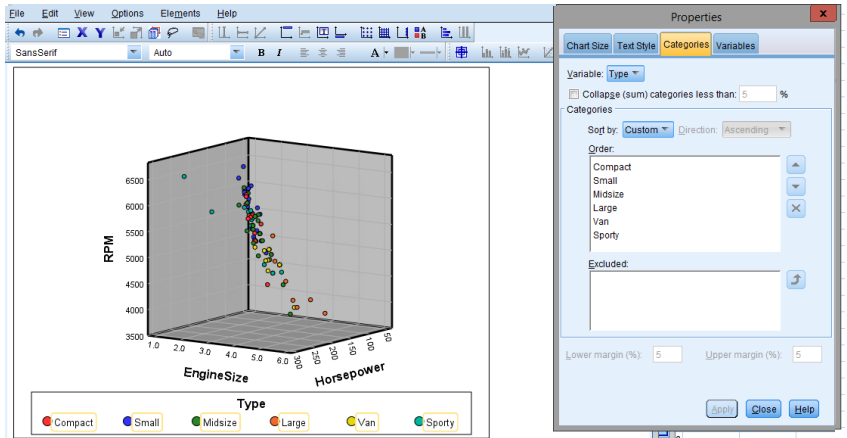
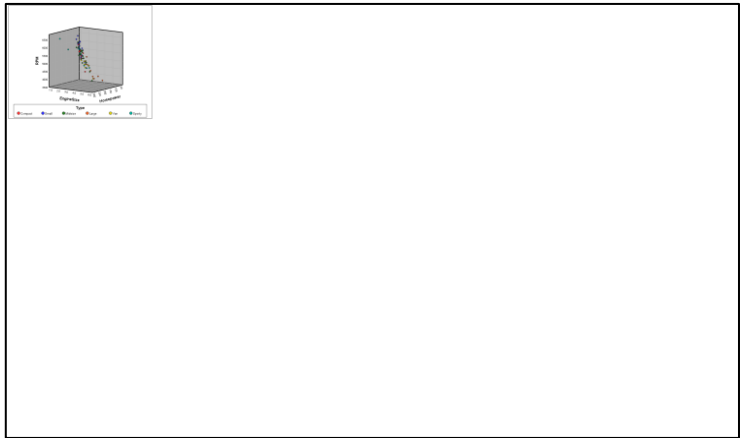
II. 3-D scatter plot upgraded









Exploration: *try creating other types of graphs using the chart builder and the example data (ex. Area, High-Low, Dual Axes)*

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Closing

- Please try out the post-test and survey

https://und.qualtrics.com/jfe/form/SV_b2Z9RzSkUb0FUfI

https://und.qualtrics.com/jfe/form/SV_6SfLoElRrjKzUHk

- **Special Treat:** ranking chart for SPSS, SAS, and R across the types of graphs
- https://med.und.edu/daccota/_files/pdfs/berdc_resource_pdfs/mmgg_software_ranking.pdf

Dr. Williamson's ranking of software for (R, SAS, SPSS) graph types

Graph	1st Place (3pts)	2nd Place (2pts)	3rd Place (1pt)
Histogram	R	SAS	SPSS
Boxplot	R	SPSS	SAS
Bar plot	SPSS	SAS	R
Scatter plot	SAS	R	SPSS
Other plots	R	SAS	SPSS
Overall	R	SAS	SPSS

Animaker Summary

https://app.animaker.com/animo/CL4biVxIEMjf4brn/

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References

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- ✓ https://students.shu.ac.uk/lits/it/documents/pdf/analysing_data_using_spss.pdf
- ✓ https://www.spss-tutorials.com/basics/
- ✓ https://www.ibm.com/support/pages/how-can-i-change-order-my-bars-chart-ive-created-spsspasw-statistics

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