

File Edit Plot Describe Compare Relate Forecast SPC DOE SnapStats!! Statlets Tools R Interface View Window Help



DataBook
 StatAdvisor
 StatGallery
 StatReporter
 StatFolio Comments
 StatLog

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Welcome to Statgraphics!

About STATGRAPHICS 18



STATGRAPHICS Centurion 18
 Version 18.1.12 (64-bit)

Licensed to:
 University of Vienna
 Serial Number: BH80-DB0A-00E8-YK0E-4EM0
 Activation Code: ABUB-6UY3-I8BA-1MPU-C0J6-U6SM-I8UA
 Edition: Multilingual
 License: Academic Enterprise
 Expiration: September 1, 2020

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OK

Un... St... St...



- DataBook
- StatAdvisor
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- StatFolio Comments
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Data Viewer...
 Expression Evaluator...
 Sample Size Determination
 Six Sigma Calculator...
 Sampling Distributions...
 Monte Carlo Simulation...
 Graphics Profile Designer
 StatFolio Alerts...

One Sample...
 Two or More Samples...
 Statistical Tolerance Limits...
 Capability Indices...
 Control Charts...
 Screening Designs...

	Col_1	Col_2	Col_3	Col_4	Col_5	Col_6	Col_7	Col_8	Col_9
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Let us start and repeat that sample size assessment with the statgraphics tool – we shall compare it to the graphical approach for the seasonal comparison in Libreoffice!

Un... St... St... St... St...

Determine sample size for comparing two means, sigmas, proportions or rates.

DataBook
StatAdvisor
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StatLog
Sample Size Determination

Inhalt | Index | Suchen

- Welcome
- STATGRAPHICS User Interface
- Analysis of Variance
- Basic Plots
- Categorical Data Analysis
- Comparison of Two or More Samples
 - Comparison of Two or More Means
 - Comparison of Proportions
 - Comparison of Rates
 - Equivalence Tests (Comparing Means)
 - Equivalence Tests (Comparing Proportions)

Sample Size Determination (Two or More Samples) - Data Input

Compare: the problem of interest. It is assumed that random samples of size n_j will be taken from j populations that follow the specified distribution and used to estimate or test the value of the indicated parameters. The procedure will determine suitable values for n_j .

Hypothesized Difference or Ratio: the anticipated value of the difference or ratio. If performing a hypothesis test, this value forms the null hypothesis (usually 0). If constructing a confidence interval, this value is only used if the desired width of the interval is specified in relative (percentage) terms.

Within-Group Sigmas: the anticipated value of the σ within each of the j populations sampled, assumed to be the same for all populations. When comparing 2 or more means, this value is a part of the calculation and should either be known exactly or estimated from previous data.

Means: an approximate value for the means μ_j . This value is used in calculations.

Proportions: an approximate value θ_0 for the binomial proportion. This value is used to determine the likely standard error of the difference between the two proportions.

Rates: an approximate value λ_0 for the Poisson rates. This value is used to determine the likely standard error of the difference between the two rates.

Number of Samples: the number of samples k when comparing more than two means.

Percent of Data in First Sample: when comparing two samples, the percent of data in the first sample:

Sample Size Determination (Compare)

Compare

Two Normal Means
 Two Normal Sigmas
 Two Binomial Proportions
 Two Poisson Rates
 Several Normal Means

Hypothesized Difference:
 Hypothesized Within-Group Sigmas:
 Hypothesized Means:
 Hypothesized Rates:
 Hypothesized Proportions:
 Number of Means:
 Percent of Data in First Sample: %

OK Cancel Help

Sample Size Determination Options

Control

Absolute Error
 +
 Relative Error
 + %
 Power
 %
 Difference to Detect:
 Sample Size

Confidence Level: %

Alternative Hypothesis

Not Equal
 Less Than
 Greater Than

Sigma

To Be Estimated
 Known

OK Cancel Help

The relative error refers to the % deviation of the Sigma between samples*, alas not self explanatory we choose 35%

We choose:
 Hyp. Diff: 3
 Hyp. Mean: 7
 Hyp. Sigma: 2.15

* % variation (not variance !)
 between consecutive years
 1999 and 2000



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- Sample Size Determination

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Sample Size Determination

Sample Size Determination
 Parameter to be estimated: difference between two normal means
 Desired tolerance: $\pm 35,0\%$ when difference = 3,0
 Confidence level: 99,0%
 Sigma: 2,15 (to be estimated)

The required sample size is 58 observations from sample 1 and 58 observations from

The StatAdvisor
 This procedure determines the sample size required when comparing the means of two normal distributions. Assuming that the standard deviations of the normal distributions equal 2,15, 58 observations in the first sample and 58 observations in the second sample to estimate the difference to within $\pm 35,0\%$ (assuming the difference is around 3,0) with 99,0% confidence.

Power Curve

$\alpha = 0,01$, $\sigma = 2,15$, $n_1=58$, $n_2=58$

A	B	C	D	E	F	G	H	I	J	K
6	SE_So	0,79	0,51	1,83		t_999_df59				
7	CI_FJ	1,02	0,65	2,37		1,01575559	0,65472988	2,36779604		
8	CI_So	2,03	1,31	4,74		2,03151117	1,30945976	4,73559208		

MW_FJ MW_So

Med_FJ Med_So

Click on a menu item with the right mouse button to display documentation.

A1:I61 fx \sum 6,4

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
40	39	N39	00FJT2_4	T2	FJ	2000	1,6	1,6	16					
41	40	N40	00FJT2_5	T2	FJ	2000	1,6	2,4	2,4					
42	41	N41	00FJT3_1	T3	FJ	2000	7,2	3,2	5,6					
43	42	N42	00FJT3_2	T3	FJ	2000	2,4	4	7,2					
44	43	N43	00FJT3_3	T3	FJ	2000	4,8	1,6	12					
45	44	N44	00FJT3_4	T3	FJ	2000	2,4	2,4	16,8					
46	45	N45	00FJT3_5	T3	FJ	2000	2,4	3,2	3,2					
47	46	N46	00SOT1_1	T1	SO	2000	1,6	9,6	6,4					
48	47	N47	00SOT1_2	T1	SO	2000	3,2	3,2	12,8					
49	48	N48	00SOT1_3	T1	SO	2000	4,8	8	17,6					
50	49	N49	00SOT1_4	T1	SO	2000	6,4	6,4	19,2					
51	50	N50	00SOT1_5	T1	SO	2000	9,6	9,6	12,8					
52	51	N51	00SOT2_1	T2	SO	2000	12,8	4,8	9,6					
53	52	N52	00SOT2_2	T2	SO	2000	3,2	6,4	12,8					
54	53	N53	00SOT2_3	T2	SO	2000	8	1,6	22,4					
55	54	N54	00SOT2_4	T2	SO	2000	3,2	3,2	32					
56	55	N55	00SOT2_5	T2	SO	2000	3,2	4,8	4,8					
57	56	N56	00SOT3_1	T3	SO	2000	14,4	6,4	11,2					
58	57	N57	00SOT3_2	T3	SO	2000	4,8	8	14,4					
59	58	N58	00SOT3_3	T3	SO	2000	9,6	3,2	24					
60	59	N59	00SOT3_4	T3	SO	2000	4,8	4,8	33,6					
61	60	N60	00SOT3_5	T3	SO	2000	4,8	6,4	6,4					
62														
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Import data via the clipboard:
First set the numeric system of
Your MS-Windows to Eng/US

1-mark all the content of the
worksheet:
Move to A1, press ctrl- shift-end

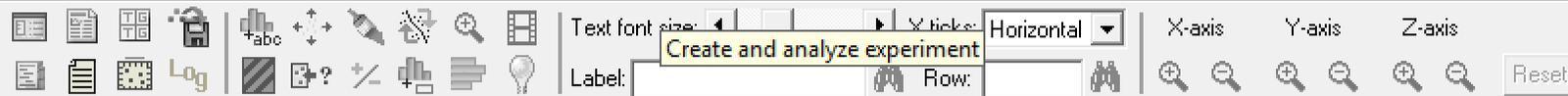
2- copy to the clipboard, ctrl c

Your machine must be set for US English data handling
else nothing behind the comma dot will be pasted

File Edit Plot Describe Compare Relate Forecast SPC DOE SnapStats!! Statlets Tools R Interface View Window Help



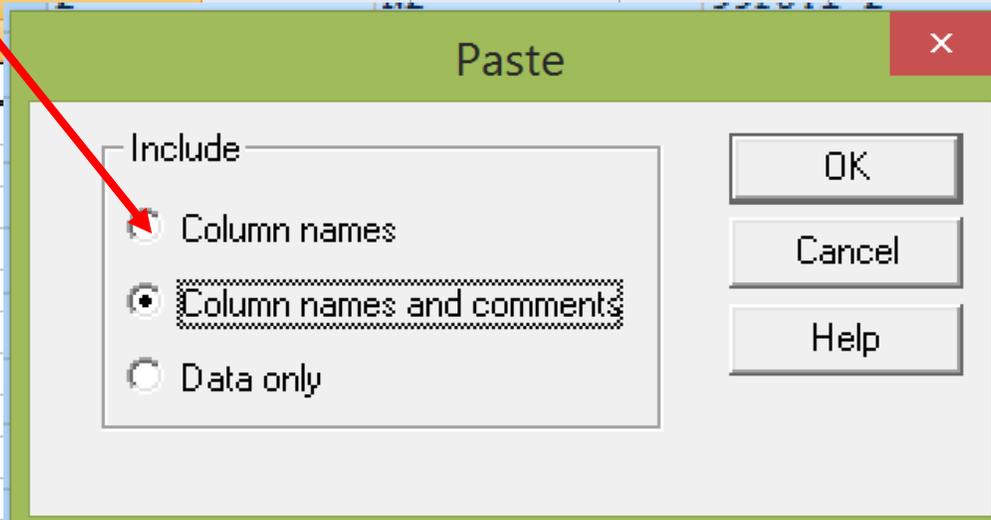
DataBook
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 StatGallery
 StatReporter
 StatFolio Comments
 StatLog



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A red arrow points from the top-left corner of the spreadsheet to the 'Paste' dialog box.



Do a right click on the left and uppermost cell, then choose Paste

Use the appropriate option, in our case: Column names

Click OK



Create and analyze a designed experiment





- DataBook
- StatAdvisor
- StatGallery
- StatReporter
- StatFolio Comments
- StatLog

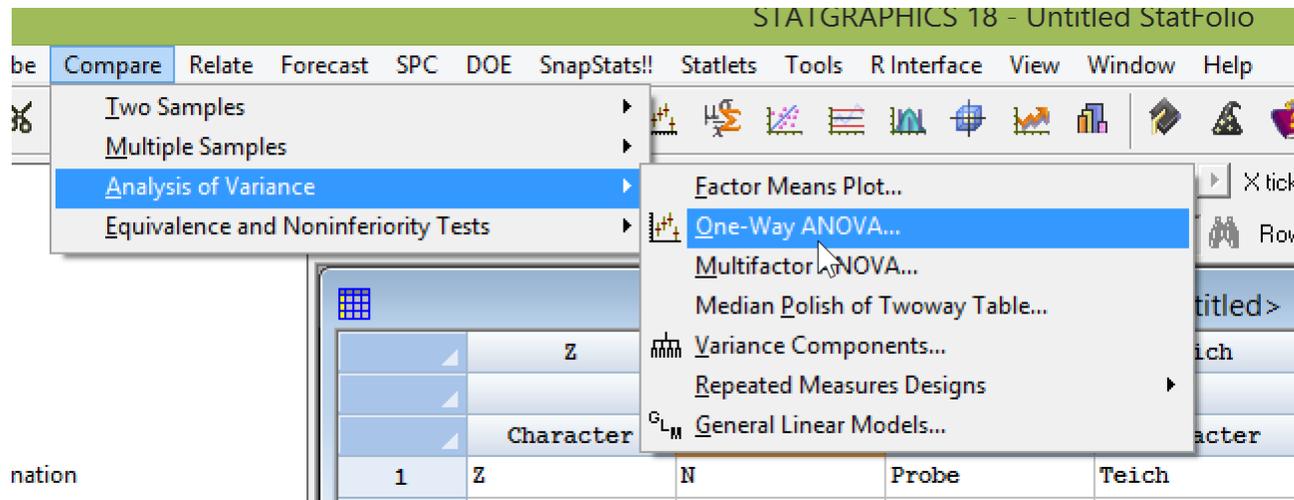
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	Probe	Teich	Jahreszeit	Jahr	Beinlaenge	Gewicht	Rufe_h	Col_10	C
	Character	Character	Character	Numeric	Numeric	Numeric	Numeric	Numeric	Nu
28	99SOT3_3	T3	SO	1999	12	4	30		
29	99SOT3_4	T3	SO	1999	6	6	42		
30	99SOT3_5	T3	SO	1999	6	8	8		
31	00FJT1_1	T1	FJ	2000	0,8	4,8	3,2		
32	00FJT1_2	T1	FJ	2000	1,6	1,6	6,4		
33	00FJT1_3	T1	FJ	2000	2,4	4	8,8		
34	00FJT1_4	T1	FJ	2000	3,2	3,2	9,6		
35	00FJT1_5	T1	FJ	2000	4,8	4,8	6,4		
36	00FJT2_1	T2	FJ	2000	6,4	2,4	4,8		
37	00FJT2_2	T2	FJ	2000	1,6	3,2	6,4		
38	00FJT2_3	T2	FJ	2000	4	0,8	11,2		
39	00FJT2_4	T2	FJ	2000	1,6	1,6	16		
40	00FJT2_5	T2	FJ	2000	1,6	2,4	2,4		
41	00FJT3_1	T3	FJ	2000	7,2	3,2	5,6		
42	00FJT3_2	T3	FJ	2000	2,4	4	7,2		
43	00FJT3_3	T3	FJ	2000	4,8	1,6	12		

check:
 Variables numeric
 Positions behind the
 comma dot available

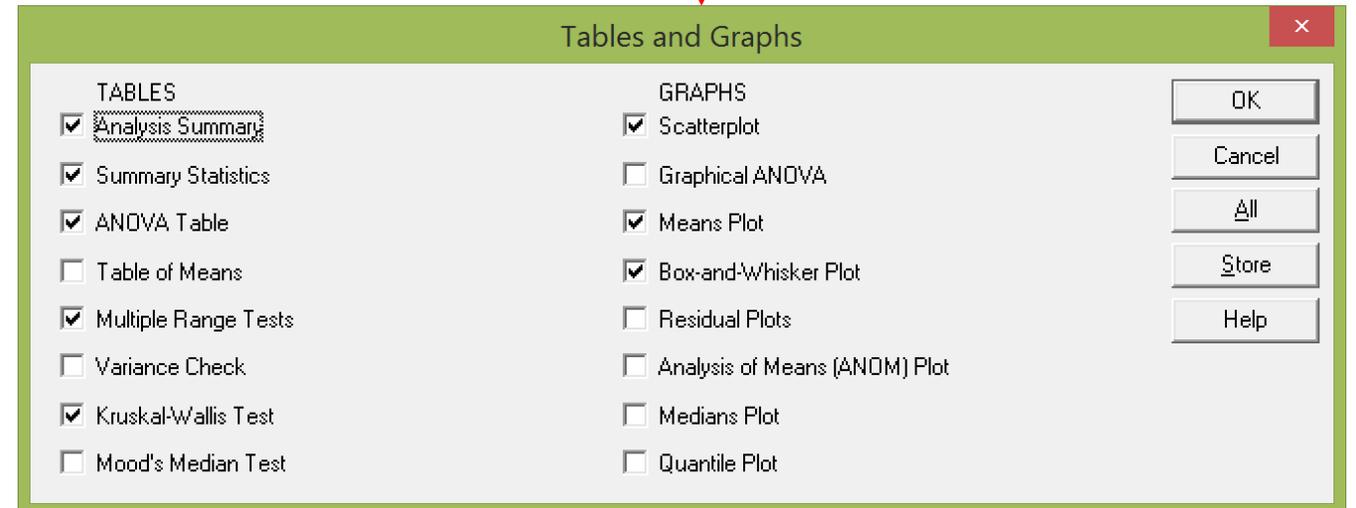
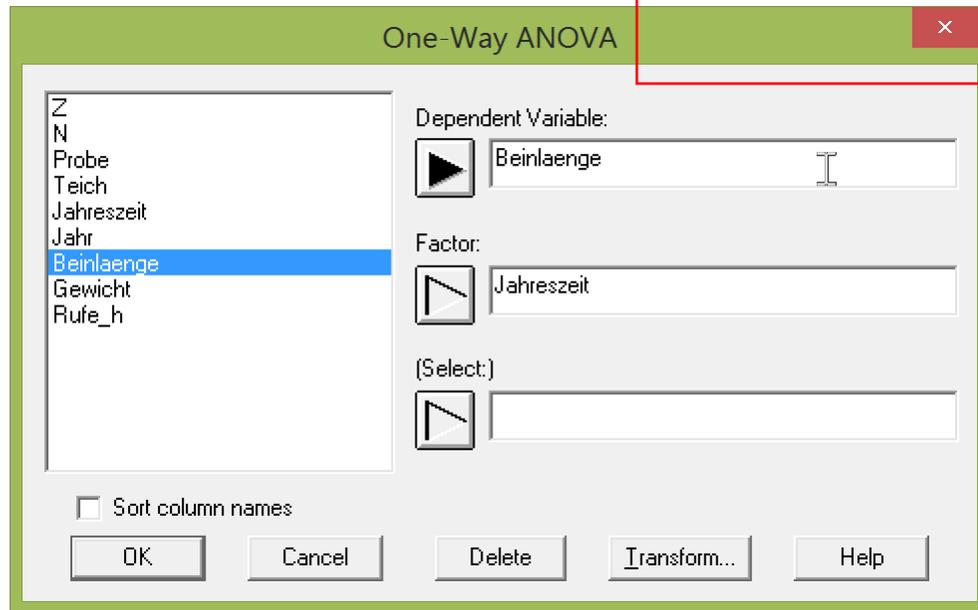
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Import completed! Congrats!

Now for the first ANOVA

Btw: one way means one factor only,
But we have 3 of them,
this has to be considered later...



We shall refer to variance and Distribution later!



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- One-Way ANOVA - Beinlaenge by Jahreszeit

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One-Way ANOVA - Beinlaenge by Jahreszeit

One-Way ANOVA - Beinlaenge by Jahreszeit

Dependent variable: Beinlaenge
 Factor: Jahreszeit

Number of observations: 60
 Number of levels: 2

Summary Statistics for Beinlaenge

Jahreszeit	Count	Average	Standard deviation	Coeff. of vari
FJ	30	3,54	2,15032	60,7434%
SO	30	7,08	4,30063	60,7434%
Total	60	5,31	3,81441	71,8345%

ANOVA Table for Beinlaenge by Jahreszeit

Source	Sum of Squares	Df	Mean Square	F-Rat
Between groups	187,974	1	187,974	16,26
Within groups	670,46	58	11,5597	
Total (Corr.)	858,434	59		

Multiple Range Tests for Beinlaenge by Jahreszeit

Method: 95,0 percent LSD

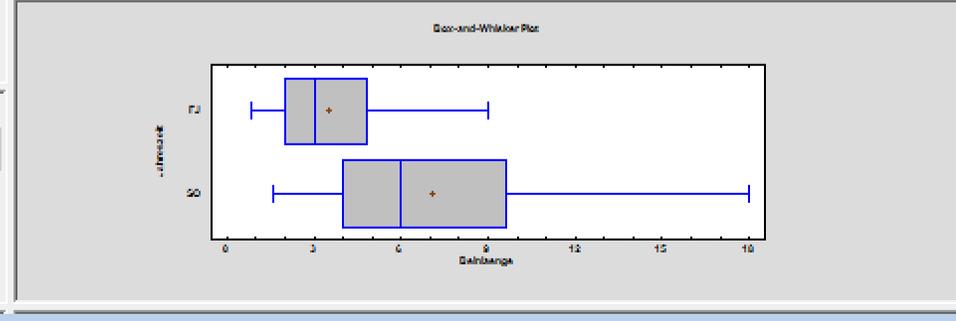
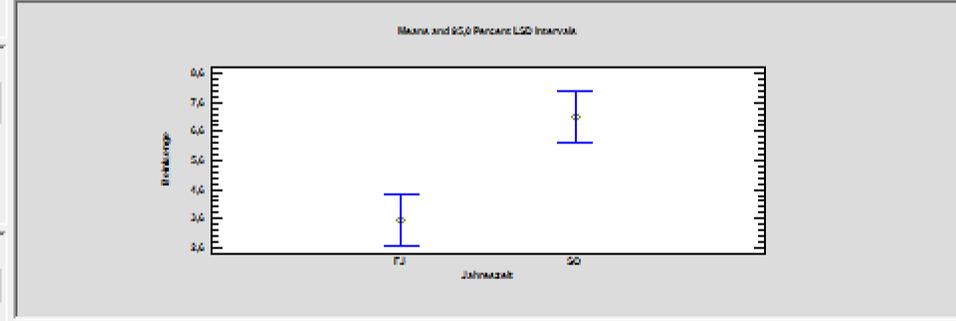
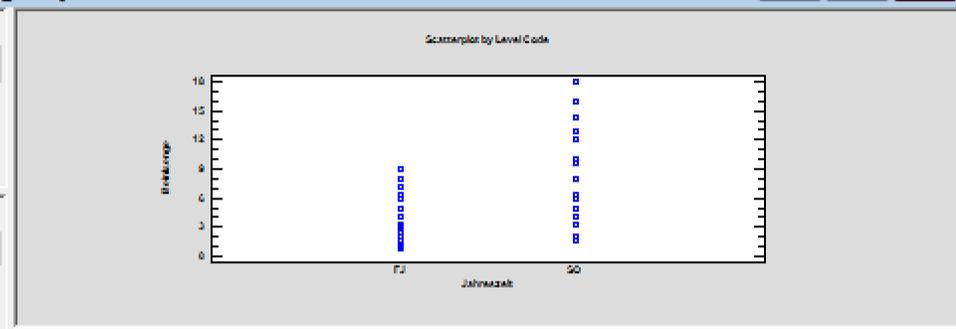
Jahreszeit	Count	Mean	Homogeneous Groups
FJ	30	3,54	X
SO	30	7,08	

Kruskal-Wallis Test for Beinlaenge by Jahreszeit

Jahreszeit	Sample Size	Average Rank
FJ	30	21,9167
SO	30	39,0833

Test statistic = 14,5709 P-Value = 0,000134984

95,0 percent Bonferroni intervals



Calculations on the left
 Graphs on the right!

Use the right mouse button to select options

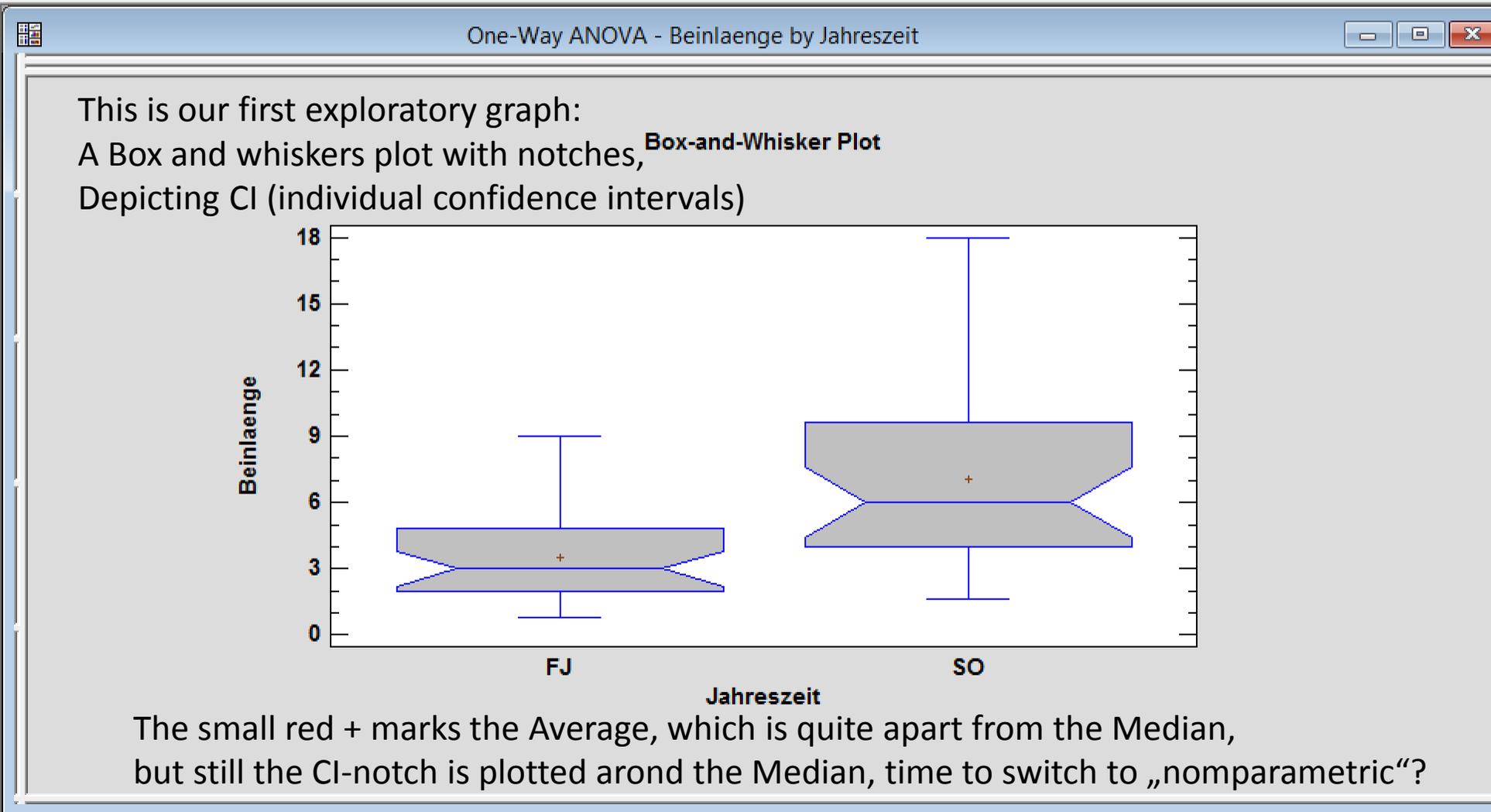


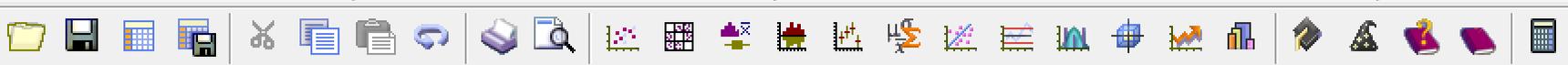
- DataBook
- StatAdvisor
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- StatLog
- Sample Size Determination
- One-Way ANOVA - Beinlaenge by Jahreszeit

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DataBook
StatAdvisor
StatGallery
StatReporter

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 Y-Axis
 Z-Axis
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 3D Effects

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- Analysis Options...
- Graphics Options...
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- Zoom In
- Undo Zoom
- Fill Window
- Reset Scaling/Viewpoint
- Copy Ctrl+C
- Copy with Link
- Print... F4
- Print Preview... Shift+F3
- Copy Pane to StatGallery...
- Copy Analysis to StatReporter
- Save Graph...
- Show XML...
- Start Video Ctrl+M
- End Video Ctrl+M
- Change Video Compression...

