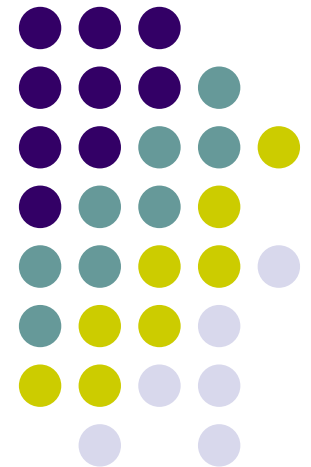


# Osnove statistike

---

## 6. vježbe





- Pronalaženje podataka
- Korelacija
- Regresijska analiza
- ANOVA

- New Ctrl+N
- Open... Ctrl+O
- Open URL...
- Open Examples...
- Get External Data
- Print Setup...
- 1 prasad.vj.3\_5\_leuk
- 2 prasad.5.vj.korelac\_regres
- 3 KOLOKVIJ
- 4 NK\_1\_4\_sve\_obrada
- 5 hi\_kvadrat
- 6 REPEATED\_eritroc\_odred\_uredjeni graf
- 7 REPEATED\_MAGI\_uredjeni graf14
- 8 nenormalno
- 9 eritroblasti svi
- 10 NK\_1\_4\_sve\_upisano
- 11 Workbook1
- 12 N\_1\_4
- 13 WorkbookNK\_1
- 14 NK\_1\_4\_sve\_upisano
- 15 NK\_1\_4\_SVE\_OKOMITO
- 16 prasad.vj.3\_leuk
- Exit

Statistica main workspace area with a toolbar at the top containing icons for 'Add to Workbook', 'Add to Report', and help.



	1	2	3	4	5	
	kod	porod.te			LT	
1	M				70	
2	M				30	
3	M				60	
4	M				40	
5	M				74	
6	M				58	
7	M				39	
8	M				45	
9	M				60	
10	M				41	
11	M				46	
12	M				48	
13	M				38	
14	M				52	
15	M				67	
16	M				50	
17	M				57	
18	M		930	4560	11,9	52
19	M		906	4740	16,8	51
20	M		750	4960	31,9	44
21	M		770	4880	11,5	38
22	M		840	4320	31,3	61
23	M		808	3200	11,1	57
24	M		801	3870	12,1	61
25	M		925	4100	6,1	44
26	M		835	4000	15,1	41
27	M		750	1700	8,9	66
28	M		825	5400	7,8	39
29	M		822	3500	11,1	51
30	M		970	4600	10,2	34
31	S		1225	5900	12,2	40
32	S		1250	5100	7,1	43
33	S		1670	8600	15	51
34	S		1810	7400	32,8	41
35	S		1500	6800	11,9	39
36	S		1645	7030	9,6	40
37	S		1565	7700	6,2	39
38	S		1845	5950	7,2	37
39	S		1375	5000	10,9	54
40	S		1555	6450	5,8	46
41	S		1610	6500	8,2	46
42	S		1325	7100	27,6	41
43	S		1560	6800	8,2	66
44	S		1650	6840	9,7	35
45	S		1655	6060	12,1	30
46	S		1635	5780	13,2	34

- Resume... Ctrl+R
- ByGroup Analysis
- Basic Statistics/Tables**
- Multiple Regression
- ANOVA
- Nonparametrics
- Distribution Fitting
- Advanced Linear/Nonlinear Models
- Multivariate Exploratory Techniques
- Industrial Statistics & Six Sigma
- Power Analysis
- Neural Networks
- Data-Mining
- QC Data Mining & Root Cause Analysis
- Text & Document Mining, Web Crawling
- Statistics of Block Data
- STATISTICA Visual Basic
- Probability Calculator

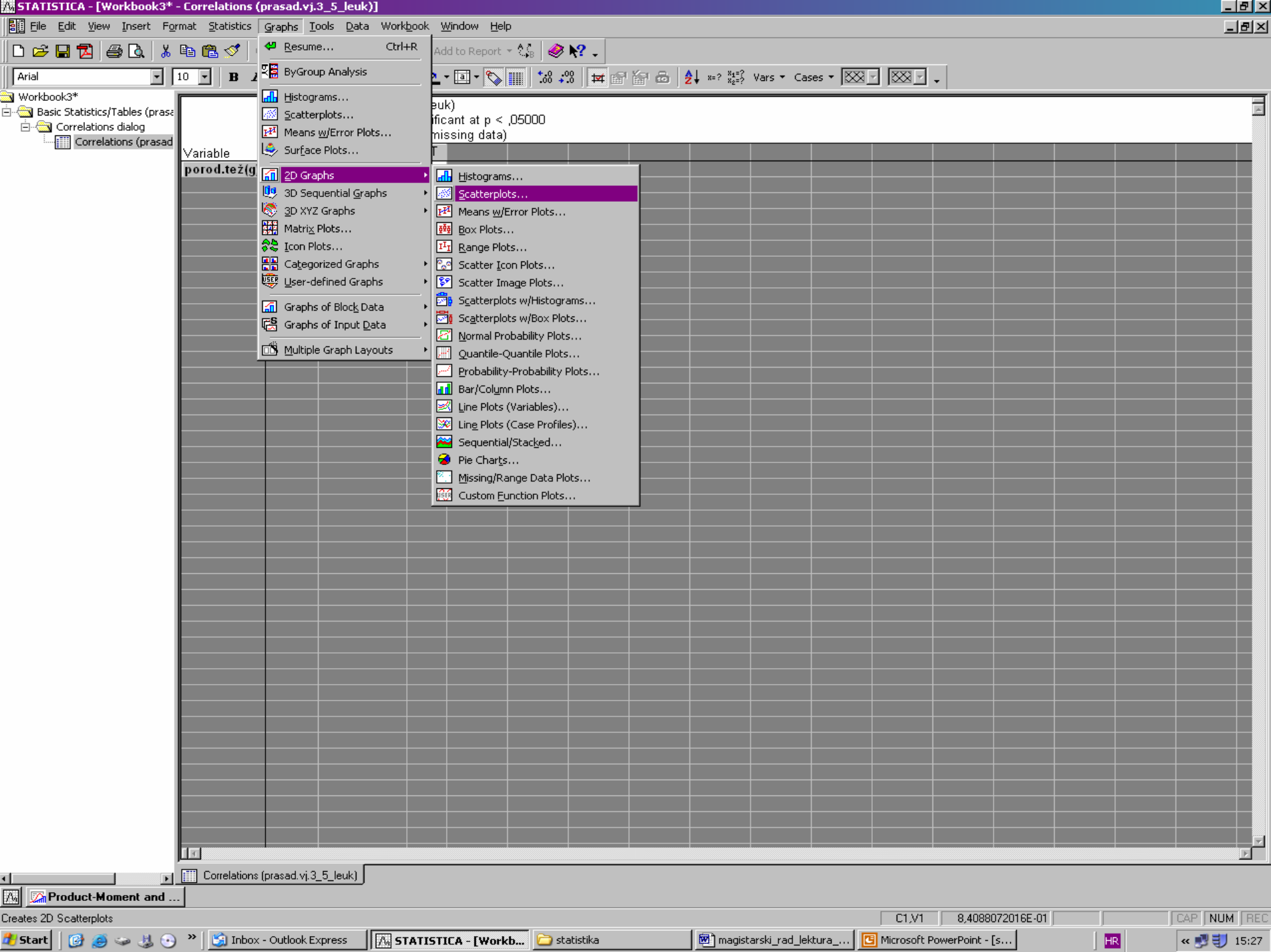








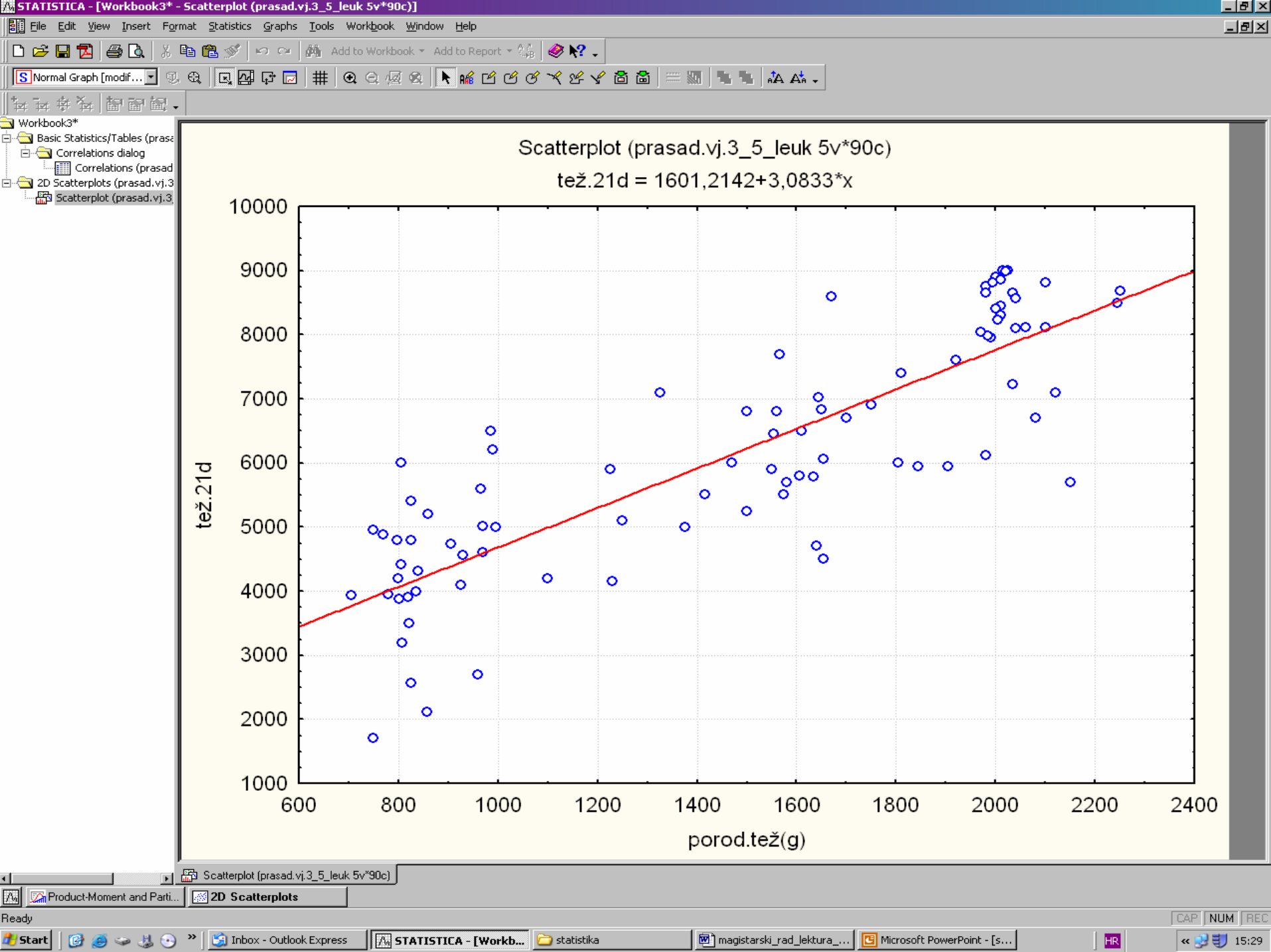












# ANOVA



STATISTICA - [Data: prasad.vj.3\_5\_leuk (5v by 90c)]

File Edit View Insert Format Statistics Graphs Tools Data Window Help

Resume... Ctrl+R

Add to Report

ByGroup Analysis

- Basic Statistics/Tables
- Multiple Regression
- ANOVA
- Nonparametrics
- Distribution Fitting
- Advanced Linear/Nonlinear Models
- Multivariate Exploratory Techniques
- Industrial Statistics & Six Sigma
- Power Analysis
- Neural Networks
- Data-Mining
- QC Data Mining & Root Cause Analysis
- Text & Document Mining, Web Crawling
- Statistics of Block Data
- STATISTICA Visual Basic
- Probability Calculator

	1	2			
	kod	porod.te:			LT
1	M				70
2	M				30
3	M				60
4	M				40
5	M				74
6	M				58
7	M				39
8	M				45
9	M				60
10	M				41
11	M				46
12	M				48
13	M				38
14	M				52
15	M				67
16	M				50
17	M				57
18	M	930	4560	11,9	52
19	M	906	4740	16,8	51
20	M	750	4960	31,9	44
21	M	770	4880	11,5	38
22	M	840	4320	31,3	61
23	M	808	3200	11,1	57
24	M	801	3870	12,1	61
25	M	925	4100	6,1	44
26	M	835	4000	15,1	41
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33	S	1670	8600	15	51
34	S	1810	7400	32,8	41
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36	S	1645	7030	9,6	40
37	S	1565	7700	6,2	39
38	S	1845	5950	7,2	37
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43	S	1560	6800	8,2	66
44	S	1650	6840	9,7	35
45	S	1655	6060	12,1	30
46	S	1635	5780	13,2	34

Product-Moment and Parti... 2D Scatterplots

Start up Basic Statistics/Tables

C76.V4 12.7 Set:OFF Weight:OFF CAP NUM REC

Start Inbex - Outlook Express STATISTICA - [Data: ... statistika magistarski\_rad\_lektura\_... Microsoft PowerPoint - [s... HR 15:29







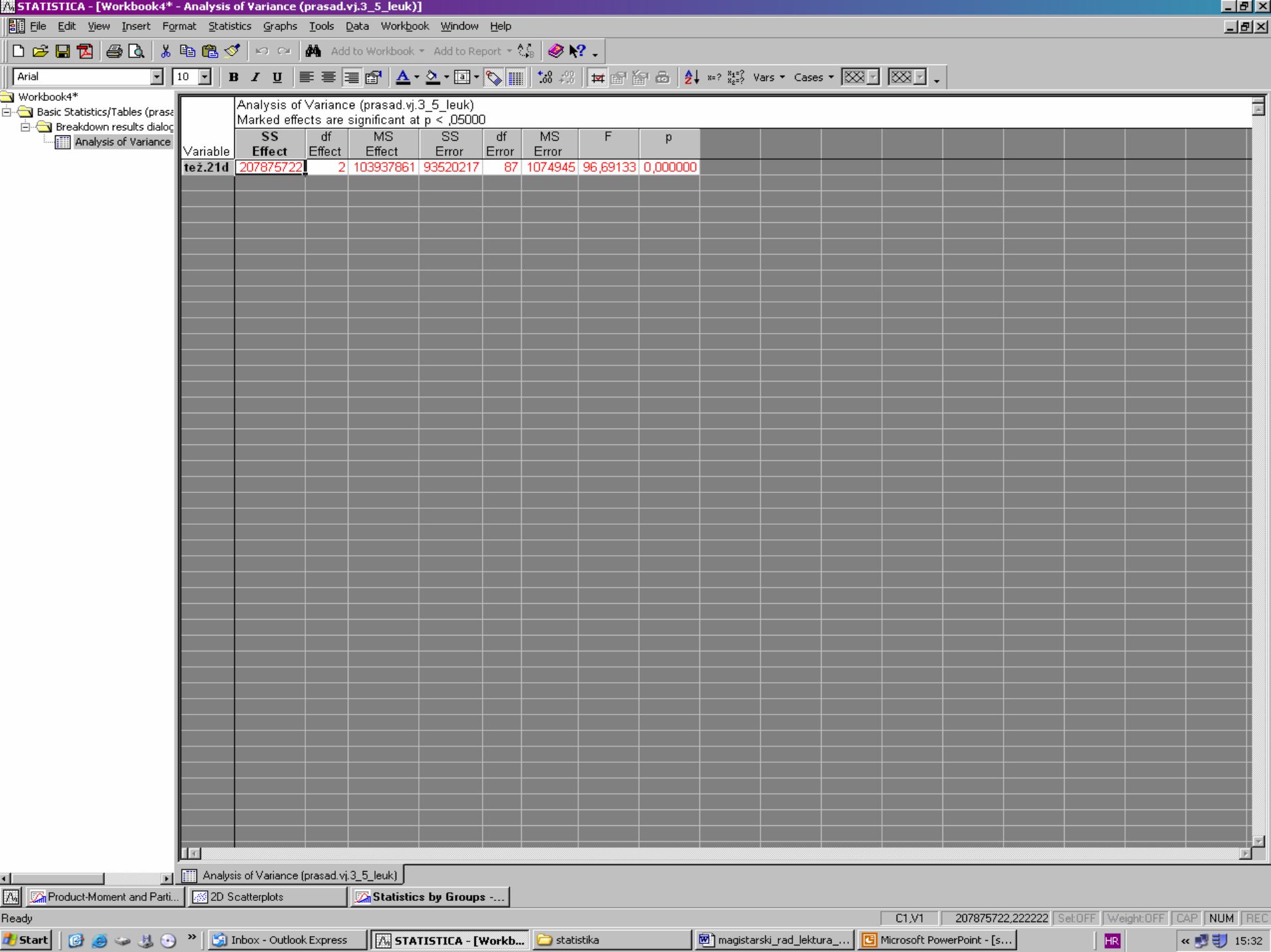












Analysis of Variance (prasad.vj.3\_5\_leuk)  
Marked effects are significant at  $p < ,05000$

Variable	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
tež.21d	207875722	2	103937861	93520217	87	1074945	96,69133	0,000000

Workbook4\*

- Basic Statistics/Tables (prasad.vj.3\_5\_leuk)
  - Breakdown results dialog
  - Analysis of Variance
  - Breakdown Table of Descriptive Statistics
  - Analysis of Variance

Analysis of Variance (prasad.vj.3\_5\_leuk)  
Marked effects are significant at  $p < .05000$

Variable	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
tež.21d	207875722	2	103937861	93520217	87	1074945	96,69133	0,000000

**Statistics by Groups - Results: prasad.vj.3\_5\_leuk**

DEPENDENT: 1 variable: tež.21d

GROUPING: 1-kod (3): M S T

Quick Descriptives ANOVA & tests Post-hoc Summary

Variables tež.21d

LSD test or planned comparison

Scheffé test

Newman-Keuls test & critical ranges Alpha level for critical ranges: .050

Duncan's multiple range test & critical ranges

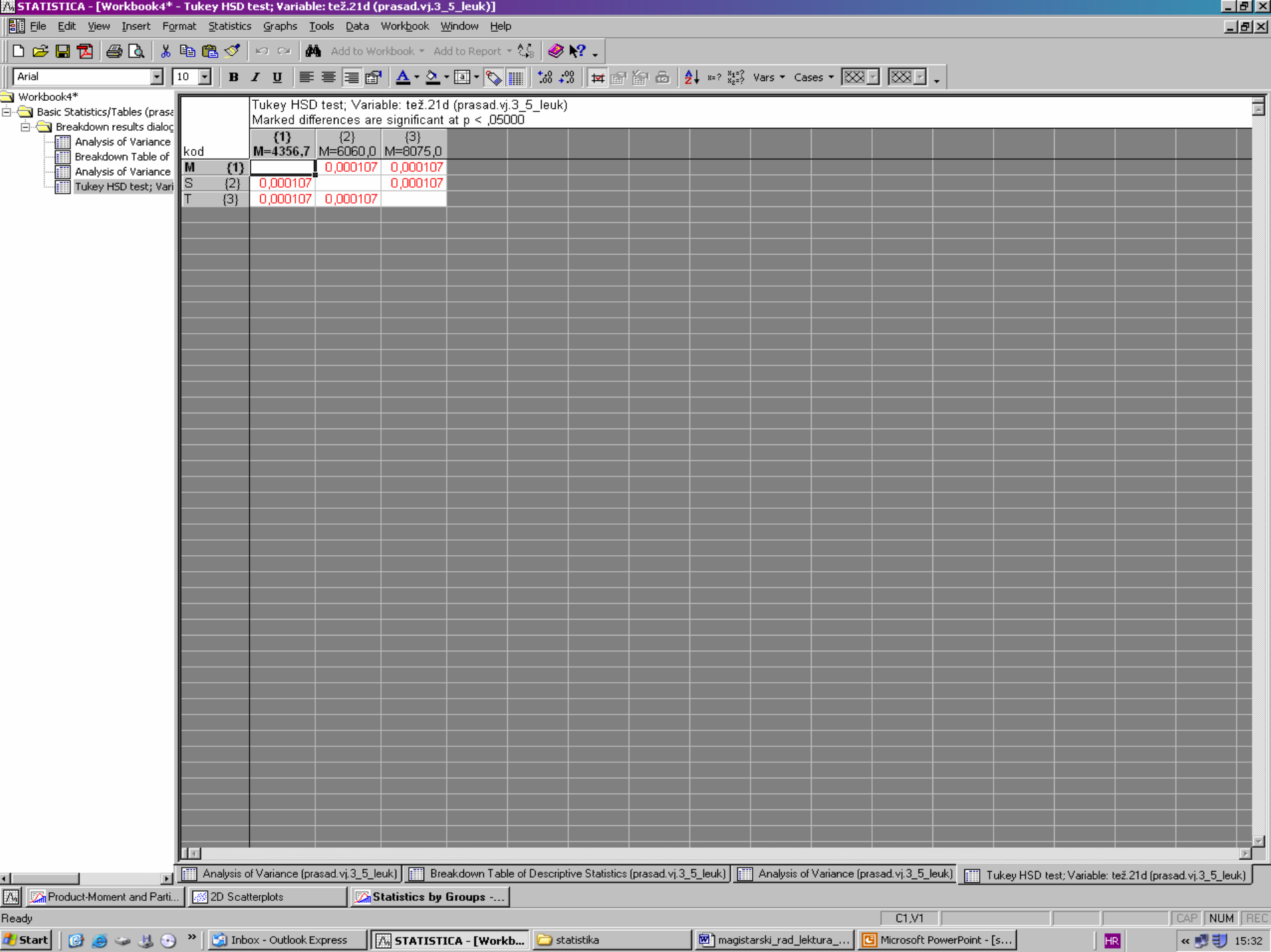
Tukey honest significant difference (HSD) For additional post-hoc tests (Dunnnett, Bonferroni, complex designs) see also the Visual General Linear Models option.

Tukey HSD for unequal N (Sjotvoll/Stoline)

p-level for highlighting: .05

Cancel Options





Workbook4\*

- Basic Statistics/Tables (prasad.vj.3\_5\_leuk)
  - Breakdown results dialog
  - Analysis of Variance
  - Breakdown Table of Descriptive Statistics
  - Analysis of Variance
  - Tukey HSD test; Variable: tež.21d (prasad.vj.3\_5\_leuk)

Tukey HSD test; Variable: tež.21d (prasad.vj.3\_5\_leuk)  
Marked differences are significant at  $p < .05000$

	{1}	{2}	{3}
kod	M=4356,7	M=6060,0	M=8075,0
M {1}		0,000107	0,000107
S {2}	0,000107		0,000107
T {3}	0,000107	0,000107	

Statistics by Groups (Breakdown): prasad.vj.3\_5\_leuk

Individual tables | Lists of tables

Select the dependent variables and grouping variables

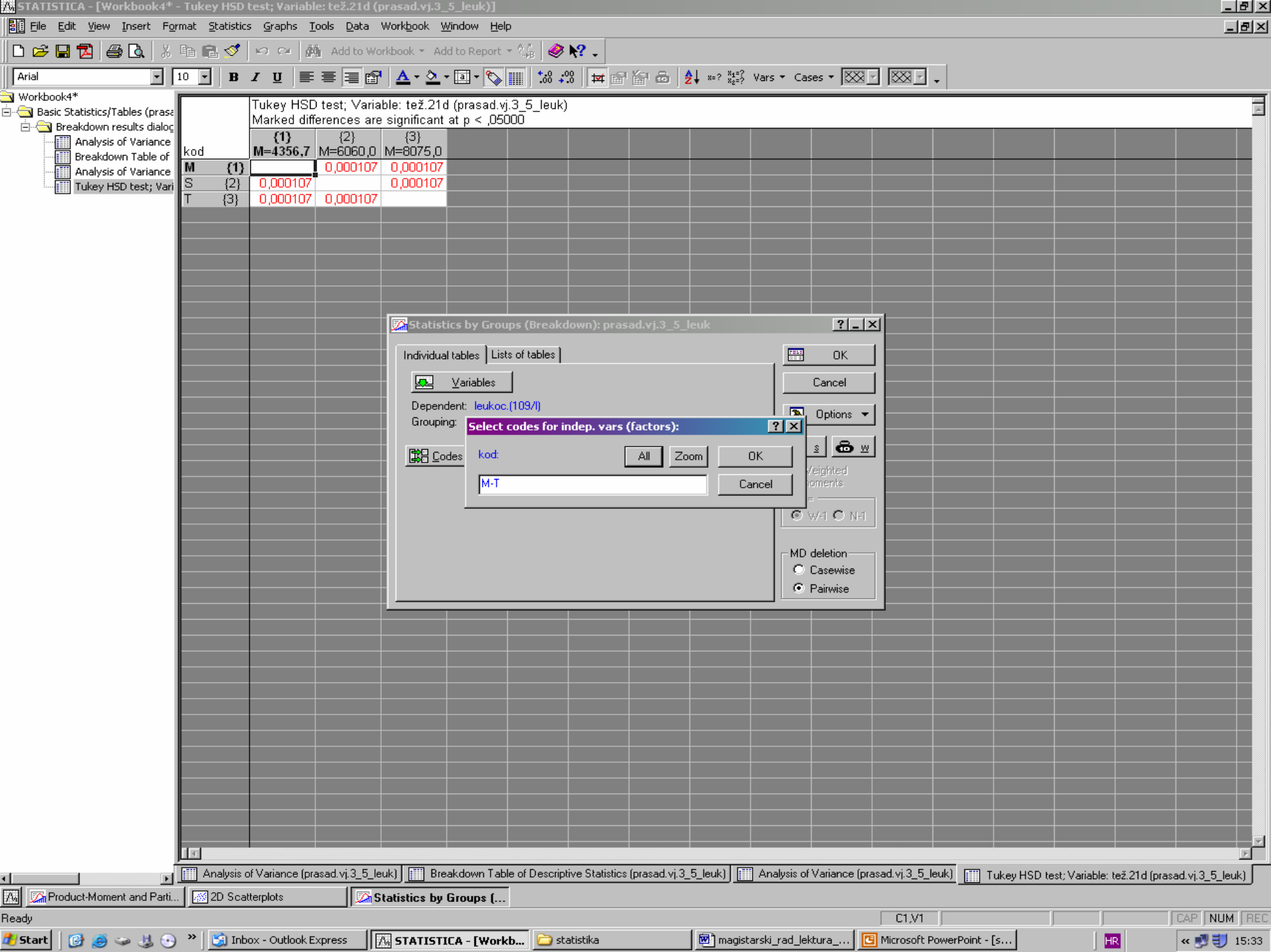
1-kod 2-porod.tež(g) 3-tež.21d 4-leukoc.(109/l) 5-ALT	1-kod 2-porod.tež(g) 3-tež.21d 4-leukoc.(109/l) 5-ALT
---	---

Dependent variables: 4

Grouping variables: 1

Show appropriate variables only

Use the "Show appropriate variables only" option to pre-screen variable lists and show categorical and continuous variables. Press F1 for more information.



Tukey HSD test; Variable: tež.21d (prasad.vj.3\_5\_leuk)  
Marked differences are significant at  $p < .05000$

	{1}	{2}	{3}
kod	M=4356.7	M=6060.0	M=8075.0
M {1}		0,000107	0,000107
S {2}	0,000107		0,000107
T {3}	0,000107	0,000107	

Statistics by Groups (Breakdown): prasad.vj.3\_5\_leuk

Individual tables | Lists of tables

Variables

Dependent: leukoc.(109/I)

Grouping: **Select codes for indep. vars (factors):**

Codes: kod, M-T

Options

MD deletion:  Pairwise

- Workbook4\*
- Basic Statistics/Tables (prasad.vj.3\_5\_leuk)
  - Breakdown results dialog
  - Analysis of Variance
  - Breakdown Table of Descriptive Statistics
  - Analysis of Variance
  - Tukey HSD test; Variable: tež.21d (prasad.vj.3\_5\_leuk)

Tukey HSD test; Variable: tež.21d (prasad.vj.3\_5\_leuk)  
Marked differences are significant at  $p < .05000$

	(1)	(2)	(3)
kod	M=4356.7	M=6060.0	M=8075.0
M (1)		0,000107	0,000107
S (2)	0,000107		0,000107
T (3)	0,000107	0,000107	

**Statistics by Groups - Results: prasad.vj.3\_5\_leuk**

DEPENDENT: 1 variable: leukoc. (109/1)

GROUPING: 1-kod (3): M S T

Quick | Descriptives | ANOVA & tests | Post-hoc

Analysis of Variance | Categorized normal prob. plots | Summary

Tests of homog. of variances: Levene tests | Categorized half-normal p-plots | Cancel

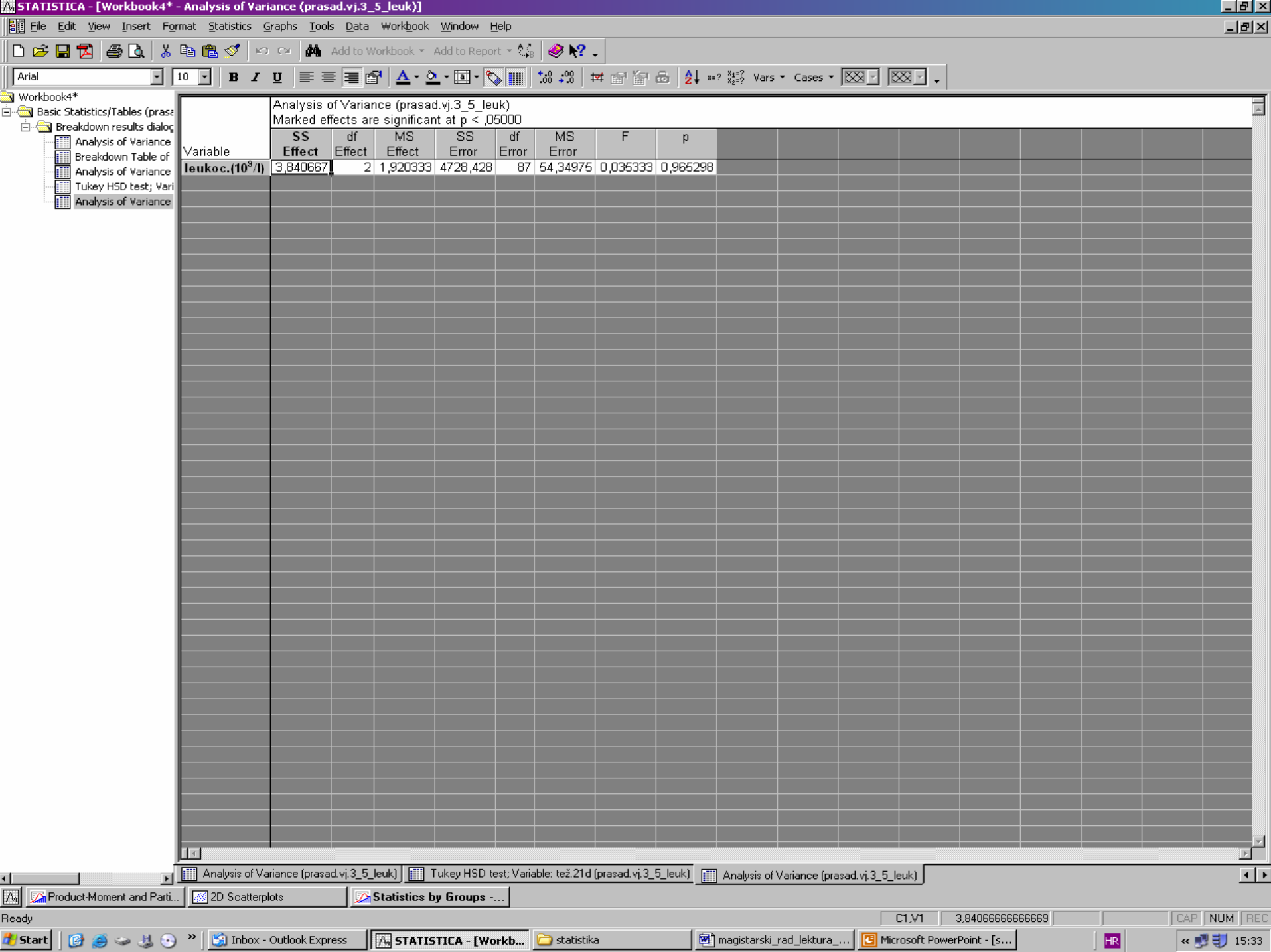
Brown-Forsythe tests | Categorized detrended p-plots | Options

Plot of means vs. std. devs

Interaction plots

Plot confidence intervals for means: 95.00 %

p-level for highlighting: .05



Analysis of Variance (prasad.vj.3\_5\_leuk)  
Marked effects are significant at p < ,05000

Variable	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
leukoc.(10 <sup>9</sup> /l)	3,840667	2	1,920333	4728,428	87	54,34975	0,035333	0,965298

Analysis of Variance (prasad.vj.3\_5\_leuk) | Tukey HSD test; Variable: tež.21d (prasad.vj.3\_5\_leuk) | Analysis of Variance (prasad.vj.3\_5\_leuk)

Workbook4\*

- Basic Statistics/Tables (prasad.vj.3\_5\_leuk)
  - Breakdown results dialog
  - Analysis of Variance
  - Breakdown Table of
  - Analysis of Variance
  - Tukey HSD test; Vari
  - Analysis of Variance

Analysis of Variance (prasad.vj.3\_5\_leuk)  
Marked effects are significant at  $p < ,05000$

Variable	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
leukoc.(10 <sup>9</sup> /l)	3,840667	2	1,920333	4728,428	87	54,34975	0,035333	0,965298

**Statistics by Groups - Results: prasad.vj.3\_5\_leuk**

DEPENDENT: 1 variable: leukoc. (109/1)

GROUPING: 1-kod (3): M S T

Quick | Descriptives | ANOVA & tests | Post-hoc | Summary

Variables: tež.21d

LSD test or planned comparison

Scheffé test

Newman-Keuls test & critical ranges

Duncan's multiple range test & critical ranges

Alpha level for critical ranges: .050

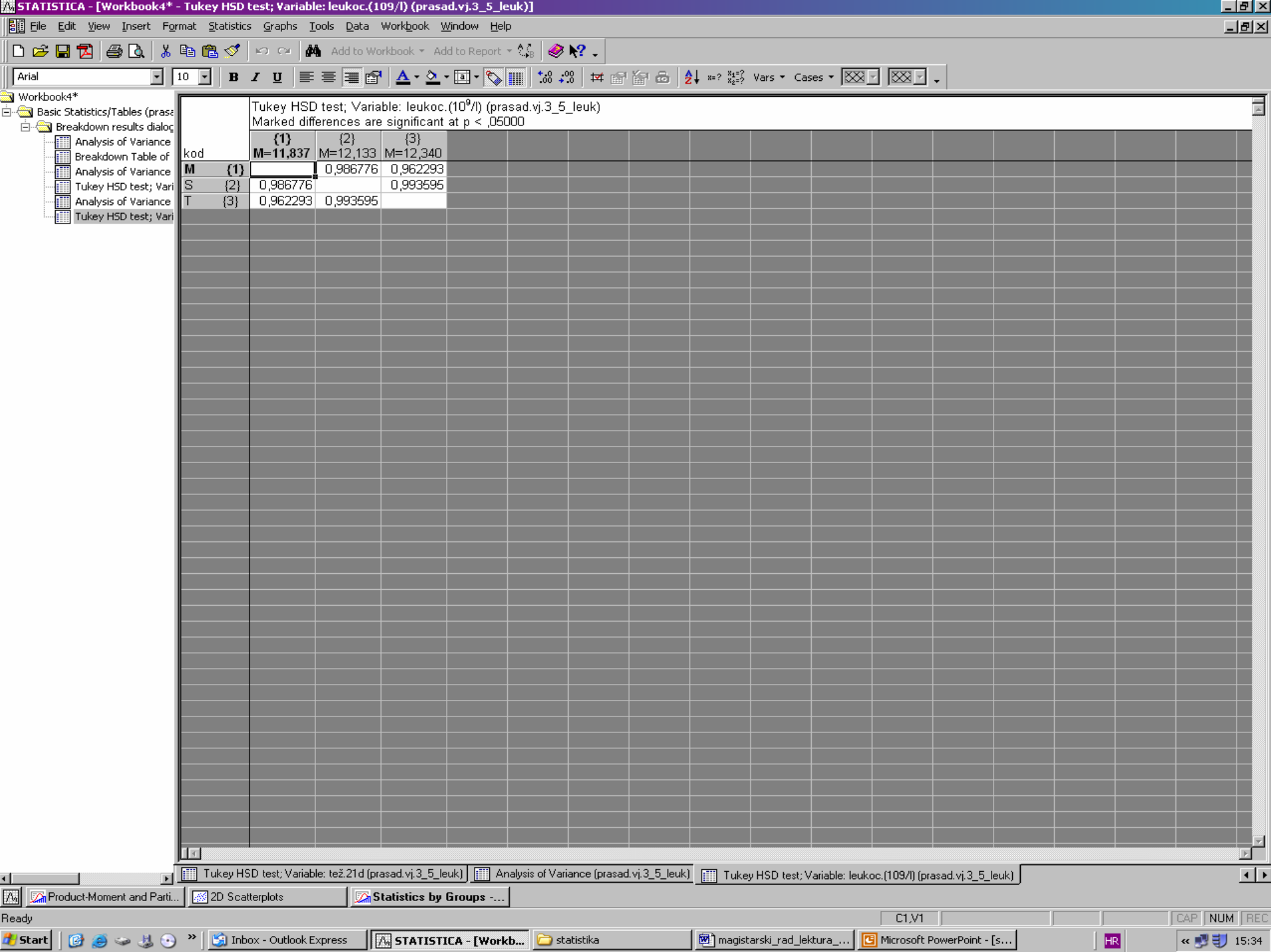
Tukey honest significant difference (HSD)

Tukey HSD for unequal N (Sjotvold/Stoline)

For additional post-hoc tests (Dunnnett, Bonferroni, complex designs) see also the Visual General Linear Models option.

p-level for highlighting: .05

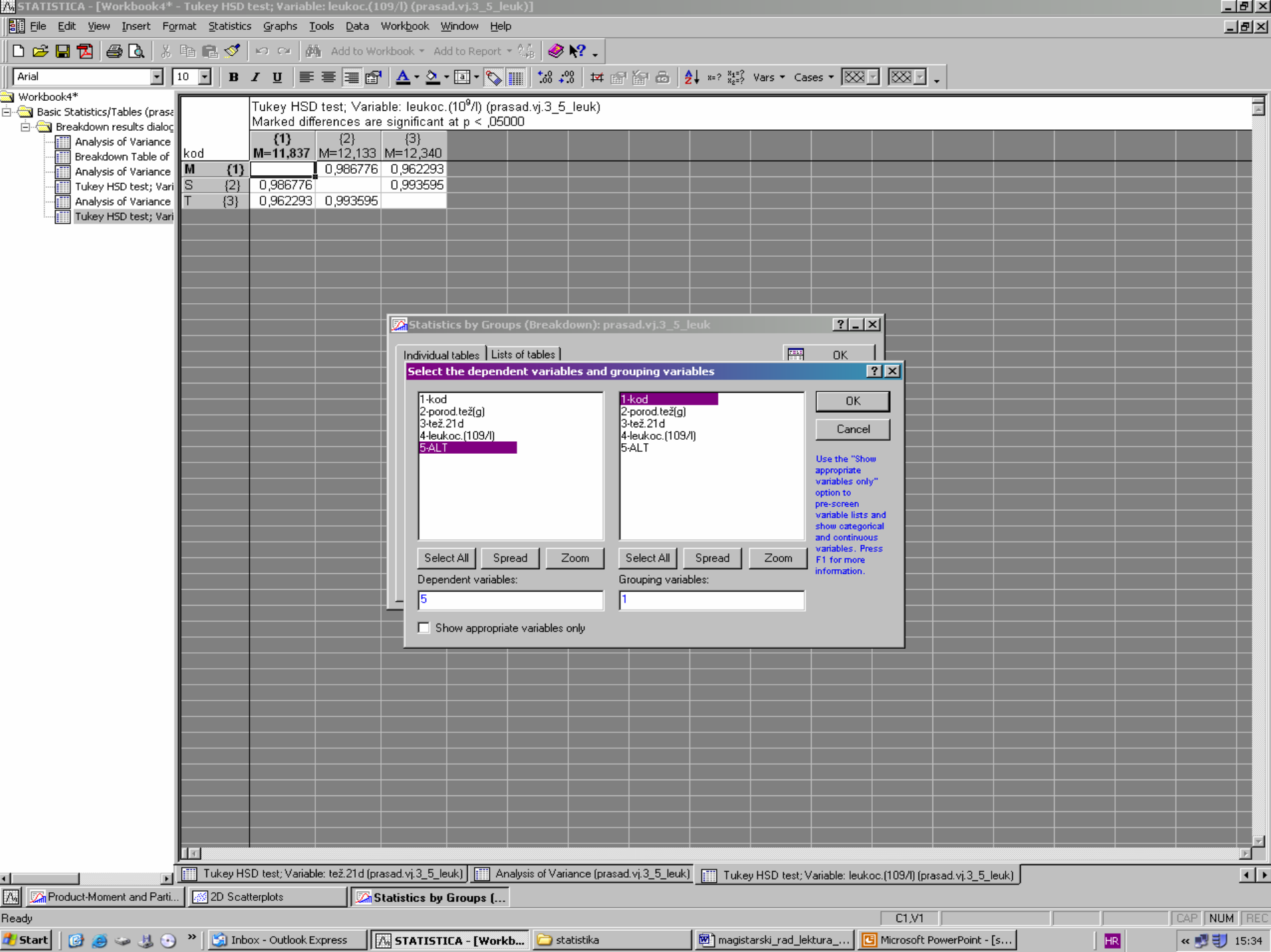
Cancel | Options



- Workbook4\*
- Basic Statistics/Tables (prasad.vj.3\_5\_leuk)
- Breakdown results dialog
- Analysis of Variance
- Breakdown Table of
- Analysis of Variance
- Tukey HSD test; Variable: leukoc.(109/l) (prasad.vj.3\_5\_leuk)
- Analysis of Variance
- Tukey HSD test; Variable: leukoc.(109/l) (prasad.vj.3\_5\_leuk)

Tukey HSD test; Variable: leukoc.(109/l) (prasad.vj.3\_5\_leuk)  
Marked differences are significant at  $p < ,05000$

	{1}	{2}	{3}
kod	M=11,837	M=12,133	M=12,340
M {1}		0,986776	0,962293
S {2}	0,986776		0,993595
T {3}	0,962293	0,993595	



Tukey HSD test; Variable: leukoc.(10<sup>9</sup>/l) (prasad.vj.3\_5\_leuk)  
Marked differences are significant at p < ,05000

	{1}	{2}	{3}
kod	M=11,837	M=12,133	M=12,340
M {1}		0,986776	0,962293
S {2}	0,986776		0,993595
T {3}	0,962293	0,993595	

Statistics by Groups (Breakdown): prasad.vj.3\_5\_leuk

Individual tables | Lists of tables | OK

Select the dependent variables and grouping variables

1-kod  
2-porod.tež(g)  
3-tež.21d  
4-leukoc.(109/l)  
5-ALT

1-kod  
2-porod.tež(g)  
3-tež.21d  
4-leukoc.(109/l)  
5-ALT

OK  
Cancel

Use the "Show appropriate variables only" option to pre-screen variable lists and show categorical and continuous variables. Press F1 for more information.

Select All Spread Zoom Select All Spread Zoom

Dependent variables: 5

Grouping variables: 1

Show appropriate variables only



