

The rm2 data

February 22, 2011

The data:

```
a 10 10 9 10
a 11 9 10 11
a 10 11 10 9
b 11 10 13 11
b 14 12 12 11
b 15 13 9 11
```

The SAS code and output:

```
options linesize=75;

data rm;
  infile "rm2.dat";
  input trt $ y1 y2 y3 y4;

proc glm;
  class trt;
  model y1 y2 y3 y4 = trt / nouni;
  repeated time;
```

The GLM Procedure

Class Level Information

Class	Levels	Values
trt	2	a b

Number of Observations Read	6
Number of Observations Used	6

The GLM Procedure

Repeated Measures Analysis of Variance

Repeated Measures Level Information

Dependent Variable	y1	y2	y3	y4
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Level of time	1	2	3	4
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MANOVA Test Criteria and Exact F Statistics
for the Hypothesis of no time Effect

H = Type III SSCP Matrix for time

E = Error SSCP Matrix

S=1 M=0.5 N=0

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.17789982	3.08	3	2	0.2546
Pillai's Trace	0.82210018	3.08	3	2	0.2546
Hotelling-Lawley Trace	4.62114125	3.08	3	2	0.2546
Roy's Greatest Root	4.62114125	3.08	3	2	0.2546

MANOVA Test Criteria and Exact F Statistics
for the Hypothesis of no time*trt Effect

H = Type III SSCP Matrix for time*trt

E = Error SSCP Matrix

S=1 M=0.5 N=0

Statistic	Value	F Value	Num DF	Den DF	Pr > F
Wilks' Lambda	0.23153563	2.21	3	2	0.3263
Pillai's Trace	0.76846437	2.21	3	2	0.3263
Hotelling-Lawley Trace	3.31898971	2.21	3	2	0.3263
Roy's Greatest Root	3.31898971	2.21	3	2	0.3263

The GLM Procedure

Repeated Measures Analysis of Variance

Tests of Hypotheses for Between Subjects Effects

Source	DF	Type III SS	Mean Square	F Value	Pr > F
trt	1	20.16666667	20.16666667	30.25	0.0053
Error	4	2.66666667	0.66666667		

The GLM Procedure

Repeated Measures Analysis of Variance

Univariate Tests of Hypotheses for Within Subject Effects

Source	DF	Type III SS	Mean Square	F Value	Pr > F
time	3	7.16666667	2.38888889	1.16	0.3645
time*trt	3	3.16666667	1.05555556	0.51	0.6806
Error(time)	12	24.66666667	2.05555556		

Adj Pr > F

Source	G - G	H-F-L
time	0.3544	0.3619
time*trt	0.5728	0.6315
Error(time)		

Greenhouse-Geisser Epsilon	0.4997
Huynh-Feldt-Lecoutre Epsilon	0.7324