

```

1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69      *
70      AST 505
71      Zainab Akinjobi
72      Interaction plot
73
74
75      *1.. The data is randomly generated .
76      You could input a similar data set with
77
78      Data mydata ;
79
80      *input glue press rep stren
81      datalines
82      1 1 1 4.5
83      1 1 2 4.7
84      etc.
85
86      2.. The data set is for a 2 by 4
87      factorial , A is glue and B = press.
88      There are 4 reps per cell.
89
90      Please review what the initial F test, is testing ...
91
92      3.. Next, test the glue by press interaction.
93      Ho: There is no interaction between the glue and pressure
94
95      What is your conclusion about the interaction? We will reject the null.
96
97      Be sure to inspect the interaction plot
98      at the end of the output.
99
100     4.. Test glue differences at B1, then at B2,
101     then at B3 etc.
102
103     The first null is Ho mu_11 = mu_21 ,
104     The 2nd null is Ho mu_12 = mu_22 ,
105     etc
106
107     Note the
108     lsmeans glue * press / slice = press
109
110
111     5.. Be sure to relate these tests to an
112     analysis strategy if the AB interaction is significant.
113
114     6.. The last step creates an interaction
115     plot ( in this case ) with the series option.
116     ;
117
118
119
120     data mydata;
121     input glue pressure rep strength;
122     if glue =1 and pressure =3 then strength = strength+5.5;
123
124     datalines;

```

NOTE: The data set WORK.MYDATA has 32 observations and 4 variables.

NOTE: DATA statement used (Total process time):

real time	0.00 seconds
user cpu time	0.00 seconds
system cpu time	0.01 seconds
memory	724.46k
OS Memory	30372.00k
Timestamp	12/13/2021 03:38:16 AM
Step Count	187 Switch Count 2
Page Faults	0
Page Reclaims	93
Page Swaps	0
Voluntary Context Switches	9
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

157     ;
158
159     proc glm data = mydata;
160     class glue pressure ;
161     model strength = glue pressure glue*pressure/ ss3 ;
162     means glue pressure glue*pressure;
163
164     means pressure / lsd lines ;
165     lsmeans glue * pressure / slice = pressure;
166
167

```

NOTE: Means from the MEANS statement are not adjusted for other terms in the model. For adjusted means, use the LSMEANS statement.

NOTE: PROCEDURE GLM used (Total process time):

```

real time          0.63 seconds
user cpu time      0.36 seconds
system cpu time    0.04 seconds
memory            12619.37k
OS Memory          37948.00k
Timestamp          12/13/2021 03:38:17 AM
Step Count         188   Switch Count   2
Page Faults        0
Page Reclaims      3419
Page Swaps         0
Voluntary Context Switches 2553
Involuntary Context Switches 9
Block Input Operations 0
Block Output Operations 1848

```

```

168      proc means data = mydata ;
169      class glue pressure ;
170      var strength ;
171      output out = meanout mean = meany ;
172

```

NOTE: There were 32 observations read from the data set WORK.MYDATA.

NOTE: The data set WORK.MEANOUT has 15 observations and 5 variables.

NOTE: PROCEDURE MEANS used (Total process time):

```

real time          0.03 seconds
user cpu time      0.03 seconds
system cpu time    0.00 seconds
memory            8905.65k
OS Memory          43452.00k
Timestamp          12/13/2021 03:38:17 AM
Step Count         189   Switch Count   3
Page Faults        0
Page Reclaims      1874
Page Swaps         0
Voluntary Context Switches 50
Involuntary Context Switches 0
Block Input Operations 0
Block Output Operations 264

```

```

173      proc sgplot data = meanout ;
174      series x = pressure y = meany / group = glue ;
175      where _type_ = 3 ;
176      title1 ' interaction plot
177
178
179      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
180      ODS HTML CLOSE;
181      &GRAPHTERM; ;*';*';*/;RUN;QUIT;

```

NOTE: PROCEDURE SGPLOT used (Total process time):

```

real time          0.11 seconds
user cpu time      0.05 seconds
system cpu time    0.00 seconds
memory            1928.53k
OS Memory          35888.00k
Timestamp          12/13/2021 03:38:17 AM
Step Count         190   Switch Count   2
Page Faults        0
Page Reclaims      341
Page Swaps         0
Voluntary Context Switches 153
Involuntary Context Switches 0
Block Input Operations 0
Block Output Operations 448

```

NOTE: There were 8 observations read from the data set WORK.MEANOUT.

WHERE _type_=3;

```

182      QUIT;RUN;
183      ODS HTML5 (ID=WEB) CLOSE;
184
185      FILENAME _GSFNAME;
NOTE: Fileref _GSFNAME has been deassigned.
186      DATA _NULL_;
187      RUN;

```

NOTE: DATA statement used (Total process time):

```

real time          0.00 seconds
user cpu time      0.00 seconds
system cpu time    0.00 seconds
memory            463.65k
OS Memory          29608.00k
Timestamp          12/13/2021 03:38:17 AM
Step Count         191   Switch Count   0
Page Faults        0
Page Reclaims      25
Page Swaps         0
Voluntary Context Switches 0

```

Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	0

188 OPTIONS NOTES STIMER SOURCE SYNTAXCHECK;
189