```
GLM Vertical_length Horizontal_length Vertical_curve Horizontal_curve Vertical_distance Horizon
  /WSFACTOR=visualPrimitives 4 Polynomial Adjustment 2 Polynomial
  /METHOD=SSTYPE(3)
  /PLOT=PROFILE(visualPrimitives*Adjustment)
  /EMMEANS=TABLES(visualPrimitives) COMPARE ADJ(BONFERRONI)
  /EMMEANS=TABLES(Adjustment) COMPARE ADJ(BONFERRONI)
  /EMMEANS=TABLES(visualPrimitives*Adjustment)
  /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=visualPrimitives Adjustment visualPrimitives*Adjustment.
```

General Linear Model

Notes

Output Created		01-Sep-2015 18:12:57
Comments		
Input	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	35
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		GLM Vertical_length Horizontal_length Vertical_curve Horizontal_curve Vertical_distance Horizontal_Distnace Vertical_position Horizontal_position /WSFACTOR=visualPrimitives 4 Polynomial Adjustment 2 Polynomial /METHOD=SSTYPE(3) /PLOT=PROFILE (visualPrimitives*Adjustment) /EMMEANS=TABLES (visualPrimitives) COMPARE ADJ (BONFERRONI) /EMMEANS=TABLES(Adjustment) COMPARE ADJ(BONFERRONI) /EMMEANS=TABLES (visualPrimitives*Adjustment) /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY /CRITERIA=ALPHA(.05) /WSDESIGN=visualPrimitives Adjustment visualPrimitives*Adjustment.
Resources	Processor Time	00 00:00:00.234
	Elapsed Time	00 00:00:00.196

[DataSet0]

Warnings

The HOMOGENEITY specification in the PRINT subcommand will be ignored because there are no between-subjects factors.

Within-Subjects Factors

Measure:MEASURE_1

visualPrimitives	Adjustment	Dependent Variable
1	1	Vertical_length
	2	Horizontal_length
2	1	Vertical_curve
	2	Horizontal_curve
3	1	Vertical_distance
	2	Horizontal_Distnace
4	1	Vertical_position
	2	Horizontal_position

Descriptive Statistics

	Mean	Std. Deviation	N
Vertical_length	94.2117	2.62858	35
Horizontal_length	96.5140	2.15620	35
Vertical_curve	87.3871	6.32584	35
Horizontal_curve	85.1111	6.63841	35
Vertical_distance	95.0137	3.25564	35
Horizontal_Distnace	95.5857	2.41304	35
Vertical_position	96.8529	1.92872	35
Horizontal_position	97.6754	1.75299	35

Multivariate Tests [b]

Effect		Value	F	Hypothesis df	Error df
visualPrimitives	Pillai's Trace	.893	88.855[a]	3.000	32.000
	Wilks' Lambda	.107	88.855[a]	3.000	32.000
	Hotelling's Trace	8.330	88.855[a]	3.000	32.000
	Roy's Largest Root	8.330	88.855[a]	3.000	32.000
Adjustment	Pillai's Trace	.022	.773[a]	1.000	34.000
	Wilks' Lambda	.978	.773[a]	1.000	34.000
	Hotelling's Trace	.023	.773[a]	1.000	34.000
	Roy's Largest Root	.023	.773[a]	1.000	34.000
visualPrimitives * Adjustment	Pillai's Trace	.260	3.742[a]	3.000	32.000
	Wilks' Lambda	.740	3.742[a]	3.000	32.000
	Hotelling's Trace	.351	3.742[a]	3.000	32.000
	Roy's Largest Root	.351	3.742[a]	3.000	32.000

Multivariate Tests [b]

Effect		Sig.	Partial Eta Squared
visualPrimitives	Pillai's Trace	.000	.893
	Wilks' Lambda	.000	.893
	Hotelling's Trace	.000	.893
	Roy's Largest Root	.000	.893
Adjustment	Pillai's Trace	.385	.022
	Wilks' Lambda	.385	.022
	Hotelling's Trace	.385	.022
	Roy's Largest Root	.385	.022
visualPrimitives * Adjustment	Pillai's Trace	.021	.260
	Wilks' Lambda	.021	.260
	Hotelling's Trace	.021	.260
	Roy's Largest Root	.021	.260

a. Exact statistic
b. Design: Intercept
Within Subjects Design: visualPrimitives + Adjustment + visualPrimitives * Adjustment

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.
visualPrimitives	.211	50.989	5	.000
Adjustment	1.000	.000	0	.
visualPrimitives * Adjustment	.256	44.526	5	.000

Mauchly's Test of Sphericity[b]

Measure:MEASURE_1

Within Subjects Effect	Epsilon[a]		
	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
visualPrimitives	.506	.525	.333
Adjustment	1.000	1.000	1.000
visualPrimitives * Adjustment	.574	.602	.333

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within-Subjects Effects table.
b. Design: Intercept
Within Subjects Design: visualPrimitives + Adjustment + visualPrimitives * Adjustment

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F
visualPrimitives	Sphericity Assumed	5141.162	3	1713.721	107.783
	Greenhouse-Geisser	5141.162	1.519	3384.687	107.783
	Huynh-Feldt	5141.162	1.575	3263.879	107.783
	Lower-bound	5141.162	1.000	5141.162	107.783
Error(visualPrimitives)	Sphericity Assumed	1621.776	102	15.900	
	Greenhouse-Geisser	1621.776	51.644	31.403	
	Huynh-Feldt	1621.776	53.556	30.282	
	Lower-bound	1621.776	34.000	47.699	
Adjustment	Sphericity Assumed	8.832	1	8.832	.773
	Greenhouse-Geisser	8.832	1.000	8.832	.773
	Huynh-Feldt	8.832	1.000	8.832	.773
	Lower-bound	8.832	1.000	8.832	.773
Error(Adjustment)	Sphericity Assumed	388.412	34	11.424	
	Greenhouse-Geisser	388.412	34.000	11.424	
	Huynh-Feldt	388.412	34.000	11.424	
	Lower-bound	388.412	34.000	11.424	
visualPrimitives * Adjustment	Sphericity Assumed	192.146	3	64.049	4.735
	Greenhouse-Geisser	192.146	1.723	111.539	4.735
	Huynh-Feldt	192.146	1.806	106.391	4.735
	Lower-bound	192.146	1.000	192.146	4.735
Error(visual Primitives*Adjustment)	Sphericity Assumed	1379.710	102	13.527	
	Greenhouse-Geisser	1379.710	58.571	23.556	
	Huynh-Feldt	1379.710	61.405	22.469	
	Lower-bound	1379.710	34.000	40.580	

Tests of Within-Subjects Effects

Measure:MEASURE_1

Source		Sig.	Partial Eta Squared
visualPrimitives	Sphericity Assumed	.000	.760
	Greenhouse-Geisser	.000	.760
	Huynh-Feldt	.000	.760
	Lower-bound	.000	.760
Adjustment	Sphericity Assumed	.385	.022
	Greenhouse-Geisser	.385	.022
	Huynh-Feldt	.385	.022
	Lower-bound	.385	.022
visualPrimitives * Adjustment	Sphericity Assumed	.004	.122
	Greenhouse-Geisser	.016	.122
	Huynh-Feldt	.015	.122
	Lower-bound	.037	.122

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source		Adjustment	Type III Sum of Squares	df	Mean Square
visualPrimitives	Linear		761.926	1	761.926
	Quadratic		2147.692	1	2147.692
	Cubic		2231.545	1	2231.545
Error(visualPrimitives)	Linear		132.819	34	3.906
	Quadratic		641.049	34	18.854
	Cubic		847.908	34	24.938
Adjustment		Linear	8.832	1	8.832
Error(Adjustment)		Linear	388.412	34	11.424
visualPrimitives * Adjustment	Linear	Linear	2.215	1	2.215
	Quadratic	Linear	102.016	1	102.016
	Cubic	Linear	87.915	1	87.915
Error(visual Primitives*Adjustment)	Linear	Linear	268.046	34	7.884
	Quadratic	Linear	367.999	34	10.824
	Cubic	Linear	743.664	34	21.872

Tests of Within-Subjects Contrasts

Measure:MEASURE_1

Source		Adjustment	F	Sig.	Partial Eta Squared
visualPrimitives	Linear		195.044	.000	.852
	Quadratic		113.909	.000	.770
	Cubic		89.482	.000	.725
Adjustment		Linear	.773	.385	.022
visualPrimitives * Adjustment	Linear	Linear	.281	.599	.008
	Quadratic	Linear	9.425	.004	.217
	Cubic	Linear	4.019	.053	.106

Tests of Between-Subjects Effects

Measure:MEASURE_1
Transformed Variable:Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	2450132.511	1	2450132.511	127908.539	.000	1.000
Error	651.282	34	19.155			

Estimated Marginal Means

1. visualPrimitives

Estimates

Measure:MEASURE_1

visualPrimitives	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	95.363	.244	94.866	95.860
2	86.249	.846	84.529	87.969
3	95.300	.318	94.654	95.946
4	97.264	.279	96.697	97.831

Pairwise Comparisons

Measure:MEASURE_1

(I) visualPrimitives	(J) visualPrimitives	Mean Difference (I-J)	Std. Error	Sig.[a]
1	2	9.114*	.972	.000
	3	.063	.414	1.000
	4	-1.901*	.391	.000
2	1	-9.114*	.972	.000
	3	-9.051*	.819	.000
	4	-11.015*	.790	.000
3	1	-.063	.414	1.000
	2	9.051*	.819	.000
	4	-1.964*	.401	.000
4	1	1.901*	.391	.000
	2	11.015*	.790	.000
	3	1.964*	.401	.000

Pairwise Comparisons

Measure:MEASURE_1

		95% Confidence Interval for Difference[a]	
(I) visualPrimitives	(J) visualPrimitives	Lower Bound	Upper Bound
1	2	6.389	11.838
	3	-1.097	1.223
	4	-2.998	-.805
2	1	-11.838	-6.389
	3	-11.345	-6.756
	4	-13.228	-8.802
3	1	-1.223	1.097
	2	6.756	11.345
	4	-3.087	-.842
4	1	.805	2.998
	2	8.802	13.228
	3	.842	3.087

Based on estimated marginal means

*. The mean difference is significant at the .05 level.
a. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.893	88.855[a]	3.000	32.000	.000	.893
Wilks' lambda	.107	88.855[a]	3.000	32.000	.000	.893
Hotelling's trace	8.330	88.855[a]	3.000	32.000	.000	.893
Roy's largest root	8.330	88.855[a]	3.000	32.000	.000	.893

Each F tests the multivariate effect of visualPrimitives. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

2. Adjustment

Estimates

Measure:MEASURE_1

Adjustment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	93.366	.321	92.714	94.019
2	93.722	.340	93.031	94.412

Pairwise Comparisons

Measure:MEASURE_1

(I) Adjustment	(J) Adjustment	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.355	.404	.385	-1.176	.466
2	1	.355	.404	.385	-.466	1.176

Based on estimated marginal means

a. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.022	.773[a]	1.000	34.000	.385	.022
Wilks' lambda	.978	.773[a]	1.000	34.000	.385	.022
Hotelling's trace	.023	.773[a]	1.000	34.000	.385	.022
Roy's largest root	.023	.773[a]	1.000	34.000	.385	.022

Each F tests the multivariate effect of Adjustment. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

3. visualPrimitives * Adjustment

Measure:MEASURE_1

visualPrimitives	Adjustment	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	1	94.212	.444	93.309	95.115
	2	96.514	.364	95.773	97.255
2	1	87.387	1.069	85.214	89.560
	2	85.111	1.122	82.831	87.392
3	1	95.014	.550	93.895	96.132
	2	95.586	.408	94.757	96.415
4	1	96.853	.326	96.190	97.515
	2	97.675	.296	97.073	98.278

Profile Plots