```
 GET
  FILE='C:\Users\Bahador\Desktop\SPSS-Analysis\Distribution\Distribution_Time.
sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
GLM Bar_Nom_Num_Car Bar_Nom_Num_Movie Bar_Num_Num_Car Bar_Num_Num_Movie Bar_Or
d_Num_Car
    Bar_Ord_Num_Movie Line_Nom_Num_Car Line_Nom_Num_Movie Line_Num_Num_Car Lin
e_Num_Num_Movie
    Line_Ord_Num_Car Line_Ord_Num_Movie Pie_Nom_Num_Car Pie_Nom_Num_Movie Pie_
Num_Num_Car
    Pie_Num_Num_Movie Pie_Ord_Num_Car Pie_Ord_Num_Movie Scatter_Nom_Num_Car Sc
atter_Nom_Num_Movie
    Scatter_Num_Num_Car Scatter_Num_Num_Movie Scatter_Ord_Num_Car Scatter_Ord_
Num_Movie
    Table_Nom_Num_Car Table_Nom_Num_Movie Table_Num_Num_Car Table_Num_Num_Movi
e Table_Ord_Num_Car
    Table_Ord_Num_Movie
  /WSFACTOR=visualization 5 Polynomial Datasets 2 Polynomial Attributes 3 Poly
nomial
  /METHOD=SSTYPE(3)
  /EMMEANS=TABLES(OVERALL)
  /EMMEANS=TABLES(visualization) COMPARE ADJ(BONFERRONI)
  /EMMEANS=TABLES(Datasets) COMPARE ADJ(BONFERRONI)
  /EMMEANS=TABLES(Attributes) COMPARE ADJ(BONFERRONI)
  /EMMEANS=TABLES(visualization*Datasets)
  /EMMEANS=TABLES(visualization*Attributes)
  /EMMEANS=TABLES(Datasets*Attributes)
  /PRINT=DESCRIPTIVE ETASQ OPOWER HOMOGENEITY
  /CRITERIA=ALPHA(.05)
  /WSDESIGN=visualization Datasets Attributes visualization*Datasets visualiza
tion*Attributes
    Datasets*Attributes visualization*Datasets*Attributes.
```

General Linear Model

Notes

Output Created		24-MAR-2017 15:05:01
Comments		
Input	Data	C:\Users\Bahador\Desktop\SPSS-Analysis\Distribution\Distribution_Time.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	18
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.

Notes

Syntax	GLM Bar_Nom_Num_Car Bar_Nom_Num_Movie Bar_Num_Num_Car Bar_Num_Num_Movie Bar_Ord_Num_Car Bar_Ord_Num_Movie Line_Nom_Num_Car Line_Nom_Num_Movie Line_Num_Num_Car Line_Num_Num_Movie Line_Ord_Num_Car Line_Ord_Num_Movie Pie_Nom_Num_Car Pie_Nom_Num_Movie Pie_Num_Num_Car Pie_Num_Num_Movie Pie_Ord_Num_Car Pie_Ord_Num_Movie Scatter_Nom_Num_Car Scatter_Nom_Num_Movie Scatter_Num_Num_Car Scatter_Num_Num_Movie Scatter_Ord_Num_Car Scatter_Ord_Num_Movie Table_Nom_Num_Car Table_Nom_Num_Movie Table_Num_Num_Car Table_Num_Num_Movie Table_Ord_Num_Car Table_Ord_Num_Movie /WSFACTOR=visualization 5 Polynomial Datasets 2 Polynomial Attributes 3 Polynomial /METHOD=SSTYPE(3) /EMMEANS=TABLES (OVERALL) /EMMEANS=TABLES (visualization) COMPARE ADJ(BONFERRONI) /EMMEANS=TABLES (Datasets) COMPARE ADJ(BONFERRONI) /EMMEANS=TABLES (Attributes) COMPARE ADJ(BONFERRONI) /EMMEANS=TABLES (visualization*Datasets) /EMMEANS=TABLES (visualization*Attributes) /EMMEANS=TABLES (Datasets*Attributes) /PRINT=DESCRIPTIVE ETASQ OPOWER HOMOGENEITY /CRITERIA=ALPHA(.05) /WSDESIGN=visualization Datasets Attributes visualization*Datasets

Notes

Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet1] C:\Users\Bahador\Desktop\SPSS-Analysis\Distribution\Distribution_Time.sav

Warnings

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

Within-Subjects Factors

Measure: MEASURE_1

visualization	Datasets	Attributes	Dependent Variable
1	1	1	Bar_Nom_Num_Car
		2	Bar_Nom_Num_Movie
		3	Bar_Num_Num_Car
	2	1	Bar_Num_Num_Movie
		2	Bar_Ord_Num_Car
		3	Bar_Ord_Num_Movie
2	1	1	Line_Nom_Num_Car
		2	Line_Nom_Num_Movie
		3	Line_Num_Num_Car
	2	1	Line_Num_Num_Movie
		2	Line_Ord_Num_Car
		3	Line_Ord_Num_Movie

Within-Subjects Factors

Measure: MEASURE_1

visualization	Datasets	Attributes	Dependent Variable
3	1	1	Pie_Nom_Num_Car
		2	Pie_Nom_Num_Movie
		3	Pie_Num_Num_Car
	2	1	Pie_Num_Num_Movie
		2	Pie_Ord_Num_Car
		3	Pie_Ord_Num_Movie
4	1	1	Scatter_Nom_Num_Car
		2	Scatter_Nom_Num_Movie
		3	Scatter_Num_Num_Car
	2	1	Scatter_Num_Num_Movie
		2	Scatter_Ord_Num_Car
		3	Scatter_Ord_Num_Movie
5	1	1	Table_Nom_Num_Car
		2	Table_Nom_Num_Movie
		3	Table_Num_Num_Car
	2	1	Table_Num_Num_Movie
		2	Table_Ord_Num_Car
		3	Table_Ord_Num_Movie

Descriptive Statistics

	Mean	Std. Deviation	N
Bar_Nom_Num_Car	1.3558	.18426	18
Bar_Nom_Num_Movie	1.3024	.19206	18
Bar_Num_Num_Car	1.3753	.20130	18
Bar_Num_Num_Movie	1.3719	.27273	18
Bar_Ord_Num_Car	1.2942	.25882	18
Bar_Ord_Num_Movie	1.1970	.21140	18
Line_Nom_Num_Car	1.4467	.25906	18
Line_Nom_Num_Movie	1.3345	.28727	18
Line_Num_Num_Car	1.2911	.25293	18
Line_Num_Num_Movie	1.3392	.27108	18
Line_Ord_Num_Car	1.3179	.26658	18
Line_Ord_Num_Movie	1.3396	.27311	18
Pie_Nom_Num_Car	1.3411	.19694	18
Pie_Nom_Num_Movie	1.3125	.23956	18
Pie_Num_Num_Car	1.4709	.23135	18
Pie_Num_Num_Movie	1.4674	.26328	18
Pie_Ord_Num_Car	1.2998	.18287	18
Pie_Ord_Num_Movie	1.3215	.25530	18
Scatter_Nom_Num_Car	1.2221	.23577	18
Scatter_Nom_Num_Movie	1.2228	.18011	18
Scatter_Num_Num_Car	1.2868	.22193	18
Scatter_Num_Num_Movie	1.3202	.26480	18
Scatter_Ord_Num_Car	1.2970	.28283	18
Scatter_Ord_Num_Movie	1.2412	.23042	18
Table_Nom_Num_Car	1.2707	.23142	18
Table_Nom_Num_Movie	1.2542	.20893	18
Table_Num_Num_Car	1.5460	.24282	18
Table_Num_Num_Movie	1.4810	.23304	18
Table_Ord_Num_Car	1.3074	.24034	18
Table_Ord_Num_Movie	1.3486	.34494	18

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df
visualization	Pillai's Trace	.581	4.856[b]	4.000	14.000
	Wilks' Lambda	.419	4.856[b]	4.000	14.000
	Hotelling's Trace	1.387	4.856[b]	4.000	14.000
	Roy's Largest Root	1.387	4.856[b]	4.000	14.000
Datasets	Pillai's Trace	.005	.088[b]	1.000	17.000
	Wilks' Lambda	.995	.088[b]	1.000	17.000
	Hotelling's Trace	.005	.088[b]	1.000	17.000
	Roy's Largest Root	.005	.088[b]	1.000	17.000
Attributes	Pillai's Trace	.490	7.674[b]	2.000	16.000
	Wilks' Lambda	.510	7.674[b]	2.000	16.000
	Hotelling's Trace	.959	7.674[b]	2.000	16.000
	Roy's Largest Root	.959	7.674[b]	2.000	16.000
visualization * Datasets	Pillai's Trace	.304	1.528[b]	4.000	14.000
	Wilks' Lambda	.696	1.528[b]	4.000	14.000
	Hotelling's Trace	.437	1.528[b]	4.000	14.000
	Roy's Largest Root	.437	1.528[b]	4.000	14.000
visualization * Attributes	Pillai's Trace	.618	2.024[b]	8.000	10.000
	Wilks' Lambda	.382	2.024[b]	8.000	10.000
	Hotelling's Trace	1.619	2.024[b]	8.000	10.000
	Roy's Largest Root	1.619	2.024[b]	8.000	10.000
Datasets * Attributes	Pillai's Trace	.375	4.798[b]	2.000	16.000
	Wilks' Lambda	.625	4.798[b]	2.000	16.000
	Hotelling's Trace	.600	4.798[b]	2.000	16.000
	Roy's Largest Root	.600	4.798[b]	2.000	16.000
visualization * Datasets * Attributes	Pillai's Trace	.737	3.495[b]	8.000	10.000
	Wilks' Lambda	.263	3.495[b]	8.000	10.000
	Hotelling's Trace	2.796	3.495[b]	8.000	10.000
	Roy's Largest Root	2.796	3.495[b]	8.000	10.000

Multivariate Tests[a]

Effect		Sig.	Partial Eta Squared	Noncent. Parameter
visualization	Pillai's Trace	.011	.581	19.424
	Wilks' Lambda	.011	.581	19.424
	Hotelling's Trace	.011	.581	19.424
	Roy's Largest Root	.011	.581	19.424
Datasets	Pillai's Trace	.770	.005	.088
	Wilks' Lambda	.770	.005	.088
	Hotelling's Trace	.770	.005	.088
	Roy's Largest Root	.770	.005	.088
Attributes	Pillai's Trace	.005	.490	15.348
	Wilks' Lambda	.005	.490	15.348
	Hotelling's Trace	.005	.490	15.348
	Roy's Largest Root	.005	.490	15.348
visualization * Datasets	Pillai's Trace	.248	.304	6.113
	Wilks' Lambda	.248	.304	6.113
	Hotelling's Trace	.248	.304	6.113
	Roy's Largest Root	.248	.304	6.113
visualization * Attributes	Pillai's Trace	.147	.618	16.193
	Wilks' Lambda	.147	.618	16.193
	Hotelling's Trace	.147	.618	16.193
	Roy's Largest Root	.147	.618	16.193
Datasets * Attributes	Pillai's Trace	.023	.375	9.596
	Wilks' Lambda	.023	.375	9.596
	Hotelling's Trace	.023	.375	9.596
	Roy's Largest Root	.023	.375	9.596
visualization * Datasets * Attributes	Pillai's Trace	.034	.737	27.957
	Wilks' Lambda	.034	.737	27.957
	Hotelling's Trace	.034	.737	27.957
	Roy's Largest Root	.034	.737	27.957

Multivariate Tests[a]

Effect		Observed Power[c]
visualization	Pillai's Trace	.863
	Wilks' Lambda	.863
	Hotelling's Trace	.863
	Roy's Largest Root	.863
Datasets	Pillai's Trace	.059
	Wilks' Lambda	.059
	Hotelling's Trace	.059
	Roy's Largest Root	.059
Attributes	Pillai's Trace	.899
	Wilks' Lambda	.899
	Hotelling's Trace	.899
	Roy's Largest Root	.899
visualization * Datasets	Pillai's Trace	.354
	Wilks' Lambda	.354
	Hotelling's Trace	.354
	Roy's Largest Root	.354
visualization * Attributes	Pillai's Trace	.505
	Wilks' Lambda	.505
	Hotelling's Trace	.505
	Roy's Largest Root	.505
Datasets * Attributes	Pillai's Trace	.713
	Wilks' Lambda	.713
	Hotelling's Trace	.713
	Roy's Largest Root	.713
visualization * Datasets * Attributes	Pillai's Trace	.775
	Wilks' Lambda	.775
	Hotelling's Trace	.775
	Roy's Largest Root	.775

a. Design: Intercept
Within Subjects Design: visualization + Datasets + Attributes + visualization * Datasets + visualization * Attributes + Datasets * Attributes + visualization * Datasets * Attributes

b. Exact statistic

c. Computed using alpha = .05

Mauchly's Test of Sphericity[a]

Measure: MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b] Greenhouse-Geisser
visualization	.532	9.735	9	.375	.831
Datasets	1.000	.000	0	.	1.000
Attributes	.888	1.907	2	.385	.899
visualization * Datasets	.812	3.212	9	.956	.905
visualization * Attributes	.087	34.434	35	.525	.593
Datasets * Attributes	.880	2.039	2	.361	.893
visualization * Datasets * Attributes	.041	45.291	35	.132	.656

Mauchly's Test of Sphericity[a]

Measure: MEASURE_1

Within Subjects Effect	Epsilon[b] Huynh-Feldt	Lower-bound
visualization	1.000	.250
Datasets	1.000	1.000
Attributes	.999	.500
visualization * Datasets	1.000	.250
visualization * Attributes	.851	.125
Datasets * Attributes	.991	.500
visualization * Datasets * Attributes	.982	.125

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

a. Design: Intercept
Within Subjects Design: visualization + Datasets + Attributes + visualization * Datasets + visualization * Attributes + Datasets * Attributes + visualization * Datasets * Attributes

b. 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.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F
visualization	Sphericity Assumed	.816	4	.204	5.662
	Greenhouse-Geisser	.816	3.323	.246	5.662
	Huynh-Feldt	.816	4.000	.204	5.662
	Lower-bound	.816	1.000	.816	5.662
Error(visualization)	Sphericity Assumed	2.451	68	.036	
	Greenhouse-Geisser	2.451	56.487	.043	
	Huynh-Feldt	2.451	68.000	.036	
	Lower-bound	2.451	17.000	.144	
Datasets	Sphericity Assumed	.005	1	.005	.088
	Greenhouse-Geisser	.005	1.000	.005	.088
	Huynh-Feldt	.005	1.000	.005	.088
	Lower-bound	.005	1.000	.005	.088
Error(Datasets)	Sphericity Assumed	.919	17	.054	
	Greenhouse-Geisser	.919	17.000	.054	
	Huynh-Feldt	.919	17.000	.054	
	Lower-bound	.919	17.000	.054	
Attributes	Sphericity Assumed	.431	2	.216	5.511
	Greenhouse-Geisser	.431	1.798	.240	5.511
	Huynh-Feldt	.431	1.997	.216	5.511
	Lower-bound	.431	1.000	.431	5.511
Error(Attributes)	Sphericity Assumed	1.331	34	.039	
	Greenhouse-Geisser	1.331	30.565	.044	
	Huynh-Feldt	1.331	33.954	.039	
	Lower-bound	1.331	17.000	.078	
visualization * Datasets	Sphericity Assumed	.165	4	.041	1.720
	Greenhouse-Geisser	.165	3.621	.045	1.720
	Huynh-Feldt	.165	4.000	.041	1.720
	Lower-bound	.165	1.000	.165	1.720
Error (visualization*Datasets)	Sphericity Assumed	1.628	68	.024	
	Greenhouse-Geisser	1.628	61.559	.026	
	Huynh-Feldt	1.628	68.000	.024	
	Lower-bound	1.628	17.000	.096	
visualization * Attributes	Sphericity Assumed	.540	8	.067	2.413
	Greenhouse-Geisser	.540	4.745	.114	2.413

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Sig.	Partial Eta Squared	Noncent. Parameter
visualization	Sphericity Assumed	.001	.250	22.650
	Greenhouse-Geisser	.001	.250	18.815
	Huynh-Feldt	.001	.250	22.650
	Lower-bound	.029	.250	5.662
Error(visualization)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Datasets	Sphericity Assumed	.770	.005	.088
	Greenhouse-Geisser	.770	.005	.088
	Huynh-Feldt	.770	.005	.088
	Lower-bound	.770	.005	.088
Error(Datasets)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Attributes	Sphericity Assumed	.008	.245	11.021
	Greenhouse-Geisser	.011	.245	9.908
	Huynh-Feldt	.008	.245	11.006
	Lower-bound	.031	.245	5.511
Error(Attributes)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
visualization * Datasets	Sphericity Assumed	.156	.092	6.878
	Greenhouse-Geisser	.163	.092	6.227
	Huynh-Feldt	.156	.092	6.878
	Lower-bound	.207	.092	1.720
Error (visualization*Datasets)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
visualization * Attributes	Sphericity Assumed	.018	.124	19.305
	Greenhouse-Geisser	.046	.124	11.449

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Observed Power[a]
visualization	Sphericity Assumed	.972
	Greenhouse-Geisser	.948
	Huynh-Feldt	.972
	Lower-bound	.612
Error(visualization)	Sphericity Assumed	
	Greenhouse-Geisser	
	Huynh-Feldt	
	Lower-bound	
Datasets	Sphericity Assumed	.059
	Greenhouse-Geisser	.059
	Huynh-Feldt	.059
	Lower-bound	.059
Error(Datasets)	Sphericity Assumed	
	Greenhouse-Geisser	
	Huynh-Feldt	
	Lower-bound	
Attributes	Sphericity Assumed	.819
	Greenhouse-Geisser	.786
	Huynh-Feldt	.818
	Lower-bound	.600
Error(Attributes)	Sphericity Assumed	
	Greenhouse-Geisser	
	Huynh-Feldt	
	Lower-bound	
visualization * Datasets	Sphericity Assumed	.500
	Greenhouse-Geisser	.472
	Huynh-Feldt	.500
	Lower-bound	.236
Error (visualization*Datasets)	Sphericity Assumed	
	Greenhouse-Geisser	
	Huynh-Feldt	
	Lower-bound	
visualization * Attributes	Sphericity Assumed	.884
	Greenhouse-Geisser	.722

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F
	Huynh-Feldt	.540	6.806	.079	2.413
	Lower-bound	.540	1.000	.540	2.413
Error (visualization*Attributes)	Sphericity Assumed	3.804	136	.028	
	Greenhouse-Geisser	3.804	80.660	.047	
	Huynh-Feldt	3.804	115.696	.033	
	Lower-bound	3.804	17.000	.224	
Datasets * Attributes	Sphericity Assumed	.713	2	.356	6.095
	Greenhouse-Geisser	.713	1.786	.399	6.095
	Huynh-Feldt	.713	1.982	.360	6.095
	Lower-bound	.713	1.000	.713	6.095
Error(Datasets*Attributes)	Sphericity Assumed	1.987	34	.058	
	Greenhouse-Geisser	1.987	30.366	.065	
	Huynh-Feldt	1.987	33.693	.059	
	Lower-bound	1.987	17.000	.117	
visualization * Datasets * Attributes	Sphericity Assumed	.809	8	.101	2.974
	Greenhouse-Geisser	.809	5.244	.154	2.974
	Huynh-Feldt	.809	7.860	.103	2.974
	Lower-bound	.809	1.000	.809	2.974
Error (visualization*Datasets*Attributes)	Sphericity Assumed	4.627	136	.034	
	Greenhouse-Geisser	4.627	89.151	.052	
	Huynh-Feldt	4.627	133.612	.035	
	Lower-bound	4.627	17.000	.272	

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Sig.	Partial Eta Squared	Noncent. Parameter
	Huynh-Feldt	.025	.124	16.423
	Lower-bound	.139	.124	2.413
Error (visualization*Attributes)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
Datasets * Attributes	Sphericity Assumed	.005	.264	12.190
	Greenhouse-Geisser	.008	.264	10.887
	Huynh-Feldt	.006	.264	12.080
	Lower-bound	.024	.264	6.095
Error(Datasets*Attributes)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			
visualization * Datasets * Attributes	Sphericity Assumed	.004	.149	23.791
	Greenhouse-Geisser	.014	.149	15.596
	Huynh-Feldt	.004	.149	23.373
	Lower-bound	.103	.149	2.974
Error (visualization*Datasets*Attributes)	Sphericity Assumed			
	Greenhouse-Geisser			
	Huynh-Feldt			
	Lower-bound			

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Observed Power[a]
	Huynh-Feldt	.839
	Lower-bound	.311
Error (visualization*Attributes)	Sphericity Assumed	
	Greenhouse-Geisser	
	Huynh-Feldt	
	Lower-bound	
Datasets * Attributes	Sphericity Assumed	.857
	Greenhouse-Geisser	.825
	Huynh-Feldt	.855
	Lower-bound	.644
Error(Datasets*Attributes)	Sphericity Assumed	
	Greenhouse-Geisser	
	Huynh-Feldt	
	Lower-bound	
visualization * Datasets * Attributes	Sphericity Assumed	.947
	Greenhouse-Geisser	.851
	Huynh-Feldt	.944
	Lower-bound	.370
Error (visualization*Datasets*Attributes)	Sphericity Assumed	
	Greenhouse-Geisser	
	Huynh-Feldt	
	Lower-bound	

a. Computed using alpha = .05

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Type III Sum of Squares	df
visualization	Linear			.006	1
	Quadratic			.003	1
	Cubic			.483	1
	Order 4			.324	1
Error(visualization)	Linear			.599	17
	Quadratic			.593	17
	Cubic			.906	17
	Order 4			.354	17
Datasets		Linear		.005	1
Error(Datasets)		Linear		.919	17
Attributes			Linear	.035	1
			Quadratic	.396	1
Error(Attributes)			Linear	.796	17
			Quadratic	.535	17
visualization * Datasets	Linear	Linear		.137	1
	Quadratic	Linear		.008	1
	Cubic	Linear		.009	1
	Order 4	Linear		.012	1
Error (visualization*Datasets)	Linear	Linear		.498	17
	Quadratic	Linear		.363	17
	Cubic	Linear		.473	17
	Order 4	Linear		.294	17
visualization * Attributes	Linear		Linear	.245	1
			Quadratic	.085	1
	Quadratic		Linear	.010	1
			Quadratic	.014	1
	Cubic		Linear	.000	1
			Quadratic	.050	1
	Order 4		Linear	.021	1
			Quadratic	.115	1
Error (visualization*Attributes)	Linear		Linear	.602	17
			Quadratic	.223	17
	Quadratic		Linear	.400	17
			Quadratic	.816	17

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Mean Square	F	Sig.
visualization	Linear			.006	.177	.680
	Quadratic			.003	.094	.763
	Cubic			.483	9.071	.008
	Order 4			.324	15.539	.001
Error(visualization)	Linear			.035		
	Quadratic			.035		
	Cubic			.053		
	Order 4			.021		
Datasets		Linear		.005	.088	.770
Error(Datasets)		Linear		.054		
Attributes			Linear	.035	.756	.397
			Quadratic	.396	12.592	.002
Error(Attributes)			Linear	.047		
			Quadratic	.031		
visualization * Datasets	Linear	Linear		.137	4.674	.045
	Quadratic	Linear		.008	.356	.559
	Cubic	Linear		.009	.305	.588
	Order 4	Linear		.012	.677	.422
Error (visualization*Datasets)	Linear	Linear		.029		
	Quadratic	Linear		.021		
	Cubic	Linear		.028		
	Order 4	Linear		.017		
visualization * Attributes	Linear		Linear	.245	6.917	.018
			Quadratic	.085	6.473	.021
	Quadratic		Linear	.010	.425	.523
			Quadratic	.014	.298	.592
	Cubic		Linear	.000	.006	.938
			Quadratic	.050	1.733	.206
	Order 4		Linear	.021	.722	.407
			Quadratic	.115	4.457	.050
Error (visualization*Attributes)	Linear		Linear	.035		
			Quadratic	.013		
	Quadratic		Linear	.024		
			Quadratic	.048		

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Partial Eta Squared	Noncent. Parameter
visualization	Linear			.010	.177
	Quadratic			.005	.094
	Cubic			.348	9.071
	Order 4			.478	15.539
Error(visualization)	Linear				
	Quadratic				
	Cubic				
	Order 4				
Datasets		Linear		.005	.088
Error(Datasets)		Linear			
Attributes			Linear	.043	.756
			Quadratic	.426	12.592
Error(Attributes)			Linear		
			Quadratic		
visualization * Datasets	Linear	Linear		.216	4.674
	Quadratic	Linear		.021	.356
	Cubic	Linear		.018	.305
	Order 4	Linear		.038	.677
Error (visualization*Datasets)	Linear	Linear			
	Quadratic	Linear			
	Cubic	Linear			
	Order 4	Linear			
visualization * Attributes	Linear		Linear	.289	6.917
			Quadratic	.276	6.473
	Quadratic		Linear	.024	.425
			Quadratic	.017	.298
	Cubic		Linear	.000	.006
			Quadratic	.092	1.733
	Order 4		Linear	.041	.722
			Quadratic	.208	4.457
Error (visualization*Attributes)	Linear		Linear		
			Quadratic		
	Quadratic		Linear		
			Quadratic		

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Observed Power[a]
visualization	Linear			.068
	Quadratic			.060
	Cubic			.810
	Order 4			.960
Error(visualization)	Linear			
	Quadratic			
	Cubic			
	Order 4			
Datasets		Linear		.059
Error(Datasets)		Linear		
Attributes			Linear	.130
			Quadratic	.917
Error(Attributes)			Linear	
			Quadratic	
visualization * Datasets	Linear	Linear		.532
	Quadratic	Linear		.087
	Cubic	Linear		.082
	Order 4	Linear		.121
Error (visualization*Datasets)	Linear	Linear		
	Quadratic	Linear		
	Cubic	Linear		
	Order 4	Linear		
visualization * Attributes	Linear		Linear	.698
			Quadratic	.670
	Quadratic		Linear	.094
			Quadratic	.081
	Cubic		Linear	.051
			Quadratic	.237
	Order 4		Linear	.126
			Quadratic	.513
Error (visualization*Attributes)	Linear		Linear	
			Quadratic	
	Quadratic		Linear	
			Quadratic	

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Type III Sum of Squares	df
	Cubic		Linear	.343	17
			Quadratic	.493	17
	Order 4		Linear	.490	17
			Quadratic	.439	17
Datasets * Attributes		Linear	Linear	.674	1
			Quadratic	.039	1
Error(Datasets*Attributes)		Linear	Linear	1.328	17
			Quadratic	.659	17
visualization * Datasets * Attributes	Linear	Linear	Linear	.237	1
			Quadratic	.000	1
	Quadratic	Linear	Linear	.142	1
			Quadratic	.014	1
	Cubic	Linear	Linear	.067	1
			Quadratic	.006	1
	Order 4	Linear	Linear	.342	1
			Quadratic	.001	1
Error (visualization*Datasets*Attributes)	Linear	Linear	Linear	.855	17
			Quadratic	.247	17
	Quadratic	Linear	Linear	.484	17
			Quadratic	.196	17
	Cubic	Linear	Linear	.826	17
			Quadratic	.749	17
	Order 4	Linear	Linear	.653	17
			Quadratic	.616	17

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Mean Square	F	Sig.
	Cubic		Linear	.020		
			Quadratic	.029		
	Order 4		Linear	.029		
			Quadratic	.026		
Datasets * Attributes		Linear	Linear	.674	8.629	.009
			Quadratic	.039	.993	.333
Error(Datasets*Attributes)		Linear	Linear	.078		
			Quadratic	.039		
visualization * Datasets * Attributes	Linear	Linear	Linear	.237	4.720	.044
			Quadratic	.000	.012	.913
	Quadratic	Linear	Linear	.142	4.995	.039
			Quadratic	.014	1.214	.286
	Cubic	Linear	Linear	.067	1.378	.257
			Quadratic	.006	.126	.727
	Order 4	Linear	Linear	.342	8.893	.008
			Quadratic	.001	.041	.843
Error (visualization*Datasets*Attributes)	Linear	Linear	Linear	.050		
			Quadratic	.015		
	Quadratic	Linear	Linear	.028		
			Quadratic	.012		
	Cubic	Linear	Linear	.049		
			Quadratic	.044		
	Order 4	Linear	Linear	.038		
			Quadratic	.036		

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Partial Eta Squared	Noncent. Parameter
	Cubic		Linear		
			Quadratic		
	Order 4		Linear		
			Quadratic		
Datasets * Attributes		Linear	Linear	.337	8.629
			Quadratic	.055	.993
Error(Datasets*Attributes)		Linear	Linear		
			Quadratic		
visualization * Datasets * Attributes	Linear	Linear	Linear	.217	4.720
			Quadratic	.001	.012
	Quadratic	Linear	Linear	.227	4.995
			Quadratic	.067	1.214
	Cubic	Linear	Linear	.075	1.378
			Quadratic	.007	.126
	Order 4	Linear	Linear	.343	8.893
			Quadratic	.002	.041
Error (visualization*Datasets*Attributes)	Linear	Linear	Linear		
			Quadratic		
	Quadratic	Linear	Linear		
			Quadratic		
	Cubic	Linear	Linear		
			Quadratic		
	Order 4	Linear	Linear		
			Quadratic		

Tests of Within-Subjects Contrasts

Measure: MEASURE_1

Source	visualization	Datasets	Attributes	Observed Power[a]
	Cubic		Linear	
			Quadratic	
	Order 4		Linear	
			Quadratic	
Datasets * Attributes		Linear	Linear	.791
			Quadratic	.156
Error(Datasets*Attributes)		Linear	Linear	
			Quadratic	
visualization * Datasets * Attributes	Linear	Linear	Linear	.536
			Quadratic	.051
	Quadratic	Linear	Linear	.559
			Quadratic	.180
	Cubic	Linear	Linear	.198
			Quadratic	.063
	Order 4	Linear	Linear	.802
			Quadratic	.054
Error (visualization*Datasets*Attributes)	Linear	Linear	Linear	
			Quadratic	
	Quadratic	Linear	Linear	
			Quadratic	
	Cubic	Linear	Linear	
			Quadratic	
	Order 4	Linear	Linear	
			Quadratic	

a. Computed using alpha = .05

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	958.886	1	958.886	1213.199	.000	.986
Error	13.436	17	.790			

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Noncent. Parameter	Observed Power[a]
Intercept	1213.199	1.000
Error		

a. Computed using alpha = .05

Estimated Marginal Means

1. Grand Mean

Measure: MEASURE_1

		95% Confidence Interval	
Mean	Std. Error	Lower Bound	Upper Bound
1.333	.038	1.252	1.413

2. visualization

Estimates

Measure: MEASURE_1

			95% Confidence Interval	
visualization	Mean	Std. Error	Lower Bound	Upper Bound
1	1.316	.037	1.239	1.393
2	1.345	.047	1.245	1.444
3	1.369	.040	1.285	1.453
4	1.265	.037	1.186	1.344
5	1.368	.046	1.271	1.465

Pairwise Comparisons

Measure: MEASURE_1

(I) visualization	(J) visualization	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence [b]... Lower Bound
1	2	-.029	.027	1.000	-.117
	3	-.053	.028	.766	-.143
	4	.051	.025	.614	-.031
	5	-.052	.027	.707	-.139
2	1	.029	.027	1.000	-.059
	3	-.024	.023	1.000	-.098
	4	.080	.030	.172	-.018
	5	-.023	.026	1.000	-.106
3	1	.053	.028	.766	-.037
	2	.024	.023	1.000	-.049
	4	.104*	.022	.002	.033
	5	.001	.019	1.000	-.060
4	1	-.051	.025	.614	-.133
	2	-.080	.030	.172	-.177
	3	-.104*	.022	.002	-.175
	5	-.103*	.029	.024	-.196
5	1	.052	.027	.707	-.035
	2	.023	.026	1.000	-.059
	3	-.001	.019	1.000	-.062
	4	.103*	.029	.024	.010

Pairwise Comparisons

Measure: MEASURE_1

(I) visualization	(J) visualization	95% Confidence Interval for [b]... Upper Bound
1	2	.059
	3	.037
	4	.133
	5	.035
2	1	.117
	3	.049
	4	.177
	5	.059
3	1	.143
	2	.098
	4	.175
	5	.062
4	1	.031
	2	.018
	3	-.033
	5	-.010
5	1	.139
	2	.106
	3	.060
	4	.196

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.581	4.856[a]	4.000	14.000	.011	.581
Wilks' lambda	.419	4.856[a]	4.000	14.000	.011	.581
Hotelling's trace	1.387	4.856[a]	4.000	14.000	.011	.581
Roy's largest root	1.387	4.856[a]	4.000	14.000	.011	.581

Multivariate Tests

	Noncent. Parameter	Observed Power[b]
Pillai's trace	19.424	.863
Wilks' lambda	19.424	.863
Hotelling's trace	19.424	.863
Roy's largest root	19.424	.863

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

a. Exact statistic

b. Computed using alpha = .05

3. Datasets

Estimates

Measure: MEASURE_1

			95% Confidence Interval	
Datasets	Mean	Std. Error	Lower Bound	Upper Bound
1	1.336	.035	1.261	1.410
2	1.330	.044	1.238	1.421

Pairwise Comparisons

Measure: MEASURE_1

(I) Datasets	(J) Datasets	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.006	.020	.770	-.036	.048
2	1	-.006	.020	.770	-.048	.036

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	.005	.088[a]	1.000	17.000	.770	.005
Wilks' lambda	.995	.088[a]	1.000	17.000	.770	.005
Hotelling's trace	.005	.088[a]	1.000	17.000	.770	.005
Roy's largest root	.005	.088[a]	1.000	17.000	.770	.005

Multivariate Tests

	Noncent. Parameter	Observed Power[b]
Pillai's trace	.088	.059
Wilks' lambda	.088	.059
Hotelling's trace	.088	.059
Roy's largest root	.088	.059

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

a. Exact statistic

b. Computed using alpha = .05

4. Attributes

Estimates

Measure: MEASURE_1

Attributes	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	1.362	.040	1.277	1.447
2	1.294	.037	1.215	1.373
3	1.342	.043	1.252	1.431

Pairwise Comparisons

Measure: MEASURE_1

(I) Attributes	(J) Attributes	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	2	.067*	.017	.003	.022	.113
	3	.020	.023	1.000	-.041	.080
2	1	-.067*	.017	.003	-.113	-.022
	3	-.048	.022	.142	-.107	.012
3	1	-.020	.023	1.000	-.080	.041
	2	.048	.022	.142	-.012	.107

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.490	7.674[a]	2.000	16.000	.005	.490
Wilks' lambda	.510	7.674[a]	2.000	16.000	.005	.490
Hotelling's trace	.959	7.674[a]	2.000	16.000	.005	.490
Roy's largest root	.959	7.674[a]	2.000	16.000	.005	.490

Multivariate Tests

	Noncent. Parameter	Observed Power[b]
Pillai's trace	15.348	.899
Wilks' lambda	15.348	.899
Hotelling's trace	15.348	.899
Roy's largest root	15.348	.899

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

a. Exact statistic

b. Computed using alpha = .05

5. visualization * Datasets

Measure: MEASURE_1

				95% Confidence Interval	
visualization	Datasets	Mean	Std. Error	Lower Bound	Upper Bound
1	1	1.344	.037	1.267	1.422
	2	1.288	.044	1.195	1.380
2	1	1.357	.050	1.252	1.463
	2	1.332	.053	1.220	1.444
3	1	1.375	.038	1.294	1.456
	2	1.363	.045	1.269	1.457
4	1	1.244	.033	1.173	1.314
	2	1.286	.048	1.185	1.387
5	1	1.357	.047	1.258	1.456
	2	1.379	.049	1.275	1.483

6. visualization * Attributes

Measure: MEASURE_1

visualization	Attributes	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	1	1.364	.042	1.276	1.452
	2	1.298	.043	1.207	1.390
	3	1.286	.041	1.200	1.372
2	1	1.393	.049	1.289	1.497
	2	1.326	.056	1.207	1.445
	3	1.315	.047	1.216	1.415
3	1	1.404	.046	1.308	1.501
	2	1.306	.043	1.216	1.396
	3	1.396	.052	1.287	1.505
4	1	1.271	.046	1.173	1.369
	2	1.260	.046	1.163	1.356
	3	1.264	.045	1.169	1.359
5	1	1.376	.050	1.270	1.482
	2	1.281	.049	1.178	1.383
	3	1.447	.060	1.322	1.573

7. Datasets * Attributes

Measure: MEASURE_1

Datasets	Attributes	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
1	1	1.327	.036	1.250	1.404
	2	1.285	.037	1.208	1.363
	3	1.394	.044	1.300	1.488
2	1	1.396	.052	1.285	1.507
	2	1.303	.042	1.216	1.391
	3	1.290	.049	1.185	1.394