

SAS Output from Method 1

CATMOD PROCEDURE

Response: A*B*C	Response Levels (R)=	8
Weight Variable: None	Populations (S)=	1
Data Set: A	Total Frequency (N)=	46
	Observations (Obs)=	46

Sample	Function	Response	DESIGN MATRIX		
	Number	Function	1	2	3
1	1	0.60870	1	0	0
	2	0.60870	0	1	0
	3	0.34783	0	0	1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
MODEL:MEAN	2	6.58	0.0372
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
MODEL	1	0.6087	0.0720	71.56	0.0000
	2	0.6087	0.0720	71.56	0.0000
	3	0.3478	0.0702	24.53	0.0000

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
A=B=C	2	6.58	0.0372
A=B	1	0.00	1.0000
A=C	1	5.79	0.0161
B=C	1	5.79	0.0161

SAS Output from Method 2

CATMOD PROCEDURE

Response: A*B*C	Response Levels (R)=	8
Weight Variable: None	Populations (S)=	1
Data Set: A	Total Frequency (N)=	46
	Observations (Obs)=	46

Sample	Function	Response	DESIGN MATRIX		
	Number	Function	1	2	3
1	1	0.60870	1	1	0
	2	0.60870	1	0	1
	3	0.34783	1	-1	-1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	146.84	0.0000
DRUG	2	6.58	0.0372
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	0.5217	0.0431	146.84	0.0000
DRUG	2	0.0870	0.0507	2.95	0.0861
	3	0.0870	0.0507	2.95	0.0861

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
A=B	1	0.00	1.0000
A=C	1	5.79	0.0161
B=C	1	5.79	0.0161

SAS Output from Method 3

CATMOD PROCEDURE

Response: A*B*C	Response Levels (R)=	8
Weight Variable: None	Populations (S)=	1
Data Set: A	Total Frequency (N)=	46
	Observations (Obs)=	46

Sample	Function Number	Response Function	DESIGN MATRIX
1	1	0.60870	1
	2	0.60870	1
	3	0.34783	1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
MODEL:MEAN	0*	.	.
RESIDUAL	2	6.58	0.0372

NOTE: Effects marked with * contained 1 or more singularities (i.e., redundant parameters).

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	0.4930	0.0416	140.62	0.0000

- Since the model consists only of an intercept, there are no degrees of freedom for the default effect labelled MODEL:MEAN in the ANOVA table

SAS Output from the Reduced Model

CATMOD PROCEDURE

Response: A*B*C	Response Levels (R)=	8
Weight Variable: None	Populations (S)=	1
Data Set: A	Total Frequency (N)=	46
	Observations (Obs)=	46

Sample	Function Number	Response Function	DESIGN MATRIX	
			1	2
1	1	0.60870	1	0
	2	0.60870	1	0
	3	0.34783	1	1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept	1	98.54	0.0000
Drug C Effect	1	6.58	0.0103
RESIDUAL	1	0.00	1.0000

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	0.6087	0.0613	98.54	0.0000
	2	-0.2609	0.1017	6.58	0.0103

- The reduced model fits very well (perfectly, since $p_A = p_B$)
- Drug C is significantly different from Drugs A and B (Wald statistic=6.58, $p=0.01$)

SAS Output from Model 1

CATMOD PROCEDURE

Response: W9*W10*W11*W12	Response Levels (R)=	16
Weight Variable: COUNT	Populations (S)=	1
Data Set: A	Total Frequency (N)=	1019
	Observations (Obs)=	16

Sample	Function	Response	DESIGN MATRIX			
	Number	Function	1	2	3	4
1	1	0.26006	1	1	0	0
	2	0.25025	1	0	1	0
	3	0.23553	1	0	0	1
	4	0.21197	1	-1	-1	-1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	523.63	0.0000
AGE	3	12.85	0.0050
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	0.2395	0.0105	523.63	0.0000
AGE	2	0.0206	0.00876	5.53	0.0187
	3	0.0108	0.00809	1.78	0.1822
	4	-0.00393	0.00807	0.24	0.6266

- We reject H_0 : $\Pi_9 = \Pi_{10} = \Pi_{11} = \Pi_{12}$ ($W_C = 12.85$, $df = 3$, $p = .005$)

SAS Output from Model 2

CATMOD PROCEDURE

Response: W9*W10*W11*W12	Response Levels (R)=	16
Weight Variable: COUNT	Populations (S)=	1
Data Set: A	Total Frequency (N)=	1019
	Observations (Obs)=	16

Sample	Function	Response	DESIGN MATRIX			
	Number	Function	1	2	3	4
1	1	0.26006	1	-3	1	-1
	2	0.25025	1	-1	-1	3
	3	0.23553	1	1	-1	-3
	4	0.21197	1	3	1	1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept	1	523.63	0.0000
Age	3	12.85	0.0050
Linear	1	11.88	0.0006
Quadratic	1	0.53	0.4666
Cubic	1	0.01	0.9219
Nonlinear	2	0.54	0.7620
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
MODEL	1	0.2395	0.0105	523.63	0.0000
	2	-0.00795	0.00231	11.88	0.0006
	3	-0.00343	0.00472	0.53	0.4666
	4	-0.0002	0.00200	0.01	0.9219

- The nonlinear age effects are jointly nonsignificant ($W_C = 0.54$, $df = 2$, $p = 0.762$)

SAS Output from Model 3

CATMOD PROCEDURE

Response: W9*W10*W11*W12	Response Levels (R)=	16
Weight Variable: COUNT	Populations (S)=	1
Data Set: A	Total Frequency (N)=	1019

Sample	Function Number	Response Function	DESIGN MATRIX	
			1	2
1	1	0.26006	1	0
	2	0.25025	1	1
	3	0.23553	1	2
	4	0.21197	1	3

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept	1	418.51	0.0000
Linear Age	1	12.31	0.0005
RESIDUAL	2	0.54	0.7620

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
MODEL	1	0.2632	0.0129	418.51	0.0000
	2	-0.0161	0.00460	12.31	0.0005

PREDICTED VALUES FOR RESPONSE FUNCTIONS

		-----Observed-----		-----Predicted-----		
Sample	Function Number	Function	Standard Error	Function	Standard Error	Residual
1	1	0.26005888	0.01374192	0.26320937	0.01286614	-0.0031505
	2	0.25024534	0.01356924	0.24708501	0.01083431	0.00316033
	3	0.23552502	0.0132927	0.23096065	0.01055764	0.00456437
	4	0.21197252	0.01280334	0.2148363	0.01215658	-0.0028638

SAS Output from Logit Model

CATMOD PROCEDURE

Response: W9*W10*W11*W12	Response Levels (R)=	16
Weight Variable: COUNT	Populations (S)=	1
Data Set: A	Total Frequency (N)=	1019
	Observations (Obs)=	16

Sample	Function Number	Response Function	DESIGN MATRIX	
			1	2
1	1	-1.04566	1	0
	2	-1.09730	1	1
	3	-1.17737	1	2
	4	-1.31308	1	3

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept	1	235.78	0.0000
Linear Age	1	11.77	0.0006
RESIDUAL	2	0.67	0.7167

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	-1.0276	0.0669	235.78	0.0000
	2	-0.0879	0.0256	11.77	0.0006

PREDICTED VALUES FOR RESPONSE FUNCTIONS

Sample	Function Number	-----Observed-----		-----Predicted-----		Residual
		Function	Standard Error	Function	Standard Error	
1	1	-1.0456625	0.0714132	-1.0275926	0.0669218	-0.0180699
	2	-1.0973042	0.07232198	-1.1154682	0.05812335	0.01816398
	3	-1.1773721	0.07382658	-1.2033438	0.05992065	0.02597167
	4	-1.3130763	0.07664829	-1.2912194	0.0715193	-0.0218569

SAS Output from Model 1 (Analysis of Marginal Proportions)

CATMOD PROCEDURE

Response: N0*N3*N6 Response Levels (R)= 27
 Weight Variable: COUNT Populations (S)= 1
 Data Set: A Total Frequency (N)= 1926

Sample	Function Number	Response Function	DESIGN MATRIX					
			1	2	3	4	5	6
1	1	0.19626	1	-1	1	0	0	0
	2	0.23780	0	0	0	1	-1	1
	3	0.12201	1	0	-2	0	0	0
	4	0.22949	0	0	0	1	0	-2
	5	0.08411	1	1	1	0	0	0
	6	0.18120	0	0	0	1	1	1

ANALYSIS OF VARIANCE TABLE

Source		DF	Chi-Square	Prob
Pr(0):	Intercept	1	656.31	0.0000
	Linear	1	122.85	0.0000
	Quadratic	1	4.99	0.0255
	Overall	2	123.10	0.0000
Pr(1-2):	Intercept	1	1213.98	0.0000
	Linear	1	21.26	0.0000
	Quadratic	1	3.69	0.0547
	Overall	2	26.77	0.0000
Both:	Linear	2	181.00	0.0000
	Quadratic	2	6.68	0.0354
Homogeneity		4	184.23	0.0000
RESIDUAL		0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
MODEL	1	0.1341	0.00524	656.31	0.0000
	2	-0.0561	0.00506	122.85	0.0000
	3	0.00606	0.00271	4.99	0.0255
	4	0.2162	0.00620	1213.98	0.0000
	5	-0.0283	0.00614	21.26	0.0000
	6	-0.00666	0.00347	3.69	0.0547

SAS Output from Alternate Form of Model 1 (Analysis of Marginal Proportions)

Sample	Function	Response	DESIGN MATRIX					
	Number	Function	1	2	3	4	5	6
1	1	0.19626	1	0	1	0	0	0
	2	0.23780	0	1	0	1	0	0
	3	0.12201	1	0	0	0	1	0
	4	0.22949	0	1	0	0	0	1
	5	0.08411	1	0	-1	0	-1	0
	6	0.18120	0	1	0	-1	0	-1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	2	2168.84	0.0000
TIME	4	184.23	0.0000
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
INTERCEPT	1	0.1341	0.00524	656.31	0.0000
	2	0.2162	0.00620	1213.98	0.0000
TIME	3	0.0621	0.00610	103.60	0.0000
	4	0.0216	0.00732	8.74	0.0031
	5	-0.0121	0.00542	4.99	0.0255
	6	0.0133	0.00694	3.69	0.0547

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
0: L	1	122.85	0.0000
Q	1	4.99	0.0255
L&Q	2	123.10	0.0000
1-2: L	1	21.26	0.0000
Q	1	3.69	0.0547
L&Q	2	26.77	0.0000
Both: L	2	181.00	0.0000
Q	2	6.68	0.0354

SAS Output from Model 2 (Analysis of Mean Scores)

CATMOD PROCEDURE

Response: N0*N3*N6	Response Levels (R)=	27
Weight Variable: COUNT	Populations (S)=	1
Data Set: A	Total Frequency (N)=	1926
	Observations (Obs)=	27

Sample	Function Number	Response Function	DESIGN MATRIX		
			1	2	3
1	1	2.62046	1	1	0
	2	2.93821	1	0	1
	3	3.21054	1	-1	-1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
INTERCEPT	1	14567.09	0.0000
TIME	2	178.47	0.0000
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
INTERCEPT	1	2.9231	0.0242	14567.09	0.0000
TIME	2	-0.3026	0.0261	134.40	0.0000
	3	0.0151	0.0233	0.42	0.5149

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
Linear	1	177.80	0.0000
Quadratic	1	0.42	0.5149

SAS Output from Model 3 (Reduced Mean Score Model)

CATMOD PROCEDURE

Response: S0*S3*S6	Response Levels (R)=	27
Weight Variable: COUNT	Populations (S)=	1
Data Set: A	Total Frequency (N)=	1926
	Observations (Obs)=	27

Sample	Function Number	Response Function	DESIGN MATRIX	
			1	2
1	1	2.62046	1	0
	2	2.93821	1	3
	3	3.21054	1	6

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept	1	5560.85	0.0000
Linear Time	1	178.04	0.0000
RESIDUAL	1	0.42	0.5149

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	2.6290	0.0353	5560.85	0.0000
	2	0.0978	0.00733	178.04	0.0000

PREDICTED VALUES FOR RESPONSE FUNCTIONS

Sample	Function Number	-----Observed-----		-----Predicted-----		Residual
		Function	Standard Error	Function	Standard Error	
1	1	2.62045691	0.03760267	2.62897392	0.03525458	-0.008517
	2	2.93821391	0.03424882	2.92243207	0.02419897	0.01578185
	3	3.21053998	0.03103507	3.21589022	0.02992769	-0.0053502

**SAS Output from Model 1 (Saturated Marginal Probability Model)
Complete Data Only**

Response: ATTEND0*ATTEND3*ATTEND6	Response Levels (R)= 8
Weight Variable: COUNT	Populations (S)= 2
Data Set: COMPLETE	Total Frequency (N)= 1973
Frequency Missing: 0	Observations (Obs)= 16

Sample	Function Number	Response Function	DESIGN MATRIX					
			1	2	3	4	5	6
1	1	0.81465	1	-1	1	0	0	0
	2	0.79863	1	0	-2	0	0	0
	3	0.75667	1	1	1	0	0	0
2	1	0.70242	0	0	0	1	-1	1
	2	0.69940	0	0	0	1	0	-2
	3	0.65861	0	0	0	1	1	1

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob

Females: Intercept	1	6613.87	0.0000
Linear	1	29.23	0.0000
Quadratic	1	2.97	0.0848
Lin & Quad	2	30.46	0.0000
Males: Intercept	1	1814.09	0.0000
Linear	1	8.97	0.0027
Quadratic	1	2.76	0.0964
Lin & Quad	2	11.00	0.0041
Both: Linear	2	38.20	0.0000
Quadratic	2	5.74	0.0568
Lin & Quad	4	41.45	0.0000
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob

MODEL	1	0.7900	0.00971	6613.87	0.0000
	2	-0.0290	0.00536	29.23	0.0000
	3	-0.00432	0.00251	2.97	0.0848
	4	0.6868	0.0161	1814.09	0.0000
	5	-0.0219	0.00731	8.97	0.0027
	6	-0.00629	0.00379	2.76	0.0964

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob

Sex Eq.	3	31.50	0.0000
Int Eq.	1	30.04	0.0000
Lin Eq.	1	0.61	0.4347
Quad Eq	1	0.19	0.6641

SAS Output from Model 2 (Reduced Marginal Probability Model)
Complete Data Only

Sample	Function Number	Response Function	DESIGN MATRIX			
			1	2	3	4
1	1	0.81465	1	0	-1	1
	2	0.79863	1	0	0	-2
	3	0.75667	1	0	1	1
2	1	0.70242	0	1	-1	1
	2	0.69940	0	1	0	-2
	3	0.65861	0	1	1	1

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept: Females	1	6645.60	0.0000
Males	1	1813.45	0.0000
Linear Time	1	37.67	0.0000
Quadratic Time	1	5.47	0.0193
RESIDUAL	2	0.87	0.6476

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	0.7905	0.00970	6645.60	0.0000
	2	0.6865	0.0161	1813.45	0.0000
	3	-0.0265	0.00432	37.67	0.0000
	4	-0.00489	0.00209	5.47	0.0193

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
Intercept Equality	1	30.63	0.0000

PREDICTED VALUES FOR RESPONSE FUNCTIONS

Sample	Function Number	-----Observed-----		-----Predicted-----		Residual
		Function	Standard Error	Function	Standard Error	
1	1	0.81464531	0.0107321	0.81215206	0.01038477	0.00249325
	2	0.798627	0.0110757	0.80028283	0.01066748	-0.0016558
	3	0.75667429	0.01185079	0.75908383	0.01113785	-0.0024095
2	1	0.70241692	0.01776939	0.70810761	0.01668638	-0.0056907
	2	0.69939577	0.01782092	0.69623837	0.01665332	0.0031574
	3	0.65861027	0.01842937	0.65503938	0.01695246	0.0035709

**SAS Output from Model 3 (Reparameterized Reduced Marginal Probability Model)
Complete Data Only**

Sample	Function Number	Response Function	DESIGN MATRIX			
			1	2	3	4
1	1	0.81465	1	0	0	0
	2	0.79863	1	0	3	9
	3	0.75667	1	0	6	36
2	1	0.70242	0	1	0	0
	2	0.69940	0	1	3	9
	3	0.65861	0	1	6	36

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept: Females	1	6116.18	0.0000
Males	1	1800.84	0.0000
Linear Time	1	0.05	0.8275
Quadratic Time	1	5.47	0.0193
RESIDUAL	2	0.87	0.6476

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	0.8122	0.0104	6116.18	0.0000
	2	0.7081	0.0167	1800.84	0.0000
	3	0.000932	0.00428	0.05	0.8275
	4	-0.00163	0.000697	5.47	0.0193

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
Intercept Equality	1	30.63	0.0000

PREDICTED VALUES FOR RESPONSE FUNCTIONS

Sample	Function Number	-----Observed-----		-----Predicted-----		Residual
		Function	Standard Error	Function	Standard Error	
1	1	0.81464531	0.0107321	0.81215206	0.01038477	0.00249325
	2	0.798627	0.0110757	0.80028283	0.01066748	-0.0016558
	3	0.75667429	0.01185079	0.75908383	0.01113785	-0.0024095
2	1	0.70241692	0.01776939	0.70810761	0.01668638	-0.0056907
	2	0.69939577	0.01782092	0.69623837	0.01665332	0.0031574
	3	0.65861027	0.01842937	0.65503938	0.01695246	0.0035709

**SAS Output from Saturated Marginal Logit Model
Complete Data Only**

Sample	Function Number	Response Function	DESIGN MATRIX					
			1	2	3	4	5	6
1	1	1.48048	1	-1	1	0	0	0
	2	1.37774	1	0	-2	0	0	0
	3	1.13453	1	1	1	0	0	0
2	1	0.85883	0	0	0	1	-1	1
	2	0.84442	0	0	0	1	0	-2
	3	0.65711	0	0	0	1	1	1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob

Females: Intercept	1	508.53	0.0000
Linear	1	28.94	0.0000
Quadratic	1	2.32	0.1281
Homogeneity	2	31.08	0.0000
Males: Intercept	1	109.56	0.0000
Linear	1	8.94	0.0028
Quadratic	1	2.62	0.1058
Homogeneity	2	11.17	0.0038
Both: Linear	2	37.88	0.0000
Quadratic	2	4.93	0.0849
Homogeneity	4	42.25	0.0000
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	S.E.	Chi-Sq	Prob

MODEL	1	1.3309	0.0590	508.53	0.0000
	2	-0.1730	0.0322	28.94	0.0000
	3	-0.0234	0.0154	2.32	0.1281
	4	0.7868	0.0752	109.56	0.0000
	5	-0.1009	0.0337	8.94	0.0028
	6	-0.0288	0.0178	2.62	0.1058

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob

Gender	3	33.92	0.0000
I. Eq.	1	32.42	0.0000
L. Eq.	1	2.39	0.1217
Q. Eq.	1	0.05	0.8183
Paral.	2	2.47	0.2909

SAS Output from Reduced Marginal Logit Model Complete Data Only

CATMOD PROCEDURE

Response: A0*A3*A6	Response Levels (R)= 8
Weight Variable: COUNT	Populations (S)= 2
Data Set: B	Total Frequency (N)= 1973
	Observations (Obs)= 16

Sample	Function Number	Response Function	DESIGN MATRIX			
			1	2	3	4
1	1	1.48048	1	0	-1	1
	2	1.37774	1	0	0	-2
	3	1.13453	1	0	1	1
2	1	0.85883	0	1	-1	1
	2	0.84442	0	1	0	-2
	3	0.65711	0	1	1	1

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept: Females	1	508.42	0.0000
Males	1	111.12	0.0000
Linear Time	1	35.44	0.0000
Quad. Time	1	4.98	0.0257
Time	2	39.78	0.0000
RESIDUAL	2	2.47	0.2909

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
MODEL	1	1.3241	0.0587	508.42	0.0000
	2	0.7911	0.0750	111.12	0.0000
	3	-0.1385	0.0233	35.44	0.0000
	4	-0.0260	0.0116	4.98	0.0257

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
Int. Eq.	1	31.45	0.0000

SAS Output: Analysis of All Data

CATMOD PROCEDURE

Response: 077*079*081	Response Levels (R)=	26
Weight Variable: COUNT	Populations (S)=	1
Data Set: A	Total Frequency (N)=	522
	Observations (Obs)=	26

Sample	Function Number	Response Function	DESIGN MATRIX	
			1	2
1	1	0.18820	1	0
	2	0.20533	1	2
	3	0.23684	1	4

ANALYSIS OF VARIANCE TABLE

Source	DF	Chi-Square	Prob
Intercept	1	85.66	0.0000
Linear Age	1	3.83	0.0503
RESIDUAL	1	0.15	0.6998

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	0.1863	0.0201	85.66	0.0000
	2	0.0120	0.00613	3.83	0.0503

PREDICTED VALUES FOR RESPONSE FUNCTIONS

Sample	Function Number	-----Observed-----		-----Predicted-----		Residual
		Function	Standard Error	Function	Standard Error	
1	1	0.18820225	0.02071626	0.18631702	0.02013121	0.00188522
	2	0.20533333	0.02085963	0.21031118	0.01638623	-0.0049779
	3	0.23684211	0.02180946	0.23430535	0.0207938	0.00253676

SAS Output: Analysis of Complete Data

- Model with linear age effect

Response: 077*079*081	Response Levels (R)=	8
Weight Variable: COUNT	Populations (S)=	1
Data Set: B	Total Frequency (N)=	225
Frequency Missing: 0	Observations (Obs)=	8

Sample	Function Number	Response Function	DESIGN MATRIX	
			1	2
1	1	0.19556	1	0
	2	0.19111	1	2
	3	0.23111	1	4

ANALYSIS-OF-VARIANCE TABLE				
Source	DF	Chi-Square	Prob	
Intercept	1	55.03	0.0000	
Linear Age	1	1.49	0.2223	
RESIDUAL	1	0.95	0.3304	

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES					
Effect	Parameter	Estimate	S.E.	Chi-Sq	Prob
MODEL	1	0.1884	0.0254	55.03	0.0000
	2	0.00829	0.00680	1.49	0.2223

- Model with only an intercept

Sample	Function Number	Response Function	DESIGN MATRIX
1	1	0.19556	1
	2	0.19111	1
	3	0.23111	1

ANALYSIS-OF-VARIANCE TABLE			
Source	DF	Chi-Square	Prob
Intercept	1	85.96	0.0000
RESIDUAL	2	2.44	0.2957

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES					
Effect	Parameter	Estimate	S.E.	Chi-Sq	Prob
MODEL	1	0.2039	0.0220	85.96	0.0000

SAS Output from Model 1 (Saturated Marginal Probability Model)
All Data

Response: ATTEND0*ATTEND3*ATTEND6	Response Levels (R)= 23
Weight Variable: COUNT	Populations (S)= 2
Data Set: CHURCH	Total Frequency (N)= 3085
Frequency Missing: 0	Observations (Obs)= 44

Sample	Function Number	Response Function	DESIGN MATRIX					
			1	2	3	4	5	6
1	1	0.76999	1	-1	1	0	0	0
	2	0.77043	1	0	-2	0	0	0
	3	0.75204	1	1	1	0	0	0
2	1	0.63485	0	0	0	1	-1	1
	2	0.65389	0	0	0	1	0	-2
	3	0.65689	0	0	0	1	1	1

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
<hr/>			
Females: Intercept	1	7595.57	0.0000
Linear	1	2.44	0.1183
Quadratic	1	1.36	0.2442
Lin & Quad	2	3.28	0.1943
Males: Intercept	1	2259.45	0.0000
Linear	1	1.75	0.1860
Quadratic	1	0.47	0.4932
Lin & Quad	2	2.73	0.2558
Both: Linear	2	4.19	0.1232
Quadratic	2	1.83	0.4014
Lin & Quad	4	6.00	0.1989
RESIDUAL	0	.	.

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
<hr/>					
MODEL	1	0.7642	0.00877	7595.57	0.0000
	2	-0.00898	0.00575	2.44	0.1183
	3	-0.00314	0.00270	1.36	0.2442
	4	0.6485	0.0136	2259.45	0.0000
	5	0.0110	0.00833	1.75	0.1860
	6	-0.00267	0.00390	0.47	0.4932

SAS Output from Model 2 (Reduced Marginal Probability Model)
All Data

CATMOD PROCEDURE

Response: ATTEND0*ATTEND3*ATTEND6	Response Levels (R)= 23
Weight Variable: COUNT	Populations (S)= 2
Data Set: CHURCH	Total Frequency (N)= 3085
Frequency Missing: 0	Observations (Obs)= 44

Sample	Function Number	Response Function	DESIGN MATRIX	
			1	2
1	1	0.76999	1	0
	2	0.77043	1	0
	3	0.75204	1	0
2	1	0.63485	0	1
	2	0.65389	0	1
	3	0.65689	0	1

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
Females: Intercept	1	7926.90	0.0000
Males: Intercept	1	2355.15	0.0000
RESIDUAL	4	6.00	0.1989

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	0.7660	0.00860	7926.90	0.0000
	2	0.6434	0.0133	2355.15	0.0000

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
Int. Equality	1	60.12	0.0000

SAS Output from Model 1 (Saturated Marginal Probability Model)
Separate Analyses of Complete and Incomplete Data within the Same Model

Sample	Function Number	Response Function	DESIGN MATRIX				
			1	2	3	4	5
1	1	0.81465	1	-1	1	0	0
	2	0.79863	1	0	-2	0	0
	3	0.75667	1	1	1	0	0
	4	0.67480	0	0	0	0	0
	5	0.64384	0	0	0	0	0
	6	0.60000	0	0	0	0	0
2	1	0.70242	0	0	0	1	-1
	2	0.69940	0	0	0	1	0
	3	0.65861	0	0	0	1	1
	4	0.54167	0	0	0	0	0
	5	0.52000	0	0	0	0	0
	6	0.60000	0	0	0	0	0

Sample	Function Number	DESIGN MATRIX						
		6	7	8	9	10	11	12
1	1	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	1	-1	1	0	0	0
	5	0	1	0	-2	0	0	0
	6	0	1	1	1	0	0	0
2	1	1	0	0	0	0	0	0
	2	-2	0	0	0	0	0	0
	3	1	0	0	0	0	0	0
	4	0	0	0	0	1	-1	1
	5	0	0	0	0	1	0	-2
	6	0	0	0	0	1	1	1

ANALYSIS-OF-VARIANCE TABLE			
Source	DF	Chi-Square	Prob
C: F-Int.	1	6613.87	0.0000
Lin.	1	29.23	0.0000
Quad	1	2.97	0.0848
M-Int.	1	1814.09	0.0000
Lin.	1	8.97	0.0027
Quad	1	2.76	0.0964
IC: F-Int.	1	454.68	0.0000
Lin.	1	0.94	0.3315
Quad	1	0.02	0.8912
M-Int.	1	179.95	0.0000
Lin.	1	0.29	0.5932
Quad	1	0.68	0.4110
RESIDUAL	0	.	.

ANALYSIS OF CONTRASTS			
Contrast	DF	Chi-Square	Prob
C=IC	6	82.69	0.0000
C=IC: Int.	2	31.76	0.0000
C=IC: L & Q	4	1.58	0.8132

SAS Output from Model 2 (Reduced Marginal Probability Model)
Separate Analyses of Complete and Incomplete Data within the Same Model

Sample	Function Number	Response Function	DESIGN MATRIX							
			1	2	3	4	5	6	7	8
1	1	0.81465	1	0	-1	1	0	0	0	0
	2	0.79863	1	0	0	-2	0	0	0	0
	3	0.75667	1	0	1	1	0	0	0	0
	4	0.67480	0	1	-1	1	0	0	0	0
	5	0.64384	0	1	0	-2	0	0	0	0
	6	0.60000	0	1	1	1	0	0	0	0
2	1	0.70242	0	0	0	0	1	0	-1	1
	2	0.69940	0	0	0	0	1	0	0	-2
	3	0.65861	0	0	0	0	1	0	1	1
	4	0.54167	0	0	0	0	0	1	-1	1
	5	0.52000	0	0	0	0	0	1	0	-2
	6	0.60000	0	0	0	0	0	1	1	1

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
F: C Int.	1	6616.83	0.0000
IC Int.	1	1211.19	0.0000
Linear	1	31.99	0.0000
Quadratic	1	2.70	0.1002
M: C Int.	1	1814.16	0.0000
IC Int.	1	518.87	0.0000
Linear	1	9.51	0.0020
Quadratic	1	2.36	0.1245
RESIDUAL	4	1.58	0.8132

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
C=IC: Int.	2	81.11	0.0000
F Int.	1	47.73	0.0000
M Int.	1	33.39	0.0000
M=F: L & Q	2	1.01	0.6041
Lin.	1	0.77	0.3813
Quad.	1	0.12	0.7320
Int.: M=F	2	46.27	0.0000
C Int.: M=F	1	29.96	0.0000
IC Int.: M=F	1	16.83	0.0000

**SAS Output from Model 3 (Further Reduced Marginal Probability Model)
Separate Analyses of Complete and Incomplete Data within the Same Model**

Sample	Function Number	Response Function	DESIGN MATRIX					
			1	2	3	4	5	6
1	1	0.81465	1	0	0	0	-1	1
	2	0.79863	1	0	0	0	0	-2
	3	0.75667	1	0	0	0	1	1
	4	0.67480	0	1	0	0	-1	1
	5	0.64384	0	1	0	0	0	-2
	6	0.60000	0	1	0	0	1	1
2	1	0.70242	0	0	1	0	-1	1
	2	0.69940	0	0	1	0	0	-2
	3	0.65861	0	0	1	0	1	1
	4	0.54167	0	0	0	1	-1	1
	5	0.52000	0	0	0	1	0	-2
	6	0.60000	0	0	0	1	1	1

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
F: C Int.	1	6647.83	0.0000
IC Int.	1	1239.44	0.0000
M: C Int.	1	1813.32	0.0000
IC Int.	1	531.98	0.0000
Linear Time	1	40.70	0.0000
Quadratic Time	1	4.92	0.0266
RESIDUAL	6	2.58	0.8590

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi- Square	Prob
MODEL	1	0.7904	0.00969	6647.83	0.0000
	2	0.6485	0.0184	1239.44	0.0000
	3	0.6864	0.0161	1813.32	0.0000
	4	0.5202	0.0226	531.98	0.0000
	5	-0.0269	0.00421	40.70	0.0000
	6	-0.00445	0.00200	4.92	0.0266

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
Int.: Equal.	3	150.89	0.0000
F=M	2	50.53	0.0000
F=M:C	1	30.57	0.0000
IC	1	19.95	0.0000
C=IC	2	81.91	0.0000
C=IC:F	1	46.94	0.0000
M	1	36.06	0.0000
C F=IC M	1	122.20	0.0000
IC F=C M	1	2.40	0.1211

SAS Output from Model 4 (Reparameterized Reduced Marginal Probability Model)
Separate Analyses of Complete and Incomplete Data within the Same Model

Sample	Function Number	Response Function	DESIGN MATRIX					
			1	2	3	4	5	6
1	1	0.81465	1	0	0	0	0	0
	2	0.79863	1	0	0	0	3	9
	3	0.75667	1	0	0	0	6	36
	4	0.67480	0	1	0	0	0	0
	5	0.64384	0	1	0	0	3	9
	6	0.60000	0	1	0	0	6	36
2	1	0.70242	0	0	1	0	0	0
	2	0.69940	0	0	1	0	3	9
	3	0.65861	0	0	1	0	6	36
	4	0.54167	0	0	0	1	0	0
	5	0.52000	0	0	0	1	3	9
	6	0.60000	0	0	0	1	6	36

ANALYSIS-OF-VARIANCE TABLE

Source	DF	Chi-Square	Prob
F: C Int.	1	6210.65	0.0000
IC Int.	1	1359.51	0.0000
M: C Int.	1	1817.35	0.0000
IC Int.	1	591.57	0.0000
Linear Time	1	0.00	0.9863
Quadratic Time	1	4.92	0.0266
RESIDUAL	6	2.58	0.8590

ANALYSIS OF WEIGHTED-LEAST-SQUARES ESTIMATES

Effect	Parameter	Estimate	Standard Error	Chi-Square	Prob
MODEL	1	0.8128	0.0103	6210.65	0.0000
	2	0.6710	0.0182	1359.51	0.0000
	3	0.7089	0.0166	1817.35	0.0000
	4	0.5426	0.0223	591.57	0.0000
	5	-0.00007	0.00403	0.00	0.9863
	6	-0.00148	0.000668	4.92	0.0266

ANALYSIS OF CONTRASTS

Contrast	DF	Chi-Square	Prob
Int.: Equal.	3	150.89	0.0000
F=M	2	50.53	0.0000
F=M:C	1	30.57	0.0000
IC	1	19.95	0.0000
C=IC	2	81.91	0.0000
C=IC:F	1	46.94	0.0000
M	1	36.06	0.0000
C F=IC M	1	122.20	0.0000
IC F=C M	1	2.40	0.1211