The CONTENTS Procedure

Data Set Name	WORK.TITANIC	**Observations**	2201
Member Type	DATA	**Variables**	9
Engine	V9	**Indexes**	0
Created	04/09/2021 13:39:38	**Observation Length**	72
Last Modified	04/09/2021 13:39:38	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
Encoding	utf-8 Unicode (UTF-8)		

Engine/Host Dependent Information	
Data Set Page Size	131072
Number of Data Set Pages	2
First Data Page	1
Max Obs per Page	1816
Obs in First Data Page	1776
Number of Data Set Repairs	0
Filename	/saswork/SAS_workA4D100003973_odaws01-euw1.oda.sas.com/SAS_work51C100003973_odaws01-euw1.oda.sas.com/titanic.sas7bdat
Release Created	9.0401M6
Host Created	Linux
Inode Number	536896092
Access Permission	rw-r--r--
Owner Name	u44791576
File Size	384KB
File Size (bytes)	393216

Alphabetic List of Variables and Attributes			
#	**Variable**	**Type**	**Len**
2	Age	Num	8
1	Class	Num	8
3	Sex	Num	8
4	Survived	Num	8
9	cible	Num	8
5	class0	Num	8
6	class1	Num	8

The CONTENTS Procedure

Alphabetic List of Variables and Attributes			
#	Variable	Type	Len
7	class2	Num	8
8	class3	Num	8

The MEANS Procedure

Variable	N Miss	N	Mean	Std Dev
Class	0	2201	1.3689232	1.2958736
Age	0	2201	0.9504771	0.2170065
Sex	0	2201	0.7864607	0.4098983
Survived	0	2201	0.3230350	0.4677422
class0	0	2201	0.4020900	0.4904313
class1	0	2201	0.1476602	0.3548434
class2	0	2201	0.1294866	0.3358140
class3	0	2201	0.3207633	0.4668760
cible	755	1446	0.3125864	0.4637077

1. Effectif de chaque modalité

The FREQ Procedure

Age	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	109	4.95	109	4.95
1	2092	95.05	2201	100.00

Class	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	885	40.21	885	40.21
1	325	14.77	1210	54.98
2	285	12.95	1495	67.92
3	706	32.08	2201	100.00

Sex	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	470	21.35	470	21.35
1	1731	78.65	2201	100.00

Survived	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1490	67.70	1490	67.70
1	711	32.30	2201	100.00

2. Probabilité de survie en fonction de chaque caractéristique

The FREQ Procedure

Frequency Percent Row Pct Col Pct			

Table of Age by Survived

	Survived		
Age	**0**	**1**	**Total**
0	52 2.36 47.71 3.49	57 2.59 52.29 8.02	109 4.95
1	1438 65.33 68.74 96.51	654 29.71 31.26 91.98	2092 95.05
Total	1490 67.70	711 32.30	2201 100.00

Frequency Percent Row Pct Col Pct			

Table of Class by Survived

	Survived		
Class	**0**	**1**	**Total**
0	673 30.58 76.05 45.17	212 9.63 23.95 29.82	885 40.21
1	122 5.54 37.54 8.19	203 9.22 62.46 28.55	325 14.77
2	167 7.59 58.60 11.21	118 5.36 41.40 16.60	285 12.95
3	528 23.99 74.79 35.44	178 8.09 25.21 25.04	706 32.08
Total	1490 67.70	711 32.30	2201 100.00

Frequency Percent Row Pct Col Pct			

Table of Sex by Survived

	Survived		
Sex	**0**	**1**	**Total**
0	126 5.72 26.81 8.46	344 15.63 73.19 48.38	470 21.35
1	1364 61.97 78.80 91.54	367 16.67 21.20 51.62	1731 78.65
Total	1490 67.70	711 32.30	2201 100.00

2.1. Tableau de contingence de survie en fonction de l'âge et la classe

The FREQ Procedure

Frequency Percent Row Pct Col Pct

Table 1 of Class by Survived			
Controlling for Age=0			
	Survived		
Class	**0**	**1**	**Total**
0	0 0.00 . 0.00	0 0.00 . 0.00	0 0.00
1	0 0.00 0.00 0.00	6 5.50 100.00 10.53	6 5.50
2	0 0.00 0.00 0.00	24 22.02 100.00 42.11	24 22.02
3	52 47.71 65.82 100.00	27 24.77 34.18 47.37	79 72.48
Total	52 47.71	57 52.29	109 100.00

Frequency Percent Row Pct Col Pct

Table 2 of Class by Survived			
Controlling for Age=1			
	Survived		
Class	**0**	**1**	**Total**
0	673 32.17 76.05 46.80	212 10.13 23.95 32.42	885 42.30
1	122 5.83 38.24 8.48	197 9.42 61.76 30.12	319 15.25
2	167 7.98 63.98 11.61	94 4.49 36.02 14.37	261 12.48
3	476 22.75 75.92 33.10	151 7.22 24.08 23.09	627 29.97
Total	1438 68.74	654 31.26	2092 100.00

3. Premier modèle de régression pour la sélection de variable

The LOGISTIC Procedure

Model Information	
Data Set	WORK.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	2201
Number of Observations Used	2201

Response Profile		
Ordered Value	**Survived**	**Total Frequency**
1	0	1490
2	1	711

Probability modeled is Survived=1.

Stepwise Selection Procedure

Step 0. Intercept entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

-2 Log L	=	2769.457

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
501.7897	3	<.0001

Step 1. Effect Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

3. Premier modèle de régression pour la sélection de variable

The LOGISTIC Procedure

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2338.988
SC	2777.153	2350.381
-2 Log L	2769.457	2334.988

R-Square	0.1791	Max-rescaled R-Square	0.2502

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	434.4688	1	<.0001
Score	456.8742	1	<.0001
Wald	375.4374	1	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
57.0357	2	<.0001

Note: No effects for the model in Step 1 are removed.

Step 2. Effect Class entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2297.456
SC	2777.153	2314.546
-2 Log L	2769.457	2291.456

R-Square	0.1952	Max-rescaled R-Square	0.2727

3. Premier modèle de régression pour la sélection de variable

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	478.0003	2	<.0001
Score	489.6065	2	<.0001
Wald	392.5315	2	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
17.0481	1	<.0001

Note: No effects for the model in Step 2 are removed.

Step 3. Effect Age entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	2771.457	2282.902
SC	2777.153	2305.689
-2 Log L	2769.457	2274.902

R-Square	0.2012	**Max-rescaled R-Square**	0.2811

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	494.5545	3	<.0001
Score	501.7897	3	<.0001
Wald	394.1700	3	<.0001

Note: No effects for the model in Step 3 are removed.

Note: All effects have been entered into the model.

3. Premier modèle de régression pour la sélection de variable

The LOGISTIC Procedure

	Summary of Stepwise Selection						
	Effect						
Step	Entered	Removed	DF	Number In	Score Chi-Square	Wald Chi-Square	Pr > ChiSq
1	Sex		1	1	456.8742		<.0001
2	Class		1	2	41.9271		<.0001
3	Age		1	3	17.0481		<.0001

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	2.6096	0.2936	79.0083	<.0001
Class	1	-0.3290	0.0465	50.0996	<.0001
Age	1	-1.0062	0.2456	16.7769	<.0001
Sex	1	-2.6141	0.1333	384.6431	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
Class	0.720	0.657	0.788
Age	0.366	0.226	0.592
Sex	0.073	0.056	0.095

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	65.9	Somers' D	0.483
Percent Discordant	17.5	Gamma	0.579
Percent Tied	16.6	Tau-a	0.212
Pairs	1059390	c	0.742

The LOGISTIC Procedure

Model Information	
Data Set	WORK.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	2201
Number of Observations Used	2201

Response Profile		
Ordered Value	Survived	Total Frequency
1	0	1490
2	1	711

Probability modeled is Survived=1.

Stepwise Selection Procedure

Class Level Information				
Class	Value	Design Variables		
Class	0	1	0	0
	1	0	1	0
	2	0	0	1
	3	0	0	0

Step 0. Intercept entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

-2 Log L	=	2769.457

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
556.7267	5	<.0001

Step 1. Effect Sex entered:

The LOGISTIC Procedure

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2338.988
SC	2777.153	2350.381
-2 Log L	2769.457	2334.988

R-Square	0.1791	Max-rescaled R-Square	0.2502

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	434.4688	1	<.0001
Score	456.8742	1	<.0001
Wald	375.4374	1	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
123.0717	4	<.0001

Note: No effects for the model in Step 1 are removed.

Step 2. Effect Class entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2238.913
SC	2777.153	2267.396
-2 Log L	2769.457	2228.913

R-Square	0.2178	Max-rescaled R-Square	0.3042

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	540.5439	4	<.0001
Score	542.0566	4	<.0001
Wald	397.8630	4	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
19.4155	1	<.0001

Note: No effects for the model in Step 2 are removed.

Step 3. Effect Age entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	2771.457	2222.061
SC	2777.153	2256.241
-2 Log L	2769.457	2210.061

R-Square	0.2244	**Max-rescaled R-Square**	0.3135

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	559.3956	5	<.0001
Score	556.7267	5	<.0001
Wald	402.3282	5	<.0001

Note: No effects for the model in Step 3 are removed.

Note: All effects have been entered into the model.

The LOGISTIC Procedure

Summary of Stepwise Selection							
	Effect						
Step	**Entered**	**Removed**	**DF**	**Number In**	**Score Chi-Square**	**Wald Chi-Square**	**Pr > ChiSq**
1	Sex		1	1	456.8742		<.0001
2	Class		3	2	104.6977		<.0001
3	Age		1	3	19.4155		<.0001

Type 3 Analysis of Effects			
Effect	**DF**	**Wald Chi-Square**	**Pr > ChiSq**
Class	3	108.2432	<.0001
Age	1	18.9236	<.0001
Sex	1	297.0678	<.0001

Analysis of Maximum Likelihood Estimates						
Parameter		**DF**	**Estimate**	**Standard Error**	**Wald Chi-Square**	**Pr > ChiSq**
Intercept		1	1.3276	0.2480	28.6490	<.0001
Class	0	1	0.9201	0.1486	38.3441	<.0001
Class	1	1	1.7778	0.1716	107.3697	<.0001
Class	2	1	0.7597	0.1764	18.5558	<.0001
Age		1	-1.0615	0.2440	18.9236	<.0001
Sex		1	-2.4201	0.1404	297.0678	<.0001

Odds Ratio Estimates			
Effect	**Point Estimate**	**95% Wald Confidence Limits**	
Class 0 vs 3	2.510	1.875	3.358
Class 1 vs 3	5.917	4.227	8.282
Class 2 vs 3	2.138	1.513	3.020
Age	0.346	0.214	0.558
Sex	0.089	0.068	0.117

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	67.7	Somers' D	0.519
Percent Discordant	15.7	Gamma	0.623
Percent Tied	16.6	Tau-a	0.227
Pairs	1059390	c	0.760

5. Troisième modèle : avec des variables indicatrices pour class

The LOGISTIC Procedure

Model Information	
Data Set	WORK.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	2201
Number of Observations Used	2201

Response Profile		
Ordered Value	Survived	Total Frequency
1	0	1490
2	1	711

Probability modeled is Survived=1.

Stepwise Selection Procedure

Step 0. Intercept entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

-2 Log L	=	2769.457

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
556.7267	5	<.0001

Step 1. Effect Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

5. Troisième modèle : avec des variables indicatrices pour class

The LOGISTIC Procedure

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2338.988
SC	2777.153	2350.381
-2 Log L	2769.457	2334.988

R-Square	0.1791	**Max-rescaled R-Square**	0.2502

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	434.4688	1	<.0001
Score	456.8742	1	<.0001
Wald	375.4374	1	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
123.0717	4	<.0001

Note: No effects for the model in Step 1 are removed.

Step 2. Effect class1 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2270.817
SC	2777.153	2287.907
-2 Log L	2769.457	2264.817

R-Square	0.2049	**Max-rescaled R-Square**	0.2862

5. Troisième modèle : avec des variables indicatrices pour class

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	504.6402	2	<.0001
Score	517.1367	2	<.0001
Wald	400.0584	2	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
51.5239	3	<.0001

Note: No effects for the model in Step 2 are removed.

Step 3. Effect class3 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2237.090
SC	2777.153	2259.877
-2 Log L	2769.457	2229.090

R-Square	0.2177	Max-rescaled R-Square	0.3041

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	540.3668	3	<.0001
Score	542.0513	3	<.0001
Wald	398.3277	3	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
19.5239	2	<.0001

Note: No effects for the model in Step 3 are removed.

Step 4. Effect Age entered:

5. Troisième modèle : avec des variables indicatrices pour class

The LOGISTIC Procedure

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2220.922
SC	2777.153	2249.405
-2 Log L	2769.457	2210.922

R-Square	0.2241	Max-rescaled R-Square	0.3131

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	558.5349	4	<.0001
Score	556.6269	4	<.0001
Wald	403.7086	4	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
0.8526	1	0.3558

Note: No effects for the model in Step 4 are removed.

Note: No (additional) effects met the 0.05 significance level for entry into the model.

Summary of Stepwise Selection							
	Effect						
Step	Entered	Removed	DF	Number In	Score Chi-Square	Wald Chi-Square	Pr > ChiSq
1	Sex		1	1	456.8742		<.0001
2	class1		1	2	73.9363		<.0001
3	class3		1	3	34.0874		<.0001
4	Age		1	4	18.7646		<.0001

5. Troisième modèle : avec des variables indicatrices pour class

The LOGISTIC Procedure

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	2.1448	0.2766	60.1435	<.0001
class1	1	0.9022	0.1498	36.2820	<.0001
class3	1	-0.8634	0.1352	40.7638	<.0001
Age	1	-1.0315	0.2412	18.2893	<.0001
Sex	1	-2.3813	0.1338	316.9023	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
class1	2.465	1.838	3.306
class3	0.422	0.324	0.550
Age	0.356	0.222	0.572
Sex	0.092	0.071	0.120

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	64.9	Somers' D	0.500
Percent Discordant	14.8	Gamma	0.628
Percent Tied	20.3	Tau-a	0.219
Pairs	1059390	c	0.750

The LOGISTIC Procedure

Model Information	
Data Set	WORK.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	2201
Number of Observations Used	2201

Response Profile		
Ordered Value	Survived	Total Frequency
1	0	1490
2	1	711

Probability modeled is Survived=1.

Stepwise Selection Procedure

Step 0. Intercept entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

-2 Log L	=	2769.457

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
650.0932	13	<.0001

Step 1. Effect Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2338.988
SC	2777.153	2350.381
-2 Log L	2769.457	2334.988

The LOGISTIC Procedure

R-Square	0.1791	Max-rescaled R-Square	0.2502

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	434.4688	1	<.0001
Score	456.8742	1	<.0001
Wald	375.4374	1	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
229.9132	12	<.0001

Note: No effects for the model in Step 1 are removed.

Step 2. Effect class1 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	2771.457	2270.817
SC	2777.153	2287.907
-2 Log L	2769.457	2264.817

R-Square	0.2049	Max-rescaled R-Square	0.2862

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	504.6402	2	<.0001
Score	517.1367	2	<.0001
Wald	400.0584	2	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
164.1806	11	<.0001

Note: No effects for the model in Step 2 are removed.

The LOGISTIC Procedure

Step 3. Effect class3 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2237.090
SC	2777.153	2259.877
-2 Log L	2769.457	2229.090

R-Square	0.2177	Max-rescaled R-Square	0.3041

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	540.3668	3	<.0001
Score	542.0513	3	<.0001
Wald	398.3277	3	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
126.1030	10	<.0001

Note: No effects for the model in Step 3 are removed.

Step 4. Effect class3*Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2183.086
SC	2777.153	2211.569
-2 Log L	2769.457	2173.086

R-Square	0.2373	Max-rescaled R-Square	0.3316

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	596.3709	4	<.0001
Score	591.9236	4	<.0001
Wald	309.6522	4	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
77.5119	9	<.0001

Note: No effects for the model in Step 4 are removed.

Step 5. Effect Age entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2167.428
SC	2777.153	2201.608
-2 Log L	2769.457	2155.428

R-Square	0.2434	Max-rescaled R-Square	0.3401

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	614.0290	5	<.0001
Score	607.4825	5	<.0001
Wald	322.5890	5	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
48.7826	8	<.0001

Note: No effects for the model in Step 5 are removed.

Step 6. Effect class3*Age entered:

The LOGISTIC Procedure

Model Convergence Status
Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2136.913
SC	2777.153	2176.790
-2 Log L	2769.457	2122.913

R-Square	0.2545	Max-rescaled R-Square	0.3556

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	646.5438	6	<.0001
Score	623.4032	6	<.0001
Wald	307.3422	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
22.3643	6	0.0010

Step 7. Effect class3*Age is removed:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2167.428
SC	2777.153	2201.608
-2 Log L	2769.457	2155.428

R-Square	0.2434	Max-rescaled R-Square	0.3401

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	614.0290	5	<.0001
Score	607.4825	5	<.0001
Wald	322.5890	5	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
48.7826	8	<.0001

Note: No effects for the model in Step 7 are removed.

Note: Model building terminates because the last effect entered is removed by the Wald statistic criterion.

Summary of Stepwise Selection							
Step	Entered	Removed	DF	Number In	Score Chi-Square	Wald Chi-Square	Pr > ChiSq
1	Sex		1	1	456.8742		<.0001
2	class1		1	2	73.9363		<.0001
3	class3		1	3	34.0874		<.0001
4	class3*Sex		1	4	53.5742		<.0001
5	Age		1	5	18.8664		<.0001
6	class3*Age		1	6	25.1637		<.0001
7		class3*Age	1	5		0.0048	0.9449

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	3.1208	0.3278	90.6106	<.0001
class1	1	0.7760	0.1632	22.6144	<.0001
class3	1	-2.4654	0.2834	75.6842	<.0001
Age	1	-0.9709	0.2278	18.1663	<.0001
Sex	1	-3.5167	0.2453	205.5231	<.0001
class3*Sex	1	2.1465	0.3088	48.3280	<.0001

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
class1	2.173	1.578	2.992
Age	0.379	0.242	0.592

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	65.0	Somers' D	0.503
Percent Discordant	14.7	Gamma	0.631
Percent Tied	20.3	Tau-a	0.220
Pairs	1059390	c	0.752

7. Modèle permettant à une variable d'apparaître dans une   interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Model Information	
Data Set	WORK.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	2201
Number of Observations Used	2201

Response Profile		
Ordered Value	Survived	Total Frequency
1	0	1490
2	1	711

Probability modeled is Survived=1.

Stepwise Selection Procedure

Step 0. Intercept entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

-2 Log L	=	2769.457

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
650.0932	13	<.0001

Step 1. Effect Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

7. Modèle permettant à une variable d'apparaître dans une   interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2338.988
SC	2777.153	2350.381
-2 Log L	2769.457	2334.988

R-Square	0.1791	Max-rescaled R-Square	0.2502

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	434.4688	1	<.0001
Score	456.8742	1	<.0001
Wald	375.4374	1	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
229.9132	12	<.0001

Note: No effects for the model in Step 1 are removed.

Step 2. Effect class1 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2270.817
SC	2777.153	2287.907
-2 Log L	2769.457	2264.817

R-Square	0.2049	Max-rescaled R-Square	0.2862

7. Modèle permettant à une variable d'apparaître dans une   interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	504.6402	2	<.0001
Score	517.1367	2	<.0001
Wald	400.0584	2	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
164.1806	11	<.0001

Note: No effects for the model in Step 2 are removed.

Step 3. Effect class3 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2237.090
SC	2777.153	2259.877
-2 Log L	2769.457	2229.090

R-Square	0.2177	Max-rescaled R-Square	0.3041

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	540.3668	3	<.0001
Score	542.0513	3	<.0001
Wald	398.3277	3	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
126.1030	10	<.0001

Note: No effects for the model in Step 3 are removed.

Step 4. Effect class3*Sex entered:

7. Modèle permettant à une variable d'apparaître dans une interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2183.086
SC	2777.153	2211.569
-2 Log L	2769.457	2173.086

R-Square	0.2373	Max-rescaled R-Square	0.3316

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	596.3709	4	<.0001
Score	591.9236	4	<.0001
Wald	309.6522	4	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
77.5119	9	<.0001

Note: No effects for the model in Step 4 are removed.

Step 5. Effect Age*Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2160.057
SC	2777.153	2194.237
-2 Log L	2769.457	2148.057

R-Square	0.2460	Max-rescaled R-Square	0.3436

7. Modèle permettant à une variable d'apparaître dans une   interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	621.3994	5	<.0001
Score	613.5404	5	<.0001
Wald	330.7919	5	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
40.0594	8	<.0001

Note: No effects for the model in Step 5 are removed.

Step 6. Effect class2*Age entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2137.618
SC	2777.153	2177.495
-2 Log L	2769.457	2123.618

R-Square	0.2543	Max-rescaled R-Square	0.3552

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	645.8384	6	<.0001
Score	624.7156	6	<.0001
Wald	314.1499	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
20.2826	7	0.0050

Note: No effects for the model in Step 6 are removed.

Step 7. Effect class3*Age*Sex entered:

7. Modèle permettant à une variable d'apparaître dans une   interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Model Convergence Status
Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2117.090
SC	2777.153	2162.664
-2 Log L	2769.457	2101.090

R-Square	0.2619	Max-rescaled R-Square	0.3658

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	668.3665	7	<.0001
Score	646.6851	7	<.0001
Wald	299.6748	7	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
3.6093	6	0.7294

Step 8. Effect Sex is removed:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2116.573
SC	2777.153	2156.449
-2 Log L	2769.457	2102.573

R-Square	0.2614	Max-rescaled R-Square	0.3651

7. Modèle permettant à une variable d'apparaître dans une   interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	666.8839	6	<.0001
Score	646.5046	6	<.0001
Wald	307.7947	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
4.5899	7	0.7099

Note: No effects for the model in Step 8 are removed.

Note: No (additional) effects met the 0.05 significance level for entry into the model.

Summary of Stepwise Selection							
	Effect						
Step	Entered	Removed	DF	Number In	Score Chi-Square	Wald Chi-Square	Pr > ChiSq
1	Sex		1	1	456.8742		<.0001
2	class1		1	2	73.9363		<.0001
3	class3		1	3	34.0874		<.0001
4	class3*Sex		1	4	53.5742		<.0001
5	Age*Sex		1	5	30.4363		<.0001
6	class2*Age		1	6	21.3630		<.0001
7	class3*Age*Sex		1	7	16.5319		<.0001
8		Sex	1	6		0.0024	0.9607

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	2.9375	0.2940	99.8583	<.0001
class1	1	0.5393	0.1747	9.5325	0.0020
class3	1	-3.1011	0.3270	89.9148	<.0001
class2*Age	1	-1.1329	0.2541	19.8720	<.0001
class3*Sex	1	-0.8268	0.3550	5.4233	0.0199
Age*Sex	1	-4.1915	0.2867	213.6821	<.0001
class3*Age*Sex	1	3.5410	0.4513	61.5748	<.0001

7. Modèle permettant à une variable d'apparaître dans une   interaction sans apparaître elle-même directement

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

Odds Ratio Estimates			
Effect	**Point Estimate**	**95% Wald Confidence Limits**	
class1	1.715	1.218	2.415

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	68.4	**Somers' D**	0.537
Percent Discordant	14.8	**Gamma**	0.645
Percent Tied	16.8	**Tau-a**	0.235
Pairs	1059390	**c**	0.768

8. Modèle permettant à une variable d'apparaître en spécifiant de ne pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Model Information	
Data Set	WORK.TITANIC
Response Variable	Survived
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	2201
Number of Observations Used	2201

Response Profile		
Ordered Value	Survived	Total Frequency
1	0	1490
2	1	711

Probability modeled is Survived=1.

Stepwise Selection Procedure

Step 0. Intercept entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

-2 Log L	=	2769.457

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
641.5232	11	<.0001

Step 1. Effect Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

8. Modèle permettant à une variable d'apparaître en spécifiant de ne pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2338.988
SC	2777.153	2350.381
-2 Log L	2769.457	2334.988

R-Square	0.1791	Max-rescaled R-Square	0.2502

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	434.4688	1	<.0001
Score	456.8742	1	<.0001
Wald	375.4374	1	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
216.9421	10	<.0001

Note: No effects for the model in Step 1 are removed.

Step 2. Effect class1 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2270.817
SC	2777.153	2287.907
-2 Log L	2769.457	2264.817

R-Square	0.2049	Max-rescaled R-Square	0.2862

8. Modèle permettant à une variable d'apparaître en spécifiant de ne pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	504.6402	2	<.0001
Score	517.1367	2	<.0001
Wald	400.0584	2	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
148.2779	9	<.0001

Note: No effects for the model in Step 2 are removed.

Step 3. Effect class3 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2237.090
SC	2777.153	2259.877
-2 Log L	2769.457	2229.090

R-Square	0.2177	Max-rescaled R-Square	0.3041

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	540.3668	3	<.0001
Score	542.0513	3	<.0001
Wald	398.3277	3	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
117.6768	8	<.0001

Note: No effects for the model in Step 3 are removed.

Step 4. Effect class3*Sex entered:

8. Modèle permettant à une variable d'apparaître en spécifiant de ne pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2183.086
SC	2777.153	2211.569
-2 Log L	2769.457	2173.086

R-Square	0.2373	Max-rescaled R-Square	0.3316

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	596.3709	4	<.0001
Score	591.9236	4	<.0001
Wald	309.6522	4	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
71.7773	7	<.0001

Note: No effects for the model in Step 4 are removed.

Step 5. Effect Age*Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2160.057
SC	2777.153	2194.237
-2 Log L	2769.457	2148.057

R-Square	0.2460	Max-rescaled R-Square	0.3436

8. Modèle permettant à une variable d'apparaître en spécifiant de ne pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	621.3994	5	<.0001
Score	613.5404	5	<.0001
Wald	330.7919	5	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
37.9518	6	<.0001

Note: No effects for the model in Step 5 are removed.

Step 6. Effect class2*Age entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2137.618
SC	2777.153	2177.495
-2 Log L	2769.457	2123.618

R-Square	0.2543	Max-rescaled R-Square	0.3552

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	645.8384	6	<.0001
Score	624.7156	6	<.0001
Wald	314.1499	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
19.2211	5	0.0017

Note: No effects for the model in Step 6 are removed.

Step 7. Effect class0 entered:

8. Modèle permettant à une variable d'apparaître en spécifiant de ne   pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Model Convergence Status
Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2122.037
SC	2777.153	2167.611
-2 Log L	2769.457	2106.037

R-Square	0.2602	Max-rescaled R-Square	0.3635

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	663.4193	7	<.0001
Score	633.8513	7	<.0001
Wald	296.8063	7	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
7.1406	4	0.1286

Step 8. Effect class1 is removed:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2131.451
SC	2777.153	2171.327
-2 Log L	2769.457	2117.451

R-Square	0.2564	Max-rescaled R-Square	0.3582

8. Modèle permettant à une variable d'apparaître en spécifiant de ne pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	652.0062	6	<.0001
Score	629.5893	6	<.0001
Wald	316.2290	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
14.5341	5	0.0126

Note: No effects for the model in Step 8 are removed.

Step 9. Effect class1*Age entered:

Model Convergence Status
Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2115.553
SC	2777.153	2161.127
-2 Log L	2769.457	2099.553

R-Square	0.2624	Max-rescaled R-Square	0.3666

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	669.9035	7	<.0001
Score	637.5201	7	<.0001
Wald	292.0561	7	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
2.6401	4	0.6197

8. Modèle permettant à une variable d'apparaître en spécifiant de ne pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

Step 10. Effect class1*Age is removed:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2771.457	2131.451
SC	2777.153	2171.327
-2 Log L	2769.457	2117.451

R-Square	0.2564	Max-rescaled R-Square	0.3582

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	652.0062	6	<.0001
Score	629.5893	6	<.0001
Wald	316.2290	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
14.5341	5	0.0126

Note: No effects for the model in Step 10 are removed.

Note: Model building terminates because the last effect entered is removed by the Wald statistic criterion.

Summary of Stepwise Selection							
	Effect						
Step	Entered	Removed	DF	Number In	Score Chi-Square	Wald Chi-Square	Pr > ChiSq
1	Sex		1	1	456.8742		<.0001
2	class1		1	2	73.9363		<.0001
3	class3		1	3	34.0874		<.0001
4	class3*Sex		1	4	53.5742		<.0001
5	Age*Sex		1	5	30.4363		<.0001
6	class2*Age		1	6	21.3630		<.0001
7	class0		1	7	11.9862		0.0005

8. Modèle permettant à une variable d'apparaître en spécifiant de ne   pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

	Summary of Stepwise Selection						
	Effect						
Step	Entered	Removed	DF	Number In	Score Chi-Square	Wald Chi-Square	Pr > ChiSq
8		class1	1	6		0.0067	0.9347
9	class1*Age		1	7	11.9680		0.0005
10		class1*Age	1	6		0.0039	0.9500

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	3.4837	0.3014	133.6350	<.0001
class0	1	-0.6878	0.1685	16.6631	<.0001
class3	1	-3.6473	0.3337	119.4584	<.0001
class2*Age	1	-1.7510	0.2681	42.6509	<.0001
Sex	1	-2.8045	0.3987	49.4888	<.0001
class3*Sex	1	2.4913	0.3485	51.1143	<.0001
Age*Sex	1	-1.2523	0.2793	20.1003	<.0001

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
class0	0.503	0.361	0.699

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	68.4	Somers' D	0.535
Percent Discordant	14.8	Gamma	0.644
Percent Tied	16.8	Tau-a	0.234
Pairs	1059390	c	0.768

8. Modèle permettant à une variable d'apparaître en spécifiant de ne   pas tester les interactions d'ordre au plus de 2 (@2 à la fin)

The FREQ Procedure

cible	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1337	68.35	1337	68.35
1	619	31.65	1956	100.00
Frequency Missing = 245				

The LOGISTIC Procedure

Model Information	
Data Set	WORK.TITANIC
Response Variable	cible
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	2201
Number of Observations Used	1956

Response Profile		
Ordered Value	cible	Total Frequency
1	0	1337
2	1	619

Probability modeled is cible=1.

Note: 245 observations were deleted due to missing values for the response or explanatory variables.

Stepwise Selection Procedure

Step 0. Intercept entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

-2 Log L	=	2441.768

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
568.5887	11	<.0001

Step 1. Effect Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

The LOGISTIC Procedure

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	2057.432
SC	2449.347	2068.590
-2 Log L	2441.768	2053.432

R-Square	0.1801	Max-rescaled R-Square	0.2525

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	388.3359	1	<.0001
Score	410.9163	1	<.0001
Wald	335.5141	1	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
184.6458	10	<.0001

Note: No effects for the model in Step 1 are removed.

Step 2. Effect class1 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	2004.798
SC	2449.347	2021.534
-2 Log L	2441.768	1998.798

R-Square	0.2027	Max-rescaled R-Square	0.2842

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	442.9701	2	<.0001
Score	457.8675	2	<.0001
Wald	353.9998	2	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
131.8842	9	<.0001

Note: No effects for the model in Step 2 are removed.

Step 3. Effect class3 entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	1975.459
SC	2449.347	1997.774
-2 Log L	2441.768	1967.459

R-Square	0.2153	Max-rescaled R-Square	0.3020

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	474.3091	3	<.0001
Score	479.8631	3	<.0001
Wald	352.9515	3	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
104.1300	8	<.0001

Note: No effects for the model in Step 3 are removed.

Step 4. Effect Age*Sex entered:

The LOGISTIC Procedure

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	1945.053
SC	2449.347	1972.946
-2 Log L	2441.768	1935.053

R-Square	0.2282	Max-rescaled R-Square	0.3201

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	506.7158	4	<.0001
Score	505.2305	4	<.0001
Wald	363.8047	4	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
65.2952	7	<.0001

Note: No effects for the model in Step 4 are removed.

Step 5. Effect class3*Sex entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	1911.677
SC	2449.347	1945.149
-2 Log L	2441.768	1899.677

R-Square	0.2421	Max-rescaled R-Square	0.3395

The LOGISTIC Procedure

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	542.0912	5	<.0001
Score	541.3058	5	<.0001
Wald	300.4371	5	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
35.2025	6	<.0001

Note: No effects for the model in Step 5 are removed.

Step 6. Effect class2*Age entered:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	2443.768	1891.326
SC	2449.347	1930.376
-2 Log L	2441.768	1877.326

R-Square	0.2507	**Max-rescaled R-Square**	0.3516

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	564.4428	6	<.0001
Score	552.0914	6	<.0001
Wald	285.7414	6	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
18.5732	5	0.0023

Note: No effects for the model in Step 6 are removed.

Step 7. Effect class0 entered:

The LOGISTIC Procedure

Model Convergence Status
Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	1875.432
SC	2449.347	1920.061
-2 Log L	2441.768	1859.432

R-Square	0.2575	Max-rescaled R-Square	0.3611

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	582.3363	7	<.0001
Score	561.7855	7	<.0001
Wald	268.8858	7	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
6.1383	4	0.1891

Step 8. Effect class1 is removed:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	1885.535
SC	2449.347	1924.585
-2 Log L	2441.768	1871.535

R-Square	0.2529	Max-rescaled R-Square	0.3547

The LOGISTIC Procedure

Warning: The validity of the model fit is questionable.

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	570.2339	6	<.0001
Score	556.7442	6	<.0001
Wald	287.5667	6	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
14.0220	5	0.0155

Note: No effects for the model in Step 8 are removed.

Step 9. Effect class1*Age entered:

Model Convergence Status
Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics		
Criterion	**Intercept Only**	**Intercept and Covariates**
AIC	2443.768	1871.344
SC	2449.347	1915.973
-2 Log L	2441.768	1855.344

R-Square	0.2590	**Max-rescaled R-Square**	0.3633

Testing Global Null Hypothesis: BETA=0			
Test	**Chi-Square**	**DF**	**Pr > ChiSq**
Likelihood Ratio	586.4244	7	<.0001
Score	564.4011	7	<.0001
Wald	266.6418	7	<.0001

Residual Chi-Square Test		
Chi-Square	**DF**	**Pr > ChiSq**
3.2379	4	0.5188

The LOGISTIC Procedure
Warning: The validity of the model fit is questionable.

Step 10. Effect class1*Age is removed:

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	2443.768	1885.535
SC	2449.347	1924.585
-2 Log L	2441.768	1871.535

R-Square	0.2529	Max-rescaled R-Square	0.3547

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	570.2339	6	<.0001
Score	556.7442	6	<.0001
Wald	287.5667	6	<.0001

Residual Chi-Square Test		
Chi-Square	DF	Pr > ChiSq
14.0220	5	0.0155

Note: No effects for the model in Step 10 are removed.

Note: Model building terminates because the last effect entered is removed by the Wald statistic criterion.

Summary of Stepwise Selection							
	Effect						
Step	Entered	Removed	DF	Number In	Score Chi-Square	Wald Chi-Square	Pr > ChiSq
1	Sex		1	1	410.9163		<.0001
2	class1		1	2	57.6048		<.0001
3	class3		1	3	29.9158		<.0001
4	Age*Sex		1	4	42.8364		<.0001
5	class3*Sex		1	5	34.2937		<.0001
6	class2*Age		1	6	19.5335		<.0001
7	class0		1	7	12.2497		0.0005
8		class1	1	6		0.0065	0.9356

The LOGISTIC Procedure
Warning: The validity of the model fit is questionable.

Summary of Stepwise Selection							
	Effect						
Step	**Entered**	**Removed**	**DF**	**Number In**	**Score Chi-Square**	**Wald Chi-Square**	**Pr > ChiSq**
9	class1*Age		1	7	10.8401		0.0010
10		class1*Age	1	6		0.0034	0.9538

Analysis of Maximum Likelihood Estimates					
Parameter	**DF**	**Estimate**	**Standard Error**	**Wald Chi-Square**	**Pr > ChiSq**
Intercept	1	3.3743	0.3131	116.1346	<.0001
class0	1	-0.6527	0.1795	13.2226	0.0003
class3	1	-3.5031	0.3486	100.9788	<.0001
class2*Age	1	-1.7176	0.2824	36.9826	<.0001
Sex	1	-2.7376	0.4158	43.3519	<.0001
class3*Sex	1	2.3527	0.3654	41.4673	<.0001
Age*Sex	1	-1.2638	0.2927	18.6423	<.0001

Odds Ratio Estimates			
Effect	**Point Estimate**	**95% Wald Confidence Limits**	
class0	0.521	0.366	0.740

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	68.5	**Somers' D**	0.537
Percent Discordant	14.7	**Gamma**	0.646
Percent Tied	16.8	**Tau-a**	0.233
Pairs	827603	**c**	0.769