

# Cluster Analysis

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COM 631/731

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## I. Model

Data Set: Humor & Public Opinions Supplementary Survey 2009-2010 (Neuendorf & Skalski, with Atkin & Jeffres).

### 1. Internal Variables/Clustering Variables (4 scales from 16 items total):

- C7. I like humor that puts down other racial or ethnic groups.
- C12. I like humor about death.
- C21. I enjoy humor that criticizes society.
- C30. I like humor that puts down arrogant people.
- C46. I like humor that puts down stupid people.
- C41. I like dark comedy.
- C50. I like gross-out humor.
- C53. I think it's funny when other people actually get hurt.
- C10. Unlikely events seem funny.
- C32. I think it's funny when things are combined in unexpected ways.
- C38. When something happens that is a "one in a million" occurrence, I find it funny.
- C47. I think incongruity is funny (i.e., when incompatible elements are put together).
- C64. I like humor that is shared by a group.
- C65. I find it amusing when others make reference to things I'm really familiar with.
- C66. I like "inside" jokes (jokes only certain people "get").
- C67. I find it humorous when I explore common knowledge or experiences with others.

COMPUTE Disparagement=Mean(c7,c21,c30,c46)\*4.

COMPUTE Dark=Mean(c12,c41,c50,c53)\*4.

COMPUTE Incongruity=Mean(c10,c32,c38,c47)\*4.

COMPUTE SocialCurrency=Mean(c64,c65,c66,c67)\*4.

### 2. External Variables/Profiling Variables

B2. I believe that O.J. Simpson is innocent of murder.

0=strongly disagree and 10=strongly agree.

G4. Which of the following categories best describes your political philosophy?

1=Strong conservative, 5=Strong liberal

Nonwhite:

White = 0, Nonwhite = 1

G1:

Male = 0, Female = 1

G9. What is your annual household income?

Less than \$25,000

\$25,000-49,000

\$50,000-74,999

\$75,000-99,999

\$100,000-149,999

\$150,000 or more

Values: Opposed to my values =-1, of supreme importance =7

F1. Equality (equal opportunity for all)

F2. Inner Harmony (at peace with myself)

F3. Social Power (control over others, dominance)

F4. Pleasure (gratification of desires)

F5. Freedom (freedom of action and thought)

F6. A Spiritual Life (emphasis on spiritual not material matters)

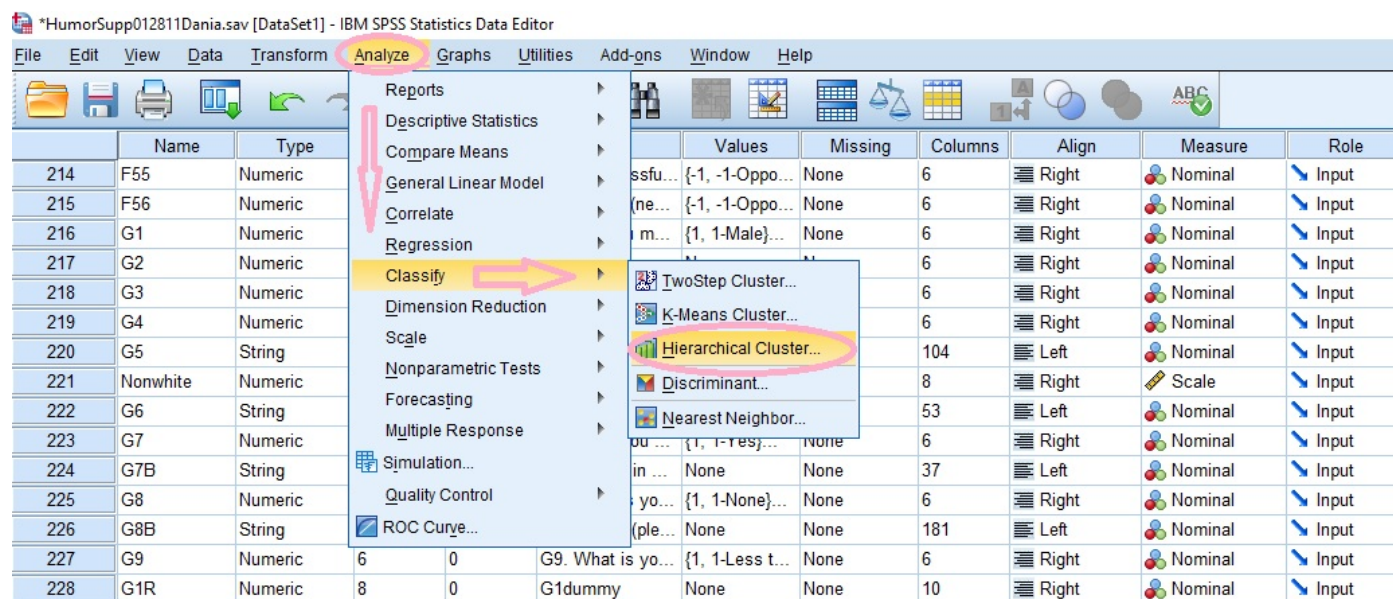
F7. Sense of Belonging (feeling that others care about me)

F8. Social Order (stability of society)

F9. An Exciting Life (stimulating experiences)

## II. Running SPSS

### 1- Analyze -> Classify -> Hierarchical Cluster.



### 2- Select your Internal Variables for analysis.

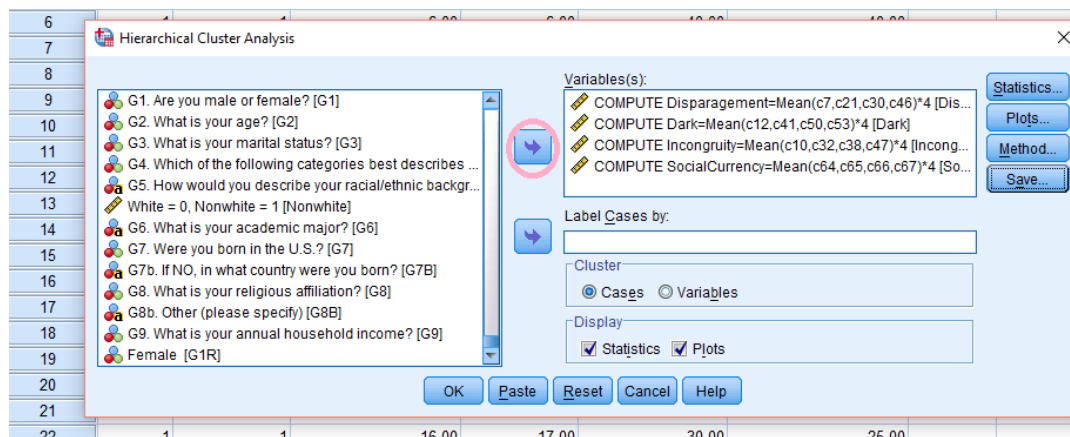
#### The four scales

Disparagement=Mean(c7,c21,c30,c46)\*4.

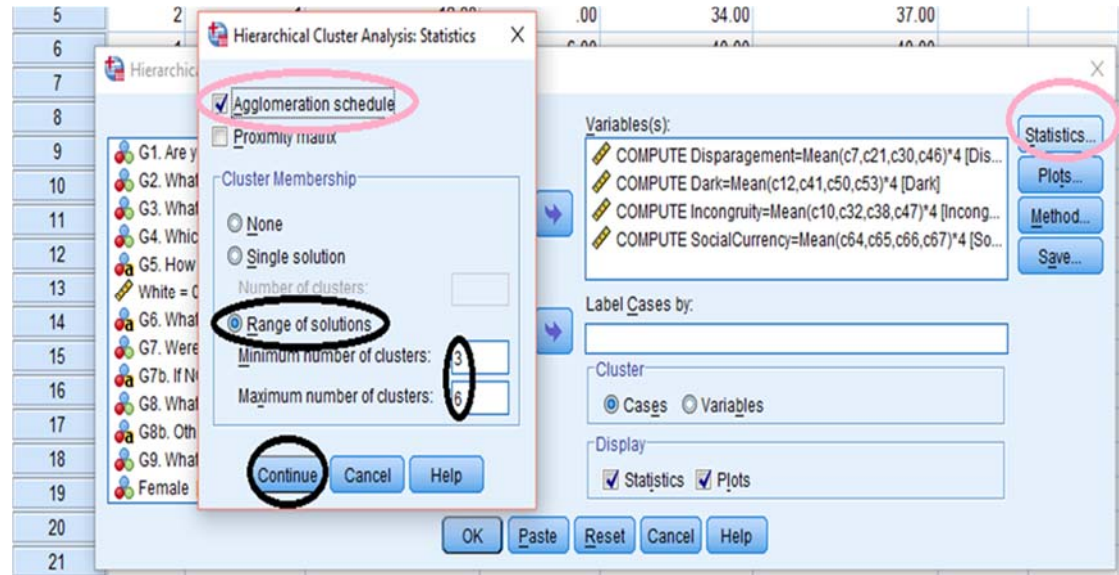
Dark=Mean(c12,c41,c50,c53)\*4.

Incongruity=Mean(c10,c32,c38,c47)\*4.

Social Currency=Mean(c64,c65,c66,c67)\*4.



### 3- Click “Statistics” Box



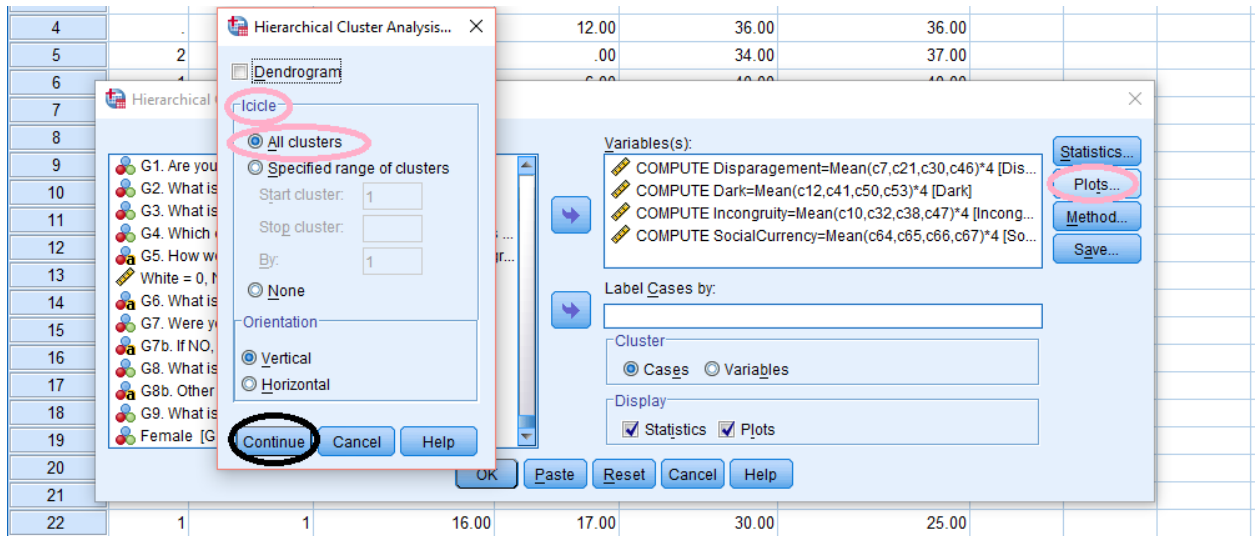
### 4- Make sure that the “Agglomeration Schedule” box is checked.

### 5- Then, under Cluster Membership, check the circle “Range of Solutions”.

### 6- Indicate your chosen minimum number of clusters and the maximum number of clusters. (e.g., 3 to 6, or 4 to 7).

### 7- Then click “Continue”.

### 8- Click “Plots” Box

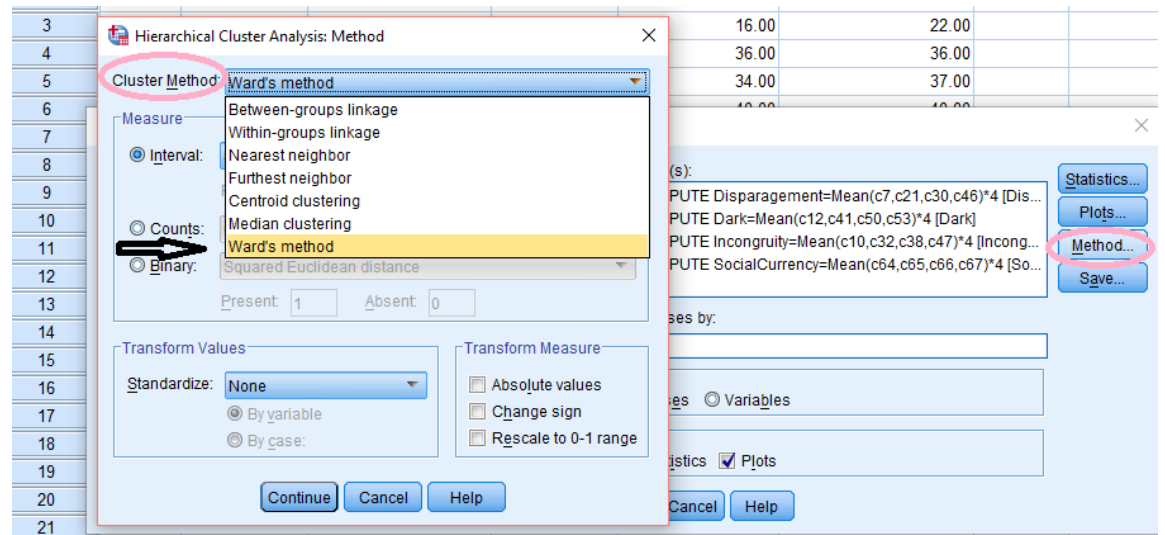


9- Note that you must select either the “Dendrogram” box or something under “Icicle”. We ran Icicle, All Clusters.

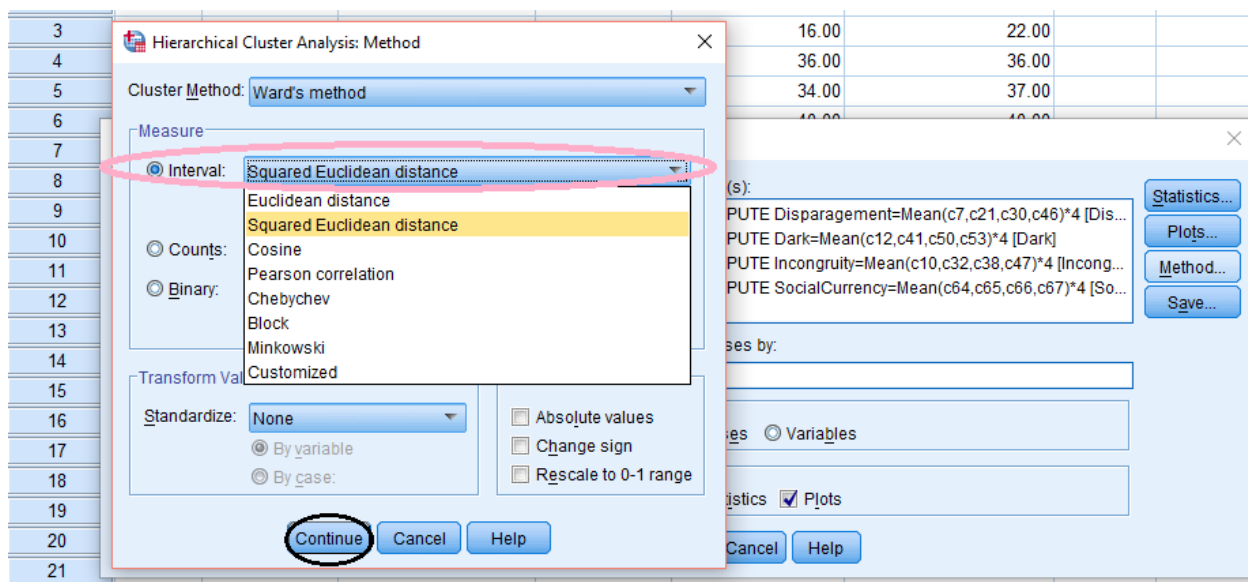
10- Then click “Continue”.

11- Click “Method” Box.

12- From “Cluster Method” drop down arrow -----◇ Select “Ward’s Method”.

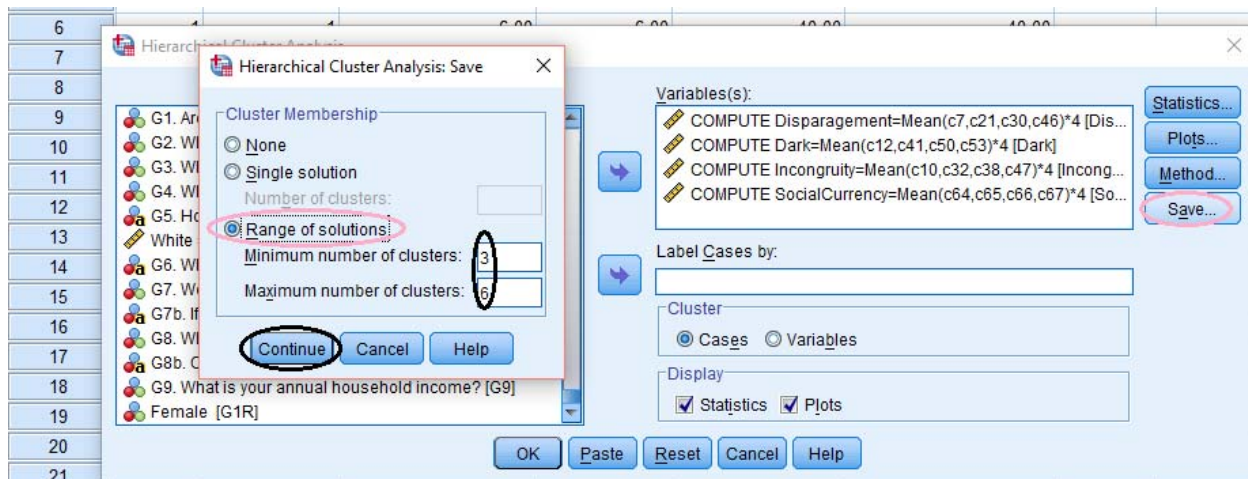


13- Under “Measure”, select “Interval” circle.



14- From drop down arrow select “Squared Euclidean Distance”.

15- Then click “Continue”.

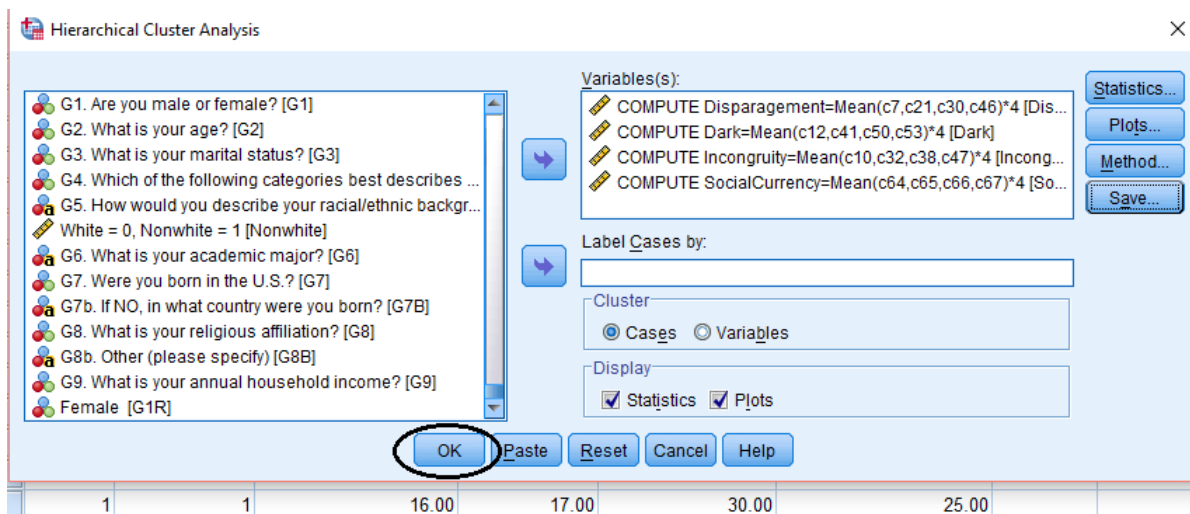


16- Click “Save” Box.

17- Under “Cluster Membership” select the circle “Range of Solutions”. Type your chosen minimum (e.g., 3) into “Minimum number of clusters” box and type your chosen maximum (e.g., 6) into “Maximum number of clusters” box.

18- Then click “Continue”.

19- Click “OK” Box.



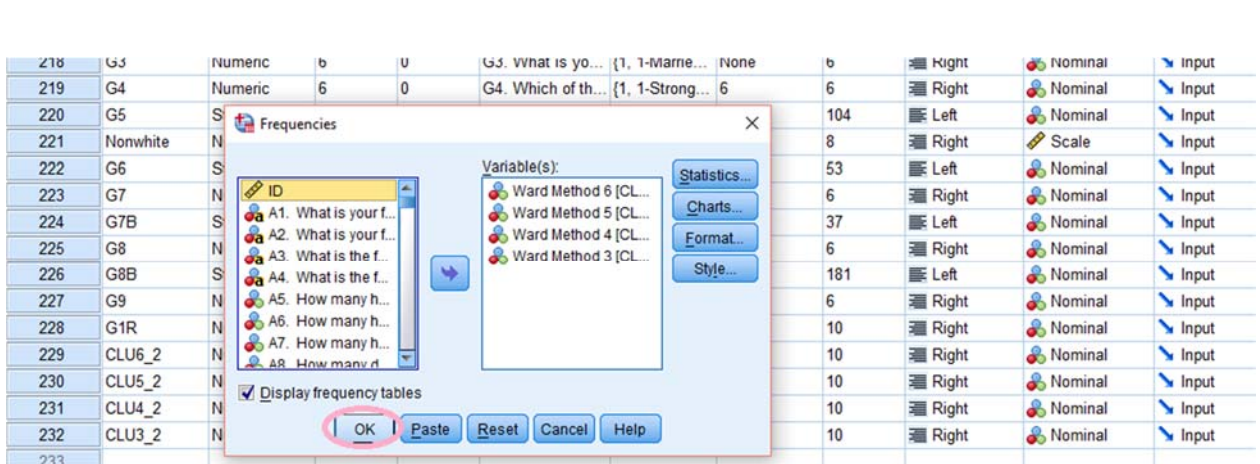
**Note:** This point marks the end of the actual Cluster procedure in SPSS. The Hierarchical Cluster Analysis procedure has produced an Agglomerative Schedule and a Cluster Membership Table in SPSS output. This procedure has also created and saved at the end of the dataset new nominal variables. In our specific example a 3-cluster variable, a 4-cluster variable, a 5-cluster variable, and a 6-cluster variable.

**Next/** Further Frequencies and ANOVA analysis procedures will help decide which cluster solution to ultimately select.

Now we examine the cluster groupings.





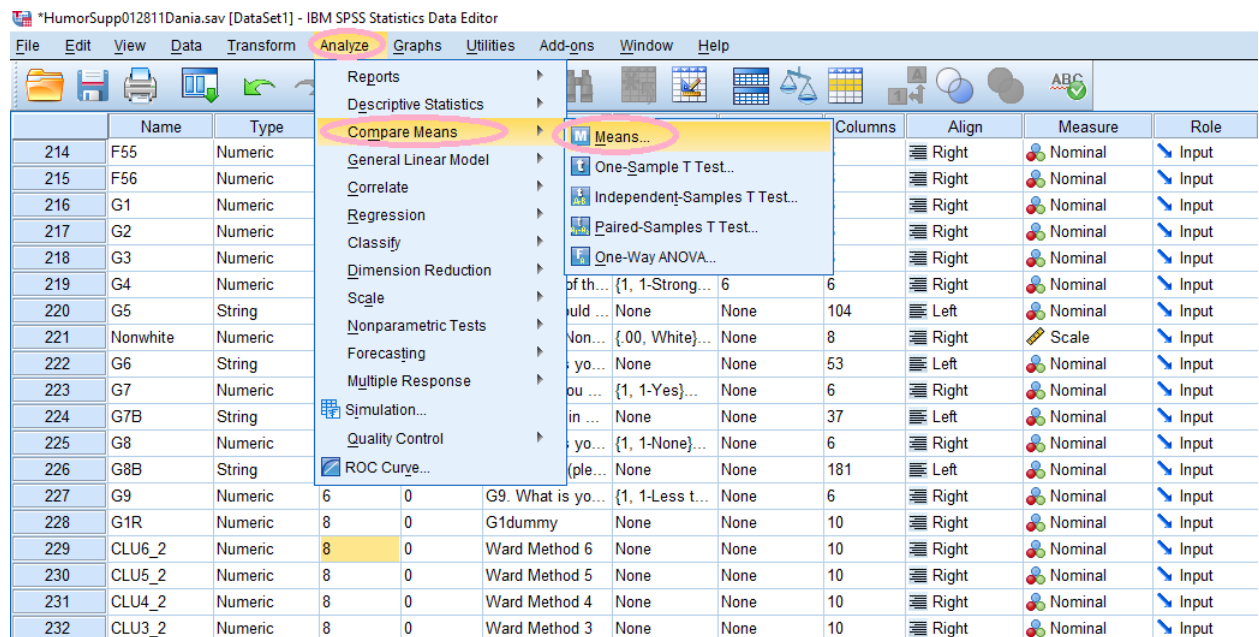


- ✚ “Ward Method [Clus6\_1]” (Note we changed name in label to Ward Method 6 Cluster so easier to identify distinctions in SPSS output charts)
- ✚ “Ward Method [Clus5\_1]” (Note we changed name in label to Ward Method 5 Cluster so easier to identify distinctions in SPSS output charts)
- ✚ “Ward Method [Clus4\_1]” (Note we changed name in label to Ward Method 4 Cluster so easier to identify distinctions in SPSS output charts)
- ✚ “Ward Method [Clus3\_1]” (Note we changed name in label to Ward Method 3 Cluster so easier to identify distinctions in SPSS output charts).

3- Click “OK” Box.

Next : Run Means (with ANOVA tests) to compare means among the clusters.

Analyze ----- Compare Means --- Means.



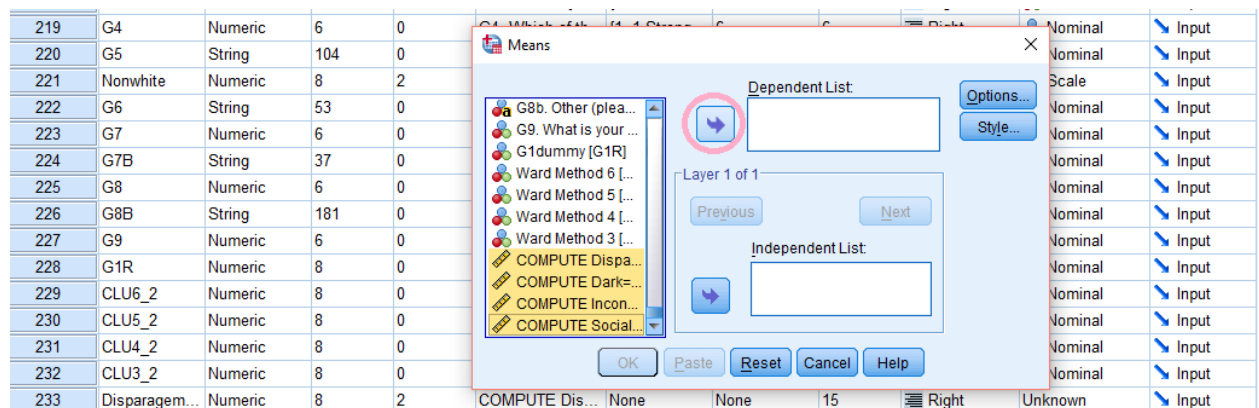
- 4- Select the four scales (Internal Variables) and enter into the “Dependent List” in our example:

COMPUTE Disparagement=Mean(c7,c21,c30,c46)\*4.

COMPUTE Dark=Mean(c12,c41,c50,c53)\*4.

COMPUTE Incongruity=Mean(c10,c32,c38,c47)\*4.

COMPUTE Social Currency=Mean(c64,c65,c66,c67)\*4.



5- Also select the 14 total External Variables and enter into the “Dependent List.”

221	Nonwhite	Numeric	8	2
222	G6	String	53	0
223	G7	Numeric	6	0
224	G7B	String	37	0
225	G8	Numeric	6	0
226	G8B	String	181	0
227	G9	Numeric	6	0
228	G1R	Numeric	8	0
229	CLU6_2	Numeric	8	0
230	CLU5_2	Numeric	8	0
231	CLU4_2	Numeric	8	0
232	CLU3_2	Numeric	8	0
233	Disparagem...	Numeric	8	2
234	Dark	Numeric	8	2
235	Incongruity	Numeric	8	2

B2. I believe that O.J. Simpson is innocent of murder.

0=strongly disagree and 10=strongly agree.

G4. Which of the following categories best describes your political philosophy?

1-STRONG CONSERVATIVE

2-LEAN TOWARDS CONSERVATIVE

3-MIDDLE OF THE ROAD

4-LEAN TOWARDS LIBERAL

5-STRONG LIBERAL

Nonwhite: White= 0, Nonwhite = 1

G1: Male = 0, Female = 1

G9. What is your annual household income?

Less than \$25,000

\$25,000-49,000

\$50,000-74,999

\$75,000-99,999

\$100,000-149,999

\$150,000 or more

Values: Opposed to my values = -1, of supreme importance =7

F1. Equality (equal opportunity for all)

F2. Inner Harmony (at peace with myself)

F3. Social Power (control over others, dominance)

- F4. Pleasure (gratification of desires)
- F5. Freedom (freedom of action and thought)
- F6. A Spiritual Life (emphasis on spiritual not material matters)
- F7. Sense of Belonging (feeling that others care about me)
- F8. Social Order (stability of society)
- F9. An Exciting Life (stimulating experiences).

**NOTE: Actions that follow are based on the decision to use only the 6-cluster solution for further analyses.**

- 6- Select “Ward Method 6 Cluster” and enter into “Independent List”.

221	Nonwhite	Numeric	8	2						Scale	Input
222	G6	String	53	0						Nominal	Input
223	G7	Numeric	6	0						Nominal	Input
224	G7B	String	37	0						Nominal	Input
225	G8	Numeric	6	0						Nominal	Input
226	G8B	String	181	0						Nominal	Input
227	G9	Numeric	6	0						Nominal	Input
228	G1R	Numeric	8	0						Nominal	Input
229	Disparagem...	Numeric	8	2						Scale	Input
230	Dark	Numeric	8	2						Scale	Input
231	Incongruity	Numeric	8	2						Scale	Input
232	SocialCurre...	Numeric	8	2						Scale	Input
233	CLU6_1	Numeric	8	0						Nominal	Input
234	CLU5_1	Numeric	8	0						Nominal	Input
235	CLU4_1	Numeric	8	0						Nominal	Input
236	CLU3_1	Numeric	8	0						Nominal	Input

**NOTE: You could run all the cluster-created variables, by also including “Ward Method 4”, “Ward Method 5” and “Ward Method 3” in the Independent List to see ANOVA means comparison based upon various cluster solutions.**

219	G4	Numeric	6	0	G4. Which of th...	{1, 1-Strong...	6	6	Right	Nominal	Input
220	G5	String	104	0	G5. How would ...	None	None	104	Left	Nominal	Input
221	Nonwhite	Numeric	8	2						Scale	Input
222	G6	String	53	0						Nominal	Input
223	G7	Numeric	6	0						Nominal	Input
224	G7B	String	37	0						Nominal	Input
225	G8	Numeric	6	0						Nominal	Input
226	G8B	String	181	0						Nominal	Input
227	G9	Numeric	6	0						Nominal	Input
228	G1R	Numeric	8	0						Nominal	Input
229	CLU6_2	Numeric	8	0						Nominal	Input
230	CLU5_2	Numeric	8	0						Nominal	Input
231	CLU4_2	Numeric	8	0						Nominal	Input
232	CLU3_2	Numeric	8	0						Nominal	Input
233	Disparagem...	Numeric	8	2						Nominal	Input
234	Dark	Numeric	8	2						Nominal	Input
235	Incongruity	Numeric	8	2	COMPUTE Inc...	None	None	13	Right	Nominal	Input

7- Click "Options" Box.

The screenshot shows the 'Means: Options' dialog box in SPSS. The 'Statistics' list includes Median, Grouped Median, Std. Error of Mean, Sum, Minimum, Maximum, Range, First, Last, Variance, Kurtosis, Std. Error of Kurtosis, Skewness, Std. Error of Skewness, and Harmonic Mean. The 'Cell Statistics' list includes Mean, Number of Cases, and Standard Deviation. Under 'Statistics for First Layer', the 'Anova table and eta' checkbox is checked and circled in red. The 'Continue' button at the bottom is also circled in red.

The screenshot shows the 'Means' dialog box in SPSS. The 'Dependent List' contains 'COMPUTE Dispara...' and 'COMPUTE Dark=M...'. The 'Independent List' contains 'Ward Method 6 [...]' and 'Ward Method 5 [...]', with 'Ward Method 6 [CL...]' circled in red. The 'OK' button at the bottom is also circled in red.

### III. Cluster Analysis SPSS Output

CLUSTER Disparagement Dark Incongruity SocialCurrency /METHOD WARD /MEASURE=SEUCLID  
/PRINT SCHEDULE CLUSTER(3,6) /PLOT VICICLE /SAVE CLUSTER(3,6).

#### Cluster

#### Notes

Output Created				18-APR-2016 12:02:55
Comments				
Input	Data	C:\Users\DnoOosh\Downloads\HumorS upp012811Dania.sav		
	Active Dataset	DataSet2		
	Filter	<none>		
	Weight	<none>		
	Split File	<none>		
Missing Value Handling	N of Rows in Working Data File	288		
	Definition of Missing	User-defined missing values are treated as missing.		
	Cases Used	Statistics are based on cases with no missing values for any variable used.		
Syntax	CLUSTER Disparagement Dark Incongruity SocialCurrency /METHOD WARD /MEASURE=SEUCLID /PRINT SCHEDULE CLUSTER(3,6) /PLOT VICICLE /SAVE CLUSTER(3,6).			
Resources	Processor Time	00:00:04.77		
	Elapsed Time	00:00:04.42		
Variables Created or Modified	Cluster Membership	CLU6_1	Ward Method	
		CLU5_1	Ward Method	
		CLU4_1	Ward Method	
		CLU3_1	Ward Method	

#### Case Processing Summary<sup>a,b</sup>

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
270	93.8	18	6.3	288	100.0

I.

a. Squared Euclidean Distance used

b. Ward Linkage

## Ward Linkage

### Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	100	239	1.000	0	0	149
2	47	181	2.000	0	0	101
3	132	169	3.000	0	0	132
4	43	128	4.500	0	0	17
5	153	273	6.500	0	0	20
6	99	254	9.000	0	0	101
7	110	167	11.500	0	0	77
8	91	163	14.000	0	0	69
9	68	144	16.500	0	0	122
10	71	98	19.000	0	0	70
11	156	228	22.000	0	0	130
12	2	209	25.000	0	0	138
13	175	197	28.000	0	0	23
14	46	133	31.000	0	0	117
15	112	118	34.000	0	0	49
16	12	102	37.500	0	0	76
17	43	211	41.333	4	0	121
18	114	204	45.222	0	0	52
19	237	246	49.222	0	0	98
20	153	154	53.222	5	0	160
21	22	79	57.222	0	0	161
22	101	159	61.444	0	0	55
23	137	175	65.778	0	13	90
24	94	286	70.278	0	0	64
25	74	271	74.778	0	0	125
26	174	269	79.278	0	0	54
27	160	242	83.778	0	0	183
28	9	182	88.278	0	0	135
29	236	276	93.278	0	0	133
30	30	105	98.278	0	0	142
31	16	93	103.278	0	0	45
32	178	268	108.778	0	0	181
33	134	226	114.278	0	0	146
34	57	205	119.778	0	0	96
35	34	185	125.278	0	0	139
36	196	265	131.278	0	0	107
37	96	232	137.278	0	0	137
38	15	152	143.278	0	0	97
39	37	143	149.278	0	0	75
40	155	282	155.778	0	0	68
41	29	139	162.278	0	0	113
42	27	56	168.778	0	0	91
43	28	255	175.778	0	0	88
44	229	248	182.778	0	0	117
45	16	151	189.778	31	0	61
46	44	127	196.778	0	0	186
47	135	222	204.278	0	0	100
48	7	140	211.778	0	0	156
49	112	141	219.444	15	0	109



50	82	92	227.444	0	0	203
51	149	216	235.833	0	0	103
52	114	119	244.241	18	0	131
53	208	270	252.741	0	0	138
54	122	174	261.574	0	26	173
55	101	121	270.537	22	0	166
56	104	272	279.537	0	0	115
57	129	257	288.537	0	0	158
58	109	252	297.537	0	0	150
59	65	126	306.537	0	0	118
60	13	106	315.537	0	0	102
61	16	287	324.787	45	0	170
62	36	260	334.287	0	0	95
63	85	250	343.787	0	0	133
64	76	94	353.287	0	24	136
65	42	69	362.787	0	0	116
66	168	280	372.787	0	0	154
67	41	108	382.787	0	0	212
68	10	155	392.954	0	40	149
69	88	91	403.120	0	8	114
70	31	71	413.287	0	10	190
71	170	283	423.787	0	0	174
72	89	221	434.787	0	0	182
73	45	146	445.787	0	0	153
74	138	177	457.009	0	0	140
75	37	220	468.343	39	0	128
76	12	51	480.176	16	0	179
77	110	120	492.343	7	0	109
78	203	256	504.731	0	0	204
79	173	227	517.454	0	0	174
80	213	281	530.454	0	0	114
81	136	263	543.454	0	0	178
82	107	172	556.509	0	0	162
83	164	277	570.009	0	0	207
84	86	247	583.509	0	0	144
85	8	212	597.009	0	0	121
86	191	202	610.509	0	0	217
87	3	190	624.009	0	0	167
88	28	75	637.676	43	0	185
89	186	219	651.676	0	0	106
90	137	198	665.843	23	0	148
91	27	117	680.009	42	0	210
92	161	253	694.898	0	0	187
93	63	231	709.898	0	0	147
94	180	214	724.898	0	0	179
95	36	162	740.065	62	0	191
96	57	145	755.231	34	0	183
97	15	235	770.417	38	0	188
98	113	237	785.750	0	19	148
99	192	261	801.250	0	0	214
100	135	240	816.935	47	0	191
101	47	99	832.685	2	6	160
102	13	234	849.019	60	0	165
103	149	258	865.370	51	0	146
104	148	176	881.870	0	0	159
105	73	80	898.370	0	0	147
106	186	264	915.037	89	0	152
107	83	196	931.704	0	36	173
108	166	210	948.704	0	0	126
109	110	112	965.704	77	49	206
110	60	61	982.704	0	0	205
111	184	195	1000.204	0	0	135

112	158	171	1017.704	0	0	168
113	29	142	1035.204	41	0	132
114	88	213	1052.737	69	80	185
115	50	104	1070.404	0	56	172
116	32	42	1088.237	0	65	157
117	46	229	1106.237	14	44	200
118	14	65	1124.570	0	59	175
119	66	233	1143.070	0	0	164
120	38	199	1162.070	0	0	143
121	8	43	1181.637	85	17	196
122	24	68	1201.804	0	9	196
123	67	274	1222.304	0	0	192
124	40	111	1242.804	0	0	204
125	74	188	1263.637	25	0	213
126	5	166	1284.637	0	108	205
127	70	97	1305.637	0	0	165
128	37	206	1326.804	75	0	232
129	124	201	1348.304	0	0	189
130	156	179	1370.489	11	0	203
131	114	116	1392.776	52	0	195
132	29	132	1415.376	113	3	200
133	85	236	1438.126	63	29	184
134	147	244	1461.126	0	0	217
135	9	184	1484.126	28	111	180
136	76	125	1508.626	64	0	161
137	96	189	1533.293	37	0	153
138	2	208	1559.543	12	53	175
139	34	225	1586.043	35	0	218
140	35	138	1612.894	0	74	214
141	194	217	1639.894	0	0	209
142	23	30	1666.894	0	30	186
143	38	207	1694.857	120	0	206
144	86	241	1723.357	84	0	221
145	90	95	1752.080	0	0	208
146	134	149	1780.994	33	103	182
147	63	73	1810.744	93	105	202
148	113	137	1840.768	98	90	194
149	10	100	1871.502	68	1	197
150	109	215	1902.502	58	0	201
151	18	193	1934.002	0	0	171
152	21	186	1965.835	0	106	194
153	45	96	1997.768	73	137	212
154	168	183	2030.435	66	0	257
155	20	223	2063.435	0	0	221
156	7	123	2096.602	48	0	178
157	4	32	2131.018	0	116	225
158	48	129	2166.685	0	57	229
159	54	148	2202.852	0	104	188
160	47	153	2239.316	101	20	228
161	22	76	2276.483	21	136	197
162	87	107	2313.946	0	82	237
163	131	224	2351.446	0	0	193
164	66	259	2390.279	119	0	219
165	13	70	2429.946	102	127	195
166	17	101	2470.594	0	55	202
167	3	78	2511.760	87	0	233
168	53	158	2554.260	0	112	187
169	6	49	2596.760	0	0	242
170	16	59	2640.310	61	0	211
171	18	245	2684.810	151	0	240
172	50	103	2729.644	115	0	215
173	83	122	2775.144	107	54	190

174	170	173	2822.088	71	79	224
175	2	14	2871.005	138	118	241
176	39	251	2922.005	0	0	213
177	19	200	2974.505	0	0	201
178	7	136	3028.438	156	81	211
179	12	180	3083.705	76	94	216
180	9	249	3139.905	135	0	226
181	52	178	3197.071	0	32	225
182	89	134	3254.344	72	146	234
183	57	160	3314.378	96	27	219
184	77	85	3376.328	0	133	234
185	28	88	3439.336	88	114	223
186	23	44	3504.336	142	46	216
187	53	161	3571.136	168	92	229
188	15	54	3638.210	97	159	239
189	72	124	3706.710	0	129	231
190	31	83	3777.210	70	173	223
191	36	135	3847.784	95	100	210
192	64	67	3919.951	0	123	247
193	81	131	3992.451	0	163	222
194	21	113	4066.912	152	148	228
195	13	114	4143.464	165	131	250
196	8	24	4220.148	121	122	215
197	10	22	4296.990	149	161	224
198	25	187	4373.990	0	0	220
199	58	279	4451.990	0	0	230
200	29	46	4530.168	132	117	227
201	19	109	4608.868	177	150	245
202	17	63	4687.799	166	147	246
203	82	156	4772.169	50	130	227
204	40	203	4857.113	124	78	222
205	5	60	4944.113	126	110	230
206	38	110	5038.990	143	109	238
207	164	165	5135.342	83	0	231
208	90	238	5235.360	145	0	233
209	11	194	5339.027	0	141	243
210	27	36	5444.552	91	191	245
211	7	16	5551.952	178	170	251
212	41	45	5661.494	67	153	246
213	39	74	5773.561	176	125	238
214	35	192	5888.476	140	99	236
215	8	50	6003.393	196	172	226
216	12	23	6126.393	179	186	244
217	147	191	6250.643	134	86	236
218	34	130	6380.143	139	0	240
219	57	66	6514.359	183	164	235
220	25	262	6650.026	198	0	256
221	20	86	6789.026	155	144	235
222	40	81	6949.764	204	193	237
223	28	31	7111.634	185	190	232
224	10	170	7277.684	197	174	239
225	4	52	7459.839	157	181	244
226	8	9	7642.002	215	180	247
227	29	82	7824.462	200	203	250
228	21	47	8009.763	194	160	248
229	48	53	8197.838	158	187	254
230	5	58	8388.981	205	199	242
231	72	164	8581.944	189	207	253
232	28	37	8774.984	223	128	258
233	3	90	8972.336	167	208	254
234	77	89	9171.060	184	182	241
235	20	57	9382.463	221	219	257

236	35	147	9614.731	214	217	255
237	40	87	9869.707	222	162	243
238	38	39	10130.785	206	213	253
239	10	15	10425.453	224	188	252
240	18	34	10729.953	171	218	258
241	2	77	11044.075	175	234	261
242	5	6	11361.099	230	169	249
243	11	40	11697.494	209	237	259
244	4	12	12037.028	225	216	249
245	19	27	12388.719	201	210	256
246	17	41	12766.555	202	212	260
247	8	64	13149.808	226	192	255
248	21	150	13540.133	228	0	252
249	4	5	14040.953	244	242	263
250	13	29	14555.743	195	227	251
251	7	13	15181.085	211	250	264
252	10	21	15840.583	239	248	266
253	38	72	16533.695	238	231	262
254	3	48	17235.188	233	229	259
255	8	35	17946.845	247	236	265
256	19	25	18711.206	245	220	261
257	20	168	19581.135	235	154	262
258	18	28	20479.147	240	232	260
259	3	11	21414.514	254	243	266
260	17	18	22777.642	246	258	264
261	2	19	24315.617	241	256	263
262	20	38	25882.857	257	253	267
263	2	4	28219.909	261	249	267
264	7	17	30815.261	251	260	265
265	7	8	33841.574	264	255	269
266	3	10	37329.572	259	252	268
267	2	20	41151.104	263	262	268
268	2	3	49182.864	267	266	269
269	2	7	69275.667	268	265	0

### Cluster Membership

Case	6 Clusters	5 Clusters	4 Clusters	3 Clusters
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6	1	1	1	1
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8	4	3	3	3
9	4	3	3	3
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12	1	1	1	1
13	3	3	3	3
14	1	1	1	1
15	5	4	2	2
16	3	3	3	3
17	3	3	3	3
18	3	3	3	3
19	1	1	1	1
20	6	5	4	1
21	5	4	2	2
22	5	4	2	2

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24	4	3	3	3
25	1	1	1	1
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39	6	5	4	1
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46	3	3	3	3
47	5	4	2	2
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50	4	3	3	3
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52	1	1	1	1
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54	5	4	2	2
56	1	1	1	1
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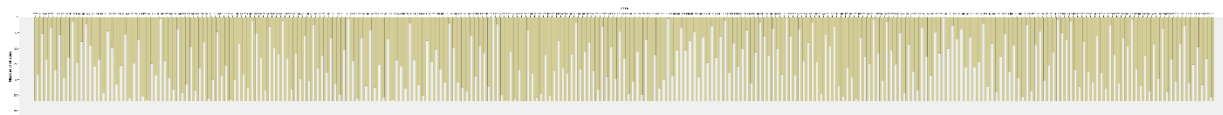
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287 | 3 | 3 | 3 | 3



FREQUENCIES VARIABLES=CLU5\_1 CLU4\_1 CLU3\_1 CLU6\_1 /ORDER=ANALYSIS.

## Frequencies

### Notes

Output Created		18-APR-2016 12:03:21
Comments		
Input	Data	C:\Users\DnoOosh\Downloads\HumorS upp012811Dania.sav
	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	288
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.
Syntax		FREQUENCIES VARIABLES=CLU5_1 CLU4_1 CLU3_1 CLU6_1 /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.06

### Statistics

		Ward Method	Ward Method	Ward Method	Ward Method
N	Valid	270	270	270	270
	Missing	18	18	18	18

## Frequency Table

### Ward Method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	62	21.5	23.0	23.0
	2	27	9.4	10.0	33.0
	3	105	36.5	38.9	71.9
	4	40	13.9	14.8	86.7

	5	36	12.5	13.3	100.0
	Total	270	93.8	100.0	
Missing	System	18	6.3		
Total		288	100.0		

**Ward Method**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	62	21.5	23.0	23.0
	2	67	23.3	24.8	47.8
	3	105	36.5	38.9	86.7
	4	36	12.5	13.3	100.0
	Total	270	93.8	100.0	
Missing	System	18	6.3		
Total		288	100.0		

**Ward Method**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	98	34.0	36.3	36.3
	2	67	23.3	24.8	61.1
	3	105	36.5	38.9	100.0
	Total	270	93.8	100.0	
Missing	System	18	6.3		

Total	288	100.0		
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**Ward Method**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	62	21.5	23.0	23.0
	2	27	9.4	10.0	33.0
	3	76	26.4	28.1	61.1
	4	29	10.1	10.7	71.9
	5	40	13.9	14.8	86.7
	6	36	12.5	13.3	100.0
Total		270	93.8	100.0	
Missing	System	18	6.3		
Total		288	100.0		

## Means Using 6 Cluster Groups

MEANS TABLES=B2 G4 Nonwhite G1R G9 F1 F2 F3 F4 F5 F6 F7 F8 F9 Disparagement Dark Incongruity

SocialCurrency BY CLU6\_1 /CELLS=MEAN COUNT STDDEV /STATISTICS ANOVA.

## Means

### Notes

Output Created		18-APR-2016 12:03:39
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	Active Dataset	DataSet2
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	288
Missing Value Handling	Definition of Missing	For each dependent variable in a table, user-defined missing values for the dependent and all grouping variables are treated as missing.
	Cases Used	Cases used for each table have no missing values in any independent variable, and not all dependent variables have missing values.
Syntax		MEANS TABLES=B2 G4 Nonwhite G1R G9 F1 F2 F3 F4 F5 F6 F7 F8 F9 Disparagement Dark Incongruity SocialCurrency BY CLU6_1 /CELLS=MEAN COUNT STDDEV /STATISTICS ANOVA.
Resources	Processor Time	00:00:00.14
	Elapsed Time	00:00:00.20

### Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
B2. I believe that O.J. Simpson is innocent of murder. * Ward Method	269	93.4%	19	6.6%	288	100.0%

G4. Which of the following categories best describes your political philosophy? * Ward Method	208	72.2%	80	27.8%	288	100.0%
White = 0, Nonwhite = 1 * Ward Method	226	78.5%	62	21.5%	288	100.0%
G1dummy * Ward Method	236	81.9%	52	18.1%	288	100.0%
G9. What is your annual household income? * Ward Method	236	81.9%	52	18.1%	288	100.0%
F1. Equality (equal opportunity for all) * Ward Method	236	81.9%	52	18.1%	288	100.0%
F2. Inner Harmony (at peace with myself) * Ward Method	234	81.3%	54	18.8%	288	100.0%
F3. Social Power (control over others, dominance) * Ward Method	232	80.6%	56	19.4%	288	100.0%
F4. Pleasure (gratification of desires) * Ward Method	234	81.3%	54	18.8%	288	100.0%
F5. Freedom (freedom of action and thought) * Ward Method	230	79.9%	58	20.1%	288	100.0%
F6. A Spiritual Life (emphasis on spiritual not material matters) * Ward Method	234	81.3%	54	18.8%	288	100.0%
F7. Sense of Belonging (feeling that others care about me) * Ward Method	234	81.3%	54	18.8%	288	100.0%
F8. Social Order (stability of society) * Ward Method	232	80.6%	56	19.4%	288	100.0%
F9. An Exciting Life (stimulating experiences) * Ward Method	236	81.9%	52	18.1%	288	100.0%
COMPUTE						
Disparagement=Mean(c7,c21,c30,c46)*4 * Ward Method	270	93.8%	18	6.3%	288	100.0%
COMPUTE						
Dark=Mean(c12,c41,c50,c53)*4 * Ward Method	270	93.8%	18	6.3%	288	100.0%

COMPUTE Incongruity=Mean(c10,c32,c38,c47)*4 * Ward Method	270	93.8%	18	6.3%	288	100.0%
COMPUTE SocialCurrency=Mean(c64,c65,c66,c67)*4 * Ward Method	270	93.8%	18	6.3%	288	100.0%

### Report

Ward Method		B2. I believe that O.J. Simpson is innocent of murder.	G4. Which of the following categories best describes your political philosophy?	White = 0, Nonwhite = 1	G1dummy	G9. What is your annual household income?
1	Mean	2.81	3.60	.2917	.71	2.92
	N	62	47	48	52	52
	Std. Deviation	2.775	.970	.45934	.457	1.619
2	Mean	3.30	3.10	.5000	.71	2.50
	N	27	21	22	24	24
	Std. Deviation	2.998	1.261	.51177	.464	1.414
3	Mean	2.50	3.41	.2462	.49	2.54
	N	76	59	65	67	67
	Std. Deviation	2.960	1.219	.43412	.504	1.521
4	Mean	2.66	3.33	.2308	.42	2.54
	N	29	21	26	26	26
	Std. Deviation	2.208	1.461	.42967	.504	1.581
5	Mean	2.77	3.50	.3333	.55	2.19
	N	39	26	30	31	31
	Std. Deviation	2.465	.990	.47946	.506	1.424
6	Mean	1.72	3.26	.2857	.44	3.03
	N	36	34	35	36	36
	Std. Deviation	2.468	.963	.45835	.504	1.540
Total	Mean	2.60	3.40	.2965	.56	2.65
	N	269	208	226	236	236

Std. Deviation	2.723	1.129	.45771	.498	1.538
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**Report**

Ward Method		F1. Equality (equal opportunity for all)	F2. Inner Harmony (at peace with myself)	F3. Social Power (control over others, dominance)	F4. Pleasure (gratification of desires)
1	Mean	6.27	6.13	2.48	5.52
	N	52	52	52	52
	Std. Deviation	1.523	1.358	2.493	1.475
2	Mean	6.62	6.58	1.96	5.21
	N	24	24	24	24
	Std. Deviation	.770	.881	2.836	1.382
3	Mean	5.76	6.06	2.85	5.17
	N	67	66	66	66
	Std. Deviation	1.426	1.357	2.179	1.651
4	Mean	6.00	6.35	3.68	5.85
	N	26	26	25	26
	Std. Deviation	1.897	1.093	2.911	1.666
5	Mean	5.10	5.27	3.83	5.19
	N	31	30	30	31
	Std. Deviation	1.739	1.172	1.931	1.302
6	Mean	6.25	6.44	3.03	5.86
	N	36	36	35	35
	Std. Deviation	1.105	1.027	2.395	1.115
Total	Mean	5.97	6.12	2.92	5.43
	N	236	234	232	234
	Std. Deviation	1.507	1.261	2.453	1.484

**Report**



Ward Method		F5. Freedom (freedom of action and thought)	F6. A Spiritual Life (emphasis on spiritual not material matters)	F7. Sense of Belonging (feeling that others care about me)	F8. Social Order (stability of society)
1	Mean	6.35	5.27	6.08	5.57
	N	51	52	52	49
	Std. Deviation	1.074	2.179	1.311	1.594
2	Mean	6.17	5.54	5.50	5.54
	N	23	24	24	24
	Std. Deviation	1.230	1.865	1.588	1.719
3	Mean	6.18	4.26	5.30	4.72
	N	66	66	67	67
	Std. Deviation	1.323	2.458	1.946	1.722
4	Mean	6.52	4.96	6.08	5.73
	N	25	26	26	26
	Std. Deviation	.823	2.358	1.412	1.373
5	Mean	5.37	4.27	5.10	4.61
	N	30	30	29	31
	Std. Deviation	1.752	1.780	1.345	1.745
6	Mean	6.46	4.03	6.08	5.74
	N	35	36	36	35
	Std. Deviation	1.094	2.513	1.025	1.268
Total	Mean	6.19	4.66	5.68	5.24
	N	230	234	234	232
	Std. Deviation	1.284	2.304	1.566	1.654

### Report

Ward Method		F9. An Exciting Life (stimulating experiences)	COMPUTE Disparagement=Mean(c7,c21,c30,c46)*4	COMPUTE Dark=Mean(c12,c41,c50,c53)*4	COMPUTE Incongruity=Mean(c10,c32,c38,c47)*4
1	Mean	5.90	17.9516	12.4892	28.6667
	N	52	62	62	62

	Std. Deviation	1.472	5.56755	7.21255	6.09159
2	Mean	5.54	10.1481	5.3457	20.2963
	N	24	27	27	27
	Std. Deviation	1.769	6.11243	4.25419	7.12125
3	Mean	5.76	29.1842	21.8596	29.7456
	N	67	76	76	76
	Std. Deviation	1.394	4.70095	5.47351	5.76448
4	Mean	6.12	32.2989	31.6552	32.5862
	N	26	29	29	29
	Std. Deviation	1.505	5.71294	3.80109	3.55083
5	Mean	5.13	18.7500	16.9167	23.1250
	N	31	40	40	40
	Std. Deviation	1.432	4.03669	3.03329	3.93660
6	Mean	6.03	28.8148	11.0926	21.8333
	N	36	36	36	36
	Std. Deviation	1.276	4.74455	5.56555	6.66976
Total	Mean	5.77	23.4407	16.9407	26.8222
	N	236	270	270	270
	Std. Deviation	1.468	8.66521	9.03235	6.95317

### Report

Ward Method		COMPUTE SocialCurrency=Mean(c64,c65,c66,c67)*4
1	Mean	32.6774
	N	62
	Std. Deviation	4.74868
2	Mean	20.8765
	N	27
	Std. Deviation	5.52163
3	Mean	27.9298
	N	76
	Std. Deviation	5.79970

4	Mean	33.4483
	N	29
	Std. Deviation	4.94676
5	Mean	20.1667
	N	40
	Std. Deviation	4.47977
6	Mean	31.6111
	N	36
	Std. Deviation	6.48637
Total	Mean	28.2481
	N	270
	Std. Deviation	7.24668

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
B2. I believe that O.J. Simpson is innocent of murder. * Ward Method	Between Groups	(Combined )	45.435	5	9.087	1.231	.295
	Within Groups		1941.004	263	7.380		
	Total		1986.439	268			
G4. Which of the following categories best describes your political philosophy? * Ward Method	Between Groups	(Combined )	4.730	5	.946	.737	.596
	Within Groups		259.150	202	1.283		
	Total		263.880	207			
White = 0, Nonwhite = 1 * Ward Method	Between Groups	(Combined )	1.234	5	.247	1.183	.318
	Within Groups		45.903	220	.209		
	Total		47.137	225			

G1dummy * Ward Method	Between Groups	(Combined )	2.994	5	.599	2.491	.032
	Within Groups		55.290	230	.240		
	Total		58.284	235			
G9. What is your annual household income? * Ward Method	Between Groups	(Combined )	17.188	5	3.438	1.468	.201
	Within Groups		538.621	230	2.342		
	Total		555.809	235			
F1. Equality (equal opportunity for all) * Ward Method	Between Groups	(Combined )	44.353	5	8.871	4.168	.001
	Within Groups		489.495	230	2.128		
	Total		533.847	235			
F2. Inner Harmony (at peace with myself) * Ward Method	Between Groups	(Combined )	32.361	5	6.472	4.362	.001
	Within Groups		338.289	228	1.484		
	Total		370.650	233			
F3. Social Power (control over others, dominance) * Ward Method	Between Groups	(Combined )	72.442	5	14.488	2.486	.032
	Within Groups		1317.002	226	5.827		
	Total		1389.444	231			
F4. Pleasure (gratification of desires) * Ward Method	Between Groups	(Combined )	18.791	5	3.758	1.732	.128
	Within Groups		494.615	228	2.169		
	Total		513.406	233			
F5. Freedom (freedom of action and thought) * Ward Method	Between Groups	(Combined )	26.921	5	5.384	3.439	.005
	Within Groups		350.662	224	1.565		
	Total		377.583	229			

F6. A Spiritual Life (emphasis on spiritual not material matters) * Ward Method	Between Groups	(Combined )	70.039	5	14.008	2.738	.020
	Within Groups		1166.611	228	5.117		
	Total		1236.650	233			
F7. Sense of Belonging (feeling that others care about me) * Ward Method	Between Groups	(Combined )	38.308	5	7.662	3.277	.007
	Within Groups		533.008	228	2.338		
	Total		571.316	233			
F8. Social Order (stability of society) * Ward Method	Between Groups	(Combined )	53.235	5	10.647	4.158	.001
	Within Groups		578.726	226	2.561		
	Total		631.961	231			
F9. An Exciting Life (stimulating experiences) * Ward Method	Between Groups	(Combined )	20.416	5	4.083	1.933	.090
	Within Groups		485.767	230	2.112		
	Total		506.182	235			
COMPUTE Disparagement=Mean( c7,c21,c30,c46)*4 * Ward Method	Between Groups	(Combined )	13341.193	5	2668.239	102.731	.000
	Within Groups		6856.914	264	25.973		
	Total		20198.107	269			
COMPUTE Dark=Mean(c12,c41,c5 0,c53)*4 * Ward Method	Between Groups	(Combined )	14207.650	5	2841.530	96.942	.000
	Within Groups		7738.290	264	29.312		
	Total		21945.941	269			
COMPUTE Incongruity=Mean(c10, c32,c38,c47)*4 * Ward Method	Between Groups	(Combined )	4416.568	5	883.314	27.151	.000
	Within Groups		8588.677	264	32.533		
	Total		13005.244	269			

COMPUTE	Between	(Combined	6494.995	5	1298.999	44.938	.000
SocialCurrency=Mean(	Groups	)					
c64,c65,c66,c67)*4 *							
Ward Method	Within Groups		7631.379	264	28.907		
	Total		14126.374	269			

### Measures of Association

	Eta	Eta Squared
B2. I believe that O.J. Simpson is innocent of murder. * Ward Method	.151	.023
G4. Which of the following categories best describes your political philosophy? * Ward Method	.134	.018
White = 0, Nonwhite = 1 * Ward Method	.162	.026
G1dummy * Ward Method	.227	.051
G9. What is your annual household income? * Ward Method	.176	.031
F1. Equality (equal opportunity for all) * Ward Method	.288	.083
F2. Inner Harmony (at peace with myself) * Ward Method	.295	.087
F3. Social Power (control over others, dominance) * Ward Method	.228	.052
F4. Pleasure (gratification of desires) * Ward Method	.191	.037

F5. Freedom (freedom of action and thought) * Ward Method	.267	.071
F6. A Spiritual Life (emphasis on spiritual not material matters) * Ward Method	.238	.057
F7. Sense of Belonging (feeling that others care about me) * Ward Method	.259	.067
F8. Social Order (stability of society) * Ward Method	.290	.084
F9. An Exciting Life (stimulating experiences) * Ward Method	.201	.040
COMPUTE Disparagement=Mean(c7,c21,c30,c46)*4 * Ward Method	.813	.661
COMPUTE Dark=Mean(c12,c41,c50,c53)*4 * Ward Method	.805	.647
COMPUTE Incongruity=Mean(c10,c32,c38,c47)*4 * Ward Method	.583	.340
COMPUTE SocialCurrency=Mean(c64,c65,c66,c67)*4 * Ward Method	.678	.460

## IV. Tabling Results.

Table 1. Cluster Profiling

Cluster Name (Cluster6)	Peace-social	Un-engaged	Middling	Highly humored	Morbid	Good-humored	Total	F	Sig.
Variables	1 (62)	2(27)	3 (76)	4(29)	5(40)	6(36)	270		
<b>4 total Internal Variables</b>									
Disparagement = (c7,c21,c30,c46)	17.95	10.15	29.18	32.30	18.75	28.81	23.44	102.73	<.001
Dark = (c12,c41,c50,c53)	12.49	5.35	21.86	31.66	16.92	11.09	16.94	96.94	<.001
Incongruity= (c10,c32,c38,c47)	28.67	20.30	29.75	32.59	23.12	21.83	26.82	27.15	<.001
Social Currency= (c64, c65, c66, c67).	32.68	20.88	27.93	33.45	20.17	31.61	28.25	44.94	<.001
<b>14 total External Variables</b>									
B2. I believe that O.J. Simpson is innocent of murder.	2.81	3.30	2.50	2.66	2.77	1.72	2.60	1.23	.295
G4. Which of the following categories best describes your political philosophy?	3.60	3.10	3.41	3.33	3.50	3.26	3.40	.74	.596
Nonwhite: White= 0, Nonwhite = 1	.29	.50	.25	.23	.33	.28	.30	1.18	.318
G9. What is your annual household income?	2.92	2.50	2.54	2.54	2.19	3.03	2.65	1.47	.201
G1: Male = 0, Female = 1	.71	.71	.49	.42	.55	.44	.56	2.49	.032
F1. Equality (equal opportunity for all)	6.27	6.62	5.76	6.00	5.10	6.25	5.97	4.17	.001
F2. Inner Harmony (at peace with myself)	6.13	6.58	6.06	6.35	5.27	6.44	6.12	4.36	.001
F3. Social Power (control over others, dominance)	2.48	1.96	2.85	3.68	3.83	3.03	2.92	2.49	.032
F4. Pleasure (gratification of desires)	5.52	5.21	5.17	5.85	5.19	5.86	5.43	1.73	.128
F5. Freedom (freedom of action and thought)	6.35	6.17	6.18	6.52	5.37	6.46	6.19	3.44	.005
F6. A Spiritual Life (emphasis on spiritual not material matters)	5.27	5.54	4.26	4.96	4.27	4.03	4.66	2.74	.020
F7. Sense of Belonging (feeling that others care about me)	6.08	5.50	5.30	6.08	5.10	6.08	5.68	3.28	.007
F8. Social Order (stability of society)	5.57	5.54	4.72	5.73	4.61	5.74	5.24	4.16	.001
F9. An Exciting Life (stimulating experiences).	5.90	5.54	5.76	6.12	5.13	6.03	5.77	1.93	.090

Note. Post hoc tests were not run, so differences in means across the six clusters should be interpreted with caution.



## V. Write-up

The Humor & Public Opinions Survey data set (Neuendorf & Skalski, with Atkin & Jeffres) was chosen for cluster analysis using 270 cases from which four (4) internal or independent variables (sense of humor scales) were selected based on anticipated associations with 14 external variables which include: Nonwhite, femaleness, B2. I believe that O.J. Simpson is innocent of murder, household income, and nine items from the Schwartz values scale: F1. Equality (equal opportunity for all), F2. Inner Harmony (at peace with myself), F3. Social Power (control over others, dominance), F4. Pleasure (gratification of desires), F5. Freedom (freedom of action and thought), F6. A Spiritual Life (emphasis on spiritual not material matters), F7. Sense of Belonging (feeling that others care about me), F8. Social Order (stability of society), and F9. An Exciting Life (stimulating experiences).

The internal variables included the four sense of humor scales: 1. Disparagement Subscale: (C7, C21, C30, C46), 2. Dark Humor Subscale: (C12, C41, C50, C53), 3. Incongruity Subscale: (C10, C32, C38, C47), and 4. Social Currency Subscale: (C64, C65, C66, C67). A hierarchical agglomerative cluster analysis was performed to discover the natural grouping of the participants. A six cluster solution was chosen using Ward's Method (with squared Euclidian distances). The choice of six clusters was supported by examination of changes in the agglomeration coefficients from the agglomeration table. Dendrogram and icicle plots were run to give a visual representation of the data clusters. MEANS with ANOVA analyses were conducted (a) to examine the cluster sizes to make sure all clusters had a reasonable  $n$ , and (b) to examine the differences among the six clusters with regard to all four internal variables. As expected, all were significantly different among the six clusters. The six clusters have been

named: "Peace-social," "Unengaged," "Middling," "Highly humored," "Morbid," and "Good-humored" based on the levels of the internal variables for the six cluster groupings (see Table 1).

To further profile the six clusters, a complementary set of ANOVA analyses was conducted to test the significance of the differences among the four clusters against fourteen (14) demographic/external variables that included: G1. 1=Female and 0 = Male, Nonwhite: recoded as 0=White and 1= Nonwhite, B2. I believe that O.J. Simpson is innocent of murder, G4. Which of the following categories best describes your political philosophy? (1=strong conservative, 5=strong liberal), G9. What is your annual household income?, and responses to nine values items--F1. Equality (equal opportunity for all), F2. Inner Harmony (at peace with myself), F3. Social Power (control over others, dominance), F4. Pleasure (gratification of desires), F5. Freedom (freedom of action and thought), F6. A Spiritual Life (emphasis on spiritual not material matters), F7. Sense of Belonging (feeling that others care about me), F8. Social Order (stability of society), and F9. An Exciting Life (stimulating experiences). All four of the internal variables showed highly significant differences across the six clusters ( $p<.001$ ). Of the external variables, femaleness and eight of the nine values measures all showed significant differences ( $p<.05$ ) across the six clusters. The only values item that was not significant across the clusters was F4. Pleasure.

Cluster 1 ( $n=62$ ) is labeled "Peace-social" because of high means for incongruity sense of humor and social currency sense of humor. This cluster tends to be female and is characterized by high value of equality, freedom, spiritual life, belonging, social order, and an exciting life. Cluster 2 ( $n=27$ ) is labeled "Unengaged" with low means for all sense of humor scales: disparagement, dark humor, incongruity, and social currency. This cluster also tends to be female, and is characterized highly by the value of equality, inner harmony, and spiritual life,

and have low value of social power. Cluster 3, "Middling," consists of seventy six participants who have moderately high sense of disparagement sense of humor, dark humor, incongruity humor and identified themselves with average/moderate social currency sense of humor. This cluster is characterized as being very close to the overall mean on most values scores (and a little low on social order), and tend to be male. Cluster 4 ( $n=29$ ), "Highly humored," reported high means across all four sense of humor (internal variables). In addition, cluster 4 is characterized highly by the value of social power, freedom, spiritual life, belonging, social order, and an exciting life. Cluster 5 ( $n=40$ ), is labeled "Morbid" with low means for disparagement sense of humor, incongruity and social currency and reported an average mean for dark humor. This cluster is characterized as having high means for F3. Social Power (control over others, dominance) and tend to be more female also with low means for equality, inner harmony, freedom, spiritual life, belonging, social order, and an exciting life. Finally, Cluster 6 ( $n=36$ ), is labeled "good-humored" because of high means for disparagement sense of humor and social currency. Further, this last cluster tend to be male and characterized highly by equality, inner harmony, freedom, belonging, social order, and an exciting life.