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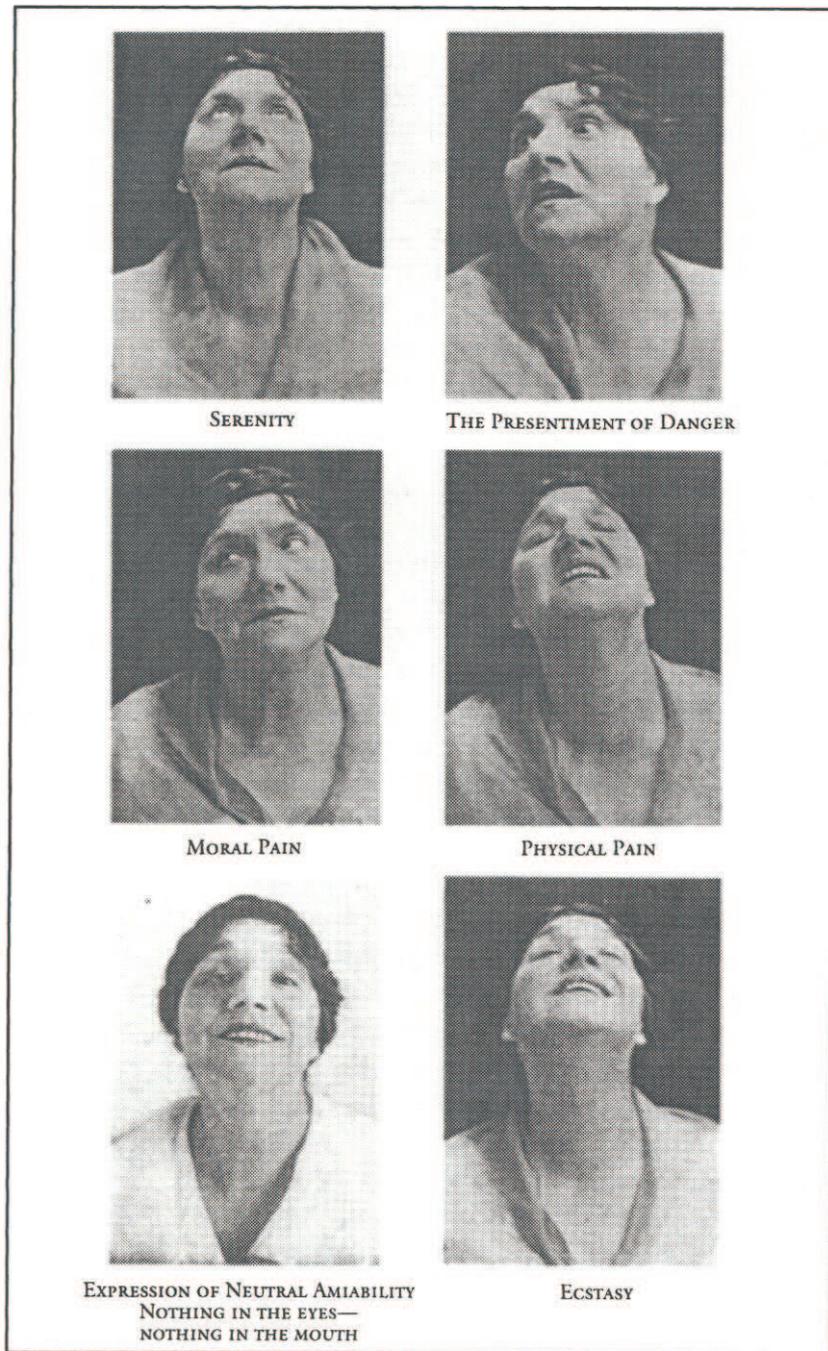
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If I imitate Guilbert and make my face Serene, Gray, or Neutrally Amiable, will I have introduced new desires, or will I have restaged the old ones?

Figure 1: From Yvette Guilbert's *How to Sing a Song*

Number and Description	PU	AR	TS
1 Pleasant surprise	8.1	8.1	7.2
2 On plane – growing anxiety*	3.8	6.8	4.5
3 Savoring Coca-Cola (“candid” shot)	4.9	4.6	4.7
4 Anticipation of refreshing drink	6.4	6.6	5.8
5 On plane – increasing anxiety*	3.0	4.6	3.7
6 On plane which is starting to fall*	1.3	8.6	8.6
[7] Grief – mother has just died of cancer	3.8	4.2	4.1
8 Strain – pulling at finger tips	6.6	6.7	6.6
9 Extreme pain	3.9	3.0	3.3
10 Anger at dog beating	1.3	8.8	8.9
11 Intense anger – during heated argument	2.2	7.1	7.7
12 Disdain	4.4	3.8	3.1
[13] Savoring drink (Coca-Cola)	5.9	5.4	4.8
14 Repose after anger	6.9	6.0	5.0
[15] Very pleasant surprise (told she is going to get lead in play)	8.8	7.8	7.1
[16] Maternal love – newly adopted baby in arms	7.0	5.9	4.0
17 Pleasant surprise	5.7	4.7	4.5
18 laughter at joke (“candid” shot)	8.5	7.9	7.4
19 Very pleasant surprise	8.7	8.9	8.9
[20] Physical exhaustion	3.3	2.5	3.1
21 Mild anger – being kept waiting	3.7	3.8	3.4
22 Intense anger – argument with play director	2.2	5.8	7.1
24 Alerted – senses something wrong with plane she is in*	4.3	4.6	4.9
26 Watching her baby	6.1	5.8	5.4
[28] Beginning of anxiety – see smoking plane engine*	3.5	6.1	6.8
[29] Anger at seeing dog beaten	2.1	8.0	8.2
[30] Physical strain – pulling very hard on seat of chair	6.7	4.2	6.6
[32] Unexpected meeting with old boy friend of whom she is still fond	7.4	6.8	5.9
33 Mild physical discomfort	4.5	3.4	3.2
35 Response to amusing story	8.2	7.6	6.9
[36] Revulsion – seeing the face of a woman covered with sores	2.9	3.0	5.1
[37] Extreme pain – lancing boil	2.2	2.2	6.4

38 Chiding boy friend	5.9	5.7	4.6
39 Photographer teasing	8.8	8.0	7.8
41 Revulsion – seeing a cat mangled by a car	3.6	3.3	4.2
42 Looking up at lover	6.1	6.2	5.1
43 Mild anger	6.3	6.1	5.0
45 Beginning of anxiety*	4.1	4.2	3.4
46 Receiving posthumous war medal awarded to husband	4.9	4.8	4.2
47 Strong anger – at dog beaten	2.6	6.3	7.2
48 Pleasant surprise	6.9	6.8	5.8
49 Physical exhaustion	4.0	3.0	2.2
50 Desire to adopt child	6.3	6.1	4.9
[51] Knowledge that plane she is on will crash any moment*	1.1	8.6	8.9
52 Disgust	2.3	2.4	4.2
54 Pain – having boil lanced	3.8	2.9	3.6
55 Very pleasant surprise – told she will be on magazine cover	8.1	8.1	7.7
[56] Light sleep on airplane*	4.1	1.3	1.0

These 48 pictures were rated by 96 students in the introductory course at Brown University. The pictures marked with an asterisk (*) were taken during an imagined sequence which started with the girl dozing in a plane (56), continued as she was alerted by a noise (45), showed her in a state of gradually building fear as she realized the danger of a crash (5,2,24,6,28), and ended as she screamed (51) just as the plane crashed.

The numbers in brackets are the faces used in the Abelson-Sermat experiment, and are numbered in (the same) order from 1 to 13.

PU: Pleasant/Unpleasant; AR: Attention/Rejection; TS: Tension/Sleep

Table 1: Proximities (Dissimilarities) for Faces

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	0.00	4.05	8.25	5.57	1.15	2.97	4.34	4.90	6.25	1.55	1.68	6.57	3.93
2	4.05	0.00	2.54	2.69	2.67	3.88	8.53	1.31	1.88	4.84	5.81	7.43	4.51
3	8.25	2.54	0.00	2.11	8.98	9.27	11.87	2.56	0.74	9.25	7.92	8.30	8.47
4	5.57	2.69	2.11	0.00	3.78	6.05	9.78	4.21	0.45	4.92	5.42	8.93	3.48
5	1.15	2.67	8.98	3.78	0.00	2.34	7.12	5.90	4.77	2.22	4.34	8.16	1.60
6	2.97	3.88	9.27	6.05	2.34	0.00	1.36	5.18	5.45	4.17	4.72	4.66	4.89
7	4.34	8.53	11.87	9.78	7.12	1.36	0.00	8.47	10.20	5.44	4.31	1.57	9.18
8	4.90	1.31	2.56	4.21	5.90	5.18	8.47	0.00	2.63	5.45	3.79	6.49	6.05
9	6.25	1.88	0.74	0.45	4.77	5.45	10.20	2.63	0.00	7.10	6.58	9.77	6.55
10	1.55	4.84	9.25	4.92	2.22	4.17	5.44	5.45	7.10	0.00	1.98	4.93	4.12
11	1.68	5.81	7.92	5.42	4.34	4.72	4.31	3.79	6.58	1.98	0.00	4.83	3.51
12	6.57	7.43	8.30	8.93	8.16	4.66	1.57	6.49	9.77	4.93	4.83	0.00	12.65
13	3.93	4.51	8.47	3.48	1.60	4.89	9.18	6.05	6.55	4.12	3.51	12.65	0.00

Original data from Abelson & Sermat, *JEP*, 1962, 546–554 — based on (transformed) averages over 30 subjects (originally) judging all pairs on a 9-point scale as to a difference in emotional expression or content.

Legend:

- 1: [7] Grief at death of mother
- 2: [13] Savoring a coke
- 3: [15] Very pleasant surprise
- 4: [16] Maternal love — baby in arms
- 5: [20] Physical exhaustion
- 6: [23] Something wrong with plane
- 7: [29] Anger seeing dog beaten
- 8: [30] Pulling hard on seat of chair
- 9: [32] Unexpectedly meets old boyfriend
- 10: [36] Revulsion
- 11: [37] Extreme pain
- 12: [51] Knows plane will crash
- 13: [56] Light sleep

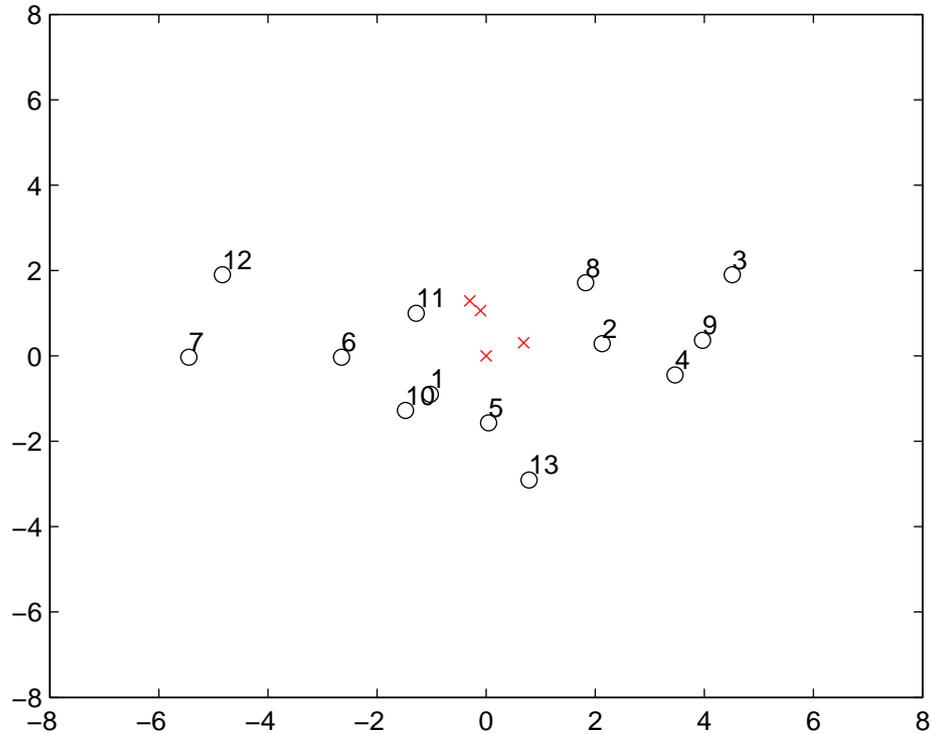


Figure 2: City-Block Scaling

The coordinates for the embedded properties are indicated by x's: (0,0) and (.69,.31) for PU; (-.10,1.06) for AR; (-.30,1.29) for TS.

Squared correlations (variances-accounted-for) as lines embedded in the City-Block configuration: PU (90.0%); AR (42.2%); TS (90.0%).

Axis one correlation to PU (.93); AR (-.11); TS (-.40); axis two correlation to PU (.23); AR (.64); TS (.84)

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

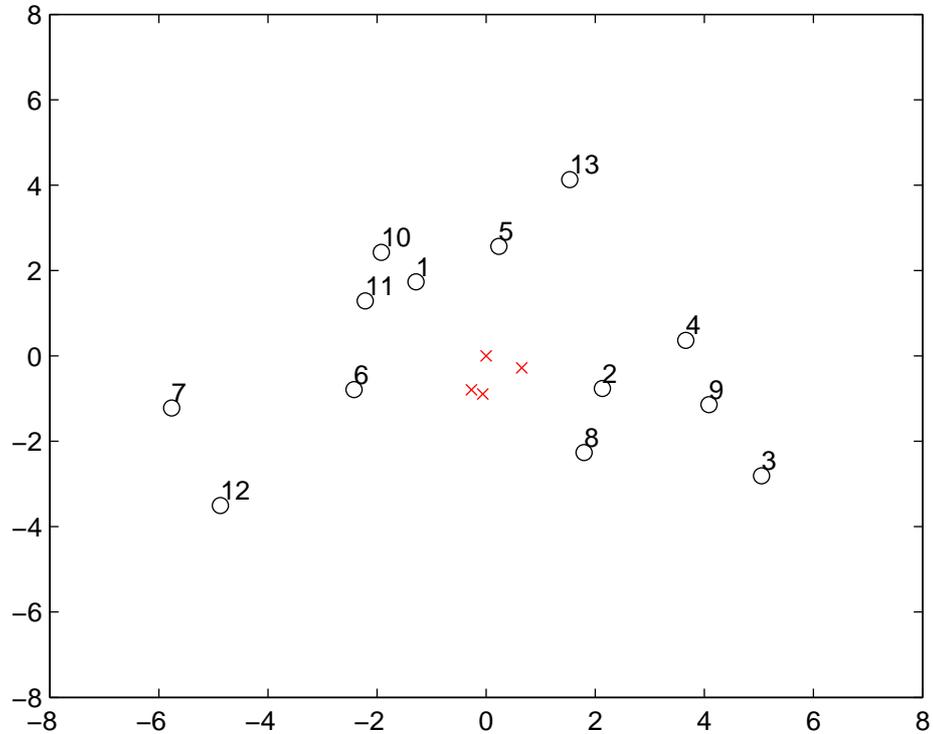


Figure 3: Euclidean Scaling

The coordinates for the embedded properties are indicated by x's: (0,0) and (.65,-.28) for PU; (-.06,-.89) for AR; (-.27,-.80) for TS.

Squared correlations (variances-accounted-for) as lines embedded in the City-Block configuration: PU (94.1%); AR (75.7%); TS (90.0%).

Axis one correlation to PU (-.93); AR (.09); TS (.42); axis two correlation to PU (-.27); AR (-.86); TS (-.85)

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

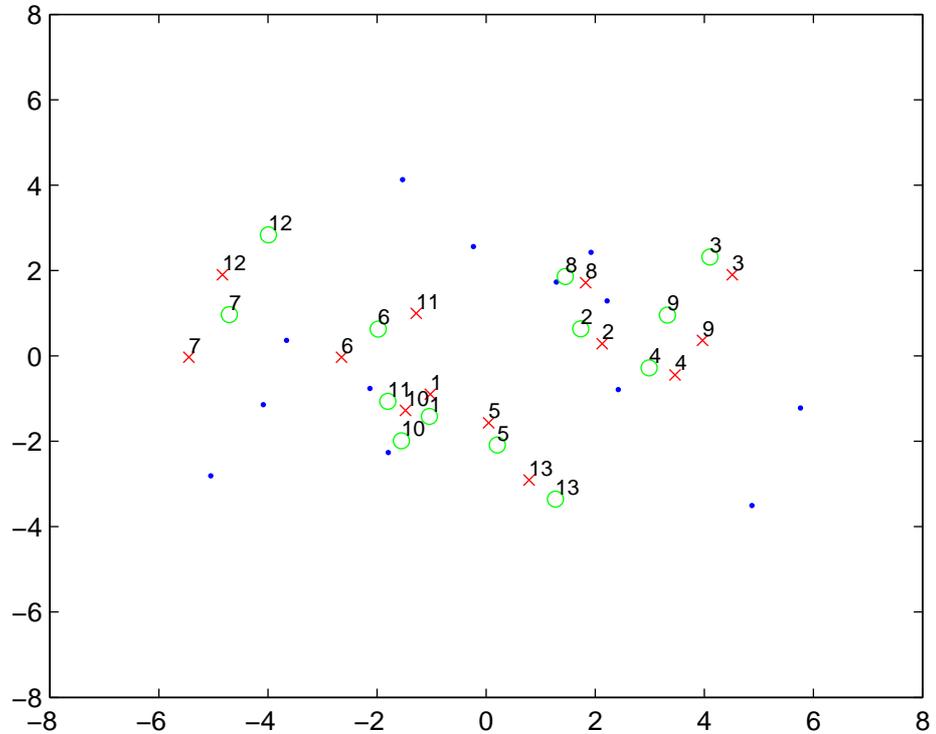


Figure 4: Comparison of City-Block and Euclidean Scaling

City-Block coordinates are 'x'; Euclidean coordinates are '.'; transformed Euclidean coordinates to the City-Block target are 'o'.

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

Partition Hierarchy	Level Formed
{9,4,3,2,8,13,5,11,10,1,6,12,7}	7.42
{9,4,3,2,8,13,5,11,10,1,6},{12,7}	5.84
{9,4,3,2,8},{13,5,11,10,1,6},{12,7}	3.82
{9,4,3,2,8},{13,5,11,10,1},{6},{12,7}	3.21
{9,4,3,2,8},{13,5},{11,10,1},{6},{12,7}	2.75
{9,4,3},{2,8},{13,5},{11,10,1},{6},{12,7}	1.83
{9,4,3},{2,8},{13,5},{11},{10,1},{6},{12,7}	1.60
{9,4,3},{2,8},{13},{5},{11},{10,1},{6},{12,7}	1.57
{9,4,3},{2,8},{13},{5},{11},{10,1},{6},{12},{7}	1.55
{9,4,3},{2,8},{13},{5},{11},{10},{1},{6},{12},{7}	1.43
{9,4},{3},{2,8},{13},{5},{11},{10},{1},{6},{12},{7}	1.31
{9,4},{3},{2},{8},{13},{5},{11},{10},{1},{6},{12},{7}	.45
{9},{4},{3},{2},{8},{13},{5},{11},{10},{1},{6},{12},{7}	—

Legend:

- 1: [7] Grief at death of mother
- 2: [13] Savoring a coke
- 3: [15] Very pleasant surprise
- 4: [16] Maternal love — baby in arms
- 5: [20] Physical exhaustion
- 6: [23] Something wrong with plane
- 7: [29] Anger seeing dog beaten
- 8: [30] Pulling hard on seat of chair
- 9: [32] Unexpectedly meets old boyfriend
- 10: [36] Revulsion
- 11: [37] Extreme pain
- 12: [51] Knows plane will crash
- 13: [56] Light sleep

Table 2: Ultrametric fitted values (least-squares)[vaf of 54.6%]

	9	4	3	2	8	13	5	11	10	1	6	12	7
9	.00	.45	1.43	2.75	2.75	5.84	5.84	5.84	5.84	5.84	5.84	7.42	7.42
4	.45	.00	1.43	2.75	2.75	5.84	5.84	5.84	5.84	5.84	5.84	7.42	7.42
3	1.43	1.43	.00	2.75	2.75	5.84	5.84	5.84	5.84	5.84	5.84	7.42	7.42
2	2.75	2.75	2.75	.00	1.31	5.84	5.84	5.84	5.84	5.84	5.84	7.42	7.42
8	2.75	2.75	2.75	1.31	.00	5.84	5.84	5.84	5.84	5.84	5.84	7.42	7.42
13	5.84	5.84	5.84	5.84	5.84	.00	1.60	3.21	3.21	3.21	3.82	7.42	7.42
5	5.84	5.84	5.84	5.84	5.84	1.60	.00	3.21	3.21	3.21	3.82	7.42	7.42
11	5.84	5.84	5.84	5.84	5.84	3.21	3.21	.00	1.83	1.83	3.82	7.42	7.42
10	5.84	5.84	5.84	5.84	5.84	3.21	3.21	1.83	.00	1.55	3.82	7.42	7.42
1	5.84	5.84	5.84	5.84	5.84	3.21	3.21	1.83	1.55	.00	3.82	7.42	7.42
6	5.84	5.84	5.84	5.84	5.84	3.82	3.82	3.82	3.82	3.82	.00	7.42	7.42
12	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	.00	1.57
7	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.42	1.57	.00

Note: for any three objects (say, 1, 2, and 3), the largest two proximities between the pairs are equal ($p_{12} = 5.84$; $p_{13} = 5.84$; $p_{23} = 2.75$)

Legend:

- 1: [7] Grief at death of mother
- 2: [13] Savoring a coke
- 3: [15] Very pleasant surprise
- 4: [16] Maternal love — baby in arms
- 5: [20] Physical exhaustion
- 6: [23] Something wrong with plane
- 7: [29] Anger seeing dog beaten
- 8: [30] Pulling hard on seat of chair
- 9: [32] Unexpectedly meets old boyfriend
- 10: [36] Revulsion
- 11: [37] Extreme pain
- 12: [51] Knows plane will crash
- 13: [56] Light sleep

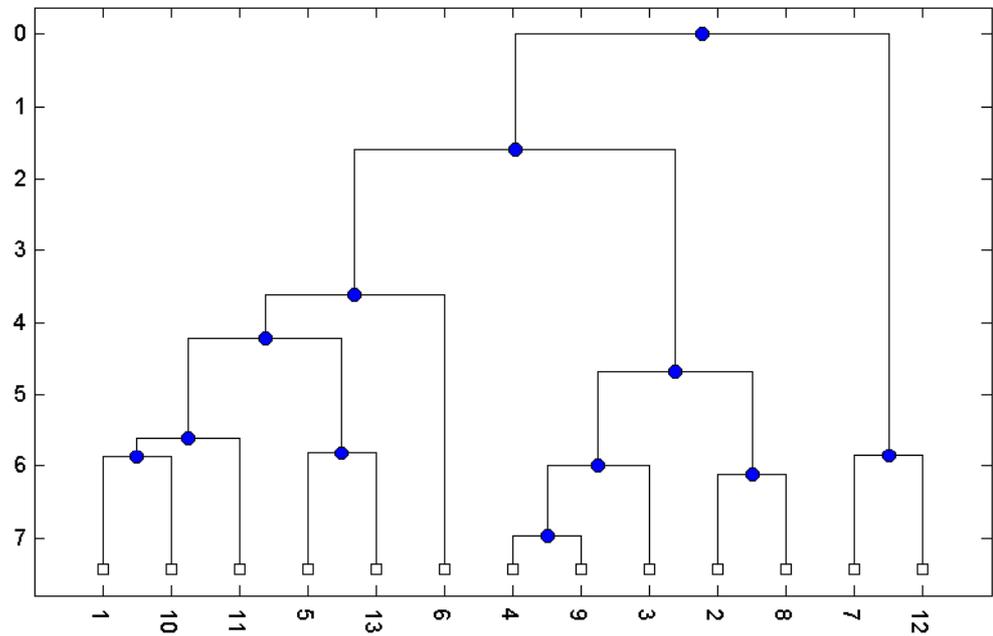


Figure 5: A dendrogram representation for the ultrametric

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

Table 3: Additive-tree fitted values (least-squares)[vaf of 82.3%]

:

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.00	4.06	7.48	5.22	3.03	2.47	5.34	4.60	5.85	1.55	1.61	5.53	4.47
2	4.06	.00	3.67	1.41	3.41	4.93	7.81	1.09	2.04	4.49	4.38	8.00	4.86
3	7.48	3.67	.00	2.09	6.83	8.34	11.22	4.50	.74	7.91	7.79	11.41	8.28
4	5.22	1.41	2.09	.00	4.57	6.08	8.96	2.24	.47	5.65	5.53	9.15	6.02
5	3.03	3.41	6.83	4.57	.00	3.89	6.77	3.95	5.20	3.46	3.35	6.96	1.60
6	2.47	4.93	8.34	6.08	3.89	.00	2.91	5.46	6.72	2.90	2.78	3.11	5.34
7	5.34	7.81	11.22	8.96	6.77	2.91	.00	8.34	9.59	5.77	5.66	1.57	8.22
8	4.60	1.09	4.50	2.24	3.95	5.46	8.34	.00	2.88	5.03	4.92	8.53	5.40
9	5.85	2.04	.74	.47	5.20	6.72	9.59	2.88	.00	6.28	6.17	9.79	6.65
10	1.55	4.49	7.91	5.65	3.46	2.90	5.77	5.03	6.28	.00	2.05	5.97	4.91
11	1.61	4.38	7.79	5.53	3.35	2.78	5.66	4.92	6.17	2.05	.00	5.85	4.79
12	5.53	8.00	11.41	9.15	6.96	3.11	1.57	8.53	9.79	5.97	5.85	.00	8.41
13	4.47	4.86	8.28	6.02	1.60	5.34	8.22	5.40	6.65	4.91	4.79	8.41	0.00

Note: for any four objects (say, 1, 2, 3, and 4), the largest two particular sums are equal ($p_{12} + p_{34} = 4.06 + 2.09 = 6.15$; $p_{13} + p_{24} = 7.48 + 1.41 = 8.89$; $p_{14} + p_{23} = 5.22 + 3.67 = 8.89$)

Legend:

- 1: [7] Grief at death of mother
- 2: [13] Savoring a coke
- 3: [15] Very pleasant surprise
- 4: [16] Maternal love — baby in arms
- 5: [20] Physical exhaustion
- 6: [23] Something wrong with plane
- 7: [29] Anger seeing dog beaten
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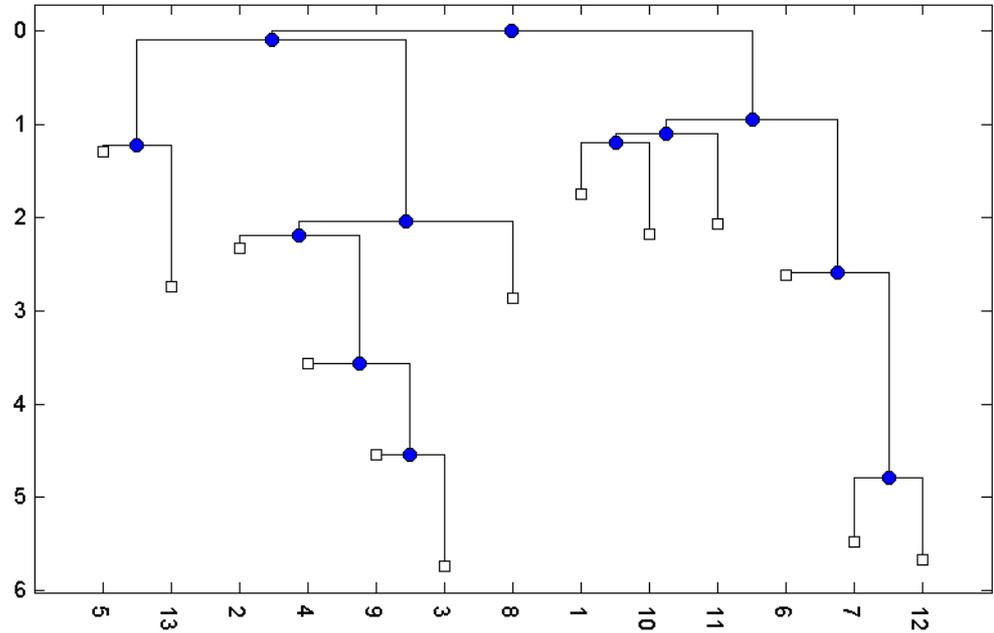


Figure 6: An additive tree representation – all horizontal distances are considered zero and are used for display purposes only

Legend:

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

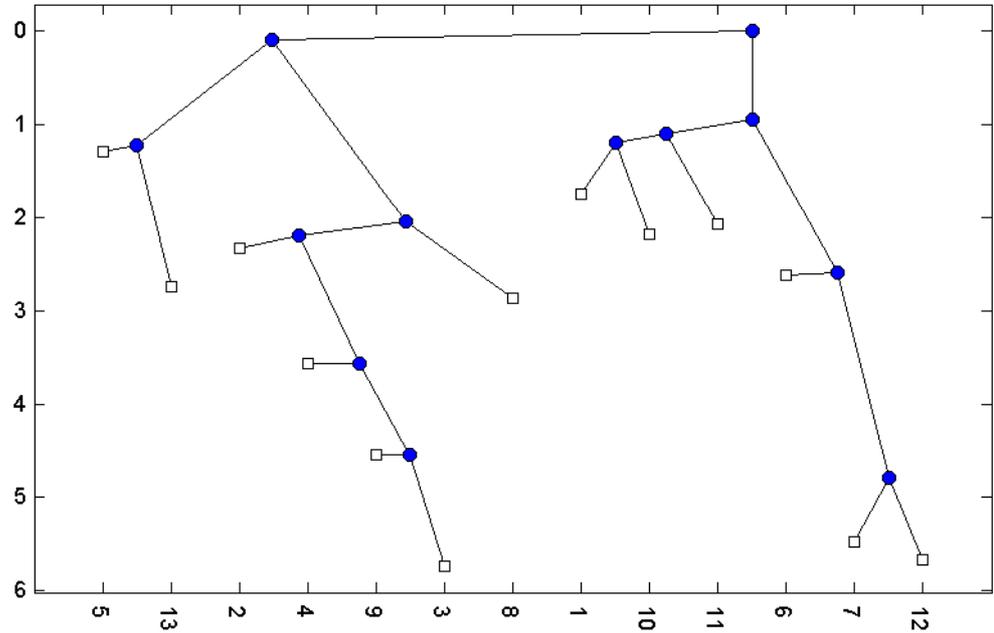


Figure 7: An “angular” representation for the additive tree

Legend:

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

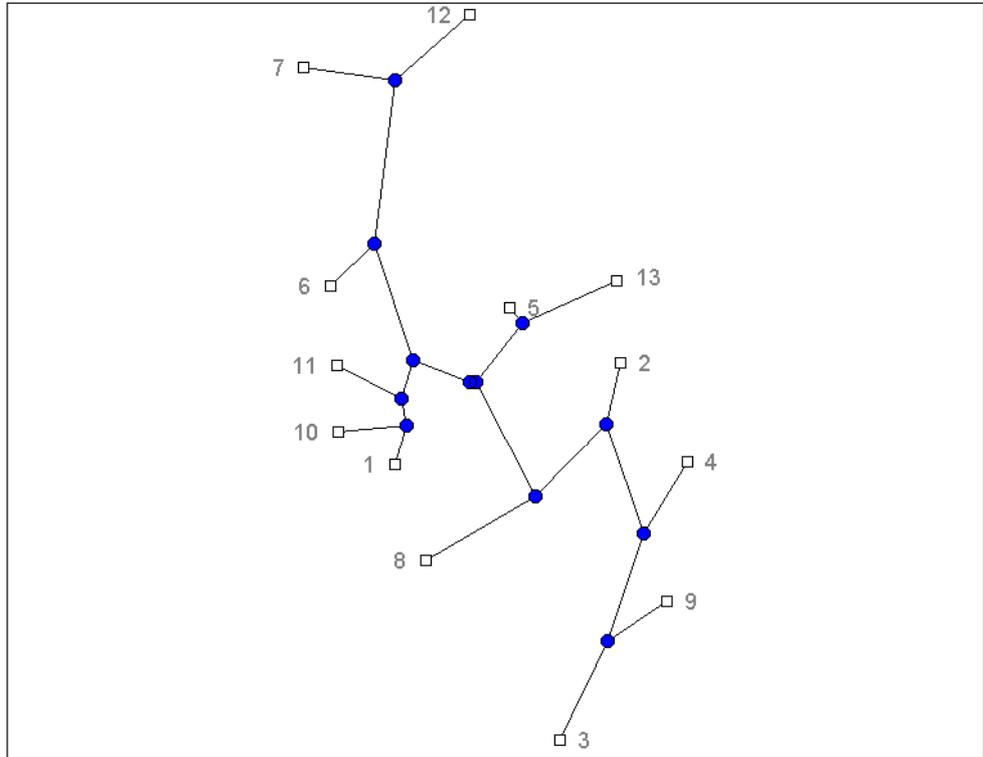


Figure 8: A “radial” representation for the additive tree

Legend:

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

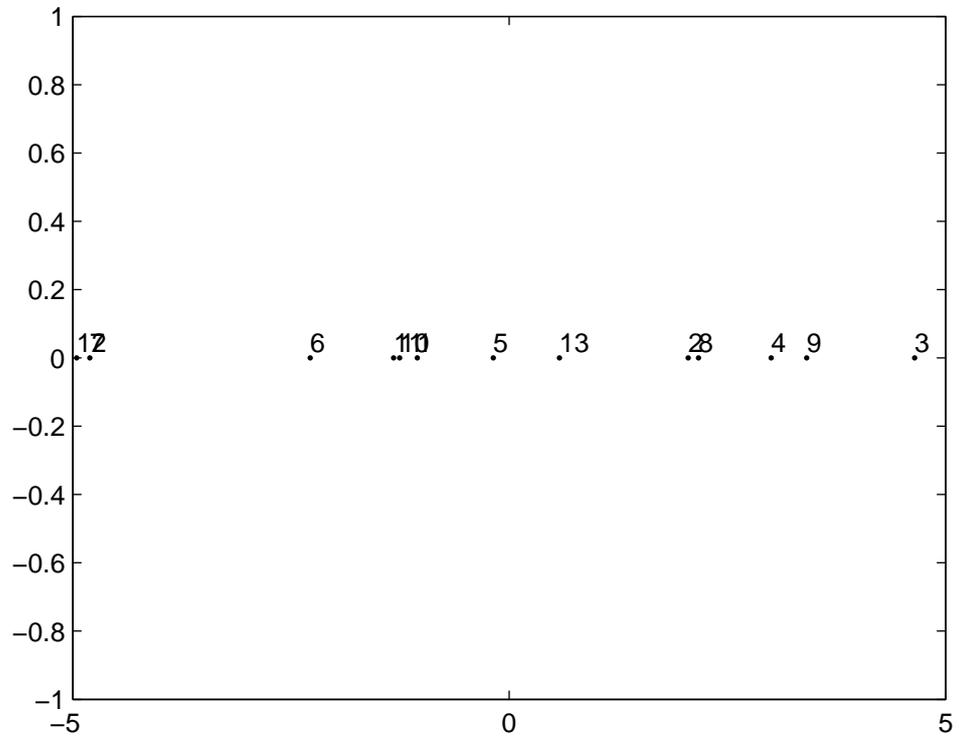


Figure 9: The linear unidimensional scaling of the 13 faces

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

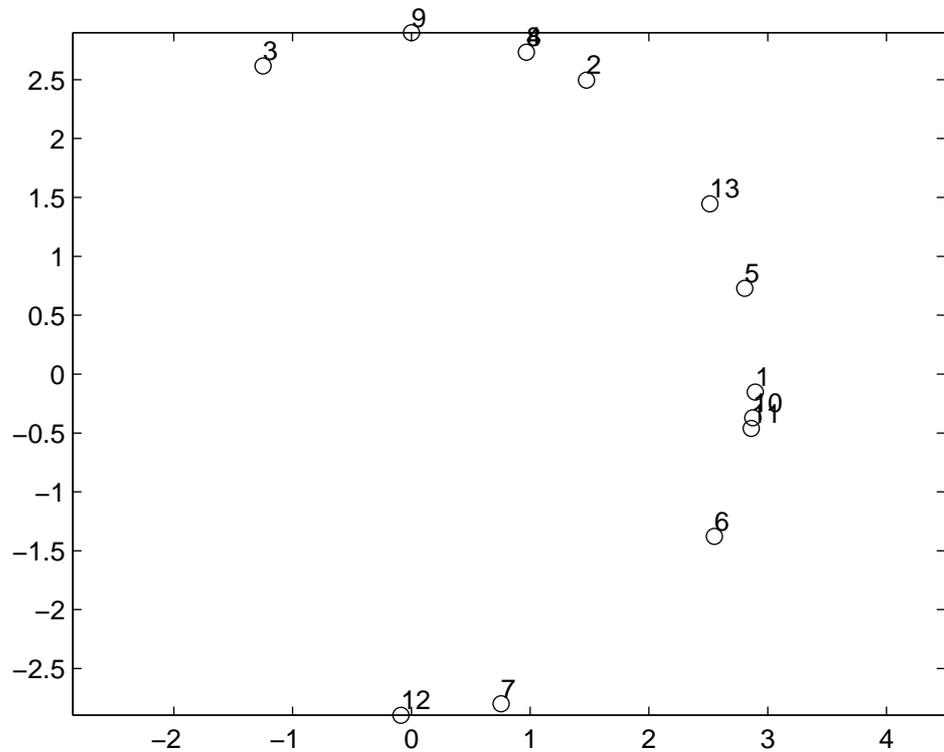


Figure 10: The circular unidimensional scaling of the 13 faces

1: [7] Grief at death of mother; 2: [13] Savoring a coke; 3: [15] Very pleasant surprise; 4: [16] Maternal love — baby in arms; 5: [20] Physical exhaustion; 6: [23] Something wrong with plane; 7: [29] Anger seeing dog beaten; 8: [30] Pulling hard on seat of chair; 9: [32] Unexpectedly meets old boyfriend; 10: [36] Revulsion; 11: [37] Extreme pain; 12: [51] Knows plane will crash; 13: [56] Light sleep

Table 4: Anti-Robinson fitted values (least-squares)[vaf of 91.1%]

	12	7	6	11	10	1	5	13	2	8	4	9	3
12	.00	1.57	4.66	4.83	4.93	6.57	8.16	8.86	8.86	8.86	9.36	9.99	10.09
7	1.57	.00	1.36	4.31	4.89	4.89	7.12	8.73	8.73	8.73	9.36	9.99	10.09
6	4.66	1.36	.00	3.71	3.71	3.71	3.71	4.80	4.80	5.18	6.05	6.38	9.27
11	4.83	4.31	3.71	.00	1.83	1.83	3.71	3.85	4.80	4.80	5.42	6.38	8.60
10	4.93	4.89	3.71	1.83	.00	1.55	2.22	3.85	4.80	4.80	5.25	6.38	8.60
1	6.57	4.89	3.71	1.83	1.55	.00	1.15	3.85	4.05	4.80	5.25	6.25	8.60
5	8.16	7.12	3.71	3.71	2.22	1.15	.00	1.60	3.59	4.80	4.80	5.66	8.60
13	8.86	8.73	4.80	3.85	3.85	3.85	1.60	.00	3.59	4.77	4.77	5.66	8.47
2	8.86	8.73	4.80	4.80	4.80	4.05	3.59	3.59	.00	1.31	2.75	2.75	2.75
8	8.86	8.73	5.18	4.80	4.80	4.80	4.80	4.77	1.31	.00	2.75	2.75	2.75
4	9.36	9.36	6.05	5.42	5.25	5.25	4.80	4.77	2.75	2.75	.00	.45	2.11
9	9.99	9.99	6.38	6.38	6.38	6.25	5.66	5.66	2.75	2.75	.45	.00	.74
3	10.09	10.09	9.27	8.60	8.60	8.60	8.60	8.47	2.75	2.75	2.11	.74	.00

Legend:

- 1: [7] Grief at death of mother
- 2: [13] Savoring a coke
- 3: [15] Very pleasant surprise
- 4: [16] Maternal love — baby in arms
- 5: [20] Physical exhaustion
- 6: [23] Something wrong with plane
- 7: [29] Anger seeing dog beaten
- 8: [30] Pulling hard on seat of chair
- 9: [32] Unexpectedly meets old boyfriend
- 10: [36] Revulsion
- 11: [37] Extreme pain
- 12: [51] Knows plane will crash
- 13: [56] Light sleep