Additional information for the paper Analysis of pairwise comparison matrices: an empirical research

Sándor Bozóki, Linda Dezső, Attila Poesz, József Temesi

This document contains supplementing information to the paper titled "Analysis of pairwise comparison matrices: an empirical research". Thus, this should be read together with the paper because all notations, definitions and explanations are given there.

1 Figures

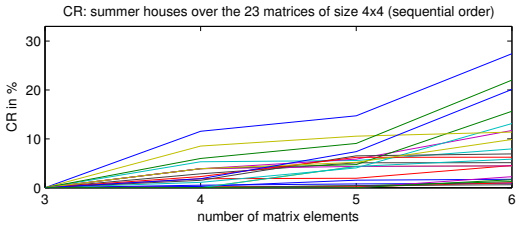
Step by step questioning procedures allows us to analyze how the decision makers' consistency changes in every step. One possible way to do this is to test the decision maker's responses throughout the questioning procedure. This allows us to measure and/or index the inconsistency throughout the procedure and to locate where the inconsistency occured.

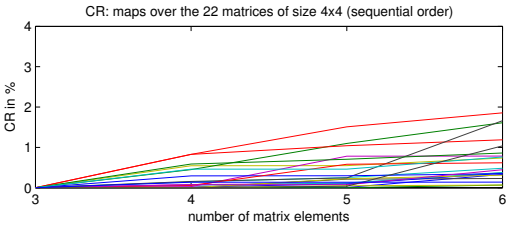
1.1 Inconsistency

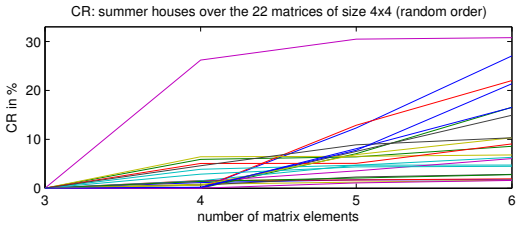
The figures below present individual behavioral inconsistency by showing individual CR or CM values for each questioning order. Each polylines denote one subject in the group. If we draw a vertical line at every step we see the individual inconsistency values after having answered the indicated number of questions.
These figures correspond to section 3.2 in the paper.

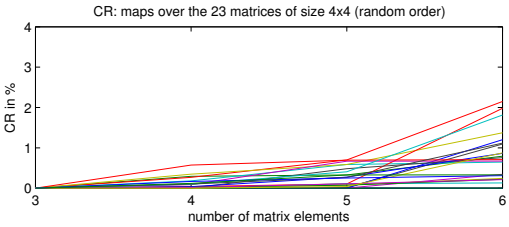
1.1.1 CR inconsistency

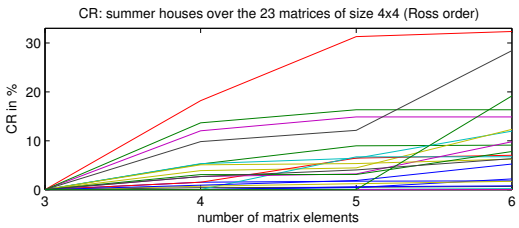
These figures show individual CR values for the different types (subjective vs objective) and questioning order for all the three matrix sizes. These values also give further insight into what underlies averages presented in Table 3 in section 3.1.

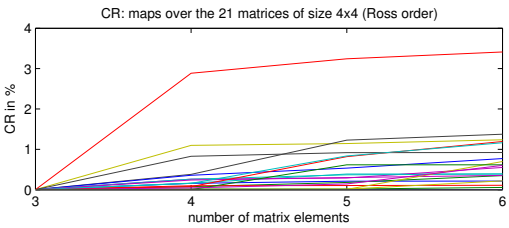

CR: summer houses over the 23 matrices of size 4x4 (sequential order)
CR in %
number of matrix elements

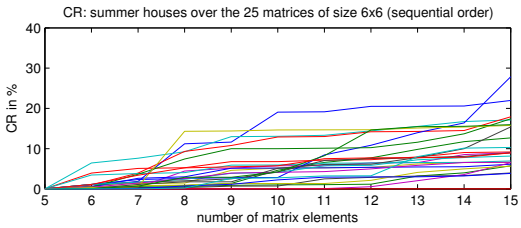

CR: maps over the 22 matrices of size 4x4 (sequential order)
CR in %
number of matrix elements

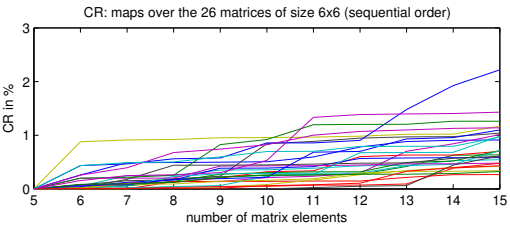

CR: summer houses over the 22 matrices of size 4x4 (random order)
CR in %
number of matrix elements

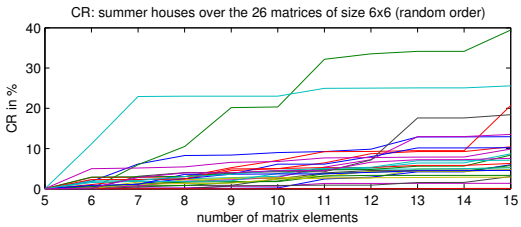

CR: maps over the 23 matrices of size 4x4 (random order)
CR in %
number of matrix elements

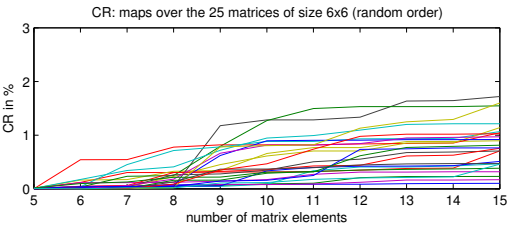

CR: summer houses over the 23 matrices of size 4x4 (Ross order)
CR in %
number of matrix elements

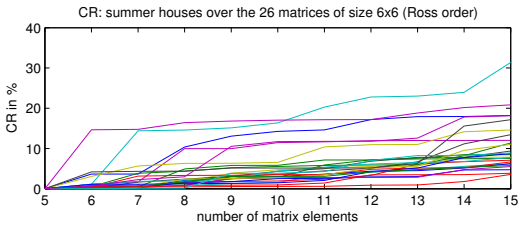

CR: maps over the 21 matrices of size 4x4 (Ross order)
CR in %
number of matrix elements

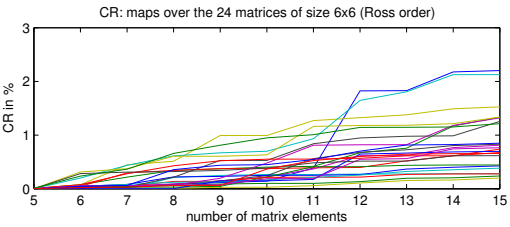

CR: summer houses over the 25 matrices of size 6x6 (sequential order)
CR in %
number of matrix elements

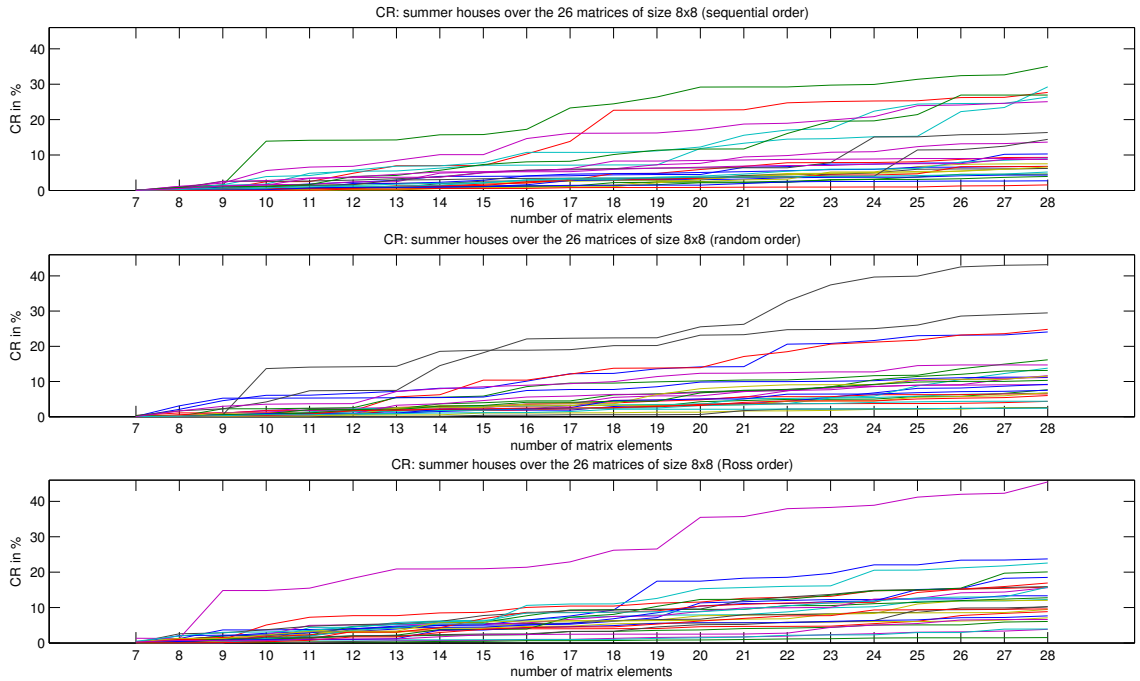

CR: maps over the 26 matrices of size 6x6 (sequential order)
CR in %
number of matrix elements

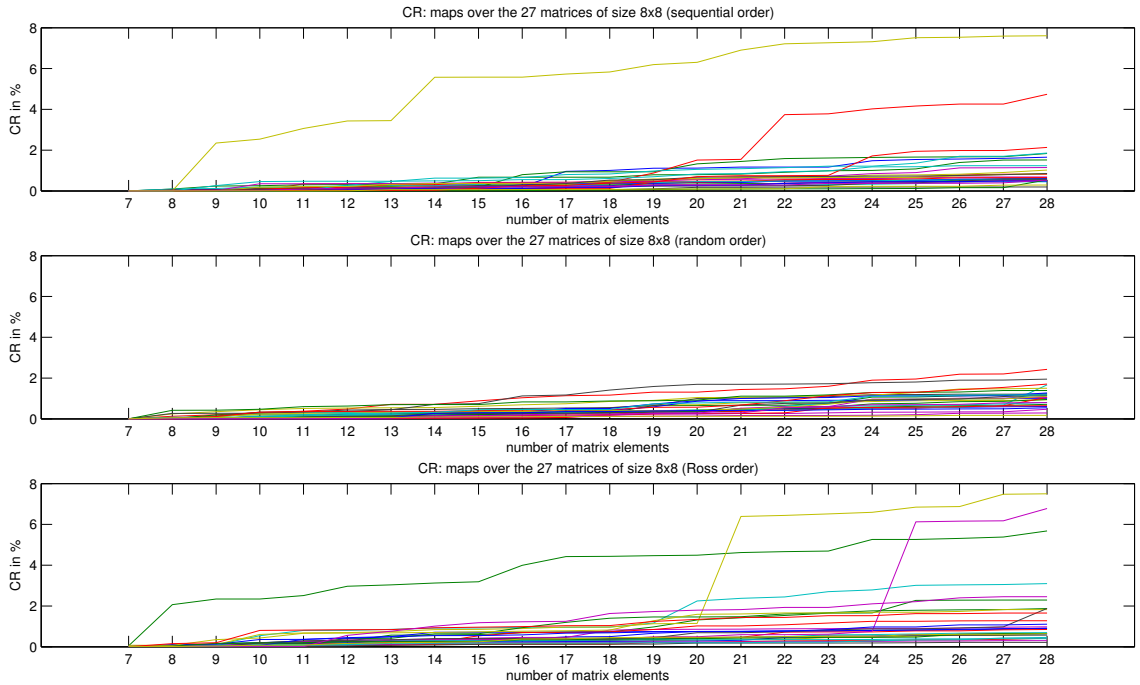

CR: summer houses over the 26 matrices of size 6x6 (random order)
CR in %
number of matrix elements


CR: maps over the 25 matrices of size 6x6 (random order)
CR in %
number of matrix elements


CR: summer houses over the 26 matrices of size 6x6 (Ross order)
CR in %
number of matrix elements

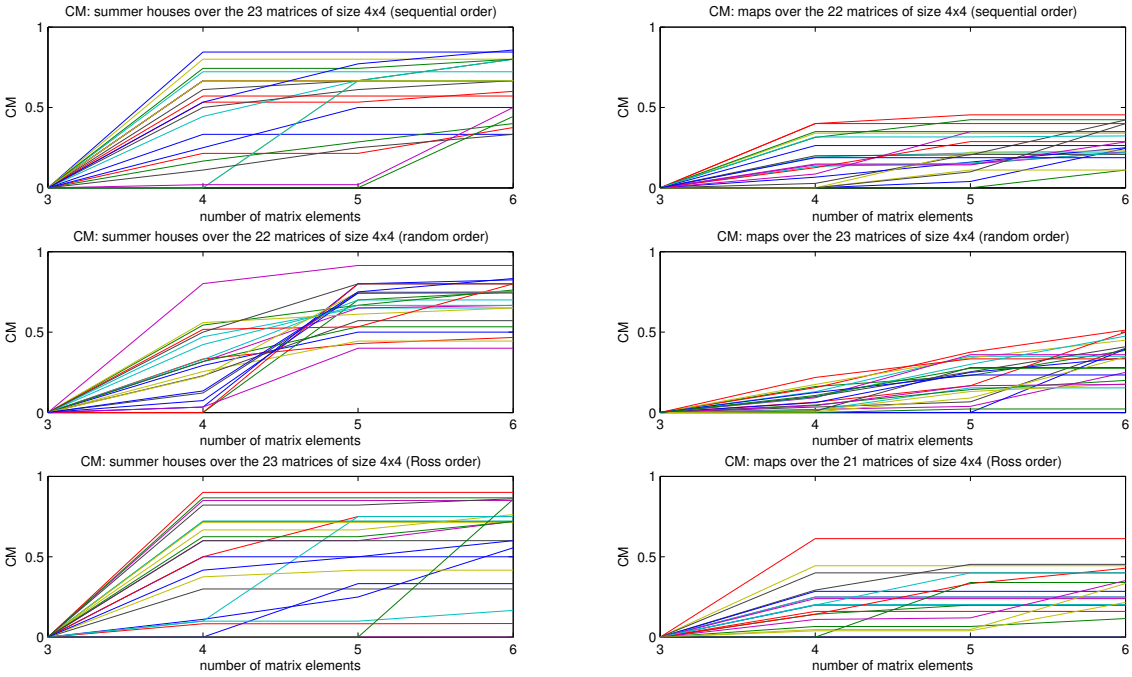

CR: maps over the 24 matrices of size 6x6 (Ross order)
CR in %
number of matrix elements

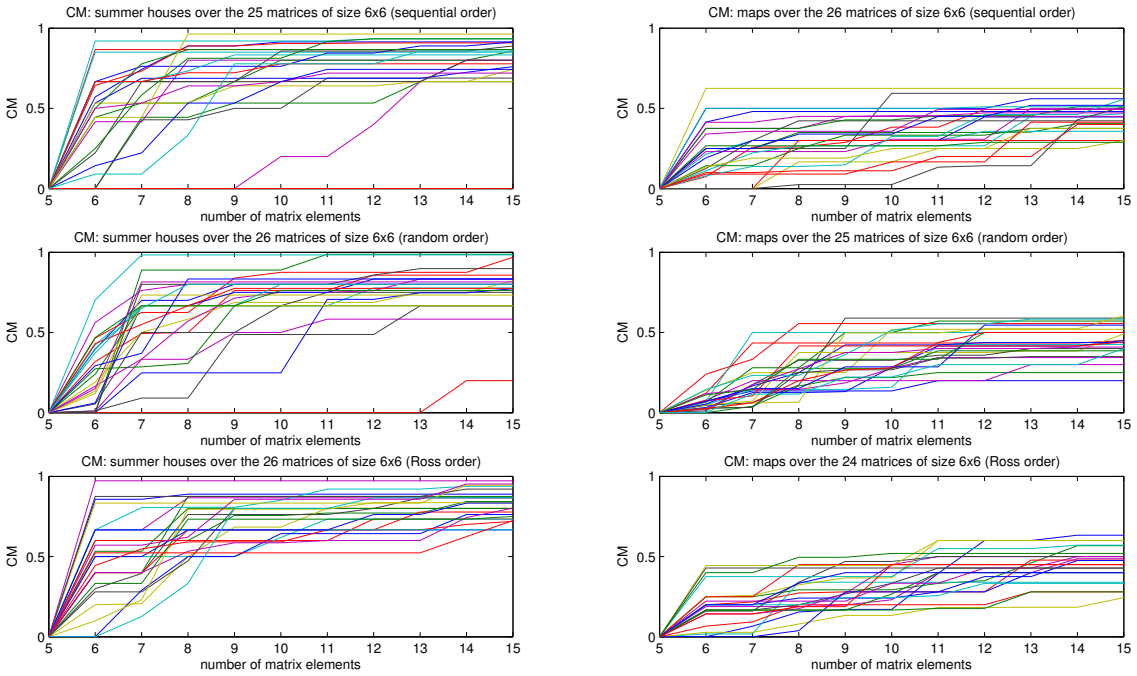

CR: summer houses over the 26 matrices of size 8x8 (sequential order)
CR in %
number of matrix elements
CR: summer houses over the 26 matrices of size 8x8 (random order)
CR in %
number of matrix elements
CR: summer houses over the 26 matrices of size 8x8 (Ross order)
CR in %
number of matrix elements

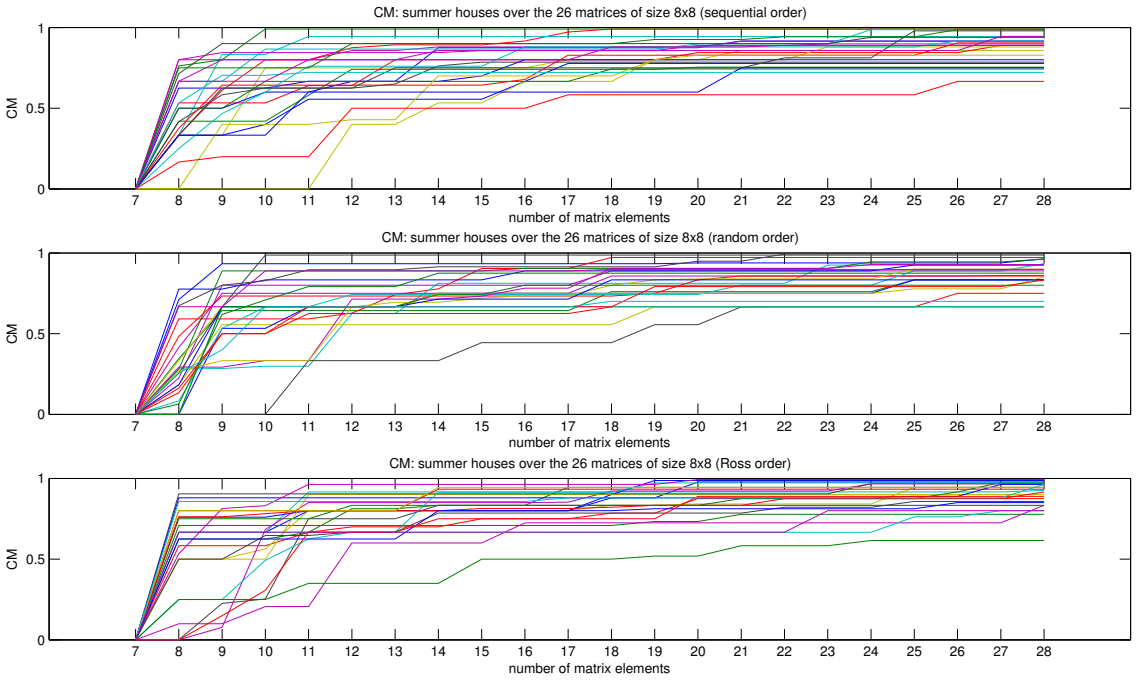

CR: maps over the 27 matrices of size 8x8 (sequential order)
CR in %
number of matrix elements
CR: maps over the 27 matrices of size 8x8 (random order)
CR in %
number of matrix elements
CR: maps over the 27 matrices of size 8x8 (Ross order)
CR in %
number of matrix elements

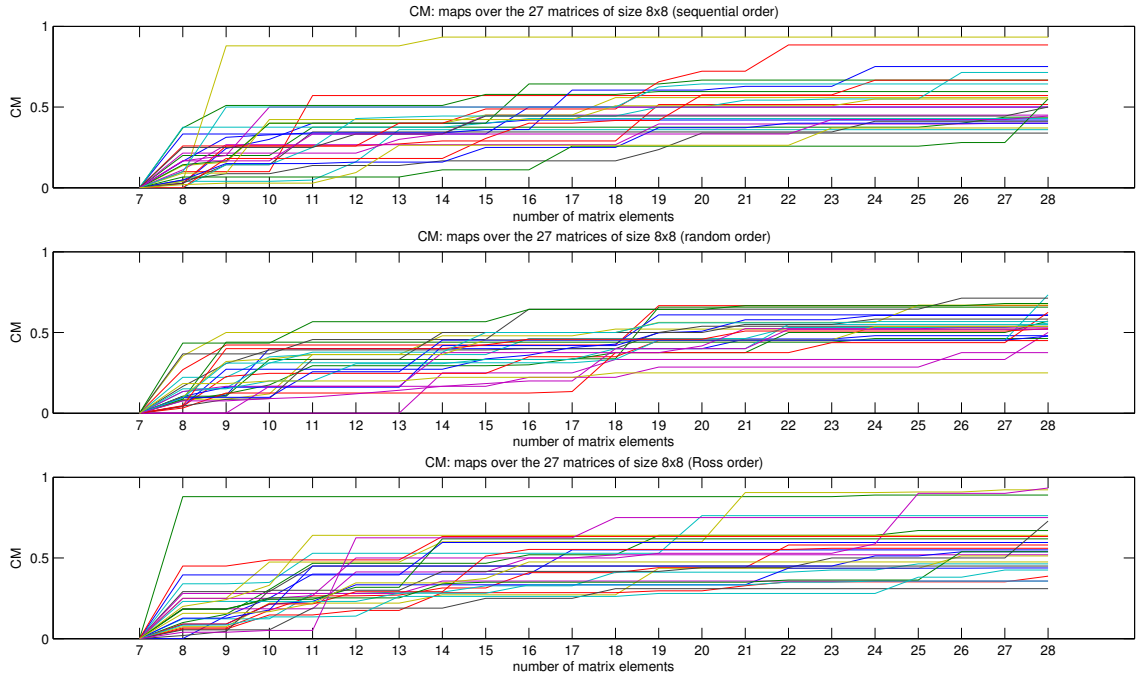
1.1.2 CM inconsistency

The figures below show individual CM values for the different types (subjective vs objective) and questioning order for all the three matrix sizes. These values also give further insight into what underlies averages presented in Table 4 in section 3.1.



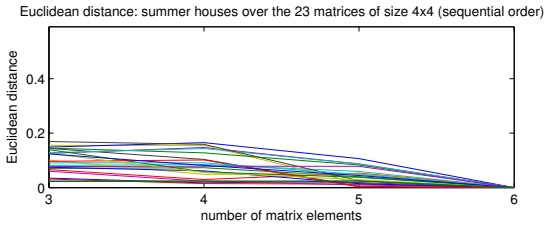

CM: summer houses over the 25 matrices of size 6x6 (sequential order)
CM: maps over the 26 matrices of size 6x6 (sequential order)
CM: summer houses over the 26 matrices of size 6x6 (random order)
CM: maps over the 25 matrices of size 6x6 (random order)
CM: summer houses over the 26 matrices of size 6x6 (Ross order)
CM: maps over the 24 matrices of size 6x6 (Ross order)
CM
number of matrix elements

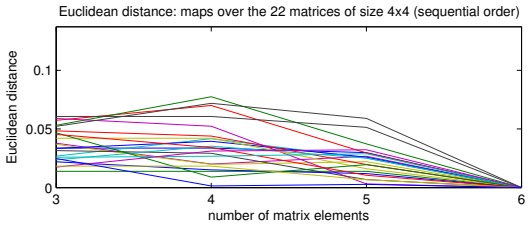

CM: summer houses over the 26 matrices of size 8x8 (sequential order)
CM: summer houses over the 26 matrices of size 8x8 (random order)
CM: summer houses over the 26 matrices of size 8x8 (Ross order)
CM
number of matrix elements

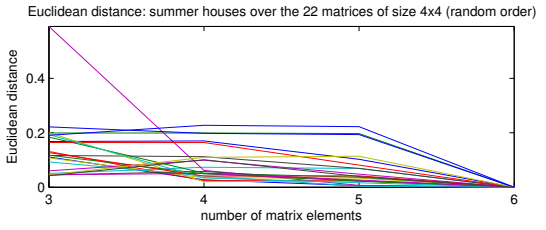

CM: maps over the 27 matrices of size 8x8 (sequential order)
CM
number of matrix elements
CM: maps over the 27 matrices of size 8x8 (random order)
CM
number of matrix elements
CM: maps over the 27 matrices of size 8x8 (Ross order)
CM
number of matrix elements

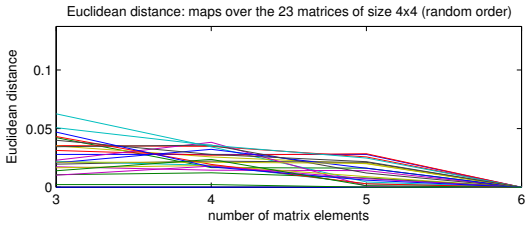
1.2 Euclidean distance

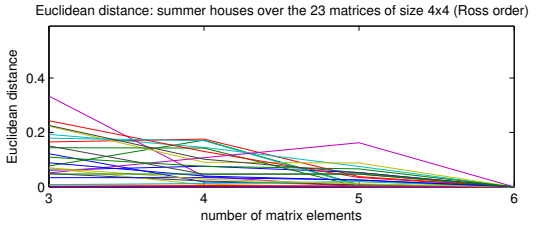
We calculated the score vectors for each step and compared these to the final scores calculated from the corresponding complete PC matrix. The averages (and our detailed calculations for each subject) conformed that the distance of step by step scores from the final score monotonically decreased in each step with a very few exceptions. The following figures show the Euclidean distance of the scores (weight vectors) calculated by the Eigenvector Method from the complete and incomplete matrices in case of every type and questioning order.
These figures are related to the Table 10 and the Table 11 in section 3.2.

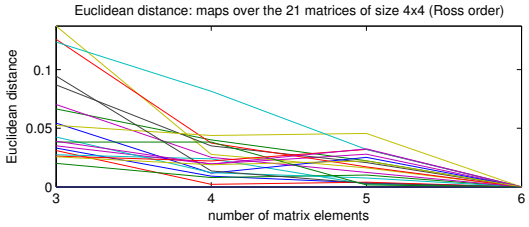


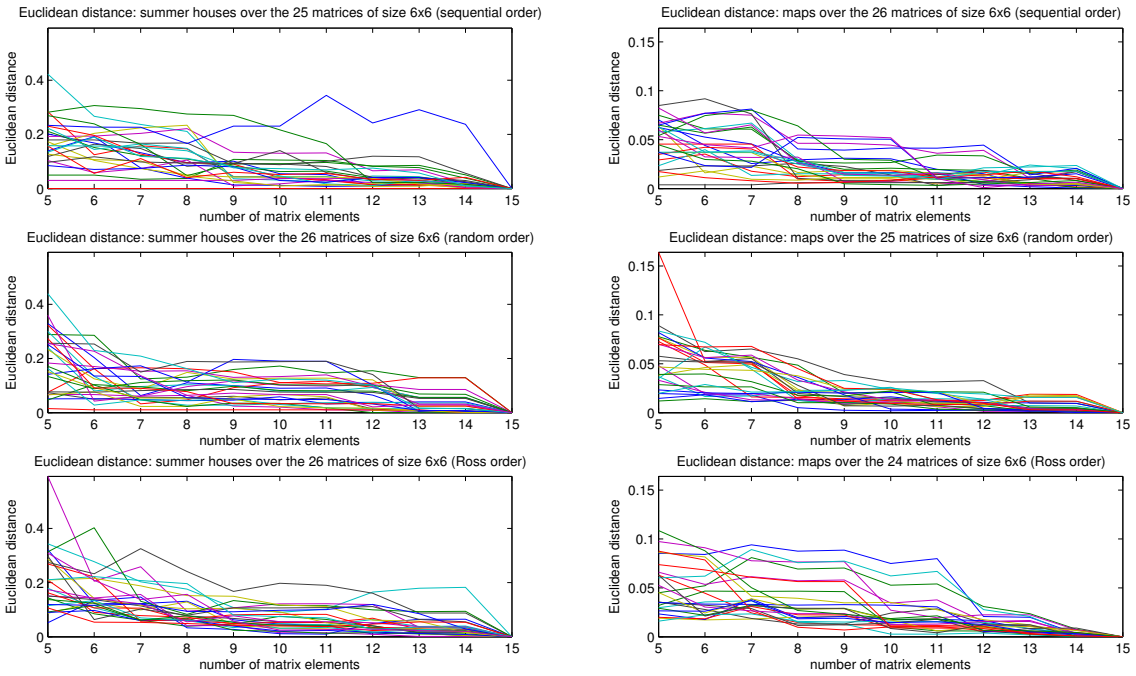


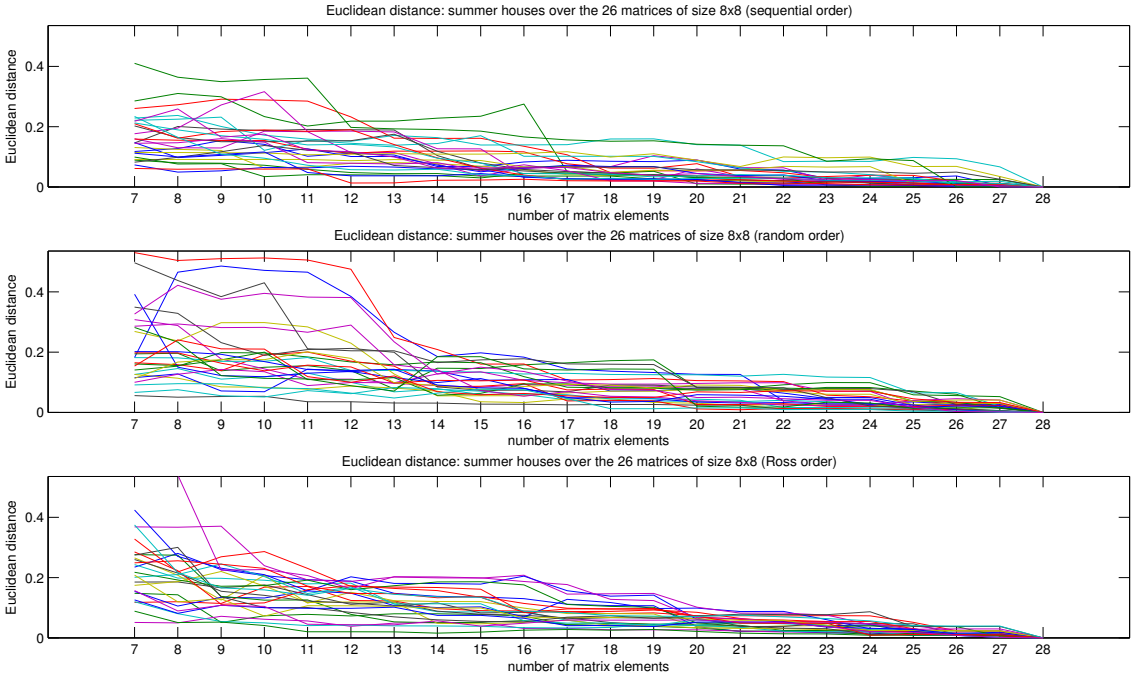


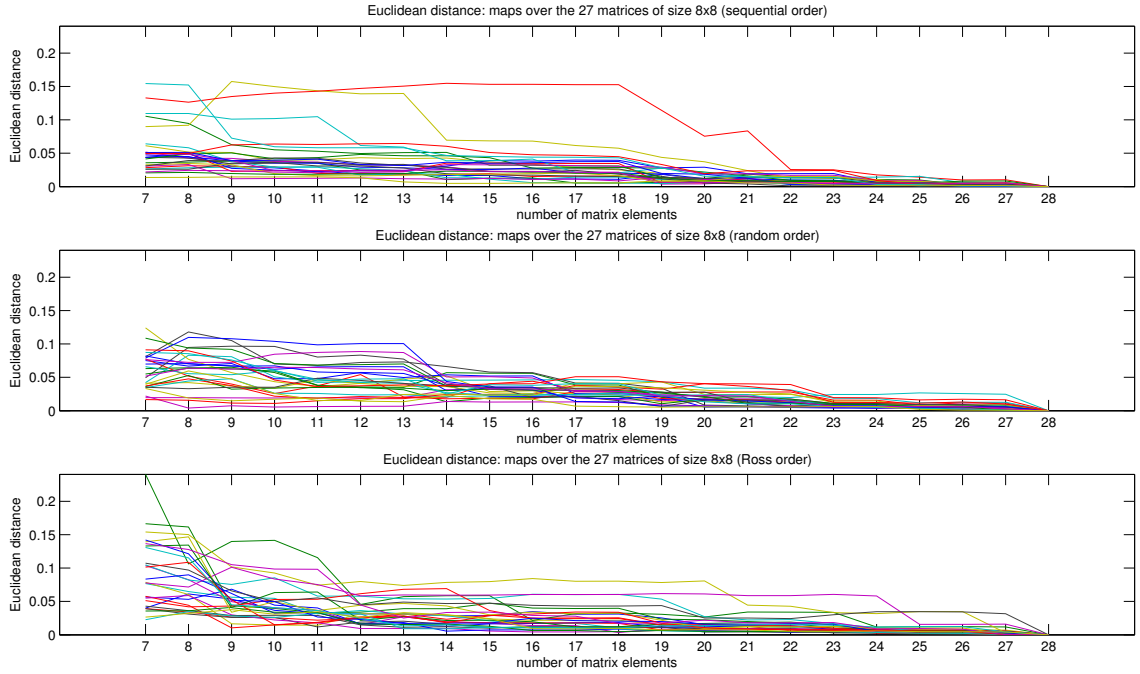






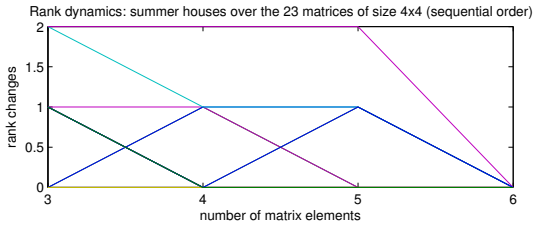

Euclidean distance: summer houses over the 25 matrices of size 6x6 (sequential order)
Euclidean distance: maps over the 26 matrices of size 6x6 (sequential order)
Euclidean distance: summer houses over the 26 matrices of size 6x6 (random order)
Euclidean distance: maps over the 25 matrices of size 6x6 (random order)
Euclidean distance: summer houses over the 26 matrices of size 6x6 (Ross order)
Euclidean distance: maps over the 24 matrices of size 6x6 (Ross order)
Euclidean distance
number of matrix elements

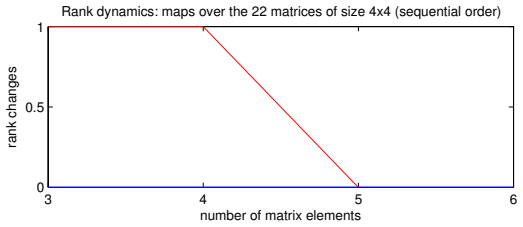

Euclidean distance: summer houses over the 26 matrices of size 8x8 (sequential order)
Euclidean distance: summer houses over the 26 matrices of size 8x8 (random order)
Euclidean distance: summer houses over the 26 matrices of size 8x8 (Ross order)
Euclidean distance
number of matrix elements

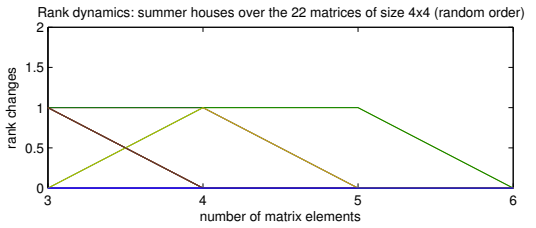

Euclidean distance: maps over the 27 matrices of size 8x8 (sequential order)
Euclidean distance
0
0.05
0.1
0.15
0.2
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
number of matrix elements
Euclidean distance: maps over the 27 matrices of size 8x8 (random order)
Euclidean distance
0
0.05
0.1
0.15
0.2
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
number of matrix elements
Euclidean distance: maps over the 27 matrices of size 8x8 (Ross order)
Euclidean distance
0
0.05
0.1
0.15
0.2
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
number of matrix elements

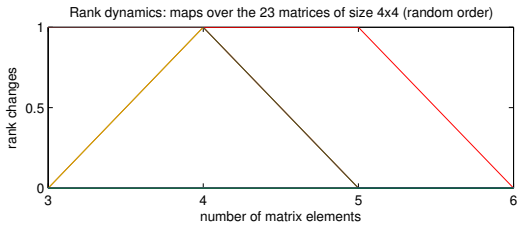
1.3 Rank dynamics

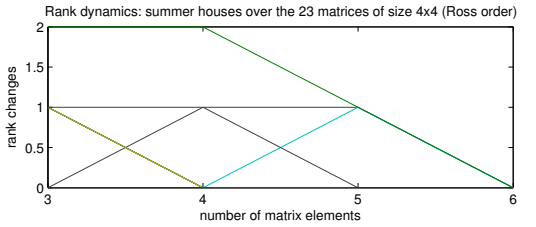
We calculated the resulted order of alternatives in each step for each subject and for every task, and determined the rank changes of these values and the final order.

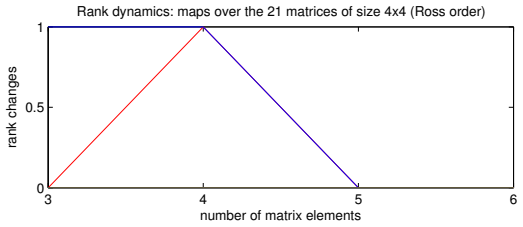


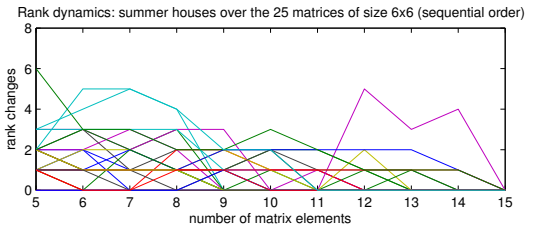


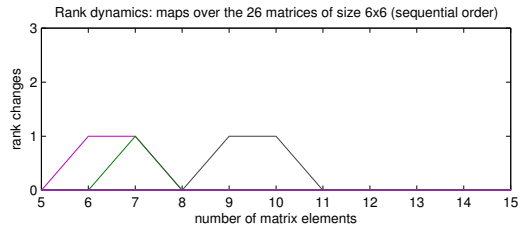


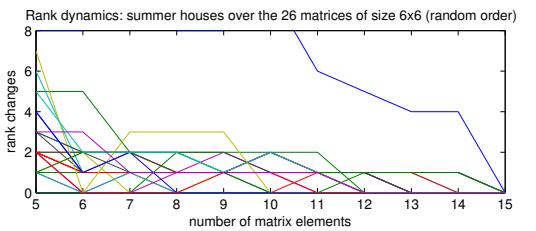


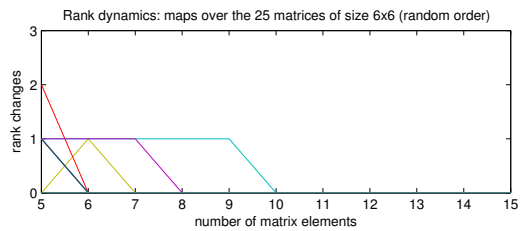


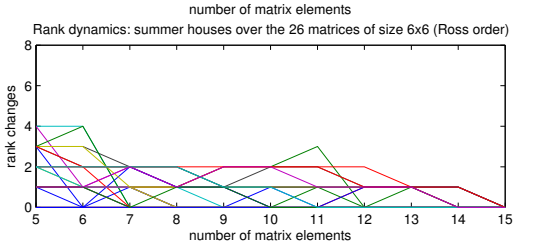


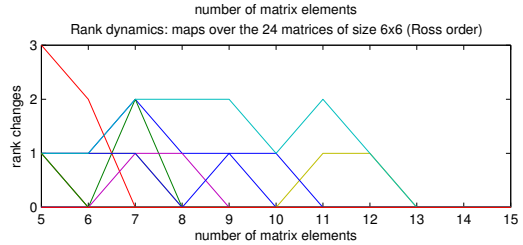


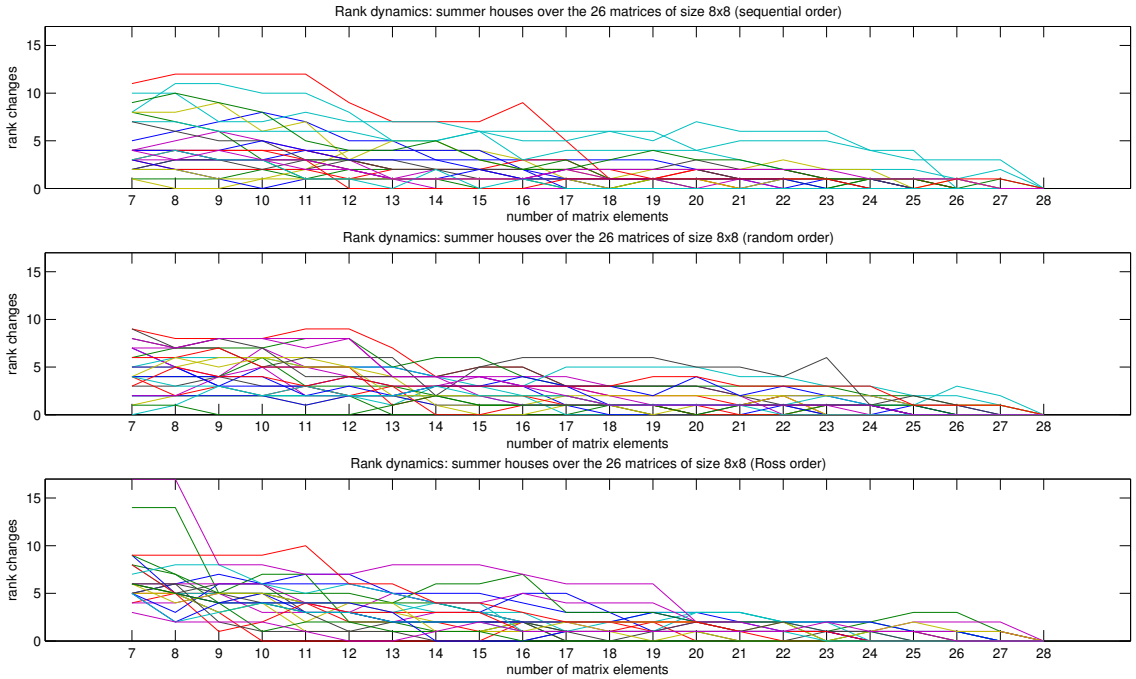


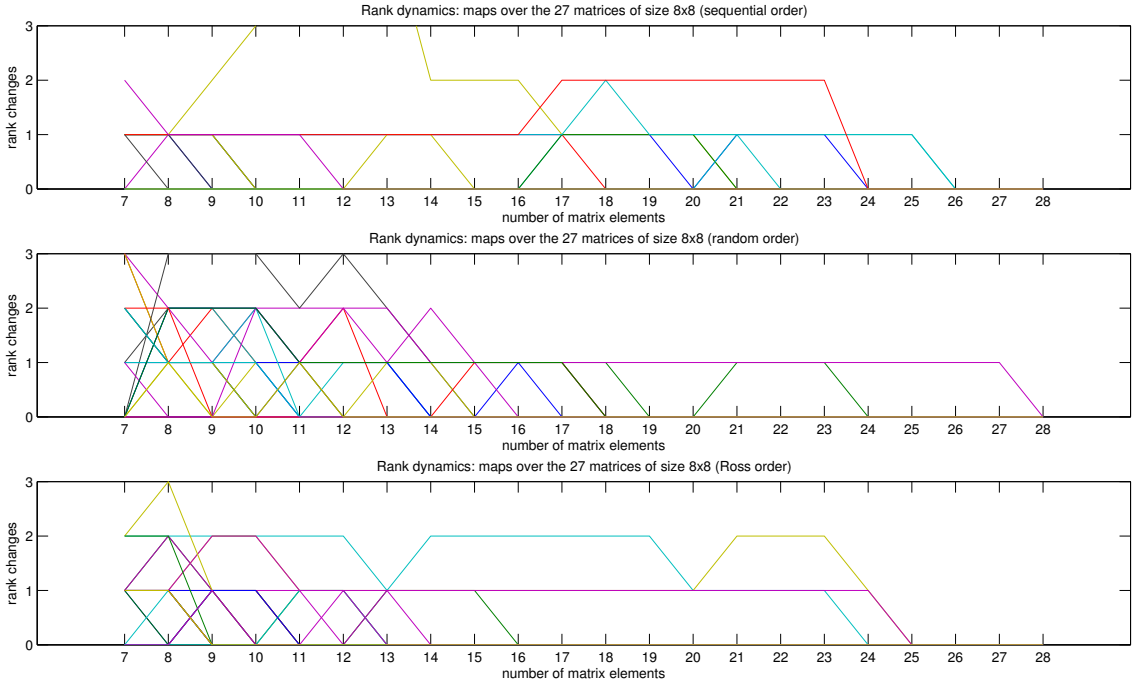









Rank dynamics: summer houses over the 26 matrices of size 8x8 (sequential order)
rank changes
number of matrix elements
Rank dynamics: summer houses over the 26 matrices of size 8x8 (random order)
rank changes
number of matrix elements
Rank dynamics: summer houses over the 26 matrices of size 8x8 (Ross order)
rank changes
number of matrix elements


Rank dynamics: maps over the 27 matrices of size 8x8 (sequential order)
rank changes
number of matrix elements
Rank dynamics: maps over the 27 matrices of size 8x8 (random order)
rank changes
number of matrix elements
Rank dynamics: maps over the 27 matrices of size 8x8 (Ross order)
rank changes
number of matrix elements

2 Tables

Having step by step questioning procedures we can analyze how the decision maker's consistency changes in each step. One possible way to test his behavioral consistency is to track step by step the responses throughout the questioning procedure. This allows us to measure/index the inconsistency throughout the procedure and to locate where the inconsistency occurred. These tables present results of such an analysis. The "number of matrix elements" stands for the number of the answer in the sequence. For an $n \times n$ matrix the range is from $n-1$ to $n(n-1)/2$. The indices (inconsistency, distance, Spearman rank correlation) can be calculated for each case and their averages are presented in the respective cell. The tables present results for each questioning order separately.

2.1 Inconsistency

The following tables present individual behavioral inconsistency by showing individual CR or CM values for the questioning order. These tables are related to the Table 7 and the Table 8 in section 3.2.

Table 1 The average of CR inconsistencies (in %) for 4×4 incomplete matrices: summer houses

number of matrix elements / order	3	4	5	6
sequential	0.00	2.59	4.49	8.10
random	0.00	2.93	6.69	10.38
Ross	0.00	3.78	5.64	8.75

Table 2 The average of CR inconsistencies (in %) for 4×4 incomplete matrices: maps

number of matrix elements / order	3	4	5	6
sequential	0.00	0.22	0.39	0.67
random	0.00	0.10	0.27	0.78
Ross	0.00	0.34	0.54	0.70

Table 3 The average of CM inconsistencies for 4×4 incomplete matrices: summer houses

number of matrix elements / order	3	4	5	6
sequential	0.00	0.44	0.54	0.62
random	0.00	0.30	0.65	0.68
Ross	0.00	0.46	0.52	0.60

Table 4 The average of CM inconsistencies for 4×4 incomplete matrices: maps

number of matrix elements / order	3	4	5	6
sequential	0.00	0.17	0.23	0.29
random	0.00	0.07	0.20	0.31
Ross	0.00	0.19	0.24	0.28

Table 5 The average of CR inconsistencies (in %) for 6×6 incomplete matrices: summer houses

number of matrix elements / order	5	6	7	8	9	10	11	12	13	14	15
sequential	0.00	0.96	1.82	3.71	4.74	5.66	6.61	7.33	8.35	9.21	10.75
random	0.00	1.38	2.77	3.49	4.42	4.97	6.25	6.91	8.17	8.19	9.47
Ross	0.00	1.37	2.50	3.84	4.93	5.45	6.27	7.24	7.85	9.52	10.63

Table 6 The average of CR inconsistencies (in %) for 6×6 incomplete matrices: maps

number of matrix elements / order	5	6	7	8	9	10	11	12	13	14	15
sequential	0.00	0.13	0.18	0.25	0.32	0.40	0.48	0.55	0.64	0.72	0.81
random	0.00	0.06	0.11	0.20	0.40	0.50	0.57	0.65	0.71	0.72	0.80
Ross	0.00	0.07	0.14	0.23	0.31	0.37	0.51	0.69	0.73	0.83	0.88

Table 7 The average of CM inconsistencies for 6×6 incomplete matrices: summer houses

number of matrix elements / order	5	6	7	8	9	10	11	12	13	14	15
sequential	0.00	0.45	0.56	0.65	0.69	0.72	0.74	0.75	0.77	0.78	0.79
random	0.00	0.24	0.56	0.61	0.68	0.70	0.73	0.74	0.76	0.76	0.77
Ross	0.00	0.50	0.53	0.68	0.73	0.75	0.76	0.78	0.78	0.81	0.82

Table 8 The average of CM (in %) for 6×6 incomplete matrices: maps

number of matrix elements / order	5	6	7	8	9	10	11	12	13	14	15
sequential	0.00	0.23	0.27	0.30	0.31	0.35	0.37	0.39	0.42	0.45	0.45
random	0.00	0.07	0.17	0.26	0.33	0.36	0.40	0.43	0.43	0.43	0.45
Ross	0.00	0.19	0.20	0.26	0.30	0.33	0.39	0.41	0.43	0.45	0.45

Table 9 The average of CR inconsistencies (in %) for 8×8 incomplete matrices: summer houses

number of matrix elements / order	7	8	9	10	11	12	13	14	15	16	17
sequential	0.00	0.32	0.80	1.75	2.20	2.70	3.11	3.64	4.02	4.81	5.48
random	0.00	0.47	1.08	1.88	2.24	2.52	3.31	4.13	4.65	5.32	5.67
Ross	0.00	0.75	1.63	2.20	3.01	3.72	4.11	4.79	5.09	5.89	6.44

number of matrix elements / order	18	19	20	21	22	23	24	25	26	27	28
sequential	6.24	6.58	7.17	7.81	8.40	8.96	9.57	10.46	11.38	11.77	12.46
random	6.22	6.60	7.32	7.87	8.80	9.37	9.85	10.56	11.10	11.50	11.96
Ross	6.88	7.71	8.74	9.20	9.61	10.05	10.87	11.64	12.16	12.70	13.31

Table 10 The average of CR inconsistencies (in %) for 8×8 incomplete matrices: maps

number of matrix elements / order	7	8	9	10	11	12	13	14	15	16	17
sequential	0.00	0.02	0.13	0.19	0.24	0.28	0.31	0.42	0.45	0.50	0.57
random	0.00	0.05	0.09	0.14	0.18	0.20	0.23	0.28	0.32	0.37	0.40
Ross	0.00	0.11	0.15	0.27	0.33	0.41	0.47	0.52	0.56	0.63	0.68

number of matrix elements / order	18	19	20	21	22	23	24	25	26	27	28
sequential	0.60	0.69	0.78	0.82	0.95	0.98	1.07	1.11	1.18	1.21	1.28
random	0.44	0.53	0.58	0.64	0.70	0.76	0.86	0.89	0.94	0.97	1.07
Ross	0.73	0.81	0.91	1.14	1.19	1.23	1.29	1.56	1.60	1.65	1.73

Table 11 The average of CM inconsistencies for 8×8 incomplete matrices: summer houses

order \ number of matrix elements	7	8	9	10	11	12	13	14	15	16	17
sequential	0.00	0.47	0.57	0.63	0.67	0.72	0.73	0.77	0.77	0.79	0.81
random	0.00	0.29	0.59	0.64	0.68	0.72	0.72	0.75	0.76	0.77	0.77
Ross	0.00	0.55	0.58	0.63	0.73	0.76	0.76	0.80	0.81	0.81	0.82

order \ number of matrix elements	18	19	20	21	22	23	24	25	26	27	28
sequential	0.81	0.82	0.83	0.84	0.84	0.85	0.85	0.86	0.87	0.87	0.87
random	0.80	0.81	0.82	0.82	0.83	0.83	0.83	0.85	0.85	0.85	0.86
Ross	0.83	0.84	0.85	0.86	0.86	0.87	0.87	0.88	0.88	0.89	0.90

Table 12 The average of CM inconsistencies for 8×8 incomplete matrices: maps

order \ number of matrix elements	7	8	9	10	11	12	13	14	15	16	17
sequential	0.00	0.13	0.23	0.28	0.33	0.34	0.37	0.37	0.40	0.42	0.43
random	0.00	0.13	0.22	0.26	0.30	0.31	0.31	0.36	0.37	0.39	0.39
Ross	0.00	0.19	0.20	0.27	0.33	0.38	0.39	0.44	0.45	0.47	0.47

order \ number of matrix elements	18	19	20	21	22	23	24	25	26	27	28
sequential	0.44	0.47	0.49	0.49	0.50	0.51	0.52	0.52	0.52	0.53	0.54
random	0.42	0.47	0.47	0.49	0.51	0.51	0.51	0.52	0.52	0.53	0.55
Ross	0.48	0.50	0.50	0.52	0.53	0.53	0.54	0.55	0.56	0.57	0.58

2.2 Euclidean distance

The tables include the averages of the Euclidean distance of the score vectors calculated from the complete and incomplete matrices for both types broken down by questioning order. These tables are related to the Table 10 and 11 in section 3.2.

Table 13 Euclidean distance from the final scores for 4×4 incomplete matrices: summer houses

number of matrix elements / order	3	4	5	6
sequential	0.10	0.08	0.04	0.00
random	0.15	0.09	0.06	0.00
Ross	0.12	0.07	0.04	0.00

Table 14 Euclidean distance from the final scores for 4×4 incomplete matrices: maps

number of matrix elements / order	3	4	5	6
sequential	0.037	0.036	0.023	0.000
random	0.027	0.023	0.013	0.000
Ross	0.054	0.023	0.016	0.000

Table 15 Euclidean distance from the final scores for 6×6 incomplete matrices: summer houses

number of matrix elements / order	5	6	7	8	9	10	11	12	13	14	15
sequential	0.17	0.15	0.13	0.11	0.08	0.07	0.07	0.05	0.05	0.03	0.00
random	0.19	0.12	0.09	0.09	0.09	0.08	0.08	0.06	0.04	0.03	0.00
Ross	0.21	0.16	0.12	0.10	0.07	0.07	0.06	0.06	0.04	0.04	0.00

Table 16 Euclidean distance from the final scores for 6×6 incomplete matrices: maps

number of matrix elements / order	5	6	7	8	9	10	11	12	13	14	15
sequential	0.049	0.043	0.041	0.026	0.020	0.020	0.014	0.014	0.010	0.010	0.000
random	0.055	0.043	0.038	0.024	0.017	0.016	0.013	0.010	0.007	0.007	0.000
Ross	0.051	0.045	0.044	0.035	0.035	0.023	0.023	0.013	0.010	0.003	0.000

Table 17 Euclidean distance from the final scores for 8×8 incomplete matrices: summer houses

number of matrix elements / order	7	8	9	10	11	12	13	14	15	16	17
sequential	0.17	0.16	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.08	0.06
random	0.22	0.22	0.20	0.20	0.18	0.17	0.13	0.11	0.10	0.10	0.09
Ross	0.23	0.20	0.16	0.15	0.13	0.13	0.12	0.11	0.10	0.09	0.08

number of matrix elements / order	18	19	20	21	22	23	24	25	26	27	28
sequential	0.06	0.06	0.05	0.04	0.04	0.03	0.03	0.03	0.02	0.01	0.00
random	0.08	0.08	0.06	0.06	0.05	0.05	0.05	0.03	0.03	0.02	0.00
Ross	0.07	0.07	0.06	0.05	0.05	0.04	0.03	0.03	0.02	0.02	0.00

Table 18 Euclidean distance from the final scores for 8×8 incomplete matrices: maps

number of matrix elements / order	7	8	9	10	11	12	13	14	15	16	17
sequential	0.054	0.054	0.047	0.044	0.043	0.04	0.039	0.035	0.033	0.031	0.030
random	0.059	0.062	0.057	0.048	0.045	0.046	0.044	0.035	0.033	0.032	0.029
Ross	0.091	0.081	0.053	0.048	0.042	0.033	0.032	0.030	0.028	0.026	0.025

number of matrix elements / order	18	19	20	21	22	23	24	25	26	27	28
sequential	0.029	0.021	0.015	0.015	0.010	0.010	0.007	0.006	0.003	0.003	0.000
random	0.028	0.023	0.02	0.017	0.015	0.010	0.010	0.008	0.008	0.006	0.000
Ross	0.024	0.021	0.017	0.016	0.015	0.014	0.011	0.009	0.009	0.005	0.000

2.3 Spearman rank correlation

We calculated the resulted order of alternatives in each step for each subject and for every task, and correlated these values with the final order. The following tables summarize the Spearman coefficients. The coefficient gives +1 if the ranks are identical, and gives 1 if they are totally reversed. These figures correspond to Table 12 in section 3.2.

Table 19 Spearman rank correlation coefficients for 4×4 incomplete matrices

number of matrix elements / type	3	4	5	6
summer houses	0.91	0.95	0.96	1.00
maps	0.99	0.98	1.00	1.00

Table 20 Spearman rank correlation coefficients for 6×6 incomplete matrices

number of matrix elements / type	5	6	7	8	9	10	11	12	13	14	15
summer houses	0.82	0.88	0.90	0.92	0.93	0.94	0.96	0.97	0.97	0.98	1.00
maps	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table 21 Spearman rank correlation coefficients for 8×8 incomplete matrices

number of matrix elements / type	7	8	9	10	11	12	13	14	15	16	17
summer houses	0.75	0.77	0.80	0.81	0.84	0.86	0.89	0.91	0.91	0.92	0.94
maps	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00

number of matrix elements / type	18	19	20	21	22	23	24	25	26	27	28
summer houses	0.95	0.95	0.95	0.96	0.96	0.97	0.98	0.98	0.99	0.99	1.00
maps	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

2.4 Experimental design

The experiment was a 2(types)*3(sizes)*3(questioning orders) factorial design determined by the three factors. There were 9 sessions run all together, with 25 participants on average in each session. Every subject received a set of objective and subjective type of stimuli. Thus, we ended up having a total number of 454 complete PC matrices (see Table 22 for details).

These tables correspond to **section 2** in the paper.

Table 22 Frequencies of PC matrices across factors

experiment type / number of alternatives	objective	subjective	total
	230	224	454
4	68	69	137
6	80	77	157
8	82	78	160
questioning order			
sequential	75	75	150
random	77	74	151
Ross	78	75	153

When checking the data we found that some answer sheets contained either missing or obviously incorrect comparisons. Therefore, the final number of comparisons was 445 datasheets (see Table 23 and Table 24 for details).

Table 23 Frequencies of PC matrices across factors

experiment type / number of alternatives	Objective	subjective	total
	222	223	445
4	66	68	134
6	75	77	152
8	81	78	159
questioning order			
sequential	75	74	149
random	75	74	149
Ross	72	75	147

Table 24 Frequencies of PC matrices across factors

Matrix size / Questioning order	Objective (Country size)			Subjective (Summer houses)			
	Sequential	Random	Ross	Sequential	Random	Ross	Total
4x4	22	23	21	23	22	23	134
6x6	26	25	24	25	26	26	152
8x8	27	27	27	26	26	26	159
Total	75	75	72	74	74	75	445

3 Probability matrices

One can ask that in a given questioning order according to the final order how many matrix elements are on the right place after a certain number of pairwise comparisons are executed? The cells in the following tables contain the proportion of those matrix elements which are on the proper place according to the final order. Thus, the probability matrix shows the position of the elements of the complete PC matrices after step by step comparisons in %. These probability matrices correspond to Table 13 in section 3.2.

3.1 4x4 matrices

These probability matrices show the position of the elements of the complete PC matrices after step by step comparisons in % for each type for 4×4 matrices.

a) summer house

Number of comparisons: 3

	1	2	3	4
1	86.76	11.76	1.47	0.00
2	13.24	73.53	11.76	1.47
3	0.00	14.71	70.59	14.71
4	0.00	0.00	16.18	83.82

Number of comparisons: 4

	1	2	3	4
1	92.65	5.88	1.47	0.00
2	7.35	85.29	7.35	0.00
3	0.00	8.82	85.29	5.88
4	0.00	0.00	5.88	94.12

Number of comparisons: 5

	1	2	3	4
1	97.06	1.47	1.47	0.00
2	2.94	92.65	4.41	0.00
3	0.00	5.88	86.76	7.35
4	0.00	0.00	7.35	92.65

Number of comparisons: 6

	1	2	3	4
1	100.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00
3	0.00	0.00	100.00	0.00
4	0.00	0.00	0.00	100.00

b) map

Number of comparisons: 3

	1	2	3	4
1	100.00	0.00	0.00	0.00
2	0.00	93.94	6.06	0.00
3	0.00	6.06	93.94	0.00
4	0.00	0.00	0.00	100.00

Number of comparisons: 4

	1	2	3	4
1	100.00	0.00	0.00	0.00
2	0.00	89.39	10.61	0.00
3	0.00	10.61	89.39	0.00
4	0.00	0.00	0.00	100.00

Number of comparisons: 5

	1	2	3	4
1	100.00	0.00	0.00	0.00
2	0.00	98.48	1.52	0.00
3	0.00	1.52	98.48	0.00
4	0.00	0.00	0.00	100.00

Number of comparisons: 6

	1	2	3	4
1	100.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00
3	0.00	0.00	100.00	0.00
4	0.00	0.00	0.00	100.00

3.2 6x6 matrices

These probability matrices show the position of the elements of the complete PC matrices after step by step comparisons in % for each type for 6×6 matrices.

a) summer house

Number of comparisons: 5

	1	2	3	4	5	6
1	61.04	24.68	10.39	3.90	0.00	0.00
2	27.27	40.26	22.08	7.79	2.60	0.00
3	9.09	23.38	42.86	18.18	2.60	3.90
4	1.30	10.39	19.48	45.45	19.48	3.90
5	1.30	1.30	1.30	19.48	44.16	32.47
6	0.00	0.00	3.90	5.19	31.17	59.74

Number of comparisons: 6

	1	2	3	4	5	6
1	70.13	23.38	1.30	5.19	0.00	0.00
2	25.97	45.45	20.78	5.19	2.60	0.00
3	2.60	23.38	61.04	7.79	3.90	1.30
4	0.00	7.79	15.58	64.94	10.39	1.30
5	1.30	0.00	1.30	15.58	50.65	31.17
6	0.00	0.00	0.00	1.30	32.47	66.23

Number of comparisons: 7

	1	2	3	4	5	6
1	75.32	18.18	2.60	2.60	1.30	0.00
2	22.08	54.55	16.88	6.49	0.00	0.00
3	1.30	24.68	58.44	12.99	2.60	0.00
4	0.00	2.60	22.08	62.34	10.39	2.60
5	1.30	0.00	0.00	12.99	59.74	25.97
6	0.00	0.00	0.00	2.60	25.97	71.43

Number of comparisons: 8

	1	2	3	4	5	6
1	72.73	20.78	3.90	2.60	0.00	0.00
2	23.38	54.55	18.18	2.60	1.30	0.00
3	2.60	22.08	64.94	9.09	1.30	0.00
4	0.00	2.60	12.99	74.03	6.49	3.90
5	1.30	0.00	0.00	9.09	74.03	15.58
6	0.00	0.00	0.00	2.60	16.88	80.52

Number of comparisons: 9

	1	2	3	4	5	6
1	77.92	18.18	3.90	0.00	0.00	0.00
2	19.48	58.44	19.48	1.30	1.30	0.00
3	1.30	20.78	63.64	14.29	0.00	0.00
4	0.00	2.60	10.39	76.62	7.79	2.60
5	1.30	0.00	2.60	6.49	77.92	11.69
6	0.00	0.00	0.00	1.30	12.99	85.71

b) map

Number of comparisons: 5

	1	2	3	4	5	6
1	94.67	5.33	0.00	0.00	0.00	0.00
2	5.33	90.67	4.00	0.00	0.00	0.00
3	0.00	4.00	89.33	6.67	0.00	0.00
4	0.00	0.00	6.67	90.67	2.67	0.00
5	0.00	0.00	0.00	2.67	93.33	4.00
6	0.00	0.00	0.00	0.00	4.00	96.00

Number of comparisons: 6

	1	2	3	4	5	6
1	94.67	5.33	0.00	0.00	0.00	0.00
2	5.33	94.67	0.00	0.00	0.00	0.00
3	0.00	0.00	96.00	4.00	0.00	0.00
4	0.00	0.00	4.00	94.67	1.33	0.00
5	0.00	0.00	0.00	1.33	96.00	2.67
6	0.00	0.00	0.00	0.00	2.67	97.33

Number of comparisons: 7

	1	2	3	4	5	6
1	92.00	8.00	0.00	0.00	0.00	0.00
2	8.00	92.00	0.00	0.00	0.00	0.00
3	0.00	0.00	93.33	6.67	0.00	0.00
4	0.00	0.00	6.67	93.33	0.00	0.00
5	0.00	0.00	0.00	0.00	97.33	2.67
6	0.00	0.00	0.00	0.00	2.67	97.33

Number of comparisons: 8

	1	2	3	4	5	6
1	97.33	2.67	0.00	0.00	0.00	0.00
2	2.67	97.33	0.00	0.00	0.00	0.00
3	0.00	0.00	98.67	1.33	0.00	0.00
4	0.00	0.00	1.33	98.67	0.00	0.00
5	0.00	0.00	0.00	0.00	97.33	2.67
6	0.00	0.00	0.00	0.00	2.67	97.33

Number of comparisons: 9

	1	2	3	4	5	6
1	96.00	4.00	0.00	0.00	0.00	0.00
2	4.00	96.00	0.00	0.00	0.00	0.00
3	0.00	0.00	98.67	1.33	0.00	0.00
4	0.00	0.00	1.33	98.67	0.00	0.00
5	0.00	0.00	0.00	0.00	97.33	2.67
6	0.00	0.00	0.00	0.00	2.67	97.33

a) summer house

Number of comparisons: 10

	1	2	3	4	5	6
1	83.12	15.58	0.00	1.30	0.00	0.00
2	14.29	64.94	18.18	1.30	0.00	1.30
3	1.30	16.88	72.73	9.09	0.00	0.00
4	0.00	2.60	7.79	80.52	7.79	1.30
5	1.30	0.00	1.30	7.79	72.73	16.88
6	0.00	0.00	0.00	0.00	19.48	80.52

Number of comparisons: 11

	1	2	3	4	5	6
1	84.42	15.58	0.00	0.00	0.00	0.00
2	14.29	64.94	18.18	1.30	0.00	1.30
3	1.30	18.18	75.32	3.90	1.30	0.00
4	0.00	1.30	5.19	92.21	1.30	0.00
5	0.00	0.00	1.30	1.30	87.01	10.39
6	0.00	0.00	0.00	1.30	10.39	88.31

Number of comparisons: 12

	1	2	3	4	5	6
1	85.71	12.99	1.30	0.00	0.00	0.00
2	12.99	71.43	14.29	0.00	1.30	0.00
3	1.30	14.29	80.52	2.60	1.30	0.00
4	0.00	1.30	2.60	94.81	1.30	0.00
5	0.00	0.00	1.30	1.30	88.31	9.09
6	0.00	0.00	0.00	1.30	7.79	90.91

Number of comparisons: 13

	1	2	3	4	5	6
1	89.61	9.09	1.30	0.00	0.00	0.00
2	10.39	79.22	9.09	0.00	0.00	1.30
3	0.00	11.69	84.42	3.90	0.00	0.00
4	0.00	0.00	5.19	93.51	1.30	0.00
5	0.00	0.00	0.00	2.60	90.91	6.49
6	0.00	0.00	0.00	0.00	7.79	92.21

Number of comparisons: 14

	1	2	3	4	5	6
1	92.21	6.49	1.30	0.00	0.00	0.00
2	6.49	84.42	7.79	0.00	0.00	1.30
3	1.30	9.09	89.61	0.00	0.00	0.00
4	0.00	0.00	1.30	97.40	1.30	0.00
5	0.00	0.00	0.00	2.60	94.81	2.60
6	0.00	0.00	0.00	0.00	3.90	96.10

b) map

Number of comparisons: 10

	1	2	3	4	5	6
1	98.67	1.33	0.00	0.00	0.00	0.00
2	1.33	98.67	0.00	0.00	0.00	0.00
3	0.00	0.00	98.67	1.33	0.00	0.00
4	0.00	0.00	1.33	98.67	0.00	0.00
5	0.00	0.00	0.00	0.00	98.67	1.33
6	0.00	0.00	0.00	0.00	1.33	98.67

Number of comparisons: 11

	1	2	3	4	5	6
1	98.67	1.33	0.00	0.00	0.00	0.00
2	1.33	98.67	0.00	0.00	0.00	0.00
3	0.00	0.00	97.33	2.67	0.00	0.00
4	0.00	0.00	2.67	97.33	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 12

	1	2	3	4	5	6
1	100.00	0.00	0.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00	0.00	0.00
3	0.00	0.00	97.33	2.67	0.00	0.00
4	0.00	0.00	2.67	97.33	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 13

	1	2	3	4	5	6
1	100.00	0.00	0.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 14

	1	2	3	4	5	6
1	100.00	0.00	0.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00

a) summer house

Number of comparisons: 15

	1	2	3	4	5	6
1	100.00	0.00	0.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00

b) map

Number of comparisons: 15

	1	2	3	4	5	6
1	100.00	0.00	0.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00

3.3 8x8 matrices

These probability matrices show the position of the elements of the complete PC matrices after step by step comparisons in % for each type for 8×8 matrices.

a) summer house

Number of comparisons: 7

	1	2	3	4	5	6	7	8
1	48.72	20.51	21.79	3.85	1.28	2.56	1.28	0.00
2	26.92	32.05	23.08	7.69	7.69	0.00	2.56	0.00
3	12.82	20.51	25.64	20.51	7.69	5.13	7.69	0.00
4	7.69	11.54	16.67	29.49	17.95	7.69	6.41	2.56
5	2.56	6.41	10.26	16.67	26.92	20.51	10.26	6.41
6	1.28	5.13	0.00	14.10	16.67	28.21	19.23	15.38
7	0.00	2.56	1.28	6.41	14.10	20.51	32.05	23.08
8	0.00	1.28	1.28	1.28	7.69	15.38	20.51	52.56

Number of comparisons: 8

	1	2	3	4	5	6	7	8
1	46.15	29.49	14.10	5.13	0.00	5.13	0.00	0.00
2	26.92	32.05	25.64	5.13	7.69	1.28	1.28	0.00
3	15.38	16.67	30.77	19.23	7.69	5.13	3.85	1.28
4	8.97	8.97	14.10	37.18	15.38	8.97	3.85	2.56
5	1.28	6.41	10.26	16.67	28.21	19.23	11.54	6.41
6	0.00	3.85	2.56	7.69	21.79	30.77	20.51	12.82
7	1.28	1.28	1.28	6.41	14.10	15.38	34.62	25.64
8	0.00	1.28	1.28	2.56	5.13	14.10	24.36	51.28

Number of comparisons: 9

	1	2	3	4	5	6	7	8
1	50.00	23.08	16.67	7.69	0.00	2.56	0.00	0.00
2	25.64	33.33	25.64	8.97	3.85	1.28	1.28	0.00
3	12.82	21.79	34.62	12.82	10.26	2.56	3.85	1.28
4	6.41	14.10	16.67	32.05	17.95	7.69	1.28	3.85
5	5.13	3.85	3.85	23.08	34.62	14.10	11.54	3.85
6	0.00	2.56	2.56	10.26	16.67	39.74	14.10	14.10
7	0.00	1.28	0.00	3.85	12.82	17.95	35.90	28.21
8	0.00	0.00	0.00	1.28	3.85	14.10	32.05	48.72

Number of comparisons: 10

	1	2	3	4	5	6	7	8
1	48.72	26.92	15.38	5.13	1.28	2.56	0.00	0.00
2	24.36	35.90	24.36	10.26	2.56	1.28	1.28	0.00
3	16.67	16.67	34.62	16.67	8.97	2.56	2.56	1.28
4	5.13	14.10	16.67	38.46	12.82	7.69	1.28	3.85
5	3.85	5.13	5.13	19.23	39.74	11.54	10.26	5.13
6	0.00	1.28	3.85	5.13	21.79	37.18	19.23	11.54
7	1.28	0.00	0.00	3.85	10.26	20.51	35.90	28.21
8	0.00	0.00	0.00	1.28	2.56	16.67	29.49	50.00

b) map

Number of comparisons: 7

	1	2	3	4	5	6	7	8
1	88.89	11.11	0.00	0.00	0.00	0.00	0.00	0.00
2	11.11	83.95	4.94	0.00	0.00	0.00	0.00	0.00
3	0.00	3.70	85.19	11.11	0.00	0.00	0.00	0.00
4	0.00	1.23	9.88	74.07	14.81	0.00	0.00	0.00
5	0.00	0.00	0.00	14.81	71.60	11.11	2.47	0.00
6	0.00	0.00	0.00	0.00	13.58	79.01	7.41	0.00
7	0.00	0.00	0.00	0.00	0.00	9.88	90.12	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 8

	1	2	3	4	5	6	7	8
1	87.65	11.11	1.23	0.00	0.00	0.00	0.00	0.00
2	12.35	85.19	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	86.42	11.11	0.00	0.00	0.00	0.00
4	0.00	1.23	9.88	71.60	17.28	0.00	0.00	0.00
5	0.00	0.00	0.00	16.05	66.67	14.81	2.47	0.00
6	0.00	0.00	0.00	1.23	16.05	76.54	6.17	0.00
7	0.00	0.00	0.00	0.00	0.00	8.64	91.36	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 9

	1	2	3	4	5	6	7	8
1	90.12	8.64	1.23	0.00	0.00	0.00	0.00	0.00
2	9.88	86.42	3.70	0.00	0.00	0.00	0.00	0.00
3	0.00	3.70	87.65	7.41	1.23	0.00	0.00	0.00
4	0.00	1.23	7.41	79.01	12.35	0.00	0.00	0.00
5	0.00	0.00	0.00	12.35	74.07	13.58	0.00	0.00
6	0.00	0.00	0.00	1.23	12.35	79.01	7.41	0.00
7	0.00	0.00	0.00	0.00	0.00	7.41	92.59	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 10

	1	2	3	4	5	6	7	8
1	91.36	7.41	1.23	0.00	0.00	0.00	0.00	0.00
2	8.64	88.89	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	86.42	9.88	1.23	0.00	0.00	0.00
4	0.00	1.23	9.88	80.25	8.64	0.00	0.00	0.00
5	0.00	0.00	0.00	8.64	80.25	11.11	0.00	0.00
6	0.00	0.00	0.00	1.23	9.88	82.72	6.17	0.00
7	0.00	0.00	0.00	0.00	0.00	6.17	93.83	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

a) summer house

Number of comparisons: 11

	1	2	3	4	5	6	7	8
1	58.97	23.08	11.54	2.56	2.56	1.28	0.00	0.00
2	23.08	37.18	23.08	11.54	3.85	0.00	1.28	0.00
3	8.97	20.51	38.46	15.38	8.97	3.85	2.56	1.28
4	5.13	15.38	20.51	37.18	12.82	5.13	2.56	1.28
5	2.56	2.56	3.85	23.08	38.46	19.23	3.85	6.41
6	0.00	1.28	2.56	6.41	21.79	38.46	23.08	6.41
7	1.28	0.00	0.00	2.56	7.69	21.79	37.18	29.49
8	0.00	0.00	0.00	1.28	3.85	10.26	29.49	55.13

Number of comparisons: 12

	1	2	3	4	5	6	7	8
1	62.82	21.79	10.26	2.56	0.00	2.56	0.00	0.00
2	19.23	39.74	26.92	10.26	2.56	0.00	1.28	0.00
3	11.54	24.36	33.33	15.38	10.26	2.56	1.28	1.28
4	3.85	10.26	24.36	39.74	14.10	3.85	2.56	1.28
5	2.56	1.28	3.85	24.36	38.46	17.95	5.13	6.41
6	0.00	1.28	1.28	5.13	25.64	41.03	23.08	2.56
7	0.00	1.28	0.00	1.28	7.69	25.64	39.74	24.36
8	0.00	0.00	0.00	1.28	1.28	6.41	26.92	64.10

Number of comparisons: 13

	1	2	3	4	5	6	7	8
1	67.95	20.51	8.97	2.56	0.00	0.00	0.00	0.00
2	23.08	42.31	20.51	11.54	1.28	0.00	1.28	0.00
3	3.85	25.64	41.03	16.67	8.97	2.56	1.28	0.00
4	3.85	7.69	24.36	42.31	14.10	6.41	1.28	0.00
5	1.28	2.56	3.85	20.51	46.15	16.67	2.56	6.41
6	0.00	1.28	1.28	5.13	21.79	47.44	20.51	2.56
7	0.00	0.00	0.00	1.28	6.41	21.79	48.72	21.79
8	0.00	0.00	0.00	0.00	1.28	5.13	24.36	69.23

Number of comparisons: 14

	1	2	3	4	5	6	7	8
1	66.67	21.79	10.26	1.28	0.00	0.00	0.00	0.00
2	26.92	47.44	16.67	7.69	1.28	0.00	0.00	0.00
3	5.13	21.79	42.31	20.51	7.69	0.00	2.56	0.00
4	1.28	6.41	23.08	47.44	16.67	2.56	2.56	0.00
5	0.00	2.56	5.13	16.67	48.72	17.95	5.13	3.85
6	0.00	0.00	2.56	5.13	19.23	50.00	17.95	5.13
7	0.00	0.00	0.00	1.28	5.13	23.08	50.00	20.51
8	0.00	0.00	0.00	0.00	1.28	6.41	21.79	70.51

b) map

Number of comparisons: 11

	1	2	3	4	5	6	7	8
1	93.83	4.94	0.00	1.23	0.00	0.00	0.00	0.00
2	6.17	91.36	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	88.89	8.64	0.00	0.00	0.00	0.00
4	0.00	1.23	8.64	82.72	7.41	0.00	0.00	0.00
5	0.00	0.00	0.00	7.41	87.65	4.94	0.00	0.00
6	0.00	0.00	0.00	0.00	3.70	91.36	4.94	0.00
7	0.00	0.00	0.00	0.00	1.23	3.70	95.06	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 12

	1	2	3	4	5	6	7	8
1	92.59	6.17	0.00	0.00	1.23	0.00	0.00	0.00
2	7.41	90.12	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	91.36	6.17	0.00	0.00	0.00	0.00
4	0.00	1.23	4.94	86.42	7.41	0.00	0.00	0.00
5	0.00	0.00	1.23	7.41	87.65	3.70	0.00	0.00
6	0.00	0.00	0.00	0.00	2.47	91.36	6.17	0.00
7	0.00	0.00	0.00	0.00	1.23	4.94	93.83	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 13

	1	2	3	4	5	6	7	8
1	92.59	6.17	0.00	0.00	1.23	0.00	0.00	0.00
2	7.41	90.12	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	88.89	8.64	0.00	0.00	0.00	0.00
4	0.00	1.23	7.41	88.89	2.47	0.00	0.00	0.00
5	0.00	0.00	1.23	2.47	93.83	2.47	0.00	0.00
6	0.00	0.00	0.00	0.00	2.47	92.59	4.94	0.00
7	0.00	0.00	0.00	0.00	0.00	4.94	95.06	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 14

	1	2	3	4	5	6	7	8
1	96.30	3.70	0.00	0.00	0.00	0.00	0.00	0.00
2	3.70	95.06	1.23	0.00	0.00	0.00	0.00	0.00
3	0.00	1.23	91.36	7.41	0.00	0.00	0.00	0.00
4	0.00	0.00	7.41	87.65	4.94	0.00	0.00	0.00
5	0.00	0.00	0.00	4.94	91.36	3.70	0.00	0.00
6	0.00	0.00	0.00	0.00	3.70	92.59	3.70	0.00
7	0.00	0.00	0.00	0.00	0.00	3.70	96.30	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

a) summer house

Number of comparisons: 15

	1	2	3	4	5	6	7	8
1	66.67	19.23	14.10	0.00	0.00	0.00	0.00	0.00
2	29.49	44.87	16.67	6.41	1.28	1.28	0.00	0.00
3	2.56	25.64	42.31	19.23	7.69	0.00	2.56	0.00
4	1.28	8.97	19.23	51.28	14.10	2.56	1.28	1.28
5	0.00	1.28	5.13	17.95	53.85	14.10	5.13	2.56
6	0.00	0.00	2.56	3.85	16.67	55.13	17.95	3.85
7	0.00	0.00	0.00	1.28	5.13	20.51	57.69	15.38
8	0.00	0.00	0.00	0.00	1.28	6.41	15.38	76.92

Number of comparisons: 16

	1	2	3	4	5	6	7	8
1	69.23	17.95	12.82	0.00	0.00	0.00	0.00	0.00
2	26.92	48.72	19.23	3.85	0.00	1.28	0.00	0.00
3	2.56	25.64	41.03	20.51	6.41	1.28	2.56	0.00
4	1.28	6.41	19.23	53.85	16.67	1.28	1.28	0.00
5	0.00	1.28	3.85	16.67	57.69	14.10	5.13	1.28
6	0.00	0.00	2.56	5.13	11.54	60.26	16.67	3.85
7	0.00	0.00	1.28	0.00	6.41	16.67	62.82	12.82
8	0.00	0.00	0.00	0.00	1.28	5.13	11.54	82.05

Number of comparisons: 17

	1	2	3	4	5	6	7	8
1	78.21	12.82	8.97	0.00	0.00	0.00	0.00	0.00
2	19.23	55.13	20.51	5.13	0.00	0.00	0.00	0.00
3	1.28	26.92	44.87	21.79	3.85	1.28	0.00	0.00
4	1.28	5.13	19.23	55.13	14.10	3.85	1.28	0.00
5	0.00	0.00	3.85	14.10	64.10	12.82	3.85	1.28
6	0.00	0.00	1.28	3.85	10.26	60.26	21.79	2.56
7	0.00	0.00	1.28	0.00	7.69	16.67	60.26	14.10
8	0.00	0.00	0.00	0.00	0.00	5.13	12.82	82.05

Number of comparisons: 18

	1	2	3	4	5	6	7	8
1	80.77	12.82	6.41	0.00	0.00	0.00	0.00	0.00
2	16.67	60.26	17.95	5.13	0.00	0.00	0.00	0.00
3	1.28	23.08	53.85	19.23	0.00	2.56	0.00	0.00
4	1.28	3.85	19.23	56.41	16.67	2.56	0.00	0.00
5	0.00	0.00	1.28	15.38	69.23	10.26	2.56	1.28
6	0.00	0.00	1.28	3.85	7.69	67.95	17.95	1.28
7	0.00	0.00	0.00	0.00	6.41	14.10	64.10	15.38
8	0.00	0.00	0.00	0.00	0.00	2.56	15.38	82.05

b) map

Number of comparisons: 15

	1	2	3	4	5	6	7	8
1	97.53	2.47	0.00	0.00	0.00	0.00	0.00	0.00
2	2.47	96.30	1.23	0.00	0.00	0.00	0.00	0.00
3	0.00	1.23	92.59	6.17	0.00	0.00	0.00	0.00
4	0.00	0.00	6.17	88.89	4.94	0.00	0.00	0.00
5	0.00	0.00	0.00	4.94	91.36	3.70	0.00	0.00
6	0.00	0.00	0.00	0.00	3.70	93.83	2.47	0.00
7	0.00	0.00	0.00	0.00	0.00	2.47	97.53	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 16

	1	2	3	4	5	6	7	8
1	97.53	2.47	0.00	0.00	0.00	0.00	0.00	0.00
2	2.47	95.06	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	92.59	4.94	0.00	0.00	0.00	0.00
4	0.00	0.00	4.94	90.12	4.94	0.00	0.00	0.00
5	0.00	0.00	0.00	4.94	92.59	2.47	0.00	0.00
6	0.00	0.00	0.00	0.00	2.47	95.06	2.47	0.00
7	0.00	0.00	0.00	0.00	0.00	2.47	97.53	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 17

	1	2	3	4	5	6	7	8
1	97.53	2.47	0.00	0.00	0.00	0.00	0.00	0.00
2	2.47	96.30	1.23	0.00	0.00	0.00	0.00	0.00
3	0.00	1.23	90.12	8.64	0.00	0.00	0.00	0.00
4	0.00	0.00	8.64	87.65	3.70	0.00	0.00	0.00
5	0.00	0.00	0.00	3.70	93.83	2.47	0.00	0.00
6	0.00	0.00	0.00	0.00	2.47	95.06	2.47	0.00
7	0.00	0.00	0.00	0.00	0.00	2.47	97.53	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 18

	1	2	3	4	5	6	7	8
1	97.53	2.47	0.00	0.00	0.00	0.00	0.00	0.00
2	2.47	96.30	1.23	0.00	0.00	0.00	0.00	0.00
3	0.00	1.23	91.36	7.41	0.00	0.00	0.00	0.00
4	0.00	0.00	7.41	90.12	2.47	0.00	0.00	0.00
5	0.00	0.00	0.00	2.47	96.30	1.23	0.00	0.00
6	0.00	0.00	0.00	0.00	1.23	96.30	2.47	0.00
7	0.00	0.00	0.00	0.00	0.00	2.47	97.53	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

a) summer house

Number of comparisons: 19

	1	2	3	4	5	6	7	8
1	82.05	11.54	6.41	0.00	0.00	0.00	0.00	0.00
2	14.10	61.54	17.95	5.13	1.28	0.00	0.00	0.00
3	2.56	23.08	51.28	19.23	2.56	1.28	0.00	0.00
4	1.28	3.85	21.79	53.85	15.38	2.56	1.28	0.00
5	0.00	0.00	1.28	17.95	69.23	8.97	1.28	1.28
6	0.00	0.00	1.28	3.85	7.69	69.23	17.95	0.00
7	0.00	0.00	0.00	0.00	3.85	16.67	66.67	12.82
8	0.00	0.00	0.00	0.00	0.00	1.28	12.82	85.90

Number of comparisons: 20

	1	2	3	4	5	6	7	8
1	85.90	10.26	3.85	0.00	0.00	0.00	0.00	0.00
2	11.54	64.10	16.67	7.69	0.00	0.00	0.00	0.00
3	2.56	21.79	56.41	16.67	1.28	1.28	0.00	0.00
4	0.00	3.85	21.79	55.13	15.38	1.28	2.56	0.00
5	0.00	0.00	0.00	17.95	69.23	11.54	1.28	0.00
6	0.00	0.00	1.28	2.56	8.97	70.51	12.82	3.85
7	0.00	0.00	0.00	0.00	5.13	14.10	65.38	15.38
8	0.00	0.00	0.00	0.00	0.00	1.28	17.95	80.77

Number of comparisons: 21

	1	2	3	4	5	6	7	8
1	88.46	7.69	3.85	0.00	0.00	0.00	0.00	0.00
2	8.97	65.38	20.51	5.13	0.00	0.00	0.00	0.00
3	2.56	24.36	56.41	14.10	1.28	1.28	0.00	0.00
4	0.00	2.56	17.95	61.54	15.38	1.28	1.28	0.00
5	0.00	0.00	0.00	16.67	73.08	10.26	0.00	0.00
6	0.00	0.00	1.28	2.56	6.41	78.21	8.97	2.56
7	0.00	0.00	0.00	0.00	3.85	8.97	78.21	8.97
8	0.00	0.00	0.00	0.00	0.00	0.00	11.54	88.46

Number of comparisons: 22

	1	2	3	4	5	6	7	8
1	85.90	11.54	2.56	0.00	0.00	0.00	0.00	0.00
2	10.26	71.79	8.97	8.97	0.00	0.00	0.00	0.00
3	3.85	15.38	65.38	14.10	0.00	1.28	0.00	0.00
4	0.00	1.28	21.79	60.26	14.10	1.28	1.28	0.00
5	0.00	0.00	0.00	14.10	78.21	7.69	0.00	0.00
6	0.00	0.00	1.28	1.28	7.69	78.21	7.69	3.85
7	0.00	0.00	0.00	1.28	0.00	11.54	76.92	10.26
8	0.00	0.00	0.00	0.00	0.00	0.00	14.10	85.90

b) map

Number of comparisons: 19

	1	2	3	4	5	6	7	8
1	97.53	2.47	0.00	0.00	0.00	0.00	0.00	0.00
2	2.47	96.30	1.23	0.00	0.00	0.00	0.00	0.00
3	0.00	1.23	91.36	7.41	0.00	0.00	0.00	0.00
4	0.00	0.00	7.41	90.12	2.47	0.00	0.00	0.00
5	0.00	0.00	0.00	2.47	96.30	1.23	0.00	0.00
6	0.00	0.00	0.00	0.00	1.23	98.77	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 20

	1	2	3	4	5	6	7	8
1	97.53	2.47	0.00	0.00	0.00	0.00	0.00	0.00
2	2.47	96.30	1.23	0.00	0.00	0.00	0.00	0.00
3	0.00	1.23	92.59	6.17	0.00	0.00	0.00	0.00
4	0.00	0.00	6.17	92.59	1.23	0.00	0.00	0.00
5	0.00	0.00	0.00	1.23	97.53	1.23	0.00	0.00
6	0.00	0.00	0.00	0.00	1.23	98.77	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 21

	1	2	3	4	5	6	7	8
1	98.77	1.23	0.00	0.00	0.00	0.00	0.00	0.00
2	1.23	96.30	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	91.36	6.17	0.00	0.00	0.00	0.00
4	0.00	0.00	6.17	92.59	1.23	0.00	0.00	0.00
5	0.00	0.00	0.00	1.23	96.30	2.47	0.00	0.00
6	0.00	0.00	0.00	0.00	2.47	96.30	1.23	0.00
7	0.00	0.00	0.00	0.00	0.00	1.23	98.77	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 22

	1	2	3	4	5	6	7	8
1	98.77	1.23	0.00	0.00	0.00	0.00	0.00	0.00
2	1.23	96.30	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	92.59	4.94	0.00	0.00	0.00	0.00
4	0.00	0.00	4.94	93.83	1.23	0.00	0.00	0.00
5	0.00	0.00	0.00	1.23	96.30	2.47	0.00	0.00
6	0.00	0.00	0.00	0.00	2.47	96.30	1.23	0.00
7	0.00	0.00	0.00	0.00	0.00	1.23	98.77	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

a) summer house

Number of comparisons: 23

	1	2	3	4	5	6	7	8
1	87.18	8.97	2.56	1.28	0.00	0.00	0.00	0.00
2	10.26	78.21	11.54	0.00	0.00	0.00	0.00	0.00
3	2.56	11.54	69.23	15.38	0.00	1.28	0.00	0.00
4	0.00	1.28	15.38	67.95	12.82	1.28	1.28	0.00
5	0.00	0.00	0.00	12.82	79.49	7.69	0.00	0.00
6	0.00	0.00	1.28	1.28	7.69	76.92	11.54	1.28
7	0.00	0.00	0.00	1.28	0.00	12.82	76.92	8.97
8	0.00	0.00	0.00	0.00	0.00	0.00	10.26	89.74

Number of comparisons: 24

	1	2	3	4	5	6	7	8
1	87.18	10.26	2.56	0.00	0.00	0.00	0.00	0.00
2	11.54	80.77	7.69	0.00	0.00	0.00	0.00	0.00
3	1.28	8.97	76.92	11.54	0.00	1.28	0.00	0.00
4	0.00	0.00	12.82	75.64	8.97	1.28	1.28	0.00
5	0.00	0.00	0.00	10.26	82.05	7.69	0.00	0.00
6	0.00	0.00	0.00	2.56	7.69	79.49	8.97	1.28
7	0.00	0.00	0.00	0.00	1.28	10.26	82.05	6.41
8	0.00	0.00	0.00	0.00	0.00	0.00	7.69	92.31

Number of comparisons: 25

	1	2	3	4	5	6	7	8
1	92.31	7.69	0.00	0.00	0.00	0.00	0.00	0.00
2	7.69	87.18	5.13	0.00	0.00	0.00	0.00	0.00
3	0.00	5.13	85.90	7.69	0.00	1.28	0.00	0.00
4	0.00	0.00	8.97	83.33	6.41	0.00	1.28	0.00
5	0.00	0.00	0.00	7.69	87.18	5.13	0.00	0.00
6	0.00	0.00	0.00	1.28	5.13	83.33	8.97	1.28
7	0.00	0.00	0.00	0.00	1.28	10.26	83.33	5.13
8	0.00	0.00	0.00	0.00	0.00	0.00	6.41	93.59

Number of comparisons: 26

	1	2	3	4	5	6	7	8
1	92.31	7.69	0.00	0.00	0.00	0.00	0.00	0.00
2	7.69	91.03	1.28	0.00	0.00	0.00	0.00	0.00
3	0.00	1.28	92.31	5.13	0.00	1.28	0.00	0.00
4	0.00	0.00	6.41	89.74	3.85	0.00	0.00	0.00
5	0.00	0.00	0.00	5.13	92.31	2.56	0.00	0.00
6	0.00	0.00	0.00	0.00	3.85	87.18	8.97	0.00
7	0.00	0.00	0.00	0.00	0.00	8.97	84.62	6.41
8	0.00	0.00	0.00	0.00	0.00	0.00	6.41	93.59

b) map

Number of comparisons: 23

	1	2	3	4	5	6	7	8
1	98.77	1.23	0.00	0.00	0.00	0.00	0.00	0.00
2	1.23	96.30	2.47	0.00	0.00	0.00	0.00	0.00
3	0.00	2.47	92.59	4.94	0.00	0.00	0.00	0.00
4	0.00	0.00	4.94	93.83	1.23	0.00	0.00	0.00
5	0.00	0.00	0.00	1.23	96.30	2.47	0.00	0.00
6	0.00	0.00	0.00	0.00	2.47	96.30	1.23	0.00
7	0.00	0.00	0.00	0.00	0.00	1.23	98.77	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 24

	1	2	3	4	5	6	7	8
1	98.77	1.23	0.00	0.00	0.00	0.00	0.00	0.00
2	1.23	98.77	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	97.53	2.47	0.00	0.00	0.00	0.00
4	0.00	0.00	2.47	96.30	1.23	0.00	0.00	0.00
5	0.00	0.00	0.00	1.23	97.53	1.23	0.00	0.00
6	0.00	0.00	0.00	0.00	1.23	98.77	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 25

	1	2	3	4	5	6	7	8
1	98.77	1.23	0.00	0.00	0.00	0.00	0.00	0.00
2	1.23	98.77	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	97.53	2.47	0.00	0.00	0.00	0.00
4	0.00	0.00	2.47	97.53	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 26

	1	2	3	4	5	6	7	8
1	98.77	1.23	0.00	0.00	0.00	0.00	0.00	0.00
2	1.23	98.77	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

a) summer house

Number of comparisons: 27

	1	2	3	4	5	6	7	8
1	93.59	6.41	0.00	0.00	0.00	0.00	0.00	0.00
2	6.41	93.59	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	93.59	5.13	0.00	1.28	0.00	0.00
4	0.00	0.00	6.41	91.03	2.56	0.00	0.00	0.00
5	0.00	0.00	0.00	3.85	94.87	1.28	0.00	0.00
6	0.00	0.00	0.00	0.00	2.56	93.59	3.85	0.00
7	0.00	0.00	0.00	0.00	0.00	3.85	94.87	1.28
8	0.00	0.00	0.00	0.00	0.00	0.00	1.28	98.72

Number of comparisons: 28

	1	2	3	4	5	6	7	8
1	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

b) map

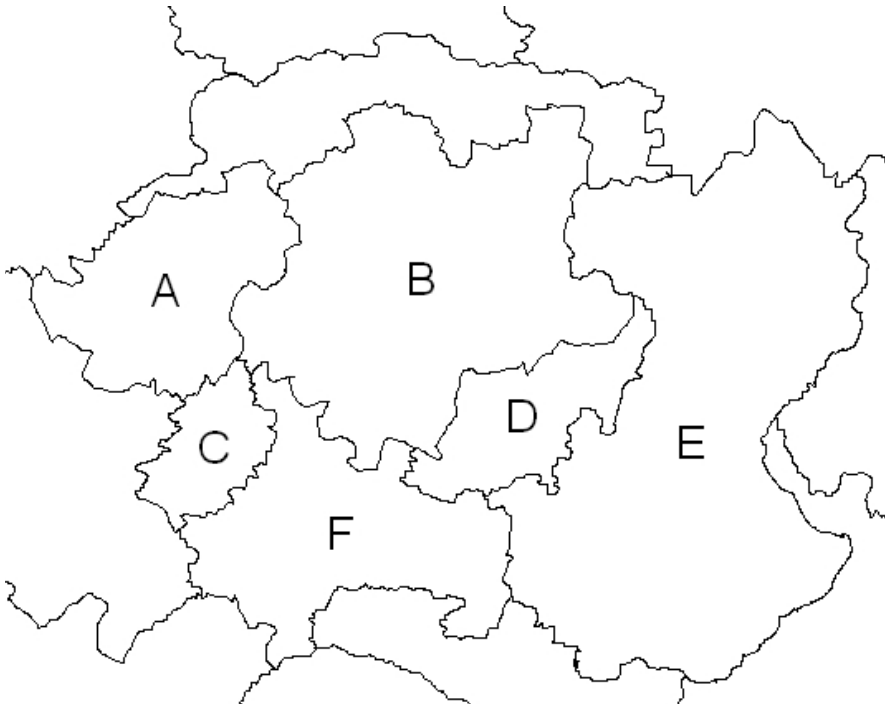
Number of comparisons: 27

	1	2	3	4	5	6	7	8
1	98.77	1.23	0.00	0.00	0.00	0.00	0.00	0.00
2	1.23	98.77	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Number of comparisons: 28

	1	2	3	4	5	6	7	8
1	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

4 Map



5 Summer houses