Transformation of the axially symmetric trimagic 12x12-square **3a** into the non-symmetric trimagic square **3b** by interchanging four entries of the first row with four entries of the second row.

3a (axially symmetric)

4	98	41	142	103	55	45	51	114	120	17	80
46	13	121	86	32	16	126	39	60	105	95	131
101	76	48	84	137	144	73	2	68	49	81	7
118	54	127	52	15	71	134	78	5	35	115	66
83	119	33	6	57	89	58	36	124	107	136	22
117	12	29	92	82	111	20	122	37	135	43	70
28	133	116	53	63	34	125	23	108	10	102	75
62	26	112	139	88	56	87	109	21	38	9	123
27	91	18	93	130	74	11	67	140	110	30	79
44	69	97	61	8	1	72	143	77	96	64	138
99	132	24	59	113	129	19	106	85	40	50	14
141	47	104	3	42	90	100	94	31	25	128	65

↓

3b (not symmetric)

4	98	41	142	103	55	126	39	60	105	17	80
46	13	121	86	32	16	45	51	114	120	95	131
101	76	48	84	137	144	73	2	68	49	81	7
118	54	127	52	15	71	134	78	5	35	115	66
83	119	33	6	57	89	58	36	124	107	136	22
117	12	29	92	82	111	20	122	37	135	43	70
28	133	116	53	63	34	125	23	108	10	102	75
62	26	112	139	88	56	87	109	21	38	9	123
27	91	18	93	130	74	11	67	140	110	30	79
44	69	97	61	8	1	72	143	77	96	64	138
99	132	24	59	113	129	19	106	85	40	50	14
141	47	104	3	42	90	100	94	31	25	128	65

$\Rightarrow$ **Non-symmetric trimagic squares of order 12 exist.**

Transformation of the axially symmetric trimagic 12x12-square **3a** into the non-symmetric trimagic square **3c** by interchanging four entries of row 11 with four entries of row 12.
(We now use the complementary 4-tuples.)

3a (axially symmetric)

4	98	41	142	103	55	45	51	114	120	17	80
46	13	121	86	32	16	126	39	60	105	95	131
101	76	48	84	137	144	73	2	68	49	81	7
118	54	127	52	15	71	134	78	5	35	115	66
83	119	33	6	57	89	58	36	124	107	136	22
117	12	29	92	82	111	20	122	37	135	43	70
28	133	116	53	63	34	125	23	108	10	102	75
62	26	112	139	88	56	87	109	21	38	9	123
27	91	18	93	130	74	11	67	140	110	30	79
44	69	97	61	8	1	72	143	77	96	64	138
99	132	24	59	113	129	19	106	85	40	50	14
141	47	104	3	42	90	100	94	31	25	128	65

↓

3c (not symmetric)

4	98	41	142	103	55	45	51	114	120	17	80
46	13	121	86	32	16	126	39	60	105	95	131
101	76	48	84	137	144	73	2	68	49	81	7
118	54	127	52	15	71	134	78	5	35	115	66
83	119	33	6	57	89	58	36	124	107	136	22
117	12	29	92	82	111	20	122	37	135	43	70
28	133	116	53	63	34	125	23	108	10	102	75
62	26	112	139	88	56	87	109	21	38	9	123
27	91	18	93	130	74	11	67	140	110	30	79
44	69	97	61	8	1	72	143	77	96	64	138
99	132	24	59	113	129	100	94	31	25	50	14
141	47	104	3	42	90	19	106	85	40	128	65

Square 3c is the complement of square 3b.

Transformation of the axially symmetric trimagic 12x12-square **3a** into the axially symmetric trimagic square **3d** by interchanging four entries of row 1 with four entries of row 2 and the complementary four entries of row 11 with four entries of row 12.

3a (axially symmetric)

4	98	41	142	103	55	45	51	114	120	17	80
46	13	121	86	32	16	126	39	60	105	95	131
101	76	48	84	137	144	73	2	68	49	81	7
118	54	127	52	15	71	134	78	5	35	115	66
83	119	33	6	57	89	58	36	124	107	136	22
117	12	29	92	82	111	20	122	37	135	43	70
28	133	116	53	63	34	125	23	108	10	102	75
62	26	112	139	88	56	87	109	21	38	9	123
27	91	18	93	130	74	11	67	140	110	30	79
44	69	97	61	8	1	72	143	77	96	64	138
99	132	24	59	113	129	19	106	85	40	50	14
141	47	104	3	42	90	100	94	31	25	128	65

↓

3d (axially symmetric)

4	98	41	142	103	55	126	39	60	105	17	80
46	13	121	86	32	16	45	51	114	120	95	131
101	76	48	84	137	144	73	2	68	49	81	7
118	54	127	52	15	71	134	78	5	35	115	66
83	119	33	6	57	89	58	36	124	107	136	22
117	12	29	92	82	111	20	122	37	135	43	70
28	133	116	53	63	34	125	23	108	10	102	75
62	26	112	139	88	56	87	109	21	38	9	123
27	91	18	93	130	74	11	67	140	110	30	79
44	69	97	61	8	1	72	143	77	96	64	138
99	132	24	59	113	129	100	94	31	25	50	14
141	47	104	3	42	90	19	106	85	40	128	65

For more details see: p-equivalent k-tuples.pdf Walter Trump, 2018-02-05