The Cone 4HMET7

13th January 2002

1 The intrisic informations concerning the graph of extreme rays of 4HMET7.ext

The graph considered is made of 3692 elements.
The group acting on 4HMET7.ext is Group4hmet7
Under the group action we have in fact only 8 orbits to consider.
The diameter of the graph is 3.
The list of orbits is with adjacency and Size info:

E1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	985	35
E2:	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	535	105
E3:	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	1	0	0	315	252
E4:	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	0	1	1	0	0	0	192	420
E5:	0	0	0	0	0	1	0	1	0	1	1	0	1	0	0	1	1	0	0	0	0	126	360
E6:	0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	0	1	0	0	2	1	67	630
E7:	0	0	0	0	0	1	0	1	0	0	2	0	1	1	0	2	1	0	0	1	0	43	630
E8:	0	0	0	0	0	1	0	0	1	1	1	1	0	0	0	1	1	0	0	2	0	42	1260

The representation matrix is:

	E1	E2	E3	E4	E5	E6	E7	E8	Adj.	Size
E1	34	87	144	144	72	162	126	216	985	35
E2	29	50	72	84	72	72	48	108	535	105
E3	20	30	45	70	40	40	20	50	315	252
E4	12	21	42	39	24	18	12	24	192	420
E5	7	21	28	28	14	7	7	14	126	360
E6	9	12	16	12	4	4	4	6	67	630
E7	7	8	8	8	4	4	0	4	43	630
E8	6	9	10	8	4	3	2	0	42	1260
Size	35	105	252	420	360	630	630	1260		3692

No complemented local graph of size inferior to 20.

1.1 scalar product between elements of orbits

This subsection made sense only if the representation is orthogonal which is the usual case Considering Orbit 1

1. Orbit Size is 35.
2. Norm of elements is 3.
3. Possible scalar product : 0, 1

Considering Orbit 2

1. Orbit Size is 105.
2. Norm of elements is 4.
3. Possible scalar product : 0, 1, 2

Considering Orbit 3

1. Orbit Size is 252.
2. Norm of elements is 5.
3. Possible scalar product : 0, 1, 2, 3

Considering Orbit 4

1. Orbit Size is 420.
2. Norm of elements is 6.
3. Possible scalar product : 0, 1, 2, 3, 4

Considering Orbit 5

1. Orbit Size is 360.
2. Norm of elements is 7.
3. Possible scalar product : 0, 1, 2, 3, 4, 5

Considering Orbit 6

1. Orbit Size is 630.
2. Norm of elements is 10.
3. Possible scalar product : 1, 2, 3, 4, 5, 6, 8

Considering Orbit 7

1. Orbit Size is 630.
2. Norm of elements is 14.
3. Possible scalar product : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Considering Orbit 8

1. Orbit Size is 1260.
2. Norm of elements is 11.
3. Possible scalar product : 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

1.2 invariant group of Orbits

The invariant group of x is the set of g such that g(x)=x denoted b G_x.
If x and y are in the same orbit then the groups G_x and G_x are conjuguate.
Invariant group of Orbit 1

1. Group Size is 144.

2. Elements are : (3 2 1 7 6 5 4), (3 1 2 7 6 5 4), (2 3 1 7 6 5 4), (1 3 2 7 6 5 4), (2 1 3 7 6 5 4), (1 2 3 7 6 5 4), (3 2 1 7 6 4 5), (3 1 2 7 6 4 5), (2 3 1 7 6 4 5), (1 3 2 7 6 4 5), (2 1 3 7 6 4 5), (1 2 3 7 6 4 5), (3 2 1 7 5 6 4), (3 1 2 7 5 6 4), (2 3 1 7 5 6 4), (1 3 2 7 5 6 4), (2 1 3 7 5 6 4), (1 2 3 7 5 6 4), (3 2 1 7 4 6 5), (3 1 2 7 4 6 5), (2 3 1 7 4 6 5), (1 3 2 7 4 6 5), (2 1 3 7 4 6 5), (1 2 3 7 4 6 5), (3 2 1 7 5 4 6), (3 1 2 7 5 4 6), (2 3 1 7 5 4 6), (1 3 2 7 5 4 6), (2 1 3 7 5 4 6), (1 2 3 7 5 4 6), (3 2 1 7 4 5 6), (3 1 2 7 4 5 6), (2 3 1 7 4 5 6), (1 3 2 7 4 5 6), (2 1 3 7 4 5 6), (1 2 3 7 4 5 6), (3 2 1 6 7 5 4), (3 1 2 6 7 5 4), (2 3 1 6 7 5 4), (1 3 2 6 7 5 4), (2 1 3 6 7 5 4), (1 2 3 6 7 5 4), (3 2 1 6 7 4 5), (3 1 2 6 7 4 5), (2 3 1 6 7 4 5), (1 3 2 6 7 4 5), (2 1 3 6 7 4 5), (1 2 3 6 7 4 5), (3 2 1 5 7 6 4), (3 1 2 5 7 6 4), (2 3 1 5 7 6 4), (1 3 2 5 7 6 4), (2 1 3 5 7 6 4), (1 2 3 5 7 6 4), (3 2 1 4 7 6 5), (3 1 2 4 7 6 5), (2 3 1 4 7 6 5), (1 3 2 4 7 6 5), (2 1 3 4 7 6 5), (1 2 3 4 7 6 5), (3 2 1 5 7 4 6), (3 1 2 5 7 4 6), (2 3 1 5 7 4 6), (1 3 2 5 7 4 6), (2 1 3 5 7 4 6), (1 2 3 5 7 4 6), (3 2 1 4 7 5 6), (3 1 2 4 7 5 6), (2 3 1 4 7 5 6), (1 3 2 4 7 5 6), (2 1 3 4 7 5 6), (1 2 3 4 7 5 6), (3 2 1 6 5 7 4), (3 1 2 6 5 7 4), (2 3 1 6 5 7 4), (1 3 2 6 5 7 4), (2 1 3 6 5 7 4), (1 2 3 6 5 7 4), (3 2 1 6 4 7 5), (3 1 2 6 4 7 5), (2 3 1 6 4 7 5), (1 3 2 6 4 7 5), (2 1 3 6 4 7 5), (1 2 3 6 4 7 5), (3 2 1 5 6 7 4), (3 1 2 5 6 7 4), (2 3 1 5 6 7 4), (1 3 2 5 6 7 4), (2 1 3 5 6 7 4), (1 2 3 5 6 7 4), (3 2 1 4 6 7 5), (3 1 2 4 6 7 5), (2 3 1 4 6 7 5), (1 3 2 4 6 7 5), (2 1 3 4 6 7 5), (1 2 3 4 6 7 5), (3 2 1 5 4 7 6), (3 1 2 5 4 7 6), (2 3 1 5 4 7 6), (1 3 2 5 4 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (3 2 1 4 5 7 6), (3 1 2 4 5 7 6), (2 3 1 4 5 7 6), (1 3 2 4 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (3 2 1 6 5 4 7), (3 1 2 6 5 4 7), (2 3 1 6 5 4 7), (1 3 2 6 5 4 7), (2 1 3 6 5 4 7), (1 2 3 6 5 4 7), (3 2 1 6 4 5 7), (3 1 2 6 4 5 7), (2 3 1 6 4 5 7), (1 3 2 6 4 5 7), (2 1 3 6 4 5 7), (1 2 3 6 4 5 7), (3 2 1 5 6 4 7), (3 1 2 5 6 4 7), (2 3 1 5 6 4 7), (1 3 2 5 6 4 7), (2 1 3 5 6 4 7), (1 2 3 5 6 4 7), (3 2 1 4 6 5 7), (3 1 2 4 6 5 7), (2 3 1 4 6 5 7), (1 3 2 4 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (3 2 1 5 4 6 7), (3 1 2 5 4 6 7), (2 3 1 5 4 6 7), (1 3 2 5 4 6 7), (2 1 3 5 4 6 7), (1 2 3 5 4 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 2

1. Group Size is 48.

2. Elements are : (4 3 2 1 7 6 5), (4 3 1 2 7 6 5), (3 4 2 1 7 6 5), (3 4 1 2 7 6 5), (2 1 4 3 7 6 5), (1 2 4 3 7 6 5), (2 1 3 4 7 6 5), (1 2 3 4 7 6 5), (4 3 2 1 7 5 6), (4 3 1 2 7 5 6), (3 4 2 1 7 5 6), (3 4 1 2 7 5 6), (2 1 4 3 7 5 6), (1 2 4 3 7 5 6), (2 1 3 4 7 5 6), (1 2 3 4 7 5 6), (4 3 2 1 6 7 5), (4 3 1 2 6 7 5), (3 4 2 1 6 7 5), (3 4 1 2 6 7 5), (2 1 4 3 6 7 5), (1 2 4 3 6 7 5), (2 1 3 4 6 7 5), (1 2 3 4 6 7 5), (4 3 2 1 5 7 6), (4 3 1 2 5 7 6), (3 4 2 1 5 7 6), (3 4 1 2 5 7 6), (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (4 3 2 1 6 5 7), (4 3 1 2 6 5 7), (3 4 2 1 6 5 7), (3 4 1 2 6 5 7), (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 3

1. Group Size is 20.

2. Elements are : (5 4 3 2 1 7 6), (5 3 4 1 2 7 6), (4 5 2 3 1 7 6), (3 5 1 4 2 7 6), (4 2 5 1 3 7 6), (3 1 5 2 4 7 6), (2 4 1 5 3 7 6), (1 3 2 5 4 7 6), (2 1 4 3 5 7 6), (1 2 3 4 5 7 6), (5 4 3 2 1 6 7), (5 3 4 1 2 6 7), (4 5 2 3 1 6 7), (3 5 1 4 2 6 7), (4 2 5 1 3 6 7), (3 1 5 2 4 6 7), (2 4 1 5 3 6 7), (1 3 2 5 4 6 7), (2 1 4 3 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 4

1. Group Size is 12.

2. Elements are : (6 5 4 3 2 1 7), (6 4 5 3 1 2 7), (5 6 4 2 3 1 7), (4 6 5 1 3 2 7), (5 4 6 2 1 3 7), (4 5 6 1 2 3 7), (3 2 1 6 5 4 7), (3 1 2 6 4 5 7), (2 3 1 5 6 4 7), (1 3 2 4 6 5 7), (2 1 3 5 4 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 5

1. Group Size is 14.

2. Elements are : (7 6 5 4 3 2 1), (7 5 6 3 4 1 2), (6 7 4 5 2 3 1), (5 7 3 6 1 4 2), (6 4 7 2 5 1 3), (5 3 7 1 6 2 4), (4 6 2 7 1 5 3), (3 5 1 7 2 6 4), (4 2 6 1 7 3 5), (3 1 5 2 7 4 6), (2 4 1 6 3 7 5), (1 3 2 5 4 7 6), (2 1 4 3 6 5 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 6

1. Group Size is 8.

2. Elements are : (1 6 3 5 4 2 7), (1 6 3 4 5 2 7), (3 5 1 6 2 4 7), (3 4 1 6 2 5 7), (3 5 1 2 6 4 7), (3 4 1 2 6 5 7), (1 2 3 5 4 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 7

1. Group Size is 8.

2. Elements are : (1 2 6 5 4 3 7), (1 2 6 4 5 3 7), (2 1 5 6 3 4 7), (2 1 4 6 3 5 7), (2 1 5 3 6 4 7), (2 1 4 3 6 5 7), (1 2 3 5 4 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 8

1. Group Size is 4.

2. Elements are : (1 2 3 5 4 7 6), (1 2 3 4 5 7 6), (1 2 3 5 4 6 7), (1 2 3 4 5 6 7),

2 The intrisic informations concerning the graph of facet rays of 4HMET7.ine

The graph considered is made of 63 elements.
The group acting on 4HMET7.ine is Group4hmet7
Under the group action we have in fact only 2 orbits to consider.
The diameter of the graph is 2.
The list of orbits is with adjacency and Size info:

F1:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	60	21
F2:	-1	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	56	42

The representation matrix is:

	F1	F2	Adj.	Size
F1	20	40	60	21
F2	20	36	56	42
Size	21	42		63

No complemented local graph of size inferior to 20.

2.1 scalar product between elements of orbits

This subsection made sense only if the representation is orthogonal which is the usual case Considering Orbit 1

1. Orbit Size is 21.

2. Norm of elements is 1.

3. Possible scalar product : 0

Considering Orbit 2

1. Orbit Size is 42.

2. Norm of elements is 6.

3. Possible scalar product : -1, 1, 2

2.2 invariant group of Orbits

The invariant group of x is the set of g such that g(x)=x denoted b G_x.
If x and y are in the same orbit then the groups G_x and G_x are conjuguate.
Invariant group of Orbit 1

1. Group Size is 240.

2. Elements are : (2 1 7 6 5 4 3), (1 2 7 6 5 4 3), (2 1 7 6 5 3 4), (1 2 7 6 5 3 4), (2 1 7 6 4 5 3), (1 2 7 6 4 5 3), (2 1 7 6 3 5 4), (1 2 7 6 3 5 4), (2 1 7 6 4 3 5), (1 2 7 6 4 3 5), (2 1 7 6 3 4 5), (1 2 7 6 3 4 5), (2 1 7 5 6 4 3), (1 2 7 5 6 4 3), (2 1 7 5 6 3 4), (1 2 7 5 6 3 4), (2 1 7 4 6 5 3), (1 2 7 4 6 5 3), (2 1 7 3 6 5 4), (1 2 7 3 6 5 4), (2 1 7 4 6 3 5), (1 2 7 4 6 3 5), (2 1 7 3 6 4 5), (1 2 7 3 6 4 5), (2 1 7 5 4 6 3), (1 2 7 5 4 6 3), (2 1 7 5 3 6 4), (1 2 7 5 3 6 4), (2 1 7 4 5 6 3), (1 2 7 4 5 6 3), (2 1 7 3 5 6 4), (1 2 7 3 5 6 4), (2 1 7 4 3 6 5), (1 2 7 4 3 6 5), (2 1 7 3 4 6 5), (1 2 7 3 4 6 5), (2 1 7 5 4 3 6), (1 2 7 5 4 3 6), (2 1 7 5 3 4 6), (1 2 7 5 3 4 6), (2 1 7 4 5 3 6), (1 2 7 4 5 3 6), (2 1 7 3 5 4 6), (1 2 7 3 5 4 6), (2 1 7 4 3 5 6), (1 2 7 4 3 5 6), (2 1 7 3 4 5 6), (1 2 7 3 4 5 6), (2 1 6 7 5 4 3), (1 2 6 7 5 4 3), (2 1 6 7 5 3 4), (1 2 6 7 5 3 4), (2 1 6 7 4 5 3), (1 2 6 7 4 5 3), (2 1 6 7 3 5 4), (1 2 6 7 3 5 4), (2 1 6 7 4 3 5), (1 2 6 7 4 3 5), (2 1 6 7 3 4 5), (1 2 6 7 3 4 5), (2 1 5 7 6 4 3), (1 2 5 7 6 4 3), (2 1 5 7 6 3 4), (1 2 5 7 6 3 4), (2 1 4 7 6 5 3), (1 2 4 7 6 5 3), (2 1 3 7 6 5 4), (1 2 3 7 6 5 4), (2 1 4 7 6 3 5), (1 2 4 7 6 3 5), (2 1 3 7 6 4 5), (1 2 3 7 6 4 5), (2 1 5 7 4 6 3), (1 2 5 7 4 6 3), (2 1 5 7 3 6 4), (1 2 5 7 3 6 4), (2 1 4 7 5 6 3), (1 2 4 7 5 6 3), (2 1 3 7 5 6 4), (1 2 3 7 5 6 4), (2 1 4 7 3 6 5), (1 2 4 7 3 6 5), (2 1 3 7 4 6 5), (1 2 3 7 4 6 5), (2 1 5 7 4 3 6), (1 2 5 7 4 3 6), (2 1 5 7 3 4 6), (1 2 5 7 3 4 6), (2 1 4 7 5 3 6), (1 2 4 7 5 3 6), (2 1 3 7 5 4 6), (1 2 3 7 5 4 6), (2 1 4 7 3 5 6), (1 2 4 7 3 5 6), (2 1 3 7 4 5 6), (1 2 3 7 4 5 6), (2 1 6 5 7 4 3), (1 2 6 5 7 4 3), (2 1 6 5 7 3 4), (1 2 6 5 7 3 4), (2 1 6 4 7 5 3), (1 2 6 4 7 5 3), (2 1 6 3 7 5 4), (1 2 6 3 7 5 4), (2 1 6 4 7 3 5), (1 2 6 4 7 3 5), (2 1 6 3 7 4 5), (1 2 6 3 7 4 5), (2 1 5 6 7 4 3), (1 2 5 6 7 4 3), (2 1 5 6 7 3 4), (1 2 5 6 7 3 4), (2 1 4 6 7 5 3), (1 2 4 6 7 5 3), (2 1 3 6 7 5 4), (1 2 3 6 7 5 4), (2 1 4 6 7 3 5), (1 2 4 6 7 3 5), (2 1 3 6 7 4 5), (1 2 3 6 7 4 5), (2 1 5 4 7 6 3), (1 2 5 4 7 6 3), (2 1 5 3 7 6 4), (1 2 5 3 7 6 4), (2 1 4 5 7 6 3), (1 2 4 5 7 6 3), (2 1 3 5 7 6 4), (1 2 3 5 7 6 4), (2 1 4 3 7 6 5), (1 2 4 3 7 6 5), (2 1 3 4 7 6 5), (1 2 3 4 7 6 5), (2 1 5 4 7 3 6), (1 2 5 4 7 3 6), (2 1 5 3 7 4 6), (1 2 5 3 7 4 6), (2 1 4 5 7 3 6), (1 2 4 5 7 3 6), (2 1 3 5 7 4 6), (1 2 3 5 7 4 6), (2 1 4 3 7 5 6), (1 2 4 3 7 5 6), (2 1 3 4 7 5 6), (1 2 3 4 7 5 6), (2 1 6 5 4 7 3), (1 2 6 5 4 7 3), (2 1 6 5 3 7 4), (1 2 6 5 3 7 4), (2 1 6 4 5 7 3), (1 2 6 4 5 7 3), (2 1 6 3 5 7 4), (1 2 6 3 5 7 4), (2 1 6 4 3 7 5), (1 2 6 4 3 7 5), (2 1 6 3 4 7 5), (1 2 6 3 4 7 5), (2 1 5 6 4 7 3), (1 2 5 6 4 7 3), (2 1 5 6 3 7 4), (1 2 5 6 3 7 4), (2 1 4 6 5 7 3), (1 2 4 6 5 7 3), (2 1 3 6 5 7 4), (1 2 3 6 5 7 4), (2 1 4 6 3 7 5), (1 2 4 6 3 7 5), (2 1 3 6 4 7 5), (1 2 3 6 4 7 5), (2 1 5 4 6 7 3), (1 2 5 4 6 7 3), (2 1 5 3 6 7 4), (1 2 5 3 6 7 4), (2 1 4 5 6 7 3), (1 2 4 5 6 7 3), (2 1 3 5 6 7 4), (1 2 3 5 6 7 4), (2 1 4 3 6 7 5), (1 2 4 3 6 7 5), (2 1 3 4 6 7 5), (1 2 3 4 6 7 5), (2 1 5 4 3 7 6), (1 2 5 4 3 7 6), (2 1 5 3 4 7 6), (1 2 5 3 4 7 6), (2 1 4 5 3 7 6), (1 2 4 5 3 7 6), (2 1 3 5 4 7 6), (1 2 3 5 4 7 6), (2 1 4 3 5 7 6), (1 2 4 3 5 7 6), (2 1 3 4 5 7 6), (1 2 3 4 5 7 6), (2 1 6 5 4 3 7), (1 2 6 5 4 3 7), (2 1 6 5 3 4 7), (1 2 6 5 3 4 7), (2 1 6 4 5 3 7), (1 2 6 4 5 3 7), (2 1 6 3 5 4 7), (1 2 6 3 5 4 7), (2 1 6 4 3 5 7), (1 2 6 4 3 5 7), (2 1 6 3 4 5 7), (1 2 6 3 4 5 7), (2 1 5 6 4 3 7), (1 2 5 6 4 3 7), (2 1 5 6 3 4 7), (1 2 5 6 3 4 7), (2 1 4 6 5 3 7), (1 2 4 6 5 3 7), (2 1 3 6 5 4 7), (1 2 3 6 5 4 7), (2 1 4 6 3 5 7), (1 2 4 6 3 5 7), (2 1 3 6 4 5 7), (1 2 3 6 4 5 7), (2 1 5 4 6 3 7), (1 2 5 4 6 3 7), (2 1 5 3 6 4 7), (1 2 5 3 6 4 7), (2 1 4 5 6 3 7), (1 2 4 5 6 3 7), (2 1 3 5 6 4 7), (1 2 3 5 6 4 7), (2 1 4 3 6 5 7), (1 2 4 3 6 5 7), (2 1 3 4 6 5 7), (1 2 3 4 6 5 7), (2 1 5 4 3 6 7), (1 2 5 4 3 6 7), (2 1 5 3 4 6 7), (1 2 5 3 4 6 7), (2 1 4 5 3 6 7), (1 2 4 5 3 6 7), (2 1 3 5 4 6 7), (1 2 3 5 4 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

Invariant group of Orbit 2

1. Group Size is 120.

2. Elements are : (5 4 3 2 1 6 7), (5 4 3 1 2 6 7), (5 4 2 3 1 6 7), (5 4 1 3 2 6 7), (5 4 2 1 3 6 7), (5 4 1 2 3 6 7), (5 3 4 2 1 6 7), (5 3 4 1 2 6 7), (5 2 4 3 1 6 7), (5 1 4 3 2 6 7), (5 2 4 1 3 6 7), (5 1

4 2 3 6 7), (5 3 2 4 1 6 7), (5 3 1 4 2 6 7), (5 2 3 4 1 6 7), (5 1 3 4 2 6 7), (5 2 1 4 3 6 7), (5 1 2 4 3 6 7), (5 3 2 1 4 6 7), (5 3 1 2 4 6 7), (5 2 3 1 4 6 7), (5 1 3 2 4 6 7), (5 2 1 3 4 6 7), (5 1 2 3 4 6 7), (4 5 3 2 1 6 7), (4 5 3 1 2 6 7), (4 5 2 3 1 6 7), (4 5 1 3 2 6 7), (4 5 2 1 3 6 7), (4 5 1 2 3 6 7), (3 5 4 2 1 6 7), (3 5 4 1 2 6 7), (2 5 4 3 1 6 7), (1 5 4 3 2 6 7), (2 5 4 1 3 6 7), (1 5 4 2 3 6 7), (3 5 2 4 1 6 7), (3 5 1 4 2 6 7), (2 5 3 4 1 6 7), (1 5 3 4 2 6 7), (2 5 1 4 3 6 7), (1 5 2 4 3 6 7), (3 5 2 1 4 6 7), (3 5 1 2 4 6 7), (2 5 3 1 4 6 7), (1 5 3 2 4 6 7), (2 5 1 3 4 6 7), (1 5 2 3 4 6 7), (4 3 5 2 1 6 7), (4 3 5 1 2 6 7), (4 2 5 3 1 6 7), (4 1 5 3 2 6 7), (4 2 5 1 3 6 7), (4 1 5 2 3 6 7), (3 4 5 2 1 6 7), (3 4 5 1 2 6 7), (2 4 5 3 1 6 7), (1 4 5 3 2 6 7), (2 4 5 1 3 6 7), (1 4 5 2 3 6 7), (3 2 5 4 1 6 7), (3 1 5 4 2 6 7), (2 3 5 4 1 6 7), (1 3 5 4 2 6 7), (2 1 5 4 3 6 7), (1 2 5 4 3 6 7), (3 2 5 1 4 6 7), (3 1 5 2 4 6 7), (2 3 5 1 4 6 7), (1 3 5 2 4 6 7), (2 1 5 3 4 6 7), (1 2 5 3 4 6 7), (4 3 2 5 1 6 7), (4 3 1 5 2 6 7), (4 2 3 5 1 6 7), (4 1 3 5 2 6 7), (4 2 1 5 3 6 7), (4 1 2 5 3 6 7), (3 4 2 5 1 6 7), (3 4 1 5 2 6 7), (2 4 3 5 1 6 7), (1 4 3 5 2 6 7), (2 4 1 5 3 6 7), (1 4 2 5 3 6 7), (3 2 4 5 1 6 7), (3 1 4 5 2 6 7), (2 3 4 5 1 6 7), (1 3 4 5 2 6 7), (2 1 4 5 3 6 7), (1 2 4 5 3 6 7), (3 2 1 5 4 6 7), (3 1 2 5 4 6 7), (2 3 1 5 4 6 7), (1 3 2 5 4 6 7), (2 1 3 5 4 6 7), (1 2 3 5 4 6 7), (4 3 2 1 5 6 7), (4 3 1 2 5 6 7), (4 2 3 1 5 6 7), (4 1 3 2 5 6 7), (4 2 1 3 5 6 7), (4 1 2 3 5 6 7), (3 4 2 1 5 6 7), (3 4 1 2 5 6 7), (2 4 3 1 5 6 7), (1 4 3 2 5 6 7), (2 4 1 3 5 6 7), (1 4 2 3 5 6 7), (3 2 4 1 5 6 7), (3 1 4 2 5 6 7), (2 3 4 1 5 6 7), (1 3 4 2 5 6 7), (2 1 4 3 5 6 7), (1 2 4 3 5 6 7), (3 2 1 4 5 6 7), (3 1 2 4 5 6 7), (2 3 1 4 5 6 7), (1 3 2 4 5 6 7), (2 1 3 4 5 6 7), (1 2 3 4 5 6 7),

3 The two incidence matrix

Incidence between Orbit of Extreme rays and Orbits of Facets

	$F1$	$F2$	Inc
$E1$	18	30	48
$E2$	17	26	43
$E3$	16	22	38
$E4$	15	18	33
$E5$	14	14	28
$E6$	14	16	30
$E7$	13	12	25
$E8$	13	12	25

Incidence between Orbits of Facets and Orbits of Extreme Rays

	$E1$	$E2$	$E3$	$E4$	$E5$	$E6$	$E7$	$E8$	Inc
$F1$	30	85	192	300	240	420	390	780	2437
$F2$	25	65	132	180	120	240	180	360	1302