The Cone 33BRO6

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1 The intrisic informations concerning the graph of extreme rays of 33BRO6.ext

The graph considered is made of 21 elements.
The group acting on 33BRO6.ext is Group3hmet6
Under the group action we have in fact only 2 orbits to consider.
The diameter of the graph is 1.
The list of orbits is with adjacency and Size info:

E1:	0	1	1	1	1	0	1	1	1	1	1	1	1	1	0	20	15
E2:	0	0	1	0	1	1	0	1	1	1	0	1	1	1	1	20	6

The representation matrix is:

	E1	E2	Adj.	Size
E1	14	6	20	15
E2	15	5	20	6
Size	15	6		21

1.1 The local graphs

The complemented local graph are:
We consider graph with cardinal inferior or equal to 20
The complemented local graph for orbit 1 is:

1 0 :
2 0 :
3 0 :
4 0 :
5 0 :
6 0 :
7 0 :
8 0 :
9 0 :
10 0 :
11 0 :
12 0 :
13 0 :
14 0 :
15 0 :
16 0 :
17 0 :
18 0 :
19 0 :
20 0 :

The complemented local graph for orbit 2 is:

1	0	:
2	0	:
3	0	:
4	0	:
5	0	:
6	0	:
7	0	:
8	0	:
9	0	:
10	0	:
11	0	:
12	0	:
13	0	:
14	0	:
15	0	:
16	0	:
17	0	:
18	0	:
19	0	:
20	0	:

1.2 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 15.
2. Norm of elements is 12.
3. Possible scalar product : 9, 10

Considering Orbit 2

1. Orbit Size is 6.
2. Norm of elements is 10.
3. Possible scalar product : 6

1.3 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 48.
2. Elements are : (6 5 4 3 2 1), (6 5 4 3 1 2), (6 5 3 4 2 1), (6 5 3 4 1 2), (6 5 2 1 4 3), (6 5 1 2 4 3), (6 5 2 1 3 4), (6 5 1 2 3 4), (5 6 4 3 2 1), (5 6 4 3 1 2), (5 6 3 4 2 1), (5 6 3 4 1 2), (5 6 2 1 4 3), (5 6 1 2 4 3), (5 6 2 1 3 4), (5 6 1 2 3 4), (4 3 6 5 2 1), (4 3 6 5 1 2), (3 4 6 5 2 1), (3 4 6 5 1 2), (2 1 6 5 4 3), (1 2 6 5 4 3), (2 1 6 5 3 4), (1 2 6 5 3 4), (4 3 5 6 2 1), (4 3 5 6 1 2), (3 4 5 6 2 1), (3 4 5 6 1 2), (2 1 5 6 4 3), (1 2 5 6 4 3), (2 1 5 6 3 4), (1 2 5 6 3 4), (4 3 2 1 6 5), (4 3 1 2 6 5), (3 4 2 1 6 5), (3 4 1 2 6 5), (2 1 4 3 6 5), (1 2 4 3 6 5), (2 1 3 4 6 5), (1 2 3 4 6 5), (4 3 2 1 5 6), (4 3 1 2 5 6), (3 4 2 1 5 6), (3 4 1 2 5 6), (2 1 4 3 5 6), (1 2 4 3 5 6), (2 1 3 4 5 6), (1 2 3 4 5 6),

Invariant group of Orbit 2

1. Group Size is 120.

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

2 The intrisic informations concerning the graph of facet rays of 33BRO6.ine

The graph considered is made of 150 elements.
The group acting on 33BRO6.ine is Group3hmet6
Under the group action we have in fact only 3 orbits to consider.
The diameter of the graph is 3.
The list of orbits is with adjacency and Size info:

F1:	-1	-1	0	-1	0	0	0	1	1	1	0	1	1	1	-2	25	60
F2:	-3	0	1	0	1	0	0	1	0	0	0	1	0	0	0	25	30
F3:	-1	-1	1	-1	1	1	0	0	0	0	0	0	0	0	1	14	60

The representation matrix is:

	F1	F2	F3	Adj.	Size
F1	12	7	6	25	60
F2	14	5	6	25	30
F3	6	3	5	14	60
Size	60	30	60		150

2.1 The local graphs

The complemented local graph are:
We consider graph with cardinal inferior or equal to 20

The complemented local graph for orbit 3 is:

1	9	:	2 5 6 7 8 9 10 11 12
2	5	:	1 3 4 13 14
3	9	:	2 5 6 7 8 9 10 11 12
4	9	:	2 5 6 7 8 9 10 11 12
5	5	:	1 3 4 13 14
6	5	:	1 3 4 13 14
7	5	:	1 3 4 13 14
8	5	:	1 3 4 13 14
9	5	:	1 3 4 13 14
10	5	:	1 3 4 13 14
11	5	:	1 3 4 13 14
12	5	:	1 3 4 13 14
13	9	:	2 5 6 7 8 9 10 11 12
14	9	:	2 5 6 7 8 9 10 11 12

2.2 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 60.
2. Norm of elements is 13.
3. Possible scalar product : -3, 1, 5, 9

Considering Orbit 2

1. Orbit Size is 30.
2. Norm of elements is 13.
3. Possible scalar product : -3, 1, 9

Considering Orbit 3

1. Orbit Size is 60.
2. Norm of elements is 7.
3. Possible scalar product : -1, 3

2.3 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 12.
2. Elements are : (2 1 5 4 3 6), (1 2 5 4 3 6), (2 1 5 3 4 6), (1 2 5 3 4 6), (2 1 4 5 3 6), (1 2 4 5 3 6), (2 1 3 5 4 6), (1 2 3 5 4 6), (2 1 4 3 5 6), (1 2 4 3 5 6), (2 1 3 4 5 6), (1 2 3 4 5 6),

Invariant group of Orbit 2

1. Group Size is 24.

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

Invariant group of Orbit 3

1. Group Size is 12.

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

3 The two incidence matrix

Incidence between Orbit of Extreme rays and Orbits of Facets

	$F1$	$F2$	$F3$	Inc
$E1$	48	24	36	108
$E2$	50	25	50	125

Incidence between Orbits of Facets and Orbits of Extreme Rays

	$E1$	$E2$	Inc
$F1$	12	5	17
$F2$	12	5	17
$F3$	9	5	14