

Number of vertices $n = 7$.

Adjacencies of Graph

1. vertex 1 adjacent to 4 5 6 7
2. vertex 2 adjacent to 4 5 6 7
3. vertex 3 adjacent to 4 5 6 7
4. vertex 4 adjacent to 1 2 3
5. vertex 5 adjacent to 1 2 3
6. vertex 6 adjacent to 1 2 3
7. vertex 7 adjacent to 1 2 3

Size of automorphism group of the graph=144

Full group: $|Aut(polytope)| = 9216$

Restricted group: $|Aut(G) \times switch| = 9216$

Number of orbits for the full group : 2

List of orbits of facets for the full group: Total number of orbits = 2 Total number of facets = 168

1. Inequality 1 with incidence 32 and stabilizer of size 384. Orbit size is 24 nature: edge inequality $e=[1, 7]$

| | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|
| $(1,4) : 0$ | $(1,5) : 0$ | $(1,6) : 0$ | $(1,7) : 1$ | $(2,4) : 0$ | $(2,5) : 0$ |
| $(2,6) : 0$ | $(2,7) : 0$ | $(3,4) : 0$ | $(3,5) : 0$ | $(3,6) : 0$ | $(3,7) : 0$ |

2. Inequality 2 with incidence 32 and stabilizer of size 64. Orbit size is 144 nature: 4-cycle inequality, $C=[2, 7, 1, 4]$ $F=[2, 7]$

| | | | | | |
|-------------|--------------|-------------|-------------|-------------|-------------|
| $(1,4) : 1$ | $(1,5) : 0$ | $(1,6) : 0$ | $(1,7) : 1$ | $(2,4) : 1$ | $(2,5) : 0$ |
| $(2,6) : 0$ | $(2,7) : -1$ | $(3,4) : 0$ | $(3,5) : 0$ | $(3,6) : 0$ | $(3,7) : 0$ |