

Number of vertices $n = 6$.

Adjacencies of Graph

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

Size of automorphism group of the graph=16

Full group: $|Aut(polytope)| = 512$

Restricted group: $|Aut(G) \times switch| = 512$

Number of orbits for the full group : 4

List of orbits of facets for the full group: Total number of orbits = 4 Total number of facets = 184

1. Inequality 1 with incidence 24 and stabilizer of size 32. Orbit size is 16 nature: 3-cycle inequality, $C=[1, 2, 6]$ $F=[1, 2]$

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

2. Inequality 2 with incidence 24 and stabilizer of size 16. Orbit size is 32 nature: 3-cycle inequality, $C=[4, 5, 1]$ $F=[4, 5]$

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

3. Inequality 3 with incidence 16 and stabilizer of size 64. Orbit size is 8 nature: 4-cycle inequality, $C=[3, 6, 4, 5]$ $F=[3, 6]$

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

4. Inequality 4 with incidence 14 and stabilizer of size 4. Orbit size is 128
nature: unknown

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