

Number of vertices  $n = 6$ .

Adjacencies of Graph

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

Size of automorphism group of the graph=48

Full group:  $|Aut(polytope)| = 1536$

Restricted group:  $|Aut(G) \times switch| = 1536$

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 = 224

1. Inequality 1 with incidence 24 and stabilizer of size 96. Orbit size is 16 nature: 3-cycle inequality,  $C=[3, 5, 4]$   $F=[3, 5]$

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

2. Inequality 2 with incidence 24 and stabilizer of size 32. Orbit size is 48 nature: 3-cycle inequality,  $C=[1, 6, 4]$   $F=[1, 6]$

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

3. Inequality 3 with incidence 20 and stabilizer of size 48. Orbit size is 32 nature: Hypermetric,  $b=[0, 1, 1, -1, 1, -1]$

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

4. Inequality 4 with incidence 14 and stabilizer of size 12. Orbit size is 128 nature: unknown

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