We aim to construct closed polytope (like $\overline{R_+}$) to analyse the cases that fail to satisfy the ϕ inequalities for ϕ the average for $C_4 62, 63, 72, 73$.

- Inequalities list formed in Main.
- dimension checked via sage in polytop_higher_cases...
- Export then load inequalities.

We have ϕ inequalities of the form (for line bundle multidegrees).

$$\left| \sum_{i \in I} d_i - \sum_{i \in I} \phi_i \right| < \text{cut fraction}(cf) \quad (1)$$

To be applied to the polyhedron() function in Sage this need to be in the form $A\underline{x} + b \geq 0$

by (1) we have (upper part)

$$\sum_{i \in I} d_i - \sum_{i \in I} \phi_i < Cf$$

$$\iff \sum_{i \in I} \phi_i + \left(CF - \sum_{i \in F} d_i \right) > 0$$

and a lower part

$$\sum_{i \in I} d_i - \sum_{i \in I} \phi_i > -Cf$$

$$\iff -\sum_{i \in I} \phi_i + \left(CF + \sum_{i \in F} d_i \right) > 0$$

As a test case we will focus on a GLSS example first.