
We define the following basis of the \mathcal{H}_M module:

$$\chi^F = - \sum_{G \leq F} t^{\text{rk}(F) - \text{rk}(G)} \overline{\chi}_{M_G^F}(t^{-2}) \cdot [G]$$

Now we compute the $\Delta(\chi^E)$ and compare it to the $\chi^{E \setminus \{e\}}$ for a non-coloop $e \in E$.

Example 1. Let $M = \mathcal{U}(3, 4)$ be the uniform matroid on 4 elements and rank 3 with $e = 1$.

We have

$$\chi^E = [E] - t \cdot ([12] + [13] + [14] + [23] + [24] + [34]) - t^2(t^{-2} - 2) \cdot ([1] + [2] + [3] + [4]) - t^3(3 - 3t^{-2} + t^{-4}) \cdot [\emptyset]$$