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cohomology.g

Definition of M_G

Let G be a finite subgroup of $\mathrm{GL}(n,\mathbb{Z})$. The G-lattice M_G of rank n is defined to be the G-lattice with a $\mathbb{Z}$-basis $\{u_1,\ldots,u_n\}$ on which G acts by $\sigma(u_i)=\sum_{j=1}^{n} a_{i,j}u_j$ for any $\sigma=[a_{i,j}]\in G$.

Hminus1

```
▸ Hminus1(G)
```

returns the Tate cohomology group $\widehat{H}^{-1}(G,M_G)$ for a finite subgroup $G\leq \mathrm{GL}(n,\mathbb{Z})$.

H0

```
▸ H0(G)
```

returns the Tate cohomology group $\widehat{H}^{0}(G,M_G)$ for a finite subgroup $G\leq \mathrm{GL}(n,\mathbb{Z})$.

H1

```
▸ H1(G)
```

returns the cohomology group $H^1(G,M_G)$ for a finite subgroup $G\leq \mathrm{GL}(n,\mathbb{Z})$.

Zminus1

```
▸ Zminus1(G)
```

returns a $\mathbb{Z}$-basis of the group of Tate (-1)-cocycles $\widehat{Z}^{-1}(G,M_G)$ for a finite subgroup $G\leq \mathrm{GL}(n,\mathbb{Z})$.

Bminus1

```
▸ Bminus1(G)
```

returns a $\mathbb{Z}$-basis of the group of Tate (-1)-coboundaries $\widehat{B}^{-1}(G,M_G)$ for a finite subgroup $G\leq \mathrm{GL}(n,\mathbb{Z})$.

Z0

```
▸ Z0(G)
```

returns a $\mathbb{Z}$-basis of the group of Tate 0-cocycles $\widehat{Z}^0(G, M_G)$ for a finite subgroup $G \leq \mathrm{GL}(n, \mathbb{Z})$.

B0

```
▸ B0(G)
```

returns a $\mathbb{Z}$-basis of the group of Tate 0-coboundaries $\widehat{B}^0(G, M_G)$ for a finite subgroup $G \leq \mathrm{GL}(n, \mathbb{Z})$.

Z1

```
▸ Z1(G)
```

returns a $\mathbb{Z}$-basis of the group of 1-cocycles $Z^1(G, M_G)$ for a finite subgroup $G \leq \mathrm{GL}(n, \mathbb{Z})$.

B1

```
▸ B1(G)
```

returns a $\mathbb{Z}$-basis of the group of 1-coboundaries $B^1(G, M_G)$ for a finite subgroup $G \leq \mathrm{GL}(n, \mathbb{Z})$.

IsFlabby

```
▸ IsFlabby(G)
```

returns whether G-lattice M_G is flabby or not.

IsCoflabby

```
▸ IsCoflabby(G)
```

returns whether G-lattice M_G is coflabby or not.

References

[HY17] Akinari Hoshi and Aiichi Yamasaki, Rationality problem for algebraic tori, Mem. Amer. Math. Soc. **248** (2017) no. 1176, v+215 pp. AMS Preprint version: arXiv:1210.4525.