Group cohomology of pure braids

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$$\ell^{ij}(g) = \langle \quad , g \rangle$$
$$= -\ell^{ji}$$

why is it generated in degree 1?

Check the Arnold relations:

$$\left(\ell^{ij} \vee \ell^{jk} + \ell^{jk} \vee \ell^{ki} + \ell^{ki} \vee \ell^{ij}\right)(g_1, g_2) =$$

let $\ell^{ij}(g_1) =: a^{ij}$, $\ell^{ij}(g_2) = b^{ij}$

$$\begin{matrix} a^{12} & a^{23} & a^{31} \\ b^{12} & b^{23} & b^{31} \end{matrix}$$

<u>Def</u> $\ell^{ijk}(g) = \langle \quad - \quad , g \rangle$ } presumably not well-defined.

$$d\ell^{ijk}(g_1, g_2) = \pm\left[\ell^{12}(g_1)\ell^{23}(g_2) - \ell^{23}(g_1)\ell^{12}(g_2)\right]$$

More precisely, $\ell^{ijk}(B) :=$ Coeff of $\quad_{i\,j\,k}$ in $Z^{KZ}(B)$

$$(d\ell^{ijk})(B_1, B_2) = \text{Arnold's relation.}$$