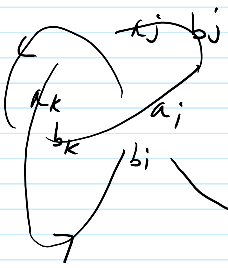
17-1350-AKT Fri Jan 27, Brute Hour 3: Implementing g0

January 19, 2017 2:20 PM

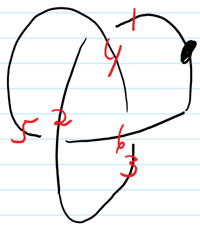
Class Photo?



$R=\sum a_i\otimes b_i \in A\otimes A = \hat{U}(\mathfrak{g})\otimes\hat{U}(\mathfrak{g})$

s.t. $R^{12}R^{13}R^{23}=R^{23}R^{13}R^{12}$

$$\sum_{i,j,k} b_i a_j b_k a_i b_j a_k \in U(\mathfrak{g})$$



PBW: $\mathfrak{g}=\langle x_1 \dots x_k\rangle \Rightarrow \{x_1^{a_1}x_2^{a_2}\cdots x_k^{a_k} : a_i\in\mathbb{Z}_{\geq 0}\}$ is a basis of $U(\mathfrak{g})$.

Today: $\mathfrak{g}_0=\langle h,e,l,f\rangle \Big/ \substack{h \text{ central} \\ [e,l]=e \ \ [l,f]=f \ \ [f,e]=h}$

$r=h\otimes l+f\otimes e \qquad R=\exp(r)$

Note $U(\mathfrak{g}_0)^{\otimes S}=U(\bigoplus_S \mathfrak{g}_0)=U\left(\langle h_i,e_i,l_i,f_i\rangle \Big/ \substack{h_i \text{ central} \\ [e_i,l_j]=\delta_{ij}e_i \ \text{etc.}}\right)$

on to the implementation @ 170127-g0.nb.