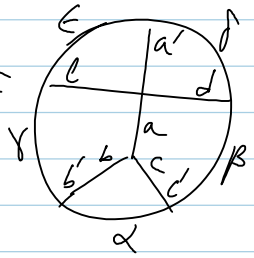
AKT-091008, Hours 13-14: gl(N) in detail, the 4CT, U(g)-valued weight systems

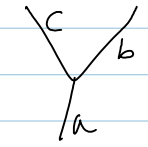
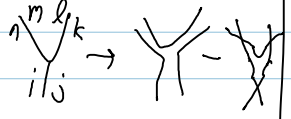
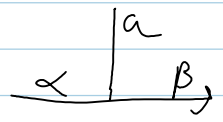
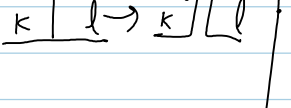
October-07-09
3:16 PM

Participation form.

Dai =



Computing $W_{g,R}(D)$ / $W_{gl_N,\mathbb{R}^N}(D)$:

Diagram part	General g, R	$gl_N, \mathbb{R}^N$	Abstractly
a b	t^{ab}, inverse of $t_{ab} := \langle X_a, X_b \rangle$	$\overset{j}{i}\ \overset{k}{\ell} \to \overset{j}{i}\ \overset{k}{\ell}$ meaning $\delta_{il}\delta_{jk}$	$t^{-1} \in g \otimes g$
	$f_{abc} := \langle [X_a, X_b], X_c \rangle$		$f \in g^* \otimes g^* \otimes g^*$
	$r^{\beta}_{\alpha a}$ $[\rho(X_a)\ell_\gamma = r^{\beta}_{\alpha\gamma}\ell_\beta]$		$r \in g^* \otimes R^* \otimes R$

on board, except green.

Evaluate Dai

Aside: W_g makes sense on $\mathcal{A}(\emptyset)$ | $W_{sl(N)}(D)$ a poly of deg. $(\deg D + 2)$ in N.

"$W_{sl(2)}(D) = 0 \implies W^{top}_{sl(N)}(D) = 0$" (M)

a. A reasonable statement?

b. claim1 $|W^{top}_{sl(N)}(D)| \propto$ # of planar embeddings of D (minor conditions apply)

c. claim2 $|W_{sl(2)}(D)| \propto$ # of 4-colorings of D^c (if D is planar)

d. So (M) is the 4CT?

e. Sketch pf of claim 1.

F. Sketch pf of claim 2.

The abstract approach / the green column

$T_g : A(\Lambda) \to U(g)^g$ (add a word on PBW)