Page 197-198 / scan page 106-107:

We introduce the following two maps. For $X \in Ob(\mathcal{M}_{\mathfrak{g}})$, let X^0 denote the vector space X equipped with the trivial $\mathfrak{g}$-action. By Frobenius reciprocity, the map

$$\theta_X : \mathrm{Hom}_{\mathfrak{g}}(M_- \otimes X^0, M_+^* \otimes X) \to \mathrm{Hom}_k(X^0, X)$$
$$f \mapsto (1_+ \otimes 1) \circ f \circ (1_- \otimes 1)$$

is an isomorphism. We set

$$\psi = \theta_{M_-}^{-1}(1) : \; M_- \otimes M_- \to M_+^* \otimes M_-$$

and

$$\eta = \psi(1_- \otimes \cdot) : \; M_- \to M_+^* \otimes M_-.$$

Lemma 21.1. *The formulas for the product and coproduct in $U_h(\mathfrak{g}_+)$ can be written as follows:*

$$\begin{aligned} m : M_- \otimes M_- &\xrightarrow{\sigma} M_- \otimes M_- \xrightarrow{\eta \otimes 1} (M_+^* \otimes M_-) \otimes M_- \\ &\xrightarrow{\Phi} M_+^* \otimes (M_- \otimes M_-) \xrightarrow{1 \otimes \psi} M_+^* \otimes (M_+^* \otimes M_-) \\ &\xrightarrow{1_+ \otimes 1 \otimes 1} M_+^* \otimes M_- \xrightarrow{1_+ \otimes 1} M_-, \end{aligned} \tag{21.5}$$

$$\Delta : M_- \xrightarrow{i_-} M_- \otimes M_- \xrightarrow{J^{-1}} M_- \otimes M_-, \tag{21.6}$$

where J is the composition

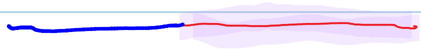
$$\begin{aligned} M_- \otimes M_- &\xrightarrow{\eta \otimes \eta} (M_+^* \otimes M_-) \otimes (M_+^* \otimes M_-) \xrightarrow{\Phi_{2,3,4}^{-1}\Phi_{1,2,34}} M_+^* \otimes ((M_+^* \otimes M_-) \otimes M_-) \\ &\xrightarrow{\beta_{23}^{-1}} M_+^* \otimes ((M_- \otimes M_+^*) \otimes M_-) \xrightarrow{\Phi_{1,2,34}^{-1}\Phi_{2,3,4}} (M_+^* \otimes M_+^*) \otimes (M_- \otimes M_-) \\ &\xrightarrow{(1_+ \otimes 1_+) \otimes 1} M_- \otimes M_-. \end{aligned} \tag{21.7}$$

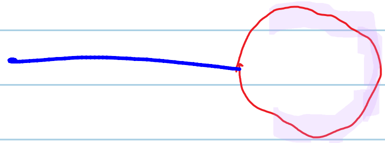
Proof: We leave it to the reader to check that these indeed coincide with formulas (21.2) and (21.4).

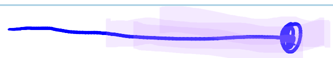
WTF?

I need to add here their Formulas for R.
... These don't seem to exist...

In the w case:

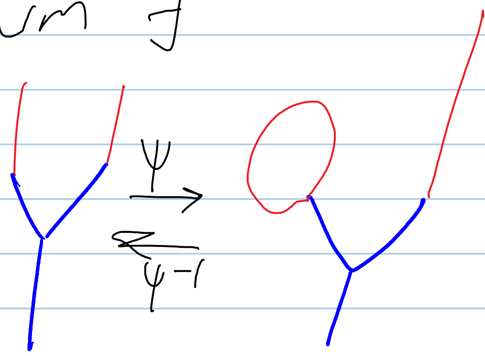
$M_- =$ 

$M_+^* =$ 

$M_+ =$ 

$M_-^* =$

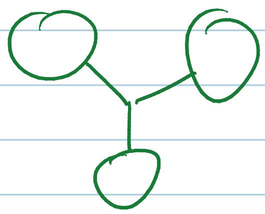
Claim $\exists$

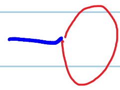


!!!

Is there another sled?

Too easy?



Q. Is there a sense by which  is dual to  ?