Meeting of June 13

June 13, 2016 8:10 AM

On board - the stitching formula

$$\begin{array}{c|ccc} \omega & a & b & S \\ \hline a & \alpha & \beta & \theta \\ b & \gamma & \delta & \epsilon \\ S & \phi & \psi & \Xi \end{array} \xrightarrow[\substack{\mu:=1-\beta \\ T_a,T_b\to T_c}]{m^{ab}_c} \begin{array}{c|cc} \mu\omega & c & S \\ \hline c & \gamma+\alpha\delta/\mu & \epsilon+\delta\theta/\mu \\ S & \phi+\alpha\psi/\mu & \Xi+\psi\theta/\mu \end{array}$$

Wherefore w?

The Euler trick, scatter & glow

The switch to bucw:

(160612) Let $\mathfrak{g} := \langle c, w\rangle$ with $[c,w] = w$, let $\mathfrak{g}^* = \langle b, u\rangle$ with $c(b) = u(w) = 1$ and $c(w) = u(b) = 0$ be Abelian, let $I\mathfrak{g} = \mathfrak{g}^* \rtimes \mathfrak{g}$ so $[b,c] = [b,w] = [b,u] = 0$ while $[c,u] = -u$ and $[w,u] = b$. Let $r = Id = b_1c_2 + u_1w_2 \in \mathfrak{g}^* \otimes \mathfrak{g} \subset I\mathfrak{g} \otimes I\mathfrak{g}$. Let $\mathcal{U} = \mathcal{U}(I\mathfrak{g})$, degree-completed with respect to $\deg b, u = 1$ and $\deg c, w = 0$. Then $R = \exp(r) \in \mathcal{U} \otimes \mathcal{U}$ satisfies Yang-Baxter, $bc + uw$, $cb + wu$, and b are central, and $(cb + wu) - (bc + uw) = b$. Also, $ad(-r_{ij}) = \{b_k \mapsto 0, u_i \mapsto 0, u_j \mapsto b_iu_j - b_ju_i, c_i \mapsto -u_1w_2, c_j \mapsto 0, w_i \mapsto b_iw_j, w_j \mapsto -b_iw_j\}$.

Stitching the glow part.