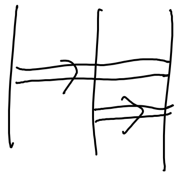
Once and for All

February-11-09
10:00 AM

what means $M =$  in global Lie theory?

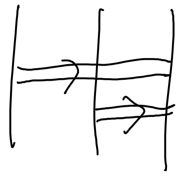
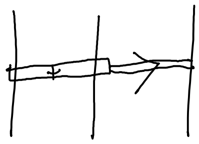
Alternatively, how is $\mathcal{U}(Ig) \otimes \mathcal{U}(Ig) \otimes \mathcal{U}(g)$ to be interpreted?

$\underbrace{\mathcal{U}(Ig) \otimes \mathcal{U}(Ig)} \otimes \underbrace{\mathcal{U}(g)}$

tangential differential operators on $\mathrm{Fun}(g \oplus g)$, with not-necessarily-constant coefficients

constant-coefficient tangential differential operators on $\mathrm{Fun}(g)$ $\sim$ measures on g.

From this perspective, "convolution" takes functions on $g \oplus g$ to measures on g, by integrating $M(f(x)g(y))$ w.r.t. both x and y.

$M =$  $m =$ 

Both are functions on g with values in $\mathcal{U}(g)$

What means $F\hat{M} = \hat{m}F$ for a tangential differential operator $F \in \mathcal{U}(Ig)^{\otimes 2}$?

"T is tangential" implies that if f is invariant then $Tf = \hat{T_0} f$, where T_0 is the [well-defined?] degree 0 part of T.

Let f & g be invariant. Then

Goal: up to a j-correction,

$$\int F\hat{M}(f\otimes g) = \int \hat{m}F(f\otimes g) \qquad \Big| \quad \int M f\otimes g = \int m f\otimes g$$

$$\Rightarrow \int (F^*1)\cdot M(f\otimes g) = \int m F_0(f\otimes g)$$

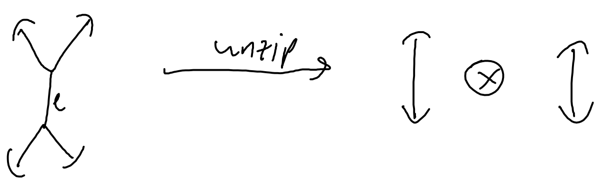
$$\Rightarrow \int (F^*)_0\, M f\otimes g = \int m F_0\, f\otimes g$$

So all we need is to interpret $(F^*)_0$ and F_0 as "the j correction". there seem to be to equations here, one to fix F_0 and one to fix $(F^*)_0$. There should be a way to reduce this to one.

<u>Question</u> For which $j_{0,1}\in \mathcal{A}^w(\uparrow_n^+)$ can we find a $V\in \mathcal{A}^w(\uparrow_n)$ so that

$$j_0 = V_0 \quad \text{and} \quad j_1 = (V^*)_0 \quad ?$$

Might the topological interpretation of all that be the need for "edge renormalization"?



There may another topological operation!