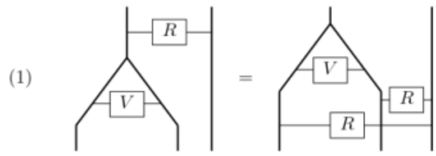
Three Confirmations

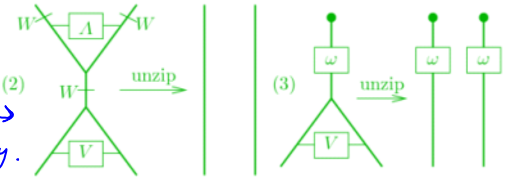
June-05-09
6:16 AM

Challenge - confirm the equations



$$\iint_{\mathfrak{g}\times\mathfrak{g}} \phi(x)\psi(y)\omega^2_{x+y}e^{x+y} = \iint_{\mathfrak{g}\times\mathfrak{g}} \phi(x)\psi(y)\omega^2_x\omega^2_y e^x e^y$$

and



$VV^* = I \Longleftrightarrow$ more precisely.

in three ways:

1. By direct comparison with convolutions. what a pain.
2. By comparison with Torossian (see Statement of Kashiwara-Vergne in Annotations/Alekseev-Torossian). ✓
3. By showing equivalence with the A-T or K-V equations, as started in 2009-05/The Relationship with Alek-Tor. Below, unfinished.

On to confirmation 3, the relationship with

AT1:
$F(x+y) = \log e^x e^y$,
$(F \in TAut_2)$

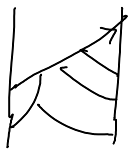
AT2:
$j(F) = a(x) + a(y) - a(\log e^x e^y)$

where $j(\exp u) = \frac{e^u - 1}{u} \operatorname{div} u$

will probably work as follows:

$V = u(F) \cdot \exp(c)$ $\qquad$ $W = \exp(a)$

"upper embedding":



The wheels part of V, itself an exponential.

My (1) is AT1.
Tree part of my (2) is trivial.
Connected-wheels part of my (2) is $c = j(F)$
Connected-wheels part of my (3) is

$$c = a(x) + a(y) - a(\log e^x e^y)$$