Random

March-27-08
3:22 PM

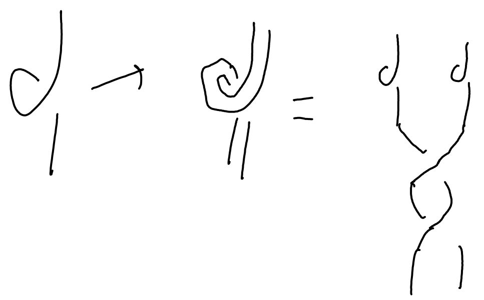
$xy = y^{-1}yxy$

$xyz \quad xzy$ not conjugate.

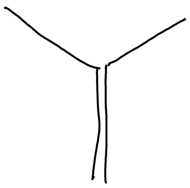
$a^{-1}xab^{-1}yb$

$xaba^{-1}b^{-1} =$

$RF^{2,1}e^{-t/2}$



$$F = RF^{21}e^{-t/2}$$
$$= R(RF^{21}e^{-t/2})^{21}e^{-t/2}$$
$$= RR^{21}Fe^{-t} = e^{\theta}Fe^{-t}$$



Is F a "change of basis" transformation between $\{x,y\}$ and $\{xy, y\}$?

speculative

$$(x,y) \xmapsto{R} (y, y^{-1}xy) \mapsto$$
$$(x,y) \xmapsto{R^{21}} (x, x^{-1}yx) \mapsto (x^{-1}yx, x^{-1}yx\,x\,x^{-1}yx) =$$
$$= (yx)^{-1}(y,x)(yx)$$

Problem: Describe the universal enveloping algebras of $\mathfrak{sder}_n$ and of $\mathfrak{tder}_n$.

For $\mathfrak{tder}_n$, the answer ought to be

words in $x_1 \dots x_n$

$$U(\mathfrak{tder}_n) = \{ w = (w_1, \dots, w_n) : w_i \in FA_n \}$$

with a funny composition law:

(what is the linear structure here? $\oplus$ or $\otimes$? probably this.)

$$w * w' = w\big|_{x_i \mapsto S(w_i^\Delta) x_i w_i^\Delta} \cdot w'$$

where w_i^Δ is a funny notation for "draw a bit of w_i using Δ, leave some for the rest".

with $U(\mathfrak{tder}_n) \underset{\substack{\uparrow \\ \text{as vector spaces}}}{=} (FA_n)^{\otimes n}$ is seems that the dimension of the degree k part is roughly $\binom{n+k}{n-1} n^k$; for $n=2$, this is $\sim k \cdot 2^k$, which is manageable in as much as non-managable things go.

$$R^{12,3} = R^{13} R^{23} \quad \& \quad F^{23} R^{1,23} (F^{23})^{-1} = R^{12} R^{13}$$