Alekseev on explicit F's

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7:13 AM

$$\Phi = F^{1,23} F^{2,3} (F^{1,2})^{-1} (F^{12,3})^{-1} \in SAut_3$$

KV problem: $u \in tdr_2 \rightsquigarrow u_s =$

$$= \frac{1}{s} R_s(u) = \frac{1}{s}(A(sx,sy), B(sx,sy))$$

$u = (A(x,y), B(x,y))$ $\qquad F_s = e^{f_s}$

F_s a solution of

$$\frac{dF_s}{ds} = u_s F_s \quad F_0 = 1 \quad F \equiv F_1$$

or

$$\frac{e^{\mathrm{ad} f_s} - 1}{\mathrm{ad} f_s} \left(\frac{df_s}{ds}\right) = u_s$$

KV problem:

1. $x + y - ch(y,x) = (1 - e^{-\mathrm{ad} x}) A + (e^{\mathrm{ad} y} - 1) B \quad \in lie_2$
2. $Tr(x \partial_x A + y \partial_y B) = \frac{1}{2} Tr(\qquad\qquad) \in tr_2$

Reductions

1. $tr_2 \to Pol(x,y)$ In original KV paper,

Page 267 Formula (5.2).

Or, in ArXiv: 0802.2049,

or ref there, [Rou86].

2,3 $tr(A) = tr(A^t)$ $\qquad A^t$: reverse A, & mult by $(-)^{\deg}$.

2: Vergne 1999

On Annotations page

3. Roughly page 5 of Alek—Moin's arXiv: math.RT/0209346.

Soln:

$$\mathfrak{g}\ \widehat{W}T \;\;\overset{\longrightarrow}{\underset{\longrightarrow}{\rightrightarrows}}\;\; \mathrm{proj}\ \widehat{W}T$$