Scratch

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$a_{12} = b_1 c_2 + u_1 w_2$

$[w,c] = w \quad [u,c] = -u \quad [u,w] = b$

$\underline{Q}$ what is the right algebraic structure to put on "affiliated $\mathfrak{g}$"?

$$\mathbb{Q}[[b_i]]\langle u_i \, w_i, \quad c_k, \quad 1 \rangle$$

Local Algebra (with van der Veen) Much can be reformulated as (non-standard) "quantum algebra" for the 4D Lie algebra $\mathfrak{g} = \langle b, c, u, w \rangle$ over $\mathbb{Q}[\epsilon]/(\epsilon^2 = 0)$, with b central and $[w, c] = w$, $[c, u] = u$, and $[u, w] = b - 2\epsilon c$. The key: $a_{ij} = (b_i - \epsilon c_i)c_j + u_i w_j$ in $\mathcal{U}(\mathfrak{g})^{\otimes\{i,j\}}$.

$$\mathbb{Q}[[b_i]]\langle 1, c_k, \epsilon c_i c_j, \ldots \rangle$$

$[c,u] = u \Rightarrow e^c e^u =$

$$\frac{1}{1-\beta} = 1+\alpha \qquad 1-\beta = \frac{1}{1+\alpha}$$

$$\beta = 1 - \frac{1}{1-\alpha} = \frac{-\alpha}{1-\alpha}$$