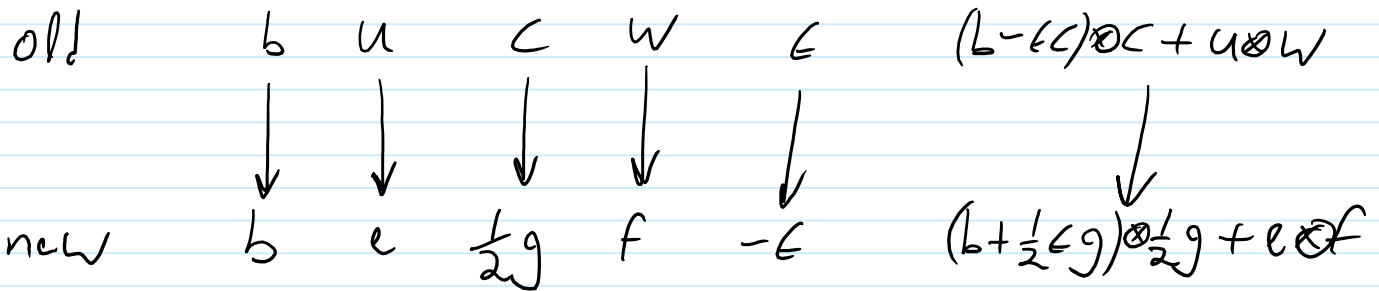


Old gepts vs tgepts

March 11, 2017 1:24 PM

1-Smidgen sl_2 Let \mathfrak{g}_1 be the 4-dimensional Lie algebra $\mathfrak{g}_1 = \langle b, c, u, w \rangle$ over the ring $R = \mathbb{Q}[\epsilon]/(\epsilon^2 = 0)$, with b central and with $[w, c] = w$, $[c, u] = u$, and $[u, w] = b - 2\epsilon c$, with CYBE $r_{ij} = (b_i - \epsilon c_i)c_j + u_i w_j$ in $\mathcal{U}(\mathfrak{g}_1)^{\otimes(i,j)}$. Over \mathbb{Q} , \mathfrak{g}_1 is a **solvable approximation of sl_2** : $\mathfrak{g}_1 \supset \langle b, u, w, \epsilon b, \epsilon c, \epsilon u, \epsilon w \rangle \supset \langle b, \epsilon b, \epsilon c, \epsilon u, \epsilon w \rangle \supset 0$.
 (note: $\deg(b, c, u, w, \epsilon) = (1, 0, 1, 0, 1)$)

$tg^\epsilon = \langle b, e, g, f \rangle / [g, e] = 2e, [g, f] = -2f, [e, f] = b + \epsilon g, [b, *] = 0$



$[c, w] = -w \rightarrow [\frac{1}{2}g, f] = -f \quad \checkmark$

$[c, u] = u \rightarrow [\frac{1}{2}g, e] = e \quad \checkmark$

$[u, w] = b - 2\epsilon c \rightarrow [e, f] = b + \epsilon g \quad \checkmark$