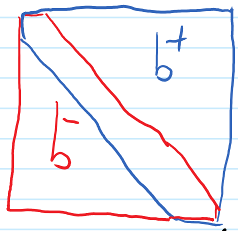
GWU-1612 Talking Points

December 11, 2016 7:19 AM

This is the 1-hour version of a talk I gave in August in 4 hours and then 4 times in 2 hours hence my abstract is a bit brusque/abrupt /blunt.

Abstract. Whether or not you like the formulas on this page, they describe the strongest truly computable knot invariant we know.



Right after speaking the abstract, a word about how \rho_1 arose:

Semi-simple Lie algebras are sums:
So the bracket decomposes into 8 pieces. can scale some 3 of them by ϵ. Get "$\mathfrak{g}$ with faded b^-"

Why doesn't anybody talk about it?

1. mostly people don't know.
2. At invertible ϵ, get an isomorphic result.
3. At $\epsilon = 0$, get welded knots & the Alexander poly.
4. At $\epsilon^k = 0$: vdV & I are lucky bastards!

why is it good?

1. "approximate $\mathfrak{g}^+ / sl_2^+$"
2. Yet solvable, so all formulas get simple.

Aside: You may think that sl_2 formulas are already easy. Not really!

a. Multiplying exponentials in $U(\mathfrak{g})$ is impossible.
b. Instead, people work w/ rep theory.
c. But then everything in knot theory is exp-time!

BTW, in sl_2, $b^+ = \langle f \rangle$, $b^- = \langle e \rangle$, $2\mathfrak{h} = \langle h, \ell \rangle$

.... On to the description of what comes out for sl_2 at $\epsilon^2 = 0$...