

<p>Written Chern-Simons</p> <p>u-knots</p> <p>u-knots are usual knots:</p> <p>=PA $\langle \text{R} \times 23 \rangle_0$ legs</p> <p>"Knots in \mathbb{R}^3"</p> <p>Reidemeister</p>	<p>$1-1 \rightarrow$</p> <p>v-knots</p> <p>v-knots are virtual knots:</p> <p>=PA $\langle \text{R} \times 23 \rangle_0$</p> <p>=CA $\langle \text{R} \times 23 \rangle_0$</p> <p>= Knots on surfaces, modulo stabilization:</p> <p>Kauffman</p>	<p>$\text{onto} \rightarrow$</p> <p>w-knots</p> <p>w is for welded, weakly v, and warmup:</p> <p>4 $\{w\text{-knots}\} = \{v\text{-knots}\} / (\text{OC})$</p> <p>where OC is Overcrossings Commute:</p> <p>Related to "movies of flying rings" to knotted tubes in 4-space, and to "basis conjugating automorphisms of free groups".</p> <p>McCool Goldsmith Fenn Rimanyi Rourke Satoh Brendle Hatcher</p>
---	---	--

<p>$\mathcal{K}^u \xrightarrow{\text{Expansion exists, Eg., using the Kontsevich integral. No homomorphic expansion!}} \mathcal{A}^u$</p> <p>4T:</p>	<p>$\xrightarrow{\text{wide open}} \mathcal{K}^v \xrightarrow{\text{Homomorphic exists!}} \mathcal{K}^w$</p> <p>$\mathcal{A}^v \xrightarrow{\text{Homomorphic exists!}} \mathcal{A}^w$</p> <p>6T:</p>	<p>$\mathcal{A}^u \xrightarrow{\text{Homomorphic exists!}} \mathcal{A}^w$</p> <p>TC:</p> <p>4T:</p>
---	---	--

$\downarrow \mathcal{T}^u$

$U(\mathfrak{g})^{\otimes \mathbb{C}}$

For any metrized f.d. Lie algebra \mathfrak{g}

$\downarrow \mathcal{T}^v$

$U(\mathfrak{g}_+ \oplus \mathfrak{g}_-)^{\otimes \mathbb{C}}$

For any f.d. Lie bialgebra $\mathfrak{g} = \mathfrak{g}_+ \oplus \mathfrak{g}_-$

$\downarrow \mathcal{T}^w$ Today

$U(\mathbb{I}\mathfrak{g})^{\otimes \mathbb{C}}$

For any f.d. Lie algebra \mathfrak{g}