
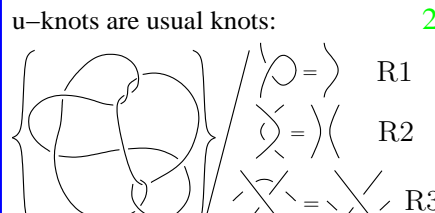

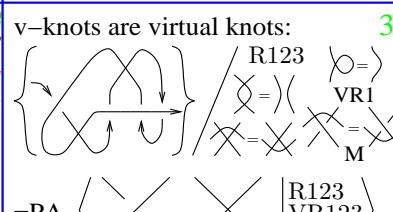
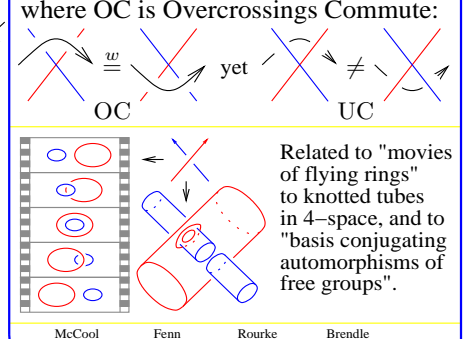
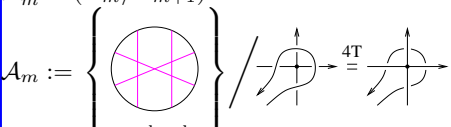
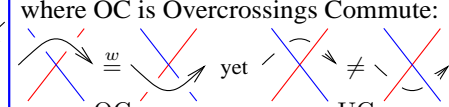
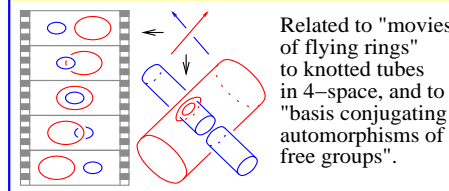

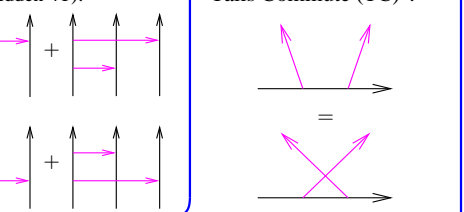
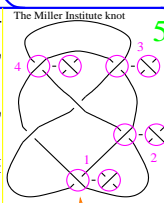


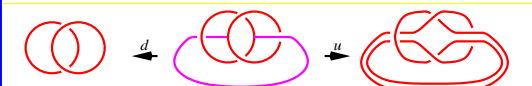

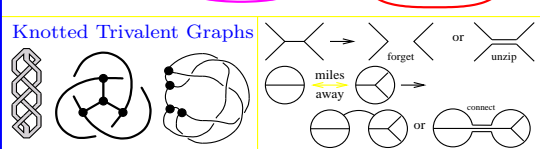
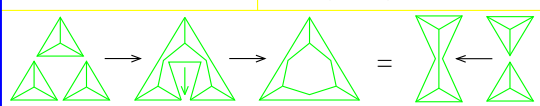

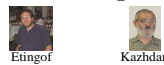


<p style="writing-mode: vertical-rl; transform: rotate(180deg);">topology</p>	<p>1  u-knots</p> <p>u-knots are usual knots:</p>  <p>R1 R2 R3</p> <p>=PA \langle R123 \rangle_0 legs </p> <p>"Knots in \mathbb{R}^3"</p>	<p>1+1 v-knots</p> <p>v-knots are virtual knots:</p>  <p>VR1 R123 M</p> <p>=PA \langle R123 VR123 \rangle_0</p> <p>=CA \langle R123 \rangle_0 </p> <p>= Knots on surfaces, modulo stabilization:</p> 	<p>onto w-knots</p> <p>w is for welded, weakly v, and warmup:</p> <p>4 $\{w\text{-knots}\} = \{v\text{-knots}\} / (OC)$</p> <p>where OC is Overcrossings Commute:</p>  <p>OC UC</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 style="writing-mode: vertical-rl; transform: rotate(180deg);">combinatorics</p>	<p>Extend any $V : \{u\text{-knots}\} \rightarrow \mathcal{A}$ to "singular u-knots" using $V(\times) := V(\times) - V(\times)$, and think "differentiation".</p> <p>Declare "V is of type m" iff $V^{(m+1)} \equiv 0$, think "polynomial of degree m".</p> <p>$W = V^{(m)}$ roughly determines V; $W \in \mathcal{A}_m^* = (\mathcal{K}_m / \mathcal{K}_{m+1})^*$ with</p>  <p>$A_m := \left\{ \begin{array}{c} \text{m chords} \\ \text{diagram} \end{array} \right\} / \text{4T} = \text{diagram}$</p> <p>Need an expansion $Z : \{u\text{-knots}\} \rightarrow \mathcal{A} = \bigoplus \mathcal{A}_m$.</p> <p></p>	<p>5 </p> <p>All the same, except</p> <p>$V(\times) := V(\times) - V(\times)$ $V(\times) := V(\times) - V(\times)$ $\mathcal{A}^v := \{ \text{"arrow diagrams"} \} / 6T$</p> <p>Need a $Z : \{v\text{-knots}\} \rightarrow \mathcal{A}^v$.</p> <p>The 6T Relation (and a hidden 4T):</p> 
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">low algebra</p>		<p>10 Similar</p> <p>with metrized Lie algebras replacing arbitrary Lie algebras</p> <p></p>	<p>9 Similar</p> <p>with Lie bi-algebras replacing arbitrary Lie algebras</p> <p></p>
	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">high algebra</p>	<p>11 Knots are the wrong objects to study in knot theory! They are not finitely generated and they carry no interesting operations.</p>  <p>Knotted Trivalent Graphs</p>  <p>forget or unzip miles away or connect</p>  <p>Theorem (~). A homomorphic Z is the same as a "Drinfel'd Associator". </p>	<p>13 Z is a Quantum Group?</p> <p>More precisely, a homomorphic Z ought to be equivalent to the Etingof-Kazhdan theory of deformation quantization of Lie bialgebras.</p> <p></p> <p>Dror's Dream: Straighten and fatten this column.</p> <p>An Idle Question. Is there physics in this column?</p>