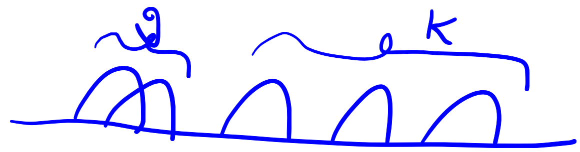
Talk in Roland's UG seminar.

1. knots, invariants, a theory of "all" knot invariants.
2. F.T. invariants, chord diagrams, $\mathcal{V}$, W, FI, 4T, the fundamental theorem — for a fixed m

   surprisingly hard!

   $\mathcal{V}_m, \mathcal{A}_m, \ldots$

3. The 2T relation.....



$W_{H,m}(D) = N^k$

$W_{G,m}(D) = \begin{cases} 1 & k=0 \\ 0 & \text{otherwise.} \end{cases}$

I could tell you why FI is unimportant, or can be avoided, instead, W_C...

Given m, is there a $V_{C,m}$ w/ $W_m(V_{C,m}) = W_C$?

4. $\mathcal{A} = \bigoplus \mathcal{A}_m$ $\quad W_C : \mathcal{A} \to \mathbb{Q}[z]$ by

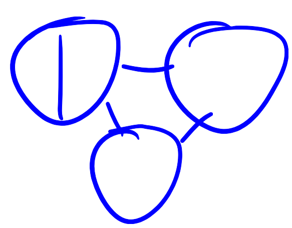
$$W_C(D) = z^{\deg D} W_{C,m}(D)$$

or

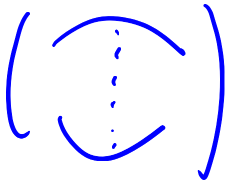
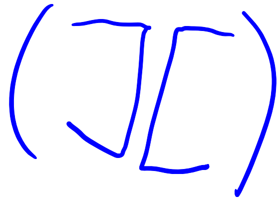
$$W_C = \sum z^m W_{C,m}$$

Q: is there $V_C : \mathcal{K} \to \mathbb{Q}[z]$ s.t.

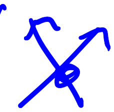
$$W(V_C) = \sum z^m W(V_C /\!/ \pi_{z^m}) = W_C$$

5. W_C extends to 

   s.t.

$W_c\big($$\big) = z\,W_c\big($$\big)$ $\quad W_c(\bigcirc^k) = \delta_{k1}$

Guess: $\exists\, V_c : \{\text{links}\} \longrightarrow \mathbb{Q}[z]$

s.t. 1. $\ldots\ldots = V_c\big($$\big) = V_c(\,][\,)$

2. $V_c(\bigcirc^k) = \delta_{k1}$

<u>Prop</u> If V_c exists, it is unique.

<u>Thm</u> V_c exists; it is the Conway polynomial.