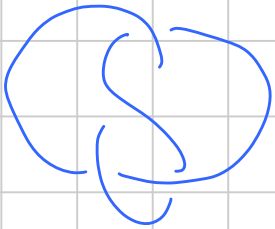
Math 690 — Alexander Polynomial computations

Note Title 9/9/2014

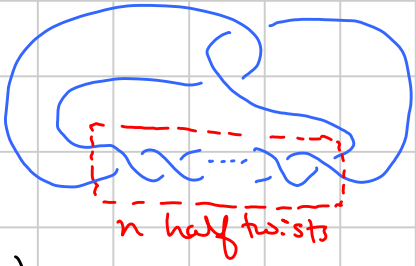
Exc Compute the (Conway-normalized) Alexander polynomial for:

1. the figure eight knot



answer: $-t+3-t^{-1}$

2. the twist knot

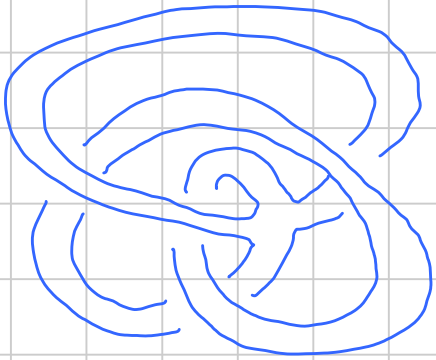


$$\begin{cases} \frac{n+1}{2}t - n + \frac{n+1}{2}t^{-1} & \text{if } n \text{ is odd} \\ -\frac{n}{2}t + (n+1) - \frac{n}{2}t^{-1} & \text{if } n \text{ is even} \end{cases}$$

(note $n=1$: trefoil; $n=2$: figure 8)

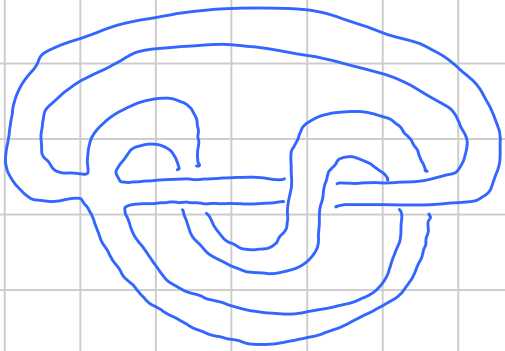
3a. the knot 6_1, which can either be depicted as $n=4$ in #2, or drawn as follows:

$-2t+5-2t^{-1}$



3b. the knot 9_{46}:

$-2t+5-2t^{-1}$



3c. Now show that 6_1 and 9_{46} have different Alexander modules even though they have the same Alexander polynomial!