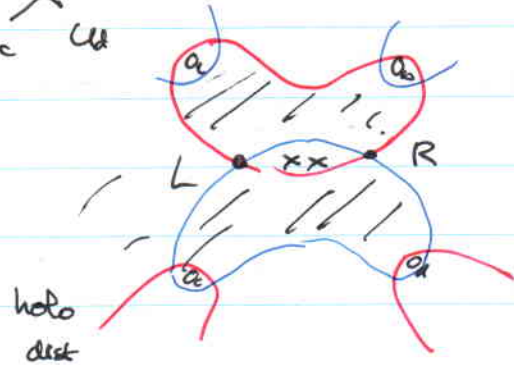
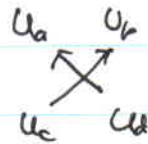
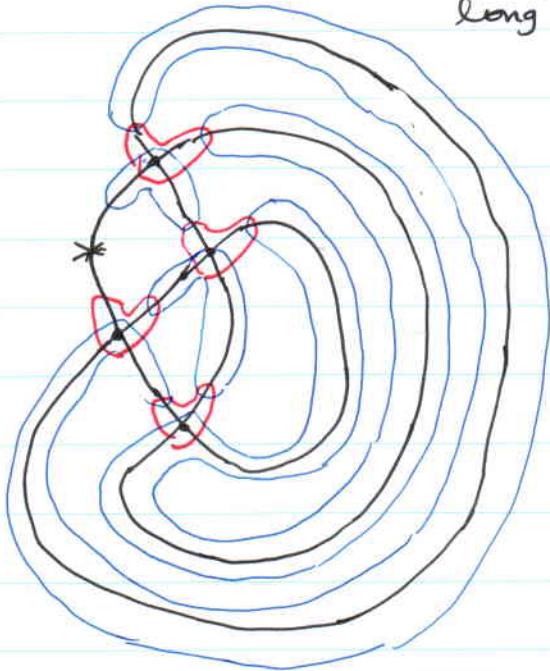


Ozsvath

$$\Delta_{\nearrow} = \Delta_{\nwarrow} + T^{+1/2} \Delta_{\searrow}$$

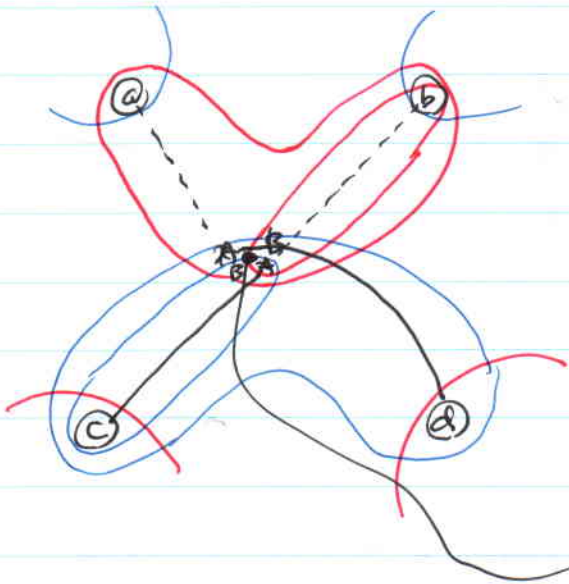
$$\Delta_{\nwarrow} = \Delta_{\nearrow} + T^{-1/2} \Delta_{\searrow}$$

long exact seq.



$$\Rightarrow (U_a U_b - U_c U_d) x = 0$$

$Sym^4(S^2)$



2次元と3次元の対応: Subcplx (2次元)

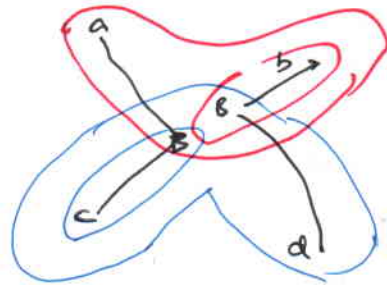
chain cplx for \nwarrow



$$\left\{ \begin{array}{l} \mathbb{T} \rightarrow \Sigma \\ \downarrow \\ \mathbb{D} \end{array} \right\} \leftrightarrow (\mathbb{D} \rightarrow \mathcal{S}_{\mathbb{T}} \Sigma)$$



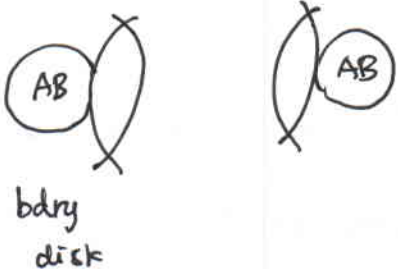
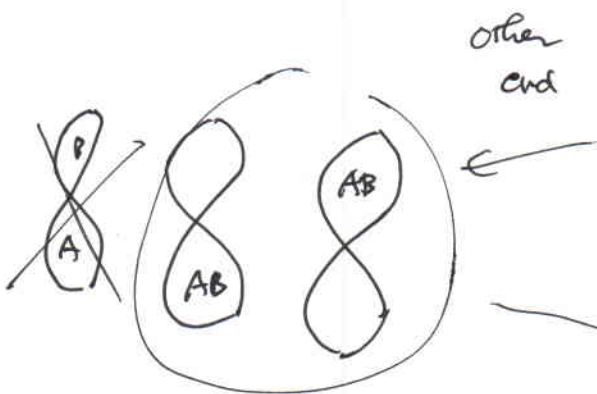
$$\mathcal{K} = \mathcal{Y} \xrightarrow{\varphi_B} \mathcal{X}$$



$$\mathcal{Q} = \mathcal{X} \xrightarrow{\varphi_A} \mathcal{Y}$$

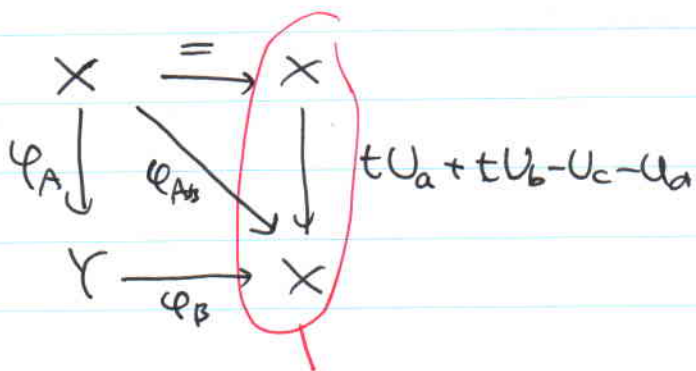
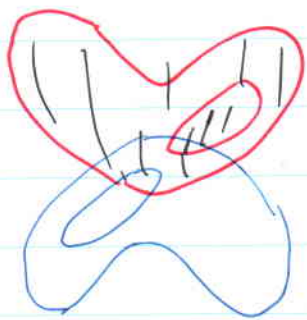
$$\begin{array}{ccc} \mathcal{X} & = & \mathcal{X} \\ \varphi_A \downarrow & & \downarrow \\ \mathcal{K} : \mathcal{Y} & \xrightarrow{\varphi_B} & \mathcal{X} \end{array}$$

$$\varphi_B \circ \varphi_A = ?$$



(NB, shadow of MF)

$$\partial H + H \partial \xrightarrow{\varphi_A} *$$



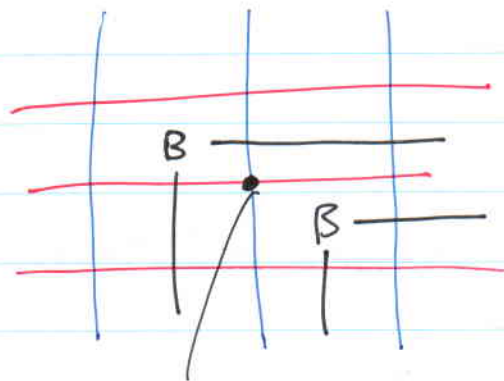
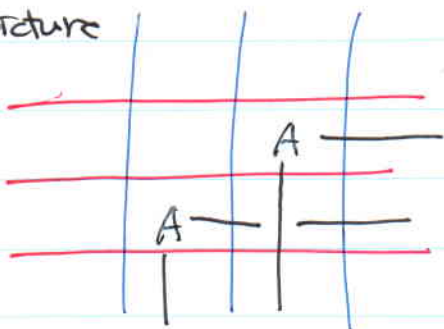
Subspace

$$CFK(X) \otimes \left(\frac{\mathbb{R}}{tU_a + tU_b - U_c - U_d} \right) \rightarrow K \rightarrow \mathbb{R}$$

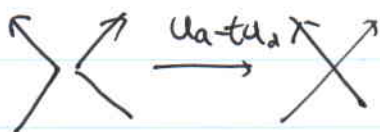
One

long exact seq.

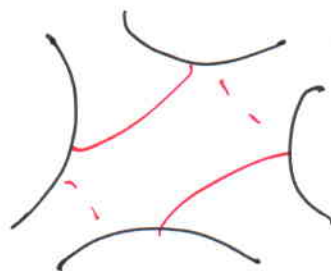
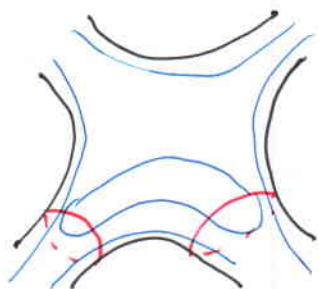
can argue in
the grid picture



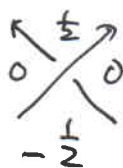
stacked
with



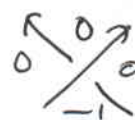
calculating $\widehat{HFK}(S)$ when S is singular



Alex

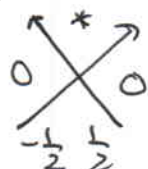


Maslov

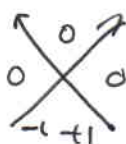


Singular

Alex



Maslov



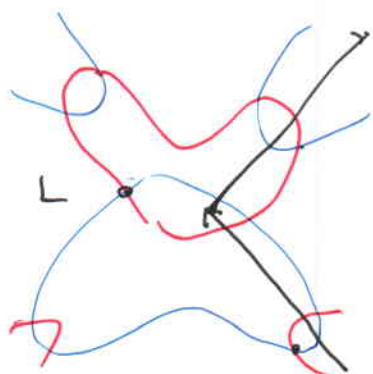
Maslov or Alex

$$\text{New grad.} = M - 2A$$

TR(O-Stipska - Szabo)

For a singular knot S

$\widehat{HFK}(S)$ supported in a single N -grading.

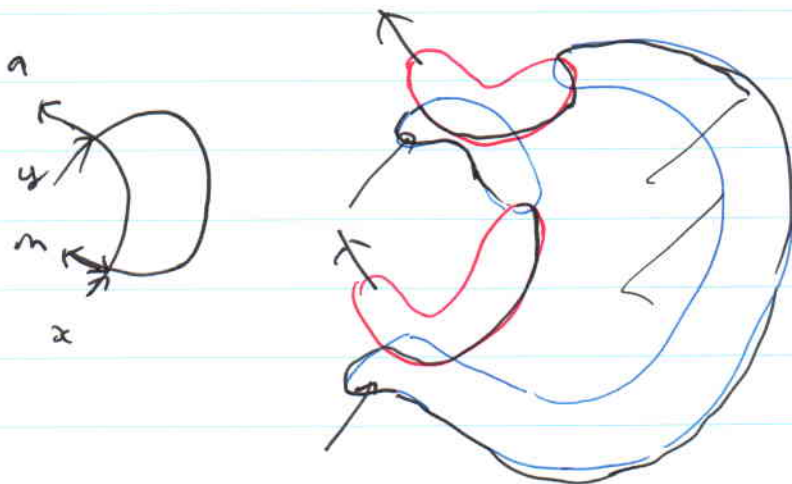


In the planar diagram
generators T_a or T_b

→ circuits in the knot
projection

Maslov grading of a generator corr. to a circuit
= # components of circuit \pm

i L_0 minimum



$$\partial_0 = \tau (u_a u_m - u_x u_y)$$