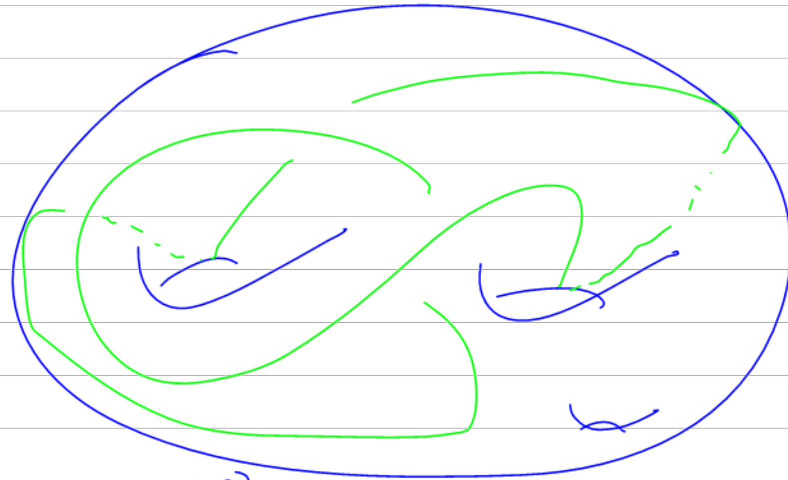
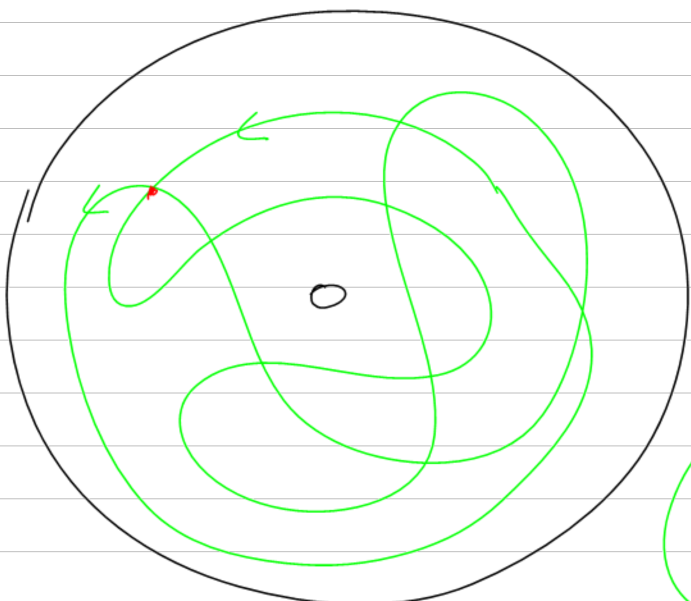
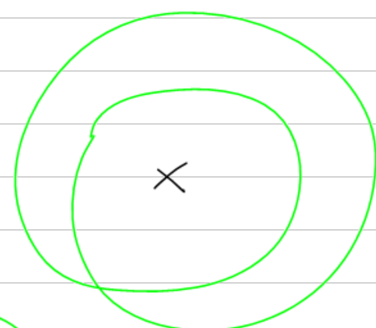
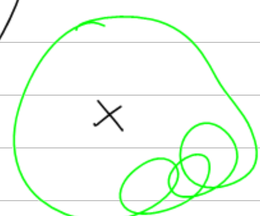
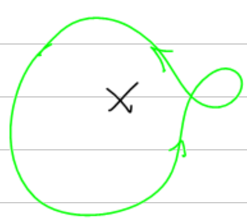


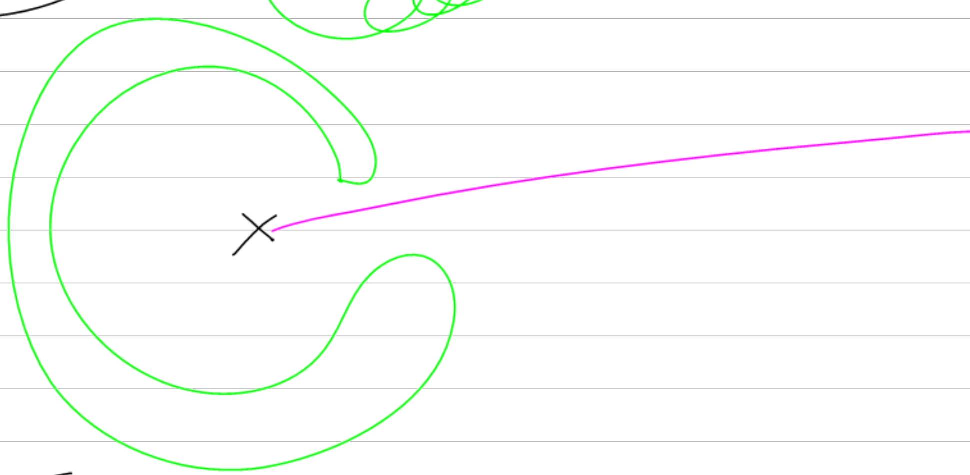
$\gamma \subset \mathbb{R}^2 \times I \sim \mathbb{R}^3$
$\subset \Sigma_g \times I$

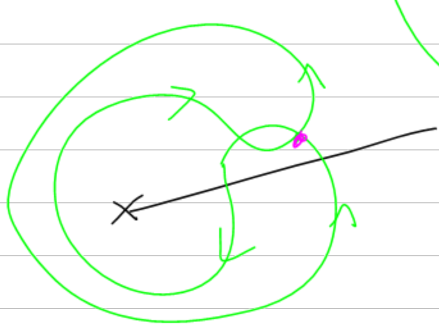




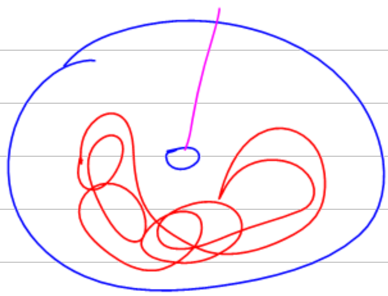


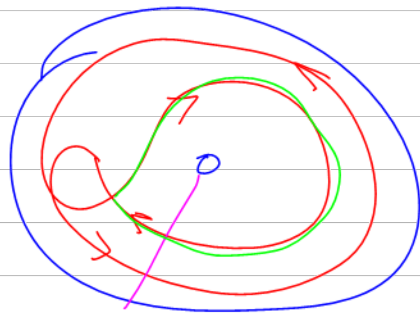


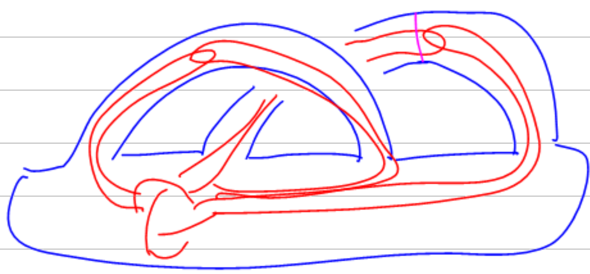


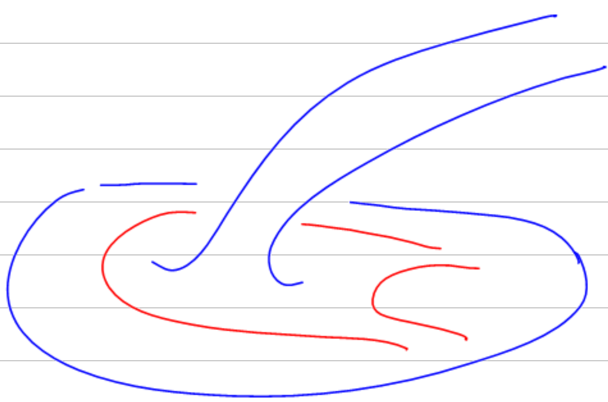


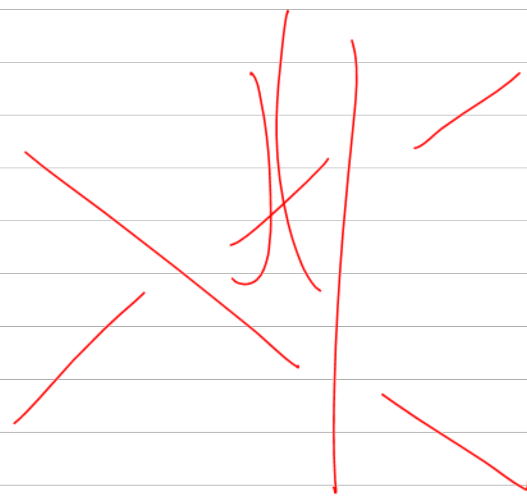
Q In the annulus, is it true that every contractible curve that is not manifestly contractible, has an odd intersection?

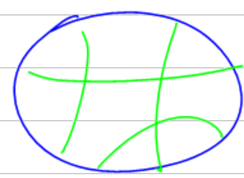


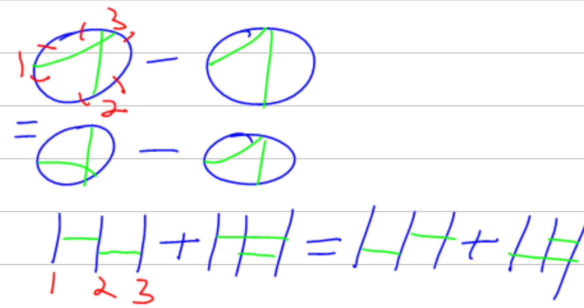


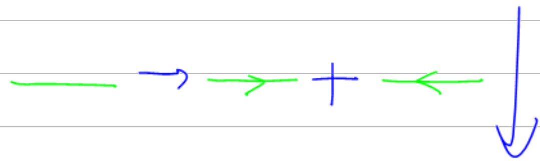


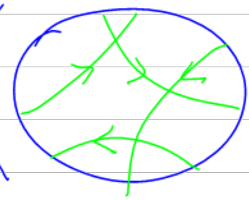


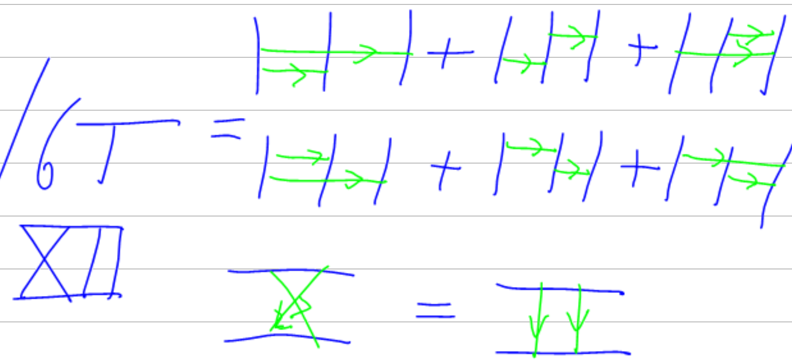


$\mathcal{A} = \langle$  $\rangle / 4T =$

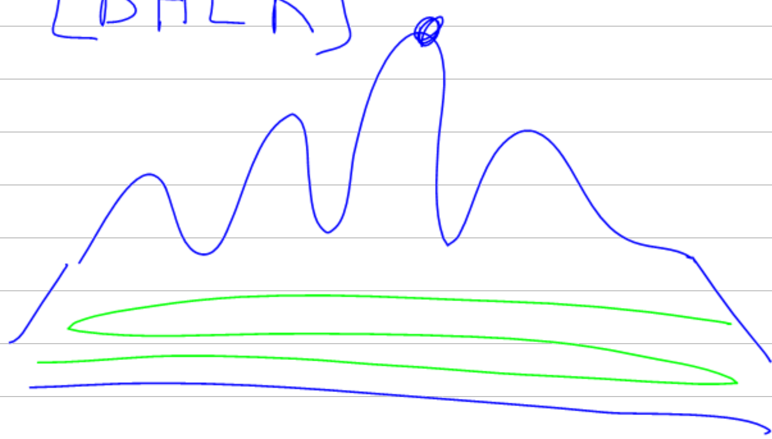


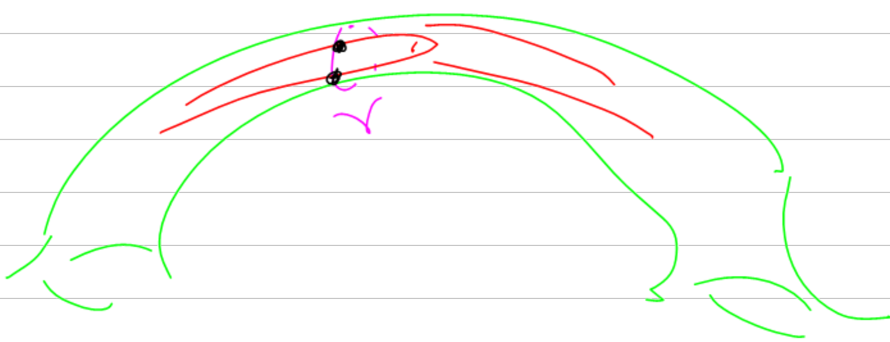


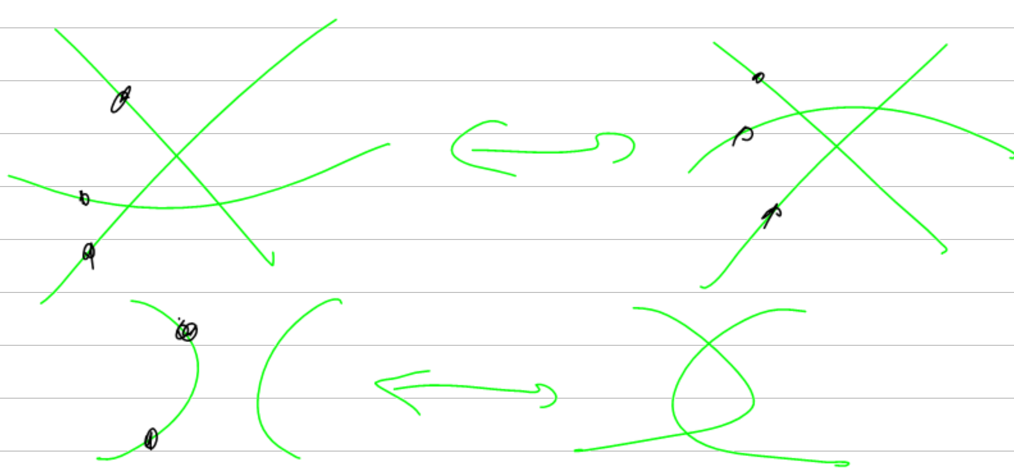
$\mathcal{A}^\vee = \langle$  $\rangle / 6T$

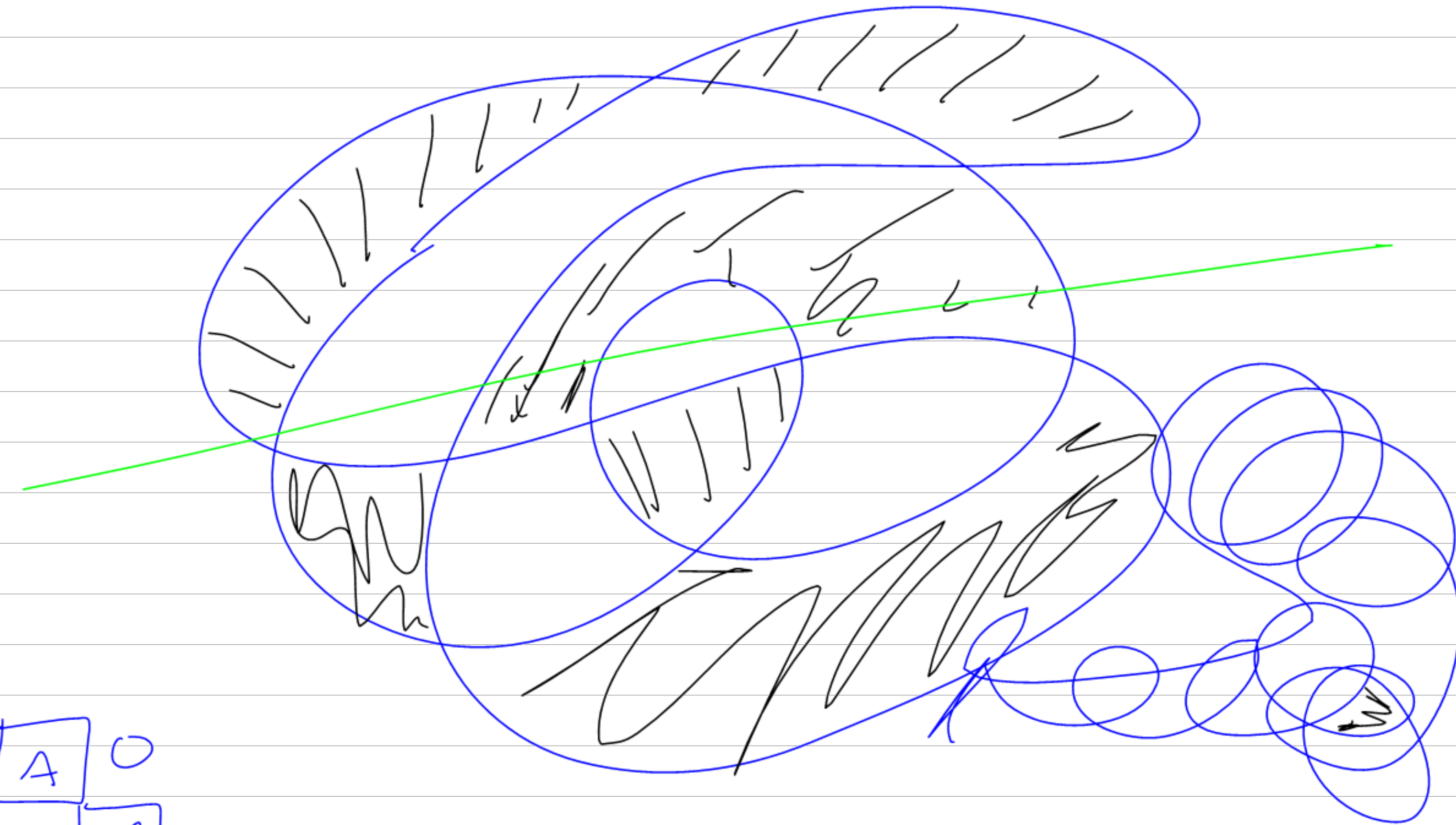


[BHLR]

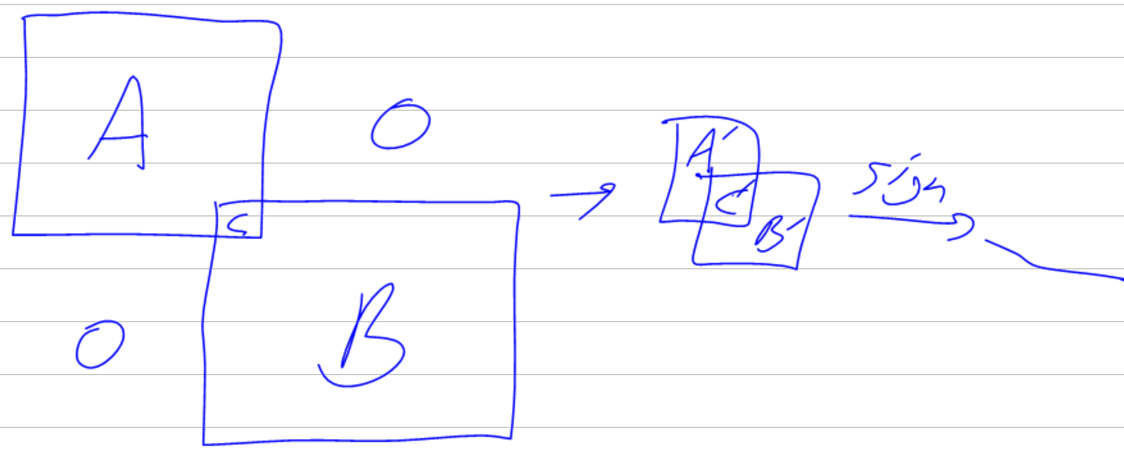








$$\begin{pmatrix} A & 0 \\ 0 & B \end{pmatrix}$$



$$\sigma(\alpha\hat{\beta}) - \sigma(\alpha) - \sigma(\hat{\beta}) = M(V, A, B, C)$$

Thm If two v-diagrams of the ~~same~~ minimal genus can be connected by R-moves, they can be connected by R-moves excluding non-local R2's.

Pf scheme By contradiction, find a counter example

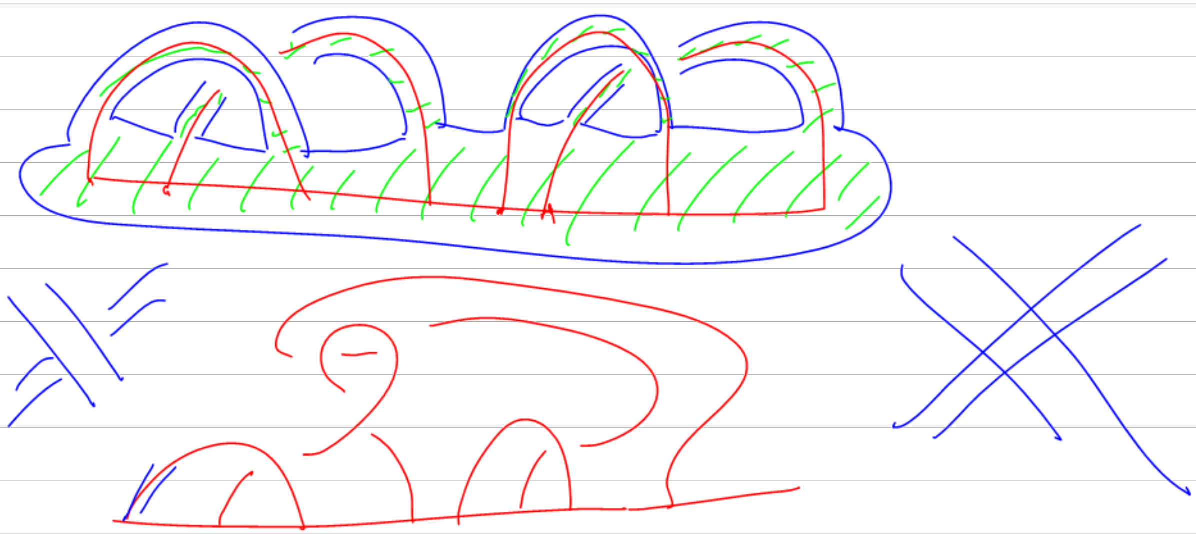
neck curves $D_0 \underset{nl}{\overset{\beta}{\sim}} D_1 \sim \ldots \sim D_{n-1} \underset{nl}{\overset{\gamma}{\sim}} D_n$ such that

1. Only the first & last R-moves are non-local.
2. $\max \chi(D_i)$ is minimal among all counter-examples.

Draw and transport the neck curves β & γ. Consider

$D_0 = \Pi_\beta D_0 \sim\sim \Pi_\beta D_n = \Pi_{\beta\cup\gamma} D_n \sim\sim \Pi_{\beta\cup\gamma} D_0 = \Pi_\gamma D_0 \sim\sim \Pi_\gamma D_n = D_n$

it is either a smaller counter, or it contains one.



https://arxiv.org/abs/1708.08090