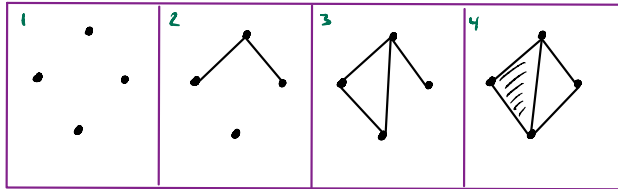


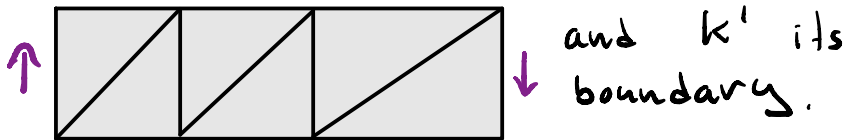
PROBLEM SESSION #1

TDA

- ① What is the barcode of the following filtration?



- ② Let K be the Moebius strip



Compute the barcode of

$$H_1(K') \rightarrow H_1(K) \quad \text{when the field is } \mathbb{Z}_2 \text{ and } \mathbb{Z}_3.$$

- ③ Let $f, g: X \rightarrow \mathbb{R}$. Show that

$$d_I(H_p(f^{-1}(-\infty, \cdot]), H_p(g^{-1}(-\infty, \cdot])) \leq \|f - g\|_\infty$$

- ④ Install (Python-) Ripser and do some computations.