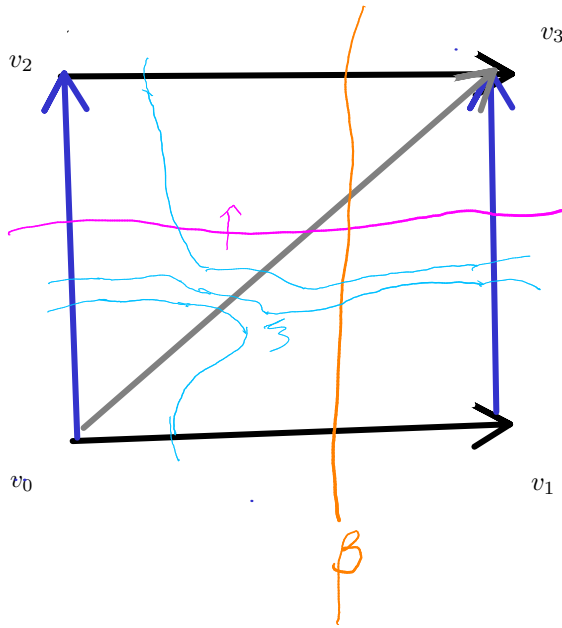


Cup products



$$\begin{aligned} & \delta \zeta (\langle v_0, v_2, v_3 \rangle) \\ & \zeta (\partial \langle v_0, v_2, v_3 \rangle) \\ & \alpha \Rightarrow \text{matching} \end{aligned}$$

$$\alpha \in C^1$$

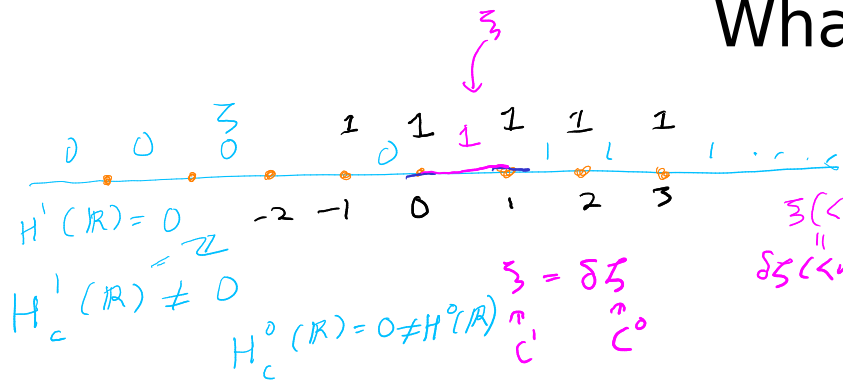
$$\alpha (\langle v_0, v_2 \rangle) = 1$$

$$\alpha (\langle v_0, v_1 \rangle) = 0$$

$$\alpha \cup \beta (\langle v_0, v_2, v_3 \rangle)$$

$$\begin{aligned} &= \alpha (\langle v_0, v_2 \rangle) \cdot \beta (\langle v_2, v_3 \rangle) \\ &= 1 \cdot 1 = 1 \end{aligned}$$

What is H^0 ?



$$\begin{aligned} & \zeta (\langle n, n+1 \rangle) \\ & \delta \zeta (\langle n, n+1 \rangle) = \zeta (\partial \langle n, n+1 \rangle) \\ & = \zeta (n+1) - \zeta (n) \end{aligned}$$