

S^2 

$$\beta_0 = \alpha^0 - \cancel{\gamma_0} - \cancel{\gamma_1} = 1 \quad H_0 \cong \mathbb{Z}$$

$$\beta_1 = \alpha^1 - \cancel{\gamma_1} - \cancel{\gamma_0} = 0 \quad H_1 \cong 0$$

$$\beta_2 = \alpha^2 - \cancel{\gamma_2} - \cancel{\gamma_1} = 1 \quad H_2 \cong \mathbb{Z}$$

$\mathbb{R}P^2$

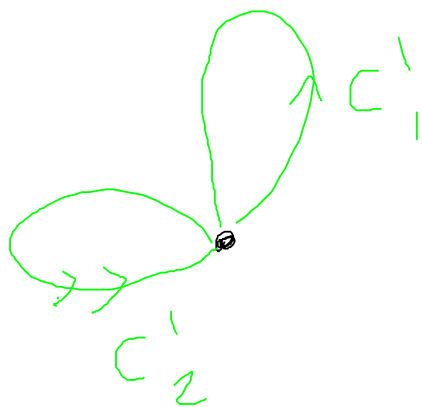
$$\beta_0 = \alpha^0 - \gamma_0 - \cancel{\gamma_1} = 1 - 0 = 1$$

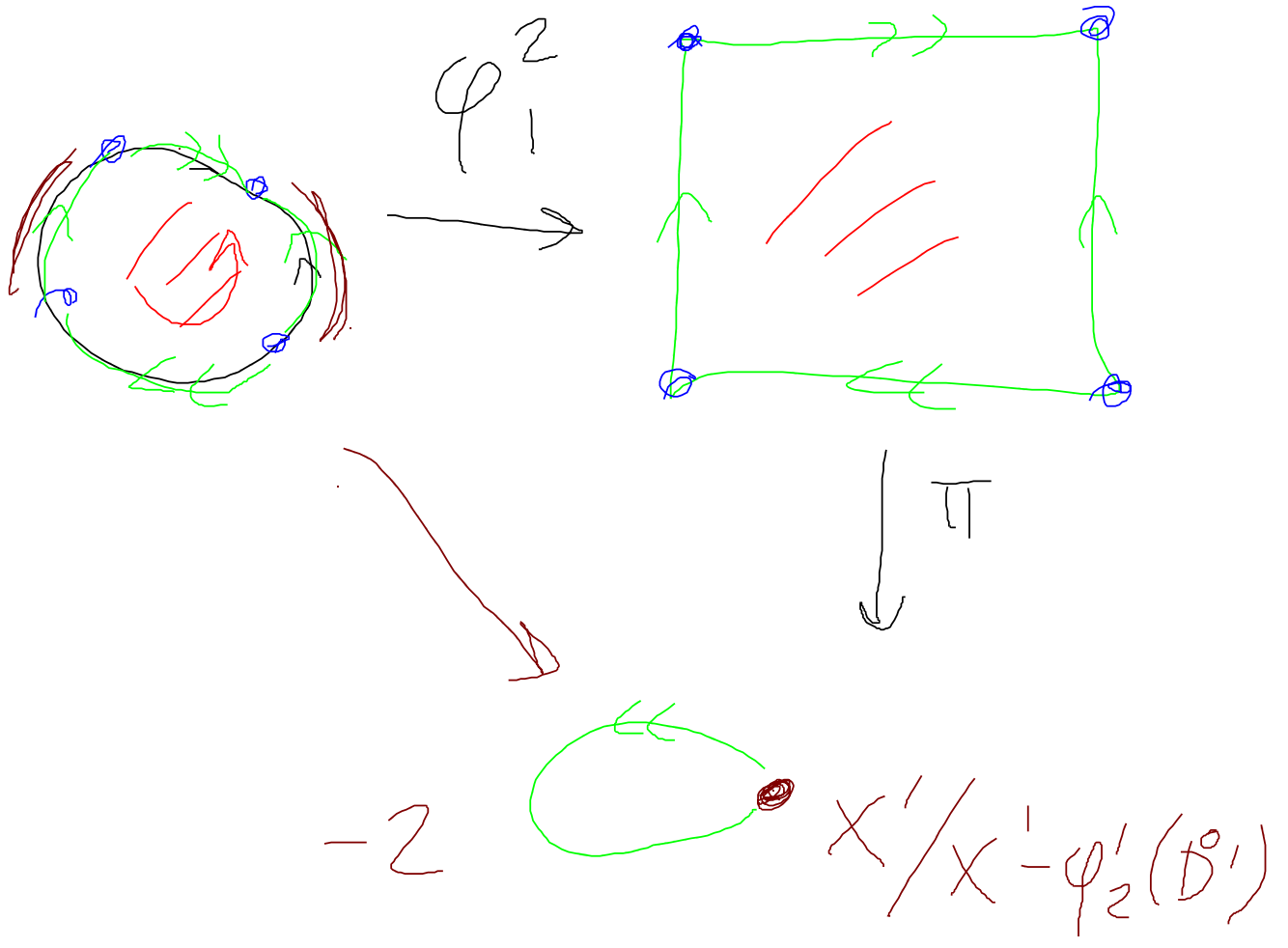
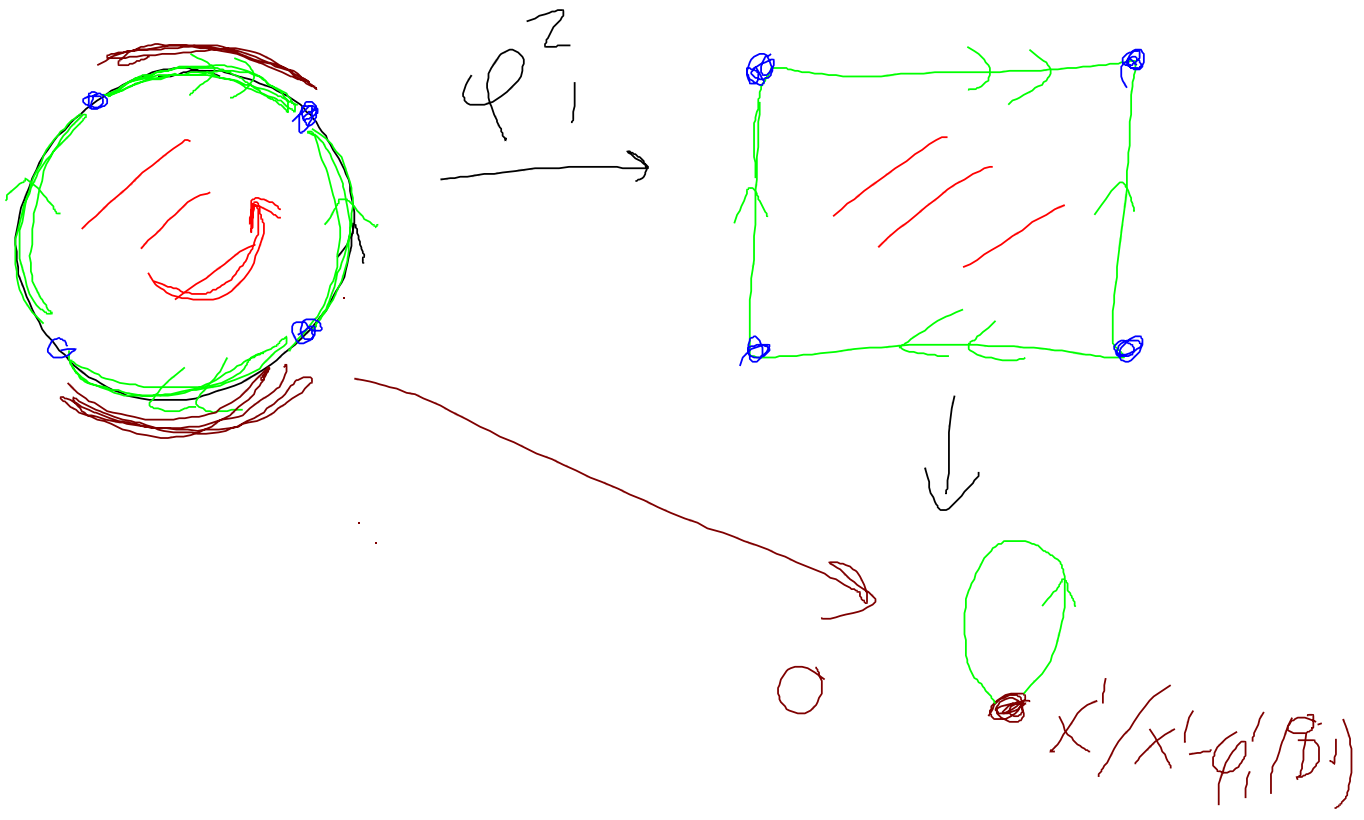
$$\beta_1 = \alpha^1 - \gamma_1 - \gamma_0 = 1 - 1 = 0$$

$$\beta_2 = \alpha^2 - \cancel{\gamma_2} - \gamma_1 = 1 - 1 = 0$$

$$H_0 \cong \mathbb{Z} \quad H_1 \cong \mathbb{Z}_2 \quad H_2 \cong 0$$

X^1



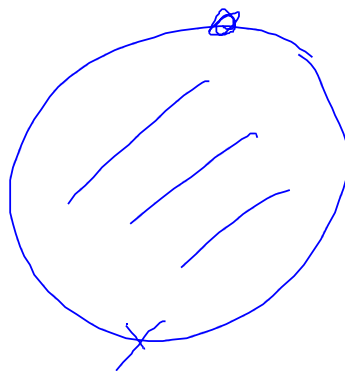
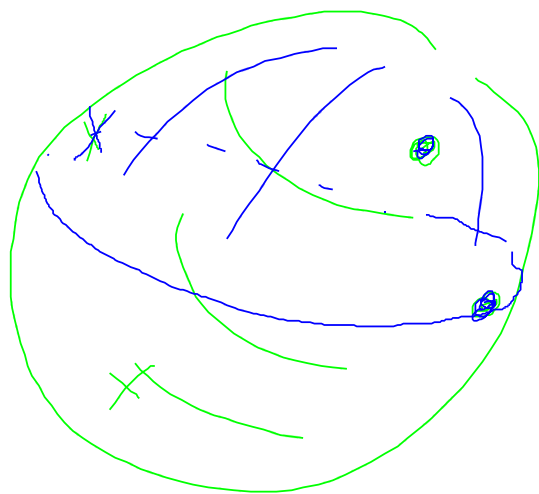
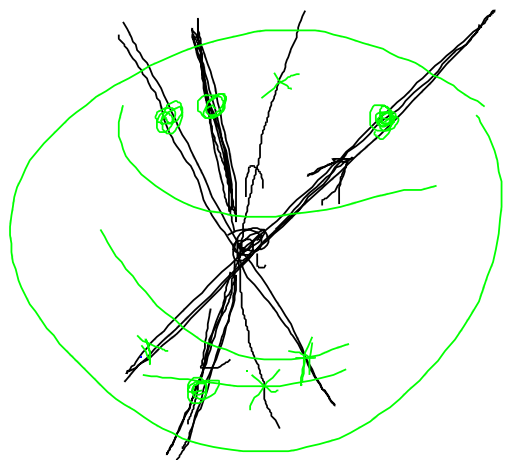


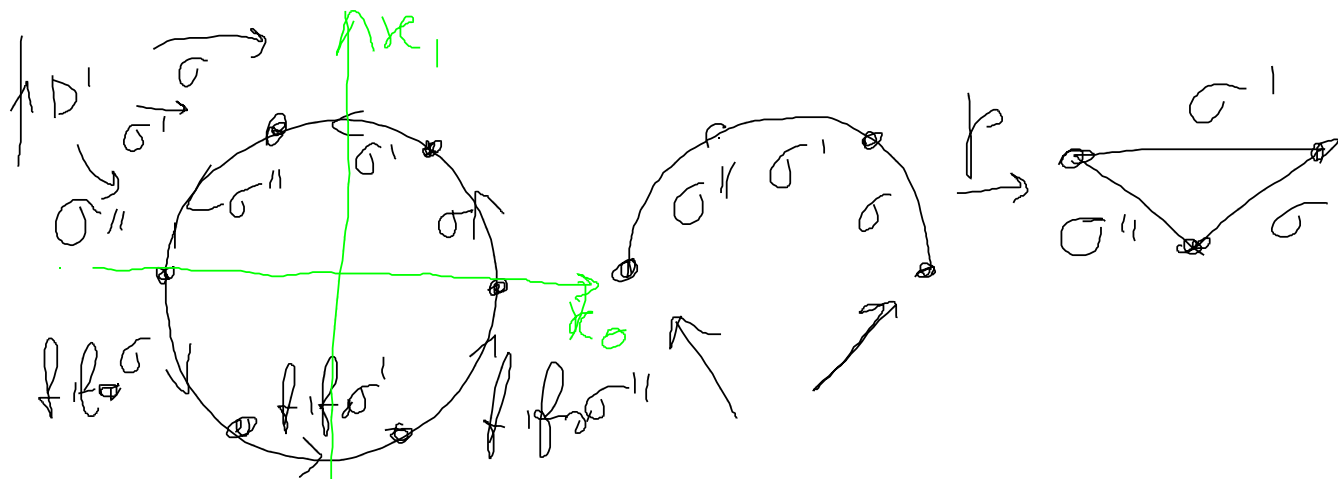
$$\beta_0 = \alpha^0 - \gamma_0 - \cancel{\gamma_1} = 1 - 0 = 1$$

$$\beta_1 = \alpha^1 - \gamma_1 - \gamma_0 = 2 - 1 - 0 = 1$$

$$\beta_2 = \alpha^2 - \cancel{\gamma_2} - \gamma_1 = 1 - 1 = 0$$

$$H_0 \cong \mathbb{Z} \quad H_1 \cong \mathbb{Z} \oplus \mathbb{Z}_2 \quad H_2 \cong 0$$





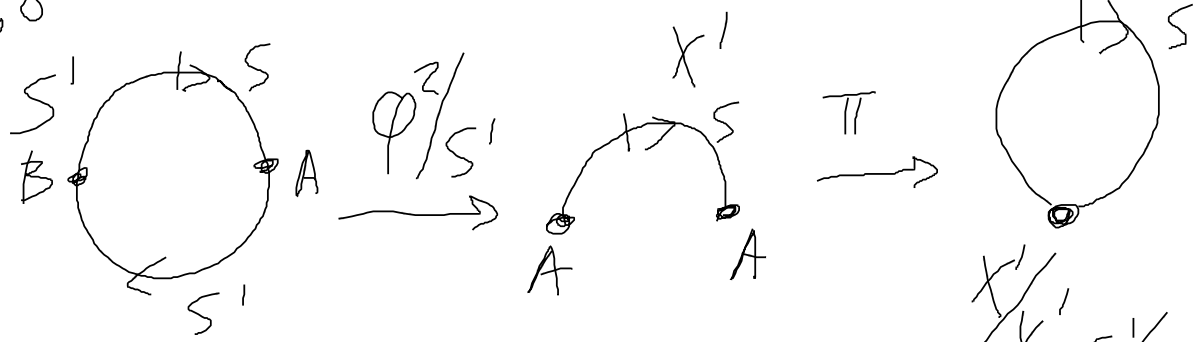
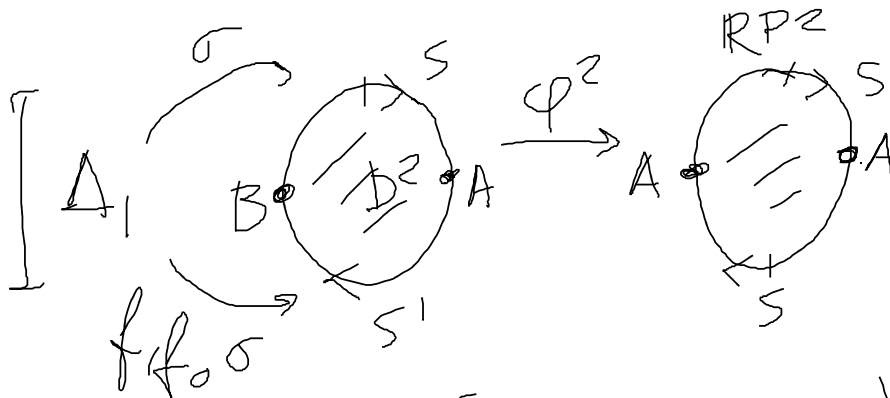
$$f \circ f_0(\sigma + \sigma' + \sigma'')$$

Una classe fondamentale
per S^1 :

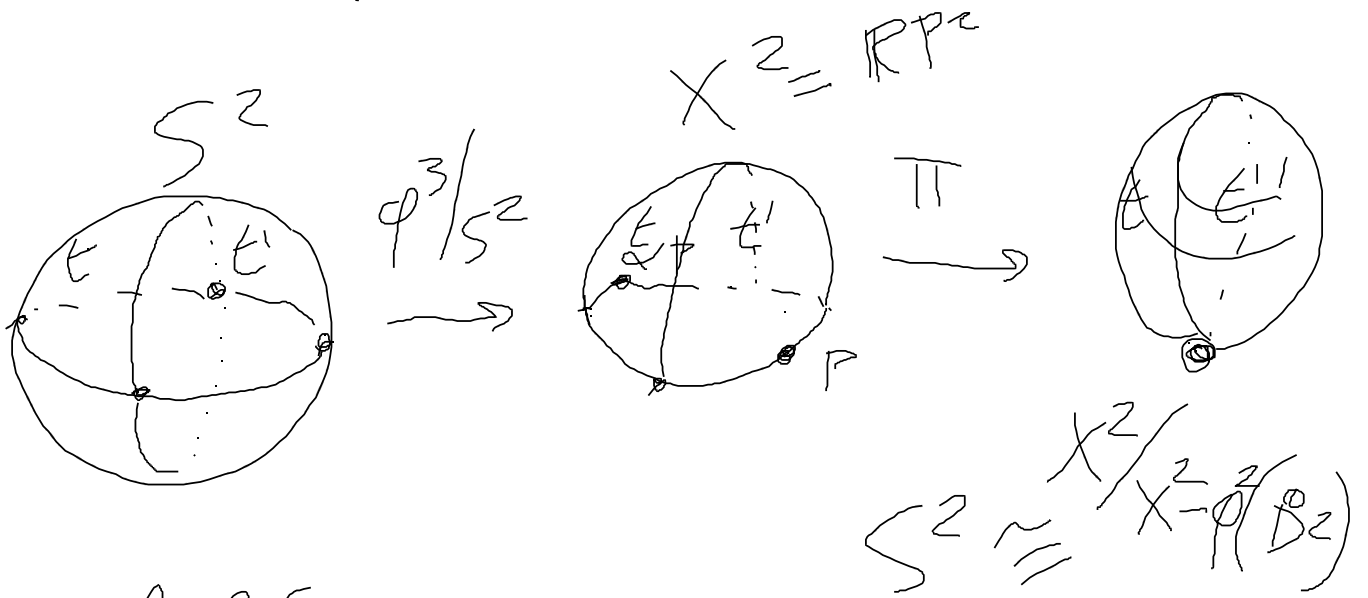
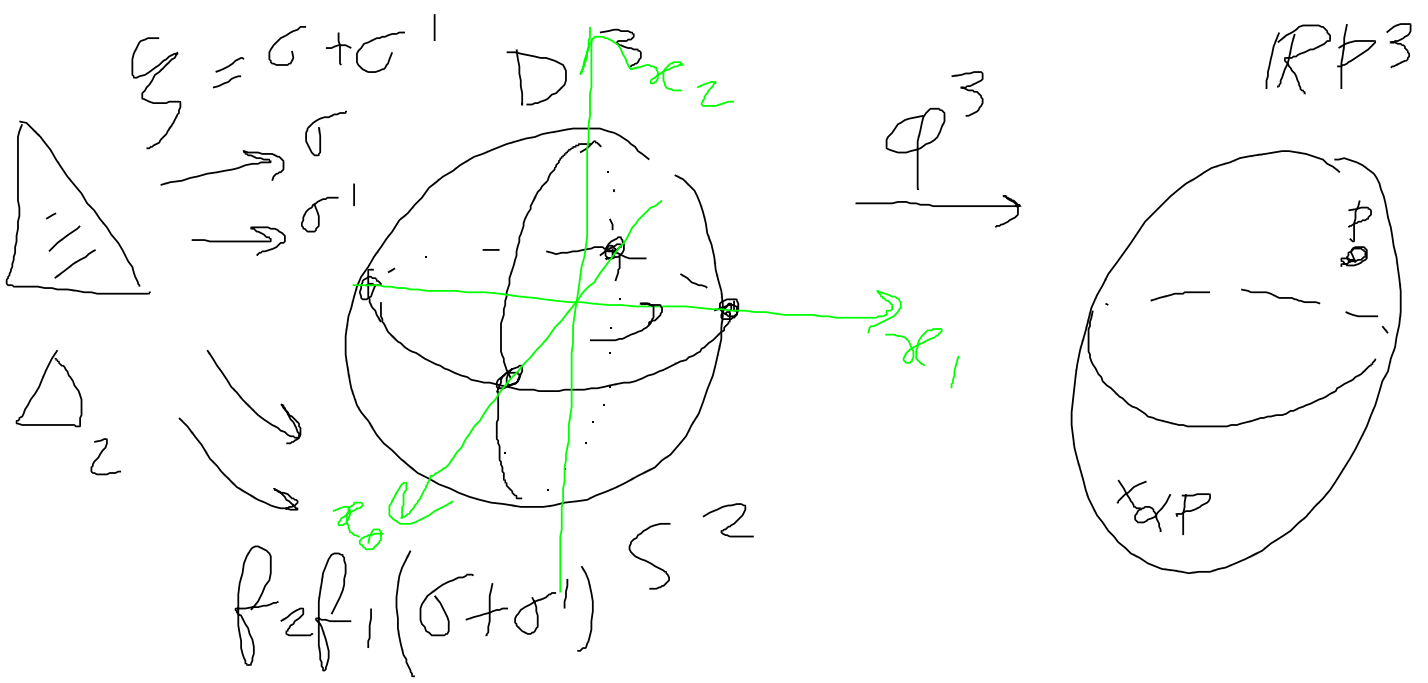
$$\sigma + \sigma' + \sigma'' + f \circ f_0(\sigma + \sigma' + \sigma'')$$

ma anche (passando per
il quoziente dell'emisfero
superiore)

$$p(\sigma + \sigma' + \sigma'')$$



$$\sigma + f_1 f_0 \sigma \longmapsto \pi \varphi^2/S' (\sigma + f_1 f_0 \sigma) = S + \alpha S' = S + S = 2S$$



$$\xi + f_2 f_1 \xi \xrightarrow{\pi \varphi^3 / S^2} (\xi + f_2 f_1 \xi) = (t + t') + \alpha(t + t')$$

RP4

$$\cancel{E^4 = (0)} \quad \beta_4 = 1 - \cancel{0} - 1 = 0 \quad H_4 = 0$$

$$E^3 = (2) \quad \beta_3 = 1 - 1 - 0 = 0 \quad H_3 \cong \mathbb{Z}_2$$

$$E^2 = (0) \quad \beta_2 = 1 - 0 - 1 = 0 \quad H_2 = 0$$

$$E^1 = (2) \quad \beta_1 = 1 - 1 - 0 = 0 \quad H_1 \cong \mathbb{Z}_2$$

$$E^0 = (0) \quad \beta_0 = 1 - 0 - \cancel{0} = 1 \quad H_0 \cong \mathbb{Z}$$

$$\beta_i = \alpha^i - \delta_i - \delta_{i-1}$$

RP5

$$\cancel{E^5 = (2)} \quad \beta_5 = 1 - \cancel{0} - 0 = 1 \quad H_5 \cong \mathbb{Z}$$

$$E^4 = (0) \quad \beta_4 = 1 - 0 - 1 = 0 \quad H_4 = 0$$

$$E^3 = (2) \quad \beta_3 = 1 - 1 - 0 = 0 \quad H_3 \cong \mathbb{Z}_2$$

$$E^2 = (0) \quad \beta_2 = 1 - 0 - 1 = 0 \quad H_2 = 0$$

$$E^1 = (2) \quad \beta_1 = 1 - 1 - 0 = 0 \quad H_1 \cong \mathbb{Z}_2$$

$$E^0 = (0) \quad \beta_0 = 1 - 0 - 0 = 1 \quad H_0 \cong \mathbb{Z}$$

$\mathbb{C} P^3$

$$\begin{aligned} \beta_6 &= 1 - 0 - 0 = 1 & H_6 &\cong \mathbb{Z} \\ \beta_5 &= 0 - 0 - 0 = 0 & H_5 &= 0 \\ \beta_4 &= 1 - 0 - 0 = 1 & H_4 &\cong \mathbb{Z} \\ \beta_3 &= 0 - 0 - 0 = 0 & H_3 &= 0 \\ \beta_2 &= 1 - 0 - 0 = 1 & H_2 &\cong \mathbb{Z} \\ \beta_1 &= 0 - 0 - 0 = 0 & H_1 &= 0 \\ \beta_0 &= 1 - 0 - 0 = 1 & H_0 &\cong \mathbb{Z} \end{aligned}$$