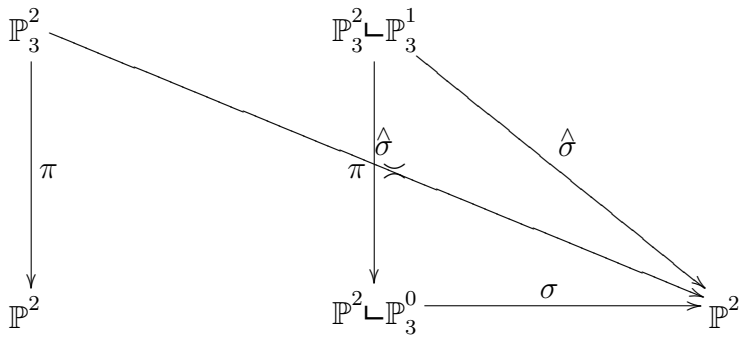
quadratic transformation

$$\sigma[\,z^1 : z^2 : z^3\,] = [\,w^1 : w^2 : w^3\,] = [\,z^3\ z^2 : z^1\ z^3 : z^1\ z^2\,]$$

$$w^1 \,=\, z^3\ z^2 : w^2 \,=\, z^1\ z^3 : w^3 \,=\, z^1\ z^2$$

$$3 = \begin{cases} 1{:}0{:}0 \\ 0{:}1{:}0 \\ 0{:}0{:}1 \end{cases}$$




$$z^1 \,=\, \frac{w^2 w^3}{z^1 z^2 z^3}$$

$$z^2 \,=\, \frac{w^1 w^3}{z^1 z^2 z^3}$$

$$z^3 \,=\, \frac{w^3 w^1}{z^1 z^2 z^3}$$

$$\text{exc curves} \begin{cases} C_1 = 1{:}0{:}0 \\ C_2 = 0{:}1{:}0 \\ C_3 = 0{:}0{:}1 \end{cases}$$

$$\mathbb{P}^2_3 \underset{\asymp}{\overset{\hat{\sigma}}{\longrightarrow}} \mathbb{P}^2_3$$

$$\sigma^2 \,=\, \text{id}$$

$$\mathbb{P}^2_3 \xrightarrow{\pi} \mathbb{P}^2$$

$$C_1 \,=\, \pi^{-1}\,(1{:}0{:}0)$$

$$C_0 - C_1 - C_2 = \text{ line passing through } 1{:}0{:}0 \cup 0{:}1{:}0 = z^3 = 0$$

$$\sigma\left(C_0 - C_1 - C_2\right) = \sigma\, z^3 = 0 = [0{:}0{:}\,w^3] = \pi^{-1}[0{:}0{:}1] = C_3$$

$$\sigma\left(C_0 - C_i - C_j\right) = \sigma\, z^\ell = 0 = C_\ell$$

$$A = A_3 = C_0 - C_1 - C_2 - C_3$$
$$s_A\left(C_0 - C_1 - C_2\right) = C_0 - C_1 - C_2 + \overbrace{A|C_0 - C_1 - C_2}A$$
$$= C_0 - C_1 - C_2 + \left(C_0 - C_1 - C_2 - C_3|C_0 - C_1 - C_2\right)\left(C_0 - C_1 - C_2 - C_3\right)$$
$$= C_0 - C_1 - C_2 + \left(C_0|C_0 + C_1|C_1 + C_2|C_2\right)\left(C_0 - C_1 - C_2 - C_3\right)$$
$$= C_0 - C_1 - C_2 - \left(C_0 - C_1 - C_2 - C_3\right) = C_3$$