

$$O_n \quad U_0 = (z_0 \neq 0) \quad U_0 \times \mathbb{C} \longrightarrow \mathcal{I}|_{U_0} \subset \mathbb{C}^3 \\ ([z_0, z_1, z_2], \lambda) \longmapsto (\lambda, (1, \frac{z_1}{z_0}, \frac{z_2}{z_0}))$$

$$O_n, \quad U_1 = (z_1 \neq 0) \quad U_1 \times \mathbb{C} \longrightarrow \mathcal{I}|_{U_1} \\ ([z_0, z_1, z_2], \lambda_2) \longmapsto (\lambda_2 (\frac{z_0}{z_1}, 1, \frac{z_2}{z_1}))$$

$$O_n \quad U_2 = (z_2 \neq 0) \quad U_2 \times \mathbb{C} \longrightarrow \mathcal{I}|_{U_2} \\ ([z_0, z_1, z_2], \lambda_3) \longmapsto (\lambda_3 (\frac{z_0}{z_2}, \frac{z_1}{z_2}, 1))$$

$\Rightarrow$  If  $z_0 \neq 0 \neq z_1$ , at point  $[z_0, z_1, z_2]$ ,

$$(1, \frac{z_1}{z_0}, \frac{z_2}{z_0}) \xrightarrow{\times \frac{z_0}{z_1}} (\frac{z_0}{z_1}, \frac{z_1}{z_1}, \frac{z_2}{z_1})$$

$$O_n \quad U_0 \cap U_1, \quad g_{1,0} : U_0 \cap U_1 \longrightarrow \mathbb{C} \\ \times \frac{z_0}{z_1}$$

$$g_{1,0}([z_0, z_1, z_2]) = \frac{z_0}{z_1}$$

$$g_{0,1}([z_0, z_1, z_2]) = \frac{z_1}{z_0}$$

$$O_n \quad U_1 \cap U_2, \quad g_{2,1}([z_0, z_1, z_2]) = \frac{z_1}{z_2} = g_{1,2}^{-1}$$

$$O_n \quad U_0 \cap U_2, \quad g_{2,0}([z_0, z_1, z_2]) = \frac{z_0}{z_2} = g_{0,2}^{-1}$$

Thus define  $e_0 : U_0 \longrightarrow \mathbb{C}$  by  
 $e_0|_{U_0} = e_0 : [z_0, z_1, z_2] \longmapsto 1$

$$e_1 : U_1 \longrightarrow \mathbb{C}$$

$$[z_0, z_1, z_2] \longmapsto \frac{z_0}{z_1} = g_{1,0}$$

$$e_2 : U_2 \longrightarrow \mathbb{C}$$

$$[z_0, z_1, z_2] \longmapsto \frac{z_0}{z_2} = g_{2,0}$$

$\Rightarrow e_\alpha = g_{\alpha,0} e_0 \Rightarrow \{e_\alpha\}$  defines a global meromorphic section