P145.

$$J = \{ (l, z) \in \mathbb{P}^n \times \mathbb{C}^{n+1} \mid z \in l \}$$

We may define a meromorphic section $e_0 : \mathbb{P}^n \longrightarrow J$ by

$$e_0(z) = \left(1, \frac{z_1}{z_0}, \cdots \frac{z_n}{z_0}\right). \quad \text{over } U_0 = (z_0 \neq 0).$$

$\Rightarrow$ e_0 is nonvanishing section over U_0.

Likwise, we can define $e_i : U_i = (z_i \neq 0) \longrightarrow J|_{U_i}$ by

$$e_i(z) = \left(\frac{z_0}{z_i}, \frac{z_1}{z_i}, \cdot \overset{i}{1}, \frac{z_{i+1}}{z_i}, \cdots \frac{z_n}{z_i} \right)$$

$\Rightarrow$ Consider the trivializations by using e_i's, i.e

$$\begin{array}{ccc} U_i \times \mathbb{C} & \xrightarrow{\varphi_{U_i}^{-1}} & J|_{U_i} \\ ([z], \alpha) & \longmapsto & \alpha e_i \end{array}$$

$$\begin{array}{ccc} \downarrow & & \swarrow \\ & U_i & \end{array}$$

Consider the collections of meromorphic functions $\{(U_i, f_i)\}$ s.t

$$\begin{array}{ccc} U_i & \xrightarrow{f_i} & \mathbb{C} \\ \Psi & & \\ [z] & \longmapsto & \dfrac{z_i}{z_0} \end{array} \quad \text{for } i \neq 0.$$

$$\begin{array}{ccc} U_0 & \xrightarrow{f_0} & \mathbb{C} \\ \Psi & & \Psi \\ [z] & \longmapsto & 1 \end{array}$$