

$$\Rightarrow f: V \longrightarrow V'$$

$$[X_0, X_1, X_2] \mapsto [P_0(X_0, X_1, X_2), P_1(X_0, X_1, X_2), P_2(X_0, X_1, X_2)]$$

where P_0, P_1 & P_2 are homogeneous polynomials of the same degree d .

$$\Rightarrow \text{Consider } V' \cap H'_0 = \{[0, *, *] \in V'\} = \{P_0 = 0\}.$$

$$\Rightarrow \exists a_0, a_1, a_2 \in \mathbb{C} \text{ s.t. } H = \{a_0 X_0 + a_1 X_1 + a_2 X_2 = 0\}$$

$$H \cap V \xrightarrow{f} V' \cap H'_0 \text{ one to one, onto. by } \textcircled{*}.$$

\Rightarrow Since $a_0 X_0 + a_1 X_1 + a_2 X_2$ is irreducible,

$$P_0 = (a_0 X_0 + a_1 X_1 + a_2 X_2)^d h_0, \quad h_0 \neq 0 \text{ on } V$$

Similarly, we get $P_1 = h_1 (b_0 X_0 + b_1 X_1 + b_2 X_2)^d$, $P_2 = (c_0 X_0 + c_1 X_1 + c_2 X_2)^d h_2$, $h_1 \neq 0 \neq h_2$ functions

$$\Rightarrow \frac{P_0}{P_1} = \frac{h_0 (a_0 X_0 + \dots)^d}{h_1 (b_0 X_0 + \dots)^d} \text{ is meromorphic on } V.$$

$$\frac{P_2}{P_1} = \dots \text{ on } V.$$

\Rightarrow They have the same divisors as $\frac{(a_0 X_0 + \dots)^d}{(b_0 X_0 + \dots)^d} \& \square$.

$$\Rightarrow \frac{P_0}{P_1} = \lambda_0 \frac{(a_0 X_0 + \dots)^d}{(b_0 X_0 + \dots)^d}, \quad \frac{P_2}{P_1} = \lambda_2 \frac{(c_0 X_0 + \dots)^d}{(b_0 X_0 + \dots)^d}$$

$$\Rightarrow f: V \longrightarrow V'$$

$$[X_0, X_1, X_2] \mapsto [\lambda_0 (a_0 X_0 + a_1 X_1 + a_2 X_2)^d, (b_0 X_0 + b_1 X_1 + b_2 X_2)^d, \lambda_2 (c_0 X_0 + c_1 X_1 + c_2 X_2)^d]$$