angle that the tangent T_ν makes with the line L.

We shall show now that the Reiss relation is sufficient. The polynomials $f(x,y)$ of degree n form a vector space of dimension $(n+1)(n+2)/2$.

$$\ulcorner \quad \binom{n+2}{n} = \frac{(n+2)!}{n!\,2!} = \frac{(n+1)(n+2)}{2} = \dim H^0(\mathbb{P}^2, \mathcal{O}(nH)) \quad \text{by P166}$$

$$[X_0, X_1, X_2] \longleftrightarrow \left(\frac{X_1}{X_0}, \frac{X_2}{X_0}\right) \longleftrightarrow (x,y). \quad \lrcorner$$

Those of the form $g(x,y)\,x^3$ ($\deg(g) = n-3$) form a vector space of dimension $(n-2)(n-1)/2$.

$$\ulcorner \quad \binom{n-3+2}{n-3} = \frac{(n-1)!}{(n-3)!\,2!} = \frac{(n-1)(n-2)}{2} = \dim H^0(\mathbb{P}^2, \mathcal{O}((n-3)H)) \quad \lrcorner$$

The quotient space V has dimension

$$\frac{n^2+3n+2}{2} - \frac{n^2-3n+2}{2} = 3n.$$

$\ulcorner$ $\{f(x,y)\} \supset \{g(x,y)\,x^3\} \Rightarrow V = \{f\}/\{g\cdot x^3\}$ has dimension $3n = \dfrac{n^2+3n+2}{2} - \dfrac{n^2-3n+2}{2}$ $\lrcorner$

Finding a curve C of degree n and with prescribed second-order behavior at points p_ν on the line $\{x=0\}$ is equivalent to finding a suitable point in the projective space $\mathbb{P}(V) \cong \mathbb{P}^{3n-1}$. Each second-order arc element imposes three linear conditions, and so there are $3n$ conditions in