

$$\Rightarrow \frac{\partial^2 H}{\partial X_0^2}(p) X_0'(0)^2 + \frac{\partial^2 H}{\partial X_1^2}(p) X_1'(0)^2 + \frac{\partial^2 H}{\partial X_2^2}(p) X_2'(0)^2 + 2 \frac{\partial^2 H}{\partial X_0 \partial X_1}(p) X_0'(0) X_1'(0) \\ + 2 \frac{\partial^2 H}{\partial X_1 \partial X_2}(p) X_1'(0) X_2'(0) + 2 \frac{\partial^2 H}{\partial X_0 \partial X_2}(p) X_0'(0) X_2'(0) = 0 \quad \dots \quad (3)$$

\Rightarrow By expanding $(*)$, we have $(*) = (1) + (2) + (3) = 0$.

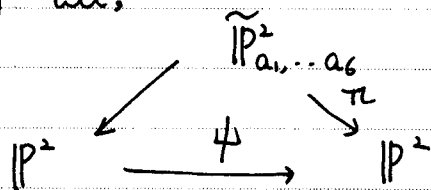
\Rightarrow We get some idea why the tangent cone may be realized as the union of all tangent lines passing the given point.

Let's go back to the birational map $\psi: \mathbb{P}^2 \rightarrow \mathbb{P}^2$ given by

$$x \mapsto [G_2 G_3 l_1, G_1 G_3 l_2, G_1 G_2 l_3].$$

It remains to show that $\deg l_i = 1$ (See note P799).

First of all,



$\pi(E_i) \neq \{[0, *, *]\}$ since $E_i \cap \tilde{G}_j \neq \emptyset$ if $i \neq j$, and $\pi(E_i)$ contains five of $\{\pi(\tilde{G}_j)\}$ but no three of $\{\pi(\tilde{G}_j)\}$ are collinear.

Second, $\psi: \mathbb{P}^2 - \cup G_j \rightarrow \mathbb{P}^2 - \cup \pi(E_i)$ is

biholomorphic.

\Rightarrow Clearly $\{[0, *, *]\}$ contains $\pi(G_2)$ and $\pi(G_3)$.

$\Rightarrow \psi^{-1}: \mathbb{P}^1 - g_2 - g_3 \rightarrow \{l_1 = 0\} = a_1 - a_2 - \dots - a_6$