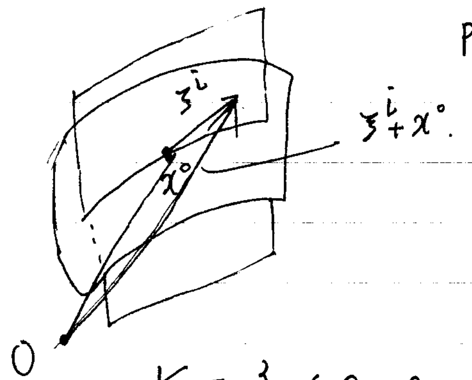
① $a_1 x_1^\circ + a_2 x_2^\circ + a_3 x_3^\circ + a_4 x_4^\circ = a_0$. since a hyperplane passes through x°.

② $a_1(\xi_1^1 + x_1^\circ) + \cdots\cdots + a_4(\xi_4^1 + x_4^\circ) = a_0$

③ $a_1(\xi_1^2 + x_1^\circ) + \cdots + a_4(\xi_4^2 + x_4^\circ) = a_0$

} since a hyperplane contains ξ^1 & ξ^2 at x°.



$K = \{ (a_0, a_1, \cdots a_4) \in \mathbb{C}^5 \mid (a_0, \cdots a_4)$ satisfies ①, ② & ③ conditions$\}$. is a vector space. $\Rightarrow$ By Bertini's theorem on P137, the generic element of $\tilde{K}$ is smooth away from the base locus of $\tilde{K}$, where $\tilde{K} = \{ \sigma_a \in H^0(M, \mathbb{P}^4), \}$ The base locus is $\{x^\circ, \xi^1, \xi^2\}$.

σ_a is the section represented by $[(a_0, \cdots a_4)]$.

At x°, $H \cap M$ to be singular, i.e., H does not meet with M transversely.

$\Rightarrow T'_{x^\circ}M \subset T_{x^\circ}H \Rightarrow T'_{x^\circ}M \perp (a_1, a_2, a_3, a_4)$.

$\Rightarrow a_1 \xi_1^3 + \cdots + a_4 \xi_4^3 = 0 \cdots ⊛ \quad T'_{x^\circ}M = \langle \xi^1, \xi^2, \xi^3 \rangle$.

$\Rightarrow$ An open and dense subset of K do not satisfy ⊛.

Note here that we may assume that $\xi^1 \notin M$ & $\xi^2 \notin M$. by multiplying by some constants. So we don't need to worry about ξ^1, ξ^2.

"More explanation".

Consider the linear map L defined as follows:

$L : \mathbb{C}^5 \longrightarrow \mathbb{C}^4$.