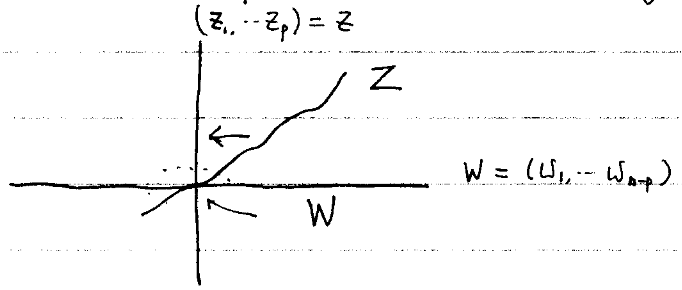
$\Rightarrow \quad x = v + w. \quad \Rightarrow \quad \langle x, x \rangle = \langle v+w, v+w \rangle$
$= \langle v, v \rangle + \langle w, w \rangle + \langle v, w \rangle + \langle w, v \rangle$
$\Rightarrow \langle w, v \rangle \in T_{(p,p)}\Delta + T_{(p,p)}(V \times W). \Rightarrow (T_pW, T_pV) \subset T\Delta + T(V\times W)$
$\Rightarrow (T_p\mathbb{C}^n, 0) \subset T_{(p,p)}\Delta + T_{(p,p)}(V\times W)$ since $T_pW + T_pV = T_p \mathbb{C}^n$. $\Rightarrow$ Consequently $T_{(p,p)}(\mathbb{C}^n \times \mathbb{C}^n) = T_{(p,p)}\Delta + T_{(p,p)}(V \times W)$.

Conversely, if $T_{(p,p)}(\mathbb{C}^n \times \mathbb{C}^n) = T_{(p,p)}\Delta + T_{(p,p)}(V\times W)$, given $x \in T_p\mathbb{C}^n$, consider $(x, 0) \in T_{(p,p)}(\mathbb{C}^n \times \mathbb{C}^n)$.
$\Rightarrow (x, 0) = (a, a) + (v, w) \quad \Rightarrow \quad a + w = 0 \quad a = -w.$
$\Rightarrow x = a + v = v - w \in T_pV + T_pW \Rightarrow T_pV + T_pW \supset T_p\mathbb{C}^n.$
$\Rightarrow T_pV + T_pW = T_p\mathbb{C}^n.$

"V intersects W transversely at $p \Longleftrightarrow$
$V \times W$ intersects Δ transversely at (p, p)"

Let's go back to P394, and P195 note.

By using the inverse function theorem, we can find a holomorphic coordinate system $(z, w) = (z_1, \cdots z_p; w_1 \cdots w_{n-p})$ around p_0 s.t W is given by $z = 0$.



$\Rightarrow$ By P14, result 2, which says that any analytic variety can be expressed locally by a projection map as