A final remark: when two analytic subvarieties V and W of a complex manifold M – not necessarily of complementary dimension – intersect transversely, they likewise intersect positively in the sense that the variety $V \cap W$ is counted with the natural orientation in the topological intersection of V and W.

⌈ V, W vector spaces with orientations.

$V \cap W = \langle u_1, u_2 \cdots u_r \rangle$.

$V = \langle v_1 \cdots v_n, u_1 \cdots u_r \rangle$

$W = \langle w_1 \cdots w_m, u_1 \cdots u_r \rangle$

$\Rightarrow$ The orientations of V & W do not determine the orientation of $V \cap W$. ⌟

More generally, if we define the intersection multiplicity $m_Z(V \cdot W)$ of V and W along an irreducible variety $Z \subset V \cap W$ to be the multiplicity

$$\mathrm{mult}_p((V \cap H) \cdot (W \cap H))_H,$$

where p is a generic smooth point of Z and H a submanifold in a nbd of p transversely at p, then the topological intersection of V and W is given by

$$(V \cdot W) = \sum_{Z_{irr} \subset V \cap W} \mathrm{mult}_{Z_i}(V \cdot W) \cdot Z_i.$$

⌈ $\mathrm{mult}_p((V \cap H) \cdot (W \cap H))_H \geq 1$.

We have to check the following thing.