$\Rightarrow$ By ① & ②, for $\epsilon \in \Delta'$ (if necessary, shrink Δ'), lying outside an analytic subvariety of Δ'. for $U\{\det(n \times n \text{ minor matrix of } n \times 2n) = 0\}$ is an analytic subvariety of $\tilde{V} \cap \tilde{W}$ and, by the proper mapping theorem, the image is again an analytic subvariety of Δ'. For $\epsilon \in \Delta'$ lying outside the analytic subvariety of Δ', $\pi_2^{-1}(\epsilon)$ meets $\tilde{V} \cap \tilde{W}$ in μ points transversely. $\Rightarrow$ V and $W+\epsilon$ will meet transversely in μ points. since, around ϵ π_2 is a μ-sheeted covering map. ⫼

By the construction the intersection multiplicity is always positive, and by the implicit function theorem will be 1 if and only if $\tilde{V} \cap \tilde{W}$ meets the fiber $\pi_2^{-1}(0)$ transversely — that is, if and only if V and W meet transversely at the origin.

⌈ If $\tilde{V} \cap \tilde{W}$ meets $\pi_2^{-1}(0)$ transversely, then around 0, π_2 is a covering map. Since we assume that $V \cap W = \{0\}$, and we noticed that $\tilde{V} \cap \tilde{W}$ meets $\pi_2^{-1}(0)$ transversely at $(0, \overset{0}{\epsilon})$ $\Leftrightarrow$ V and $W+\epsilon(=0)$ meet transversely at 0, π_2 is one-sheeted. $\Rightarrow$ The intersection multiplicity is 1 $\Leftrightarrow$ $\tilde{V} \cap \tilde{W}$ meets the fiber $\pi_2^{-1}(0)$ transversely. ⫼

Note that the definition does not depend on the choice of coordinates z, so that it applies as well to two analytic subvarieties of a complex manifold.