By iterating the integral in the definition of the residue,

$$\mathrm{Res}_{\{0\}}\left(\frac{h(z,w)\,dz\wedge dw}{f(z,w)\,g(z,w)}\right) = \left(\frac{1}{2\pi\sqrt{-1}}\right)^2 \int_{|g(z,w)|=\epsilon}\left(\int_{|z|=\epsilon}\frac{h(z,w)\,dz}{g(z,w)\,z}\right)dw$$

$$= \frac{1}{2\pi\sqrt{-1}}\int_{|w|=\epsilon}\frac{h(0,w)}{g(0,w)}\,dw = \frac{1}{2\pi\sqrt{-1}}\int_{|w|=\epsilon}(\alpha+\cdots)\,\frac{dw}{w} = \alpha$$

Q.E.D.

「 $$\frac{1}{2\pi\sqrt{-1}}\int_{|w|=\epsilon}\frac{h(0,w)}{g(0,w)}\,dw = \frac{1}{2\pi\sqrt{-1}}\int_{|w|=\epsilon}\frac{\alpha w^{m_{\nu_0}-1}+\beta w^{m_{\nu_0}}+\cdots}{w^{m_{\nu_0}}+\cdots}\,dw$$

$$= \frac{1}{2\pi\sqrt{-1}}\int_{|w|=\epsilon}(\alpha+\cdots)\,\frac{dw}{w} = \alpha.$$ 」

The first nontrivial case is when $m=n=3$; then we obtain the classical statement:

Suppose that C and D are cubic curves meeting in nine points that are not necessarily distinct but that are simple points of C. Then any cubic E passing through eight of these points must contain the remaining one also.

「 $C=(f=0)$. $D=(g=0)$. $\deg f = \deg g = 3$. $\{P_\nu\}_{\nu=1}^{9}$. $E=(h=0)$

$\deg h = 3+3-3 = 3$. $\deg(C\cdot E) = 9$. $\Rightarrow \sum_{\nu=1}^{9} m_\nu P_\nu = C\cdot D$

$= m_1P_1 + m_2P_2 + \cdots + m_9P_9$. $m_1 = m_2 = \cdots = m_9 = 1$.