⌈ Since $f(l_1, l_2) = f(l_2, l_1)$, f is two to one branched covering map.
Recall that ω_1 & ω_2 are Poincare duals of the pullbacks of the hyperplane class in $\mathbb{P}^{2*}$.

$\deg W_1 = \#(l \cap W_1) = \#(H \cap H \cap H \cap H \cap W_1)$ (, since $H = \mathbb{P}^4$ and $H \cap H \cap H \cap H = l$)
$= \#(H^4)_{W_1} = \int_{W_1} \tilde{H}^4$ ($\tilde{H}^4$ is the differe-ntral form corresponding to H)
$= \frac{1}{\deg f} \int_{\mathbb{P}^{2*} \times \mathbb{P}^{2*}} (f^* \tilde{H})^4$
$= \frac{1}{\deg f} \int_{\mathbb{P}^{2*} \times \mathbb{P}^{2*}} (\tilde{\omega}_1 + \tilde{\omega}_2)^4$ ($\tilde{\omega}_1$ & $\tilde{\omega}_2$ are the different-ial forms corresponding to ω_1 & ω_2 respectively)
$= \frac{1}{\deg f} \langle (\omega_1 + \omega_2)^4, [\mathbb{P}^{2*} \times \mathbb{P}^{2*}] \rangle$
$= \frac{1}{2} \langle 4\omega_1^2 \omega_2^2 + 2\omega_1^2 \omega_2^2, [\mathbb{P}^{2*} \times \mathbb{P}^{2*}] \rangle$
$= \frac{1}{2} \cdot 6 = 3$. where $[\mathbb{P}^{2*} \times \mathbb{P}^{2*}]$ is the fundamental class of $\mathbb{P}^{2*} \times \mathbb{P}^{2*}$.

⌋

Note that the subvariety $W_2 \subset W_1 \subset W$ is just the image under f of the diagonal $\Delta \cong \mathbb{P}^{2*}$ in $\mathbb{P}^{2*} \times \mathbb{P}^{2*}$, which is the branch locus of f.

⌈ Since a quadric of rank 1 is projectively isomor-