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" $\langle \omega \wedge u,\ \tilde{\omega}^* \wedge \tilde{u}^* \rangle \overset{?}{=} \langle \omega \otimes u,\ \tilde{\omega}^* \otimes \tilde{u}^* \rangle.$

pf) $LHS = \det(\tilde{\omega}_i^*(\omega_j))\ \det(\tilde{u}_i^*(u_j))$

$$= \det \left(\begin{array}{ccc|ccc} \tilde{\omega}_1^*(\omega_1), & \tilde{\omega}_1^*(\omega_2), & \cdots & \tilde{\omega}_1^*(u_1)^{=0}, & 0 \cdots & 0 \\ & & & & & \\ \hline \tilde{u}_1^*(\omega_1)^{=0} & \cdot & \cdot & \tilde{u}_1^*(u_1), & * & \cdot \\ & 0 & & & * & \end{array} \right)$$

$RHS = \tilde{\omega}^*(\omega) \cdot \tilde{u}^*(u) = \det(\tilde{\omega}_i^*(\omega_j))\ \det(\tilde{u}_i^*(u_j))$

Here $\tilde{\omega}^* = \tilde{\omega}_1^* \wedge \cdots \wedge \tilde{\omega}_k^*$ $\quad \tilde{u}^* = \tilde{u}_1^* \wedge \cdots \wedge \tilde{u}_l^*$

$\omega = \omega_1 \wedge \cdots \wedge \omega_k$, $\quad u = u_1 \wedge \cdots \wedge u_l$ "

$id \otimes i(u_\alpha^*) = i(u_\alpha^*) : \Lambda^{k-1} W \otimes U \longrightarrow \underbrace{\Lambda^{k-1} W \otimes \Lambda^0 U}_{\Lambda^{k-1} W}$

$\Rightarrow i(u_\alpha^*)(\sum \Lambda_{\alpha'} \otimes u_{\alpha'}) = \sum \Lambda_\alpha \otimes i(u_\alpha^*)(u_{\alpha'}).$

Since $\langle i(u_\alpha^*)(u_\beta),\ \underset{}{\overset{\in \mathbb{C}^* \text{ (or in general } F^*)}{\bar{Z}}} \rangle = \langle u_\beta.\ u_\alpha^* \wedge \bar{Z} \rangle$

$= \lambda\, \delta_{\alpha\beta}$, where λ is a scalar determined by $\bar{Z}$, $\quad i(u_\alpha^*)(u_\beta) = \delta_{\alpha\beta}.$

Thus $i(u_\alpha^*)(\sum \Lambda_{\alpha'} \otimes u_{\alpha'}) = \Lambda_\alpha = 0$

$\Rightarrow \Lambda_\alpha = 0$ for all α. ⌋

Similarly, the other factors of Λ in $\Lambda^{k-m} W \otimes \Lambda^m U$ $(m \geq 2)$ are zero, and consequently $\Lambda \in \Lambda^k W$.

⌈ For the third factor of Λ, we may express