$$
\begin{aligned}
& C^p(\underline{\mathcal{U}},\ \mathrm{Hom}(E_\cdot(\mathcal{F}),\ \mathcal{G})) \\
= & \bigoplus_{l+q=p} C^l(\underline{\mathcal{U}},\ \mathrm{Hom}(E_q(\mathcal{F}),\ \mathcal{G}))
\end{aligned}
$$

$$
C^l(\underline{\mathcal{U}},\ \mathrm{Hom}(E_q(\mathcal{F}),\ \mathcal{G})) \otimes C^m(\underline{\mathcal{U}},\ \mathrm{Hom}(E_k(\mathcal{G}),\ \mathcal{H}))
$$

$$\downarrow \quad \text{if exists. (I don't know)}$$

$$
C^{l+m}(\underline{\mathcal{U}},\ \mathrm{Hom}(E_{k+q}(\mathcal{F}),\ \mathcal{H}))
$$

$$
\Rightarrow \quad C^n(\underline{\mathcal{U}},\ \mathrm{Hom}(E_\cdot(\mathcal{F}),\mathcal{G})) \otimes C^{n'}(\underline{\mathcal{U}},\ \mathrm{Hom}(E_\cdot(\mathcal{G}),\ \mathcal{H}))
$$

$$\downarrow$$

$$
C^{n+n'}(\underline{\mathcal{U}},\ \mathrm{Hom}(E_\cdot(\mathcal{F}),\ \mathcal{H}))
$$

$$
\Rightarrow \quad \mathbb{H}^n(M,\ \mathrm{Hom}(E_\cdot(\mathcal{F}),\ \mathcal{G})) \otimes \mathbb{H}^{n'}(M,\ \mathrm{Hom}(E_\cdot(\mathcal{G}),\ \mathcal{H}))
$$

$$\downarrow$$

$$
\mathbb{H}^{n+n'}(M,\ \mathrm{Hom}(E_\cdot(\mathcal{F}),\ \mathcal{H}))
$$

$$
\Rightarrow \quad \mathrm{Ext}^n(\mathcal{F},\ \mathcal{G}) \otimes \mathrm{Ext}^{n'}(\mathcal{G},\mathcal{H}) \longrightarrow \mathrm{Ext}^{n+n'}(\mathcal{F},\mathcal{H}).
$$

Just accept this

All this can be defined for any complex manifold M. For M an algebraic variety the proofs have essentially been given. In case M is compact and connected,