from the space of symmetric d-linear forms on $\mathbb{C}^{n+1}$ — that is, homogeneous polynomials $F(X_0, \cdots X_n)$ of degree d in $X_0, \cdots X_n$ — to the space of global sections of H^d.

Γ F is a d-linear form on $\mathbb{C}^{n+1}$

$$\Rightarrow \begin{tikzcd} F : \mathbb{C}^{n+1} \times \cdots \times \mathbb{C}^{n+1} \arrow[r] \arrow[d, leftrightarrow, "\text{1-1 onto correspondence}"'] \arrow[d] & \mathbb{C}. \\ F : \mathbb{C}^{n+1} \otimes \cdots \otimes \mathbb{C}^{n+1} \arrow[ur] & \end{tikzcd}$$

$$F(v, w) = F(\lambda_1 X, \lambda_2 X) = \lambda_1 \lambda_2 F(X, X)$$
$$= F(\lambda_2 X, \lambda_1 X) = F(w, v), \quad \text{since } v, w \in \{\lambda X\}.$$

That F is alternating in any factors means $F(v, \cdots v \cdots) = 0 \Rightarrow F \equiv 0$ on $\{\lambda X\}$.

$\mathrm{Sym}^d(\mathbb{C}^{n+1\,*})$ = Space of d-linear symmetric forms on $\mathbb{C}^{n+1}$.
= Space generated by $\{\langle e_{i_1}^* \otimes e_{i_2}^* \otimes \cdots \otimes e_{i_d}^* \rangle\}$

- where $e_i^*(e_j) = \delta_{ij}$. $\{e_j\}$ standard base for $\mathbb{C}^{n+1}$.

$$\langle e_{i_1}^* \otimes \cdots \otimes e_{i_d}^* \rangle = \frac{1}{d!} \sum_{\sigma \in S_d} e_{i_{\sigma(1)}}^* \otimes e_{i_{\sigma(2)}}^* \otimes \cdots \otimes e_{i_{\sigma(d)}}^*$$

S_d = symmetric group of degree d.