is defined as follows

$$\begin{array}{ccc} P[x_0 \cdots x_n] & \longrightarrow & S(V) \\ \Downarrow & & \Downarrow \\ x_i & \longmapsto & \bar{e}_i^* \end{array}$$

$$\Rightarrow \quad P[x_0, \cdots x_n] \cong S(V).$$

Again, the map is injective, and the zero divisor of the section σ_F is just the image in $\mathbb{P}^n$ of the zero locus of $F(X_0, X_1, \cdots X_n)$ in $\mathbb{C}^{n+1}$.

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$$\begin{array}{ccc} Sym^d(\mathbb{C}^{n+1*}) & \longrightarrow & H^0(P^n, \mathcal{O}(H^d)) \\ \cup & & \\ F & \longmapsto & \sigma_F \end{array}$$

$$\sigma_F(X) = F|_{\{\lambda X\}}.$$

I think we have to consider the imbedding of $Sym^d(\mathbb{C}^{n+1*})$ into $\{Q : \mathbb{C}^{n+1} \longrightarrow \mathbb{C}\}$, as above.

$$F \in Sym^d(\mathbb{C}^{n+1*}) \longrightarrow Q(v) = F(v, \cdots v).$$

$$Q|_{\{\lambda X\}} = F|_{\{\lambda X\}} \qquad X = (X_0, X_1 \cdots X_n) \in \mathbb{C}^{n+1}$$

$$\begin{aligned} & Q(\lambda X_0, \lambda X_1, \cdots \lambda X_n) \\ &= F((\lambda X_0, \cdots \lambda X_n), (\lambda X_0, \cdots \lambda X_n), \cdots (\lambda X_0 \cdots \lambda X_n)) \\ &= \lambda^d F((X_0, \cdots X_n), (X_0 \cdots X_n), \cdots (X_0 \cdots X_n)) \\ &= \lambda^d F(X_0 e_0 + \cdots + X_n e_n, X_0 e_0 + \cdots + X_n e_n, \cdots X_0 e_0 + \cdots + X_n e_n) \end{aligned}$$