Algebraic Geometry I PS7

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2 Let $X = \mathbb{P}^n_A = \operatorname{Proj} A[x_0, x_1, \ldots, x_n]$ which is covered by affine $U_i = \operatorname{Spec} A[x_{0/i}, \ldots, \hat{x}_{i/i}, \ldots, x_{n/i}]$. Consider the map $\Phi : A[x_0, x_1, \ldots, x_n]_m \to \Gamma(X, \mathcal{O}_X(m))$.

We construct an inverse. Let $s \in \Gamma(X, \mathcal{O}_X(m))$, by definition we have $s_i \in \mathcal{O}_X(m)(U_i)$ such that they glue by $\alpha^m_{i,j}$. Then $s_i \in$