Title

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Note: the sheaf of locally constant functions valued in a set S is written $\underline{\mathbf{S}}$.

1.1 Gathmann Chapter 4

Definition 1.0.1 (Ringed Spaces)**.**
A **ringed space** is a topological space X together with a sheaf $\mathcal{O}_X$ of rings.

Example 1.1.

1. X an affine variety and $\mathcal{O}_X$ its ring of regular functions.
2. X a manifold over $\mathbb{R}^n$ with $\mathcal{O}_X$ a ring of smooth or continuous functions on X.
3. $X = \{p, q\}$ with the discrete topology and $\mathcal{O}_X$ given by $p \mapsto R, q \mapsto S$.
4. Let $U \subset X$ an open subset of X an affine variety. Then declare $\mathcal{O}_U$ to be $OO_X|_U$.

Recall that the restriction of a sheaf $\mathcal{F}$ to an open subset $U \subset X$ is defined by $\mathcal{F}|_U(V) = \mathcal{F}(V)$.

Example 1.2.
Let X be a topological space and $p \in X$ a point. The *skyscraper