Definition and First Properties

1 Locally Ringed Space

2 Schemes

Example 1 (Glue open subschemes)**.** We construct a scheme by gluing open subschemes. Let X_i be schemes for $i \in I$ and $U_{ij} \subseteq X_i$ be open subschemes for $i, j \in I$. Suppose we have isomorphisms $\varphi_{ij} : U_{ij} \to U_{ji}$ such that

(a) $\varphi_{ii} = \mathrm{id}_{X_i}$ for all $i \in I$;

(b) $\varphi_{ij}(U_{ij} \cap U_{ik}) = U_{ji} \cap U_{jk}$ for all $i, j \in I$;

(c) $\varphi_{jk} \circ \varphi_{ij} = \varphi_{ik}$ on $U_{ij} \cap U_{ik}$ for all $i, j, k \in I$.