In p211 (25.12 sublemma is extremely important)

$$\begin{tikzcd}
 & & & N \\
M_i \arrow[r, "\phi_{i'i}"'] \arrow[urrr, bend left, "\psi_i"] \arrow[rrr, bend right, "\phi_i"'] & M_{i'} \arrow[r] \arrow[urr, "\psi_{i'}"] & \cdots & M \arrow[u, "\psi"']
\end{tikzcd}$$

If $\phi_i(x_i)=0$, $\exists$ i' with $i \le i'$ s.t $\phi_{i',i}{}^{*}x_i=0$.

Defi: $\mathcal{F}$, $\mathcal{G}$ presheaves on X, a morphism $\varphi : \mathcal{F} \longrightarrow \mathcal{G}$ consists of a morphism of abelian groups

$\varphi(U) : \mathcal{F}(U) \longrightarrow \mathcal{G}(U)$ for each open set U,
s.t whenever $V \subseteq U$, is an inclusion, the diagram

$$\begin{tikzcd}
\mathcal{F}(U) \arrow[r, "\varphi(U)"] \arrow[d, "\rho_{UV}"'] & \mathcal{G}(U) \arrow[d, "\rho'_{UV}"] \\
\mathcal{F}(V) \arrow[r, "\varphi(V)"] & \mathcal{G}(V)
\end{tikzcd}$$

is commutative.

An isomorphism is a morphism which has a two-sided inverse.

The following proposition (which would be false for presheaves) illustrates the local nature of a sheaf.

Proposition: Let $\varphi : \mathcal{F} \longrightarrow \mathcal{G}$ be a morphism of sheaves on top X.
Then φ is an isomorphism $\Longleftrightarrow$ the induced map on the stalk $\varphi_p : \mathcal{F}_p \longrightarrow \mathcal{G}_p$ is an isomorphism for every $p \in X$.