GERMS

Let $a \in \Sigma$, $\mathcal{F}_a = \{ (D, f) : a \in D,\ f \text{ mero on } D \}$

Define $(D, f) \sim (E, g) \iff f \equiv g$ on $D \cap E$. 

$\sim$ is an equiv. rel. Equiv. classes $\overset{\text{def}}{=}$ mero. **germs** at a: $[f]_a$

Stalk at a: $S_a = \bigcup [f]_a$. **Sheaf** of mero. germs: $\mathcal{M} = \bigcup_{a \in \Sigma} S_a$

Projection map $p : \mathcal{M} \to \Sigma$, $p([f]_a) = a$.

TOPOLOGY ON $\mathcal{M}$

$[f]_a$ is "close" to $[f]_b \iff a$ is "close" to b.

Let $[f]_a \in \mathcal{M}$. $\exists D$, $a \in D$

$\exists D$ with $a \in D$ & f mero on D

Define $D([f]_a) = \{ [f]_b : b \in D \}$

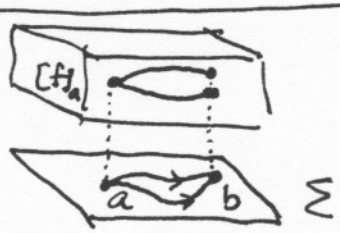
☐ $\{ D[f]_a \}$ is a basis for topology 

☐ $\mathcal{M}$ is Hausdorff.

☐ p is a covering map & $\mathcal{M}$ is a Riemann surface.

CONTINUATION = PATH LIFTING

$$\begin{tikzcd} & \mathcal{M} \arrow[d, "p"] \\ {[0,1]} \arrow[ur, dashed, "\gamma'"] \arrow[r, "\gamma"'] & \Sigma \end{tikzcd}$$



☐ Unbranched Riemann surface of f =

= connected component of $[f]_a$ in $\mathcal{M}$.