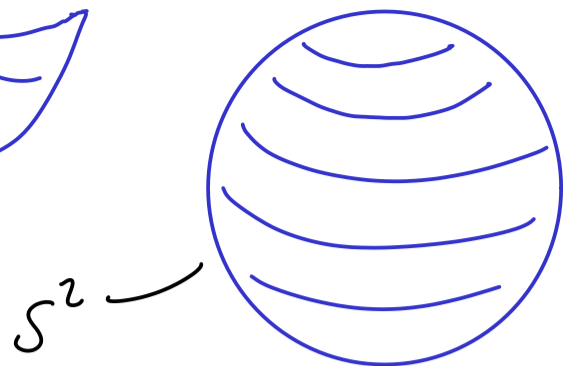
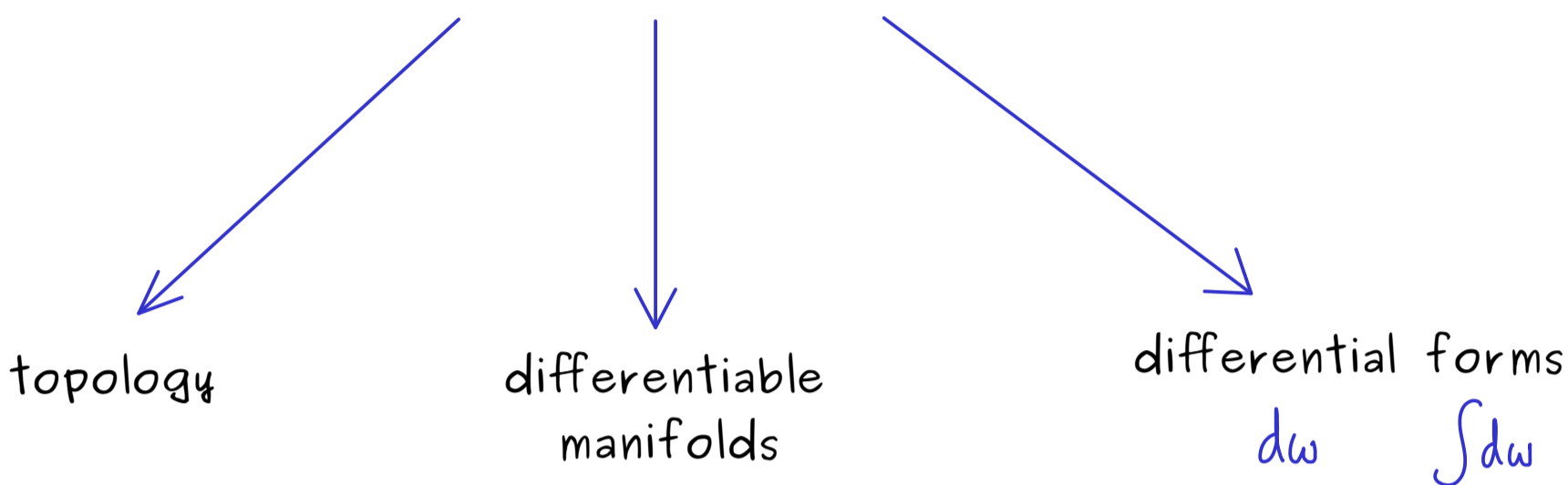


Manifolds - Part 1

generalised surfaces?



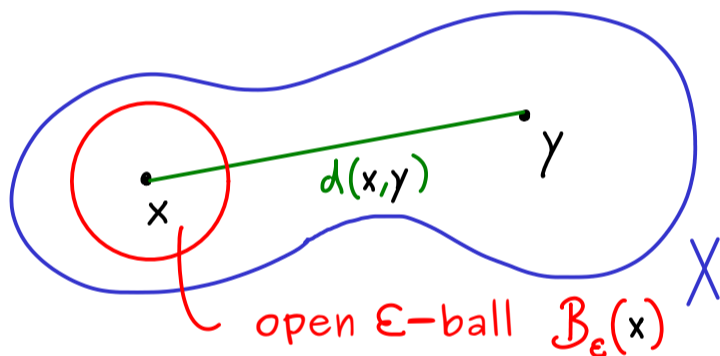
How to calculate on them?



⇒ (generalised) Stokes's Theorem

Metric space:

(X, d)
 ↑ set ↑ distance function



↷ define open sets $A \subseteq X$

Definition:

Let X be a set, $\mathcal{P}(X)$ be the power set,
 and $\mathcal{T} \subseteq \mathcal{P}(X)$ be a collection of subsets.

If \mathcal{T} satisfies: (1) $\emptyset, X \in \mathcal{T}$

(2) $A, B \in \mathcal{T} \Rightarrow A \cap B \in \mathcal{T}$

(3) $(A_i)_{i \in I}$ with $A_i \in \mathcal{T} \Rightarrow \bigcup_{i \in I} A_i \in \mathcal{T}$

then \mathcal{T} is called a topology on X .

The elements of \mathcal{T} are called open sets.

Examples:

(a) $\mathcal{T} = \{\emptyset, X\}$ is a topology on X (indiscrete topology)

(b) $\mathcal{T} = \mathcal{P}(X)$ is a topology on X (discrete topology)