

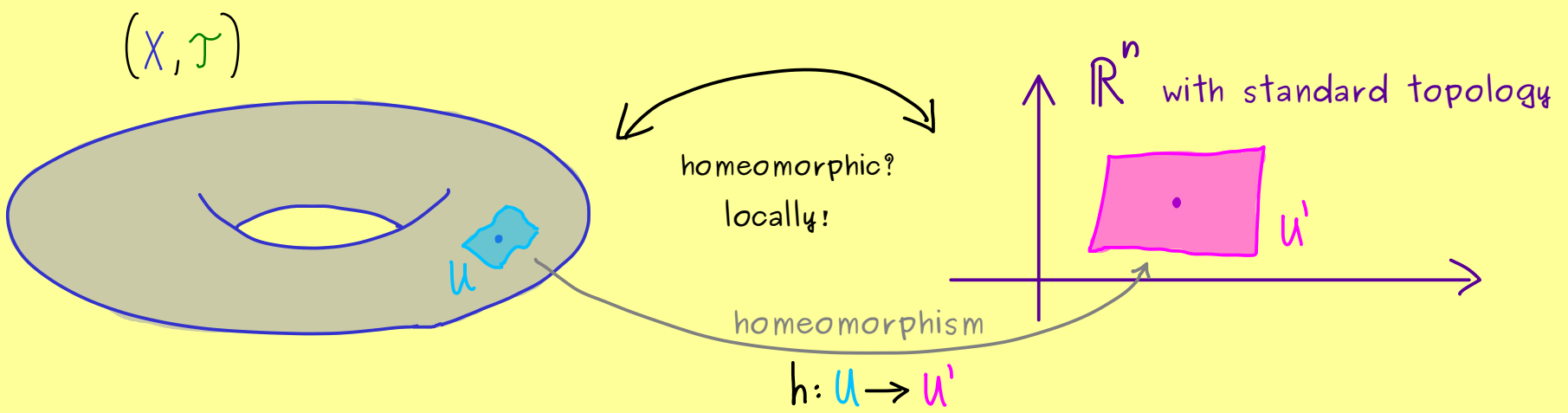
# The Bright Side of Mathematics



## Manifolds - Part 9

Definition:  $n$ -dimensional (topological) manifold:

- topological space  $(X, \mathcal{T})$  with:
- (1) Hausdorff space
  - (2) second-countable
  - (3) locally Euclidean of dimension  $n$



Definition:  $(X, \mathcal{T})$  is called locally Euclidean of dimension  $n$  if:

For all  $x \in X$  there is an open neighbourhood  $U \in \mathcal{T}$  and a homeomorphism  $h: U \rightarrow U'$  with  $U' \subseteq \mathbb{R}^n$  open.

The map  $h: U \rightarrow U'$  is called a chart of  $(X, \mathcal{T})$ .

