



$$X = A \sqcup B$$

$\Pi_0(X)$  is the set of path connected components  
of  $X$

so  $\Pi_0(X) = \{0, 1\}$

$$\forall n \in \mathbb{N}^+ : \Pi_n(A, x_0) = 0 \text{ since } A \sim \{*\}$$

$$\Pi_1(B, x_1) = \mathbb{Z} \text{ since } B \sim S'$$

$$\forall n \in \mathbb{N}^+ \setminus \{2\} : \Pi_n(B, x_1) = \Pi_n(S', x_1) = 0 \text{ since } n \geq 2$$