

Definition 0.0.1. $f, g : X \rightarrow Y$ are topological embeddings, an **isotopy** from f to g is a homotopy H such that H_t are embeddings

Definition 0.0.2. g, h are embeddings of N in M , an **ambient isotopy** from g to h is $M \times I \xrightarrow{F} M$ such that F_t are homeomorphisms, and $F_0 = 1_M$, $F_1 \circ g = h$

Theorem 0.0.3 (Alexander's trick). $D \subseteq \mathbb{R}^n$ is the unit ball, homeomorphisms of D that are isotopic on ∂D are also isotopic on D

Proof. Suppose $f, g : D \rightarrow D$ are homeomorphisms with $f|_{\partial D}, g|_{\partial D}$ isotopic □