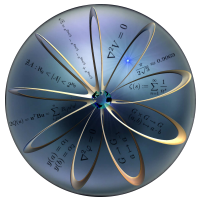

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homotopy of paths

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Let X be a topological space and p, q paths in X with the same initial point x_0 and terminal point x_1. If there exists a continuous function $F : I \times I \to X$ such that

1. $F(s, 0) = p(s)$ for all $s \in I$
2. $F(s, 1) = q(s)$ for all $s \in I$
3. $F(0, t) = x_0$ for all $t \in I$
4. $F(1, t) = x_1$ for all $t \in I$

we call F a *homotopy of paths* in X and say p, q are *homotopic paths* in X. F is also called a *continuous deformation*.