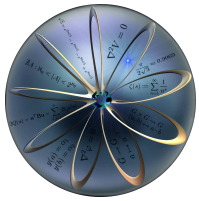

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chain homotopy equivalence

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Let C and D be two objects from the abelian category of chain complexes. A morphism (or chain map) $f\colon C \to D$ is said to be a *chain homotopy equivalence* if there is a morphism $g\colon D \to C$ such that

1. there is a chain homotopy between fg and $1\colon D \to D$; and
2. there is a chain homotopy between gf and $1\colon C \to C$.

If a chain homotopy equivalence from a chain complex C to D exists, then C is said to be *chain homotopy equivalent* to D. Chain homotopy equivalence is an equivalence relation among chain complexes.