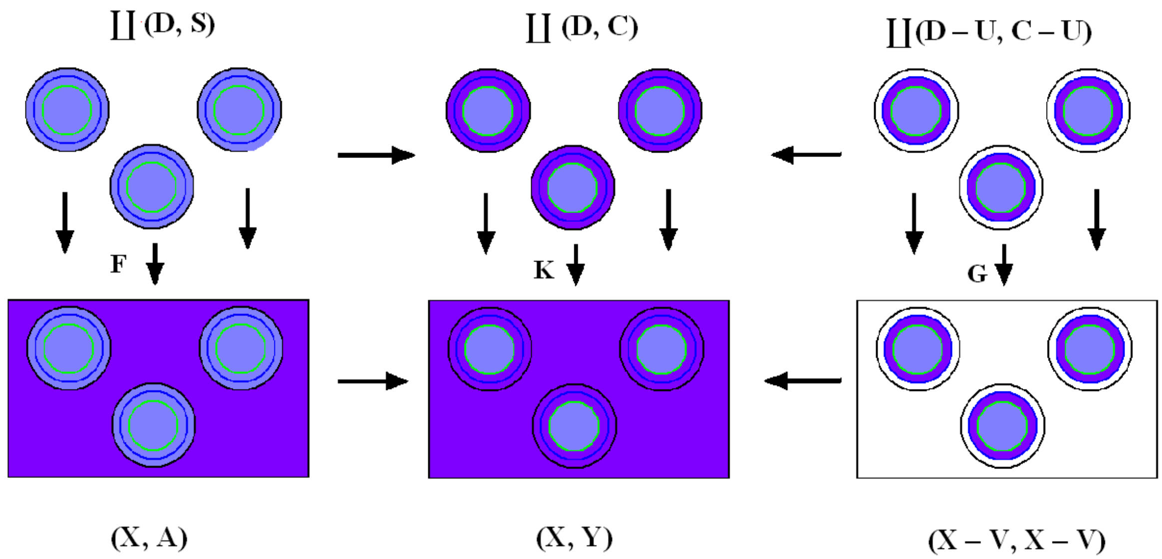
Drawing for the proof of Theorem A

This is an illustration of the topological space maps involved in the proof that ***F*** induces isomorphisms in homology. All of the horizontal arrows represent inclusions of pairs, and the horizontal maps on the top induce isomorphisms in homology because the disk-sphere pair **(*D*,*S*)** is a deformation retract of **(*D*,*C*),** and likewise the inclusion of **(*D* – *U*, *C* – *U*)** in **(*D*,*C*)** induces homology isomorphisms by excision**.**



In this drawing**,** the space ***X*** is obtained from ***A*** by adjoining three cells of the same dimension. For each pair of spaces, the dark purple represents the subspace**,** and the lighter purple represents the points which are added to obtain the larger subspace (however**,** at the upper left the smaller subspaces are just the boundary spheres)**.**

By the definition of attaching maps we know that ***G*** is a homeomorphism of pairs and hence must induce isomorphisms in homology**,** and the lower right horizontal map is an excision**,** so that it also induces isomorphisms in homology**.** This implies the same for ***K*.** Now ***A*** is a deformation retract of ***Y*,** and the lower left horizontal map induces isomorphisms in homology since the same is true of the inclusions of ***A*** in ***Y*** and ***X*** in itself**,** so by the Five Lemma the map of pairs also induces isomorphisms in homology. Since ***K*** and the upper left map induce isomorphisms in homology**,** it follows that the same is true for ***F*,** which is what we wanted to prove**.**