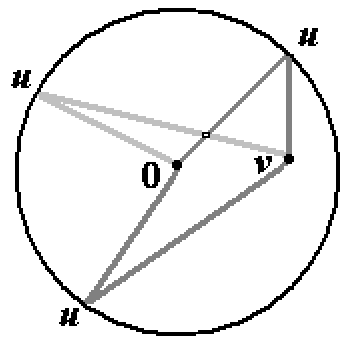
Radial Projection



This 2-dimensional figure illustrates the homeomorphism of the disk to itself that is the identity on the boundary sphere and maps 0 to a point $\boldsymbol{v}$ in the interior of the disk. For each point $\boldsymbol{u}$ on the unit sphere, the homeomorphism maps the closed segment joining 0 to $\boldsymbol{u}$ *linearly* to the closed segment joining $\boldsymbol{v}$ to $\boldsymbol{u}$. Several possibilities for $\boldsymbol{u}$ are illustrated. Maps of this sort arise repeatedly in elementary geometric topology and the geometry of convex sets.