

$$\bigoplus_a \mathcal{H} \left(\text{annulus with hole, boundary points } M, a, \dots \right) \cong \mathcal{H} \left(\text{annulus with central disk, boundary points } M, N, \dots \right)$$

The diagram illustrates an isomorphism between two direct sums of spaces \mathcal{H} . On the left, the direct sum is indexed by a . Each term in the sum is a space \mathcal{H} applied to a region consisting of a large outer circle and a smaller inner circle (a hole). The region between the circles is shaded gray. The inner circle has a boundary point marked with a black dot and labeled a . The outer circle has a boundary point marked with a black dot and labeled M . Ellipses (...) are shown in the gray region. On the right, the direct sum is indexed by N . Each term is a space \mathcal{H} applied to a region consisting of a large outer circle and a smaller inner circle. The region between the circles is shaded gray. The inner circle is filled with gray and labeled N . The outer circle has a boundary point marked with a black dot and labeled M . Ellipses (...) are shown in the gray region. An arrow labeled \cong points from the left expression to the right expression.