

$$\bigoplus_a \mathcal{H} \left(\text{annulus}(a, M) \right) \amalg \bigoplus_{\hat{a}} \mathcal{H} \left(\text{disk}(N, M) \right) \xrightarrow{\cong} \mathcal{H} \left(\text{annulus}(N, M) \right)$$

The diagram illustrates an isomorphism between two direct sums of spaces \mathcal{H} . On the left, the first summand is indexed by a and represents a space with a central hole, an outer boundary M , and an inner boundary a . The second summand is indexed by \hat{a} and represents a space with a central disk N and an outer boundary M . An arrow labeled with an isomorphism symbol \cong points to the right, where the entire expression is mapped to a single space \mathcal{H} applied to a space with a central disk N and an outer boundary M .