

$$\sigma_i \sigma_{i+1} \sigma_i = \sigma_{i+1} \sigma_i \sigma_{i+1}$$

The diagram illustrates the braid relation $\sigma_i \sigma_{i+1} \sigma_i = \sigma_{i+1} \sigma_i \sigma_{i+1}$ using two horizontal planes, each containing three strands labeled i , $i+1$, and $i+2$.

Left side ($\sigma_i \sigma_{i+1} \sigma_i$): The strands on the bottom plane are connected to the strands on the top plane as follows: the strand labeled i on the bottom goes to the strand labeled $i+1$ on the top; the strand labeled $i+1$ on the bottom goes to the strand labeled i on the top; and the strand labeled $i+2$ on the bottom goes to the strand labeled $i+2$ on the top. This represents a sequence of three braiding operations: first σ_i , then σ_{i+1} , and finally σ_i again.

Right side ($\sigma_{i+1} \sigma_i \sigma_{i+1}$): The strands on the bottom plane are connected to the strands on the top plane as follows: the strand labeled i on the bottom goes to the strand labeled i on the top; the strand labeled $i+1$ on the bottom goes to the strand labeled $i+2$ on the top; and the strand labeled $i+2$ on the bottom goes to the strand labeled $i+1$ on the top. This represents a sequence of three braiding operations: first σ_{i+1} , then σ_i , and finally σ_{i+1} again.