

$$\sigma_1 \sigma_2 \sigma_1 = \text{Diagram 1} = \text{Diagram 2} = \sigma_2 \sigma_1 \sigma_2$$

The image illustrates the braid relation for the generators σ_1 and σ_2 of the braid group. The equation shows that the product of three generators, $\sigma_1 \sigma_2 \sigma_1$, is equal to the product $\sigma_2 \sigma_1 \sigma_2$. The two intermediate diagrams are red line drawings representing the braiding of three strands. In the first diagram, the strands are labeled 1, 2, and 3 from left to right. The first crossing involves strands 1 and 2, followed by a crossing of strands 2 and 3, and finally a crossing of strands 1 and 2. In the second diagram, the strands are labeled 2, 1, and 2 from left to right. The first crossing involves strands 2 and 1, followed by a crossing of strands 1 and 2, and finally a crossing of strands 2 and 1.