

$$\begin{array}{ccc}
 V \times W & & \\
 \downarrow \otimes & \searrow b_f & \\
 V \otimes W & \xrightarrow{f} & V'
 \end{array}$$

A commutative diagram illustrating a relationship between vector spaces and their tensor product. The diagram consists of three nodes:  $V \times W$  at the top-left,  $V \otimes W$  at the bottom-left, and  $V'$  at the bottom-right. 
   
 - A vertical arrow points from  $V \times W$  down to  $V \otimes W$ , labeled with the tensor product symbol  $\otimes$ .
   
 - A horizontal arrow points from  $V \otimes W$  right to  $V'$ , labeled with the function  $f$ .
   
 - A diagonal arrow points from  $V \times W$  down-right to  $V'$ , labeled with  $b_f$ .
   
 - A curved arrow labeled  $\sigma$  points from the diagonal arrow  $b_f$  to the horizontal arrow  $f$ , indicating a relationship or commutativity between these two maps.