$$\operatorname{Tr}_{X,Y}^{Z \otimes_{\mathbf{C}} W}(f) = \operatorname{Tr}_{X,Y}^{Z} \left(\operatorname{Tr}_{X \otimes_{\mathbf{C}} Z, Y \otimes_{\mathbf{C}} Z}^{W}(f) \right)$$