

$$\begin{array}{ccc}
 (F(X) \otimes_{\mathbf{D}} F(Y)) \otimes_{\mathbf{D}} F(Z) & \xrightarrow{\text{as}_{F(X),F(Y),F(Z)}^{\mathbf{D}}} & F(X) \otimes_{\mathbf{D}} (F(Y) \otimes_{\mathbf{D}} F(Z)) \\
 \downarrow \mu_{X,Y} \otimes_{\mathbf{D}} \text{Id}(F(Z)) & & \downarrow \text{Id}(F(X)) \otimes_{\mathbf{D}} \mu_{Y,Z} \\
 F(X \otimes_{\mathbf{C}} Y) \otimes_{\mathbf{D}} F(Z) & & F(X) \otimes_{\mathbf{D}} F(Y \otimes_{\mathbf{C}} Z) \\
 \downarrow \mu_{X \otimes_{\mathbf{D}} Y, Z} & & \downarrow \mu_{X,Y \otimes_{\mathbf{D}} Z} \\
 F((X \otimes_{\mathbf{C}} Y) \otimes_{\mathbf{C}} Z) & \xrightarrow{F(\text{as}_{X,Y,Z}^{\mathbf{C}})} & F(X \otimes_{\mathbf{C}} (Y \otimes_{\mathbf{C}} Z))
 \end{array}$$