

$$\begin{array}{ccccc}
X & & & & \\
\downarrow f & & & & \\
Y & & & & \\
\\
F(X) & \xrightarrow{\mu_X} & G(X) & \xrightarrow{\nu_X} & H(X) \\
\downarrow Ff & & \downarrow Gf & & \downarrow Hf \\
F(Y) & \xrightarrow{\mu_Y} & G(Y) & \xrightarrow{\nu_Y} & H(Y) \\
\\
& & & & \\
& & & &
\end{array}$$

The diagram illustrates a commutative structure involving functors F , G , and H and natural transformations μ and ν . The top row shows the sequence of maps $F(X) \xrightarrow{\mu_X} G(X) \xrightarrow{\nu_X} H(X)$. The bottom row shows the corresponding sequence $F(Y) \xrightarrow{\mu_Y} G(Y) \xrightarrow{\nu_Y} H(Y)$. Vertical arrows represent the functors F , G , and H applied to the map $f: X \rightarrow Y$, resulting in $Ff: F(X) \rightarrow F(Y)$, $Gf: G(X) \rightarrow G(Y)$, and $Hf: H(X) \rightarrow H(Y)$. The curved arrows at the top and bottom represent the compositions $(\nu\mu)_X: F(X) \rightarrow H(X)$ and $(\nu\mu)_Y: F(Y) \rightarrow H(Y)$, respectively, indicating that the diagram commutes.