

$$\begin{array}{ccc}
 [X, Y]_* \times [X, Y]_* & \xrightarrow{\mu_Y} & [X, Y]_* \\
 \downarrow f_* \times f_* & & \downarrow f_* \\
 [X, Y']_* \times [X, Y']_* & \xrightarrow{\mu_{Y'}} & [X, Y']_*
 \end{array}$$