

$$\begin{array}{ccccc}
M_s \times_C {}_tM & \xrightarrow{\omega} & M_t \times_C {}_sM & \xrightarrow{F_M \times F_M} & M'_{t'} \times_C {}_{s'}M' \\
\Downarrow & & \Downarrow & & \Downarrow \\
(g,f) & \longmapsto & (f,g) & \longmapsto & (F_M(f), F_M(g)) = (f_*, g_*)
\end{array}$$