# EXPLANATION OF LEMMA 6.1.2

Ring hom'm $\psi : R \longrightarrow S$

gives rise to a hom'm $\psi_* : R[t] \longrightarrow S[t]$

where

$$\psi_*\left(\sum a_i t^i\right) = \sum \psi(a_i) t^i$$

$(a_i \in R)$.

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$$\begin{tikzcd}
\alpha \in M \arrow[r, "\varphi"] & M' \ni \varphi(\alpha) \\
K \arrow[u] \arrow[r, "\psi"'] & K' \arrow[u]
\end{tikzcd}$$

$f \in K[t]$ $\qquad\qquad$ $\psi_*(f) \in K'[t]$

$$K[t] \xrightarrow[\psi_*]{} K'[t]$$

$$\underbrace{\underbrace{\Big(\psi_*(\underbrace{f}_{\in K[t]})\Big)}_{\in K'[t]}\underbrace{\Big(\varphi(\underbrace{\alpha}_{\in M})\Big)}_{M'}}_{\in M'} = \underbrace{0}_{\in M'}$$