

$$\begin{array}{ccc}
 \mathcal{P}_k(W) & \hookrightarrow & \mathcal{P}_L(W_L) \\
 \swarrow & \nearrow \sim & \downarrow \wr \\
 \mathcal{P}_k(W)_L & & \\
 \downarrow \wr & & \\
 k[X_1, \dots, X_n] & \hookrightarrow & L[X_1, \dots, X_n] \\
 \swarrow & \nearrow \sim & \\
 k[X_1, \dots, X_n]_L & &
 \end{array}$$