

$$\begin{array}{ccc} Y & \xrightarrow{\exists!f} & P \\ & \searrow \forall f_i & \downarrow \pi_i \\ & & X_i \end{array}$$

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$$\begin{array}{ccc} Y & \xleftarrow{\exists!f} & S \\ & \swarrow \forall f_i & \uparrow \iota_i \\ & & X_i \end{array}$$