

$$\begin{array}{c} {}^xK_\varphi \ni \gamma|\mathfrak{A} \\ \underbrace{\gamma|\mathfrak{A} \dot{\vdash} \mathfrak{H}|\mathfrak{A}} = \underbrace{\gamma\mathfrak{T} + \varphi\mathfrak{A}\mathfrak{A}|\gamma\mathfrak{A} + \mathfrak{A}\mathfrak{T}} \end{array}$$

$$\gamma|\mathfrak{A}f \in {}^xK_{\varphi/f^2} \stackrel{M_f}{\longleftarrow} \stackrel{\exists}{{}^xK_\varphi} \ni \gamma|\mathfrak{A}$$

$$\begin{array}{l} \overline{M_f\gamma|\mathfrak{A}}_{\varphi/f^2} \dot{\vdash} \overline{M_f\mathfrak{H}|\mathfrak{A}} = \underbrace{\gamma|\mathfrak{A}f \dot{\vdash} \mathfrak{H}|\mathfrak{A}f}_{\varphi/f^2} = \underbrace{\gamma\mathfrak{T} + \widehat{\varphi/f^2\mathfrak{A}f\mathfrak{A}f|\gamma\mathfrak{A}f} + \mathfrak{A}f\mathfrak{T}} \\ = \underbrace{\gamma\mathfrak{T} + \varphi\mathfrak{A}\mathfrak{A}|\gamma\mathfrak{A} + \mathfrak{A}\mathfrak{T}}f = M_f\gamma\mathfrak{T} + \varphi\mathfrak{A}\mathfrak{A}|\gamma\mathfrak{A} + \mathfrak{A}\mathfrak{T} = M_f\overline{\gamma|\mathfrak{A} \dot{\vdash} \mathfrak{H}|\mathfrak{A}} \end{array}$$

$$\begin{array}{ccccc} {}^xK_{\varphi/(fg)^2} & \xleftarrow{M_g} & {}^xK_{\varphi/f^2} & \xleftarrow{M_f} & {}^xK_\varphi \\ & & & \searrow & \\ & & & M_{fg} & \end{array}$$

$$\begin{array}{ccc} {}^uK_{\varphi/f^2} & \xleftarrow{M_f} & {}^uK_\varphi \\ \downarrow C_g & & \downarrow C_g \\ {}^xK_{g\ltimes(\varphi/f^2)} & \xleftarrow{M_{g\ltimes f}} & {}^xK_{g\ltimes\varphi} \\ C_g M_f C_g^{-1} = M_{g\ltimes f} \colon & C_g M_f = M_{g\ltimes f} C_g \end{array}$$

$$C_g\overline{M_f\gamma|\mathfrak{A}} = C_g\gamma|\mathfrak{A}f = \underbrace{g\ltimes\gamma|}_{\varphi/f^2}\underbrace{g\ltimes\mathfrak{A}f}_{\varphi/f^2} = \underbrace{g\ltimes\gamma|}_{\varphi/f^2}\underbrace{\overline{g\ltimes\mathfrak{A}}\overline{g\ltimes f}}_{\varphi/f^2} = M_{g\ltimes f}\underbrace{g\ltimes\gamma|}_{\varphi/f^2}\underbrace{g\ltimes\mathfrak{A}}_{\varphi/f^2} = M_{g\ltimes f}\overline{C_g\gamma|\mathfrak{A}}$$