

Missing proof

$$\begin{array}{ccc}
 2^{A^*} & \xrightarrow{2^r} & 2^X \\
 2^c \downarrow & & \downarrow 2^t \\
 (2^{A^*})^A & \xrightarrow{(2^r)^A} & (2^{A^*})^X
 \end{array}$$

Proof (Rik's observation)

Start with the commuting diagram

$$\begin{array}{ccc}
 A^* & \xrightarrow{\pi} & X \\
 c \downarrow & & \downarrow t \\
 (A^*)^A & \xrightarrow{\Gamma^A} & X^A
 \end{array}$$

Uncurry

$$\begin{array}{ccc}
 A^* \times A & \xrightarrow{\pi \times \text{id}_A} & X \times A \\
 c \downarrow & & \downarrow t \\
 A^* & \xrightarrow{r} & X
 \end{array}$$

Then apply 2^{-}

$$\begin{array}{ccc}
 2^{A^* \times A} & \xrightarrow{2^{\pi \times \text{id}_A}} & 2^{X \times A} \\
 2^c \uparrow & & \uparrow 2^t \\
 2^{A^*} & \xrightarrow{2^r} & 2^X
 \end{array}$$

$$\begin{array}{ccc}
 (2^{A^*})^A & \xrightarrow{(2^r)^A} & (2^X)^A \\
 2^c \uparrow & & \uparrow 2^t \\
 2^{A^*} & \xrightarrow{r} & 2^X
 \end{array}$$

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