

# Variables and annotations

$$\frac{\Gamma(x) = A \quad 0\Gamma + x \vdash \langle 0\Gamma + x \rangle A \rightsquigarrow B \dashv \Gamma'}{\Gamma \vdash_c x \Rightarrow B \dashv \Gamma'}$$

$$\frac{\Gamma(x) = A \quad 0\Gamma \vdash \langle 0\Gamma \rangle A \rightsquigarrow B \dashv \Gamma'}{\Gamma \vdash_{nc} x \Rightarrow B \dashv \Gamma'}$$

$$\frac{\Gamma \vdash A \Rightarrow \text{Type}_r \dashv \Gamma_1 \quad 0\Gamma_1, 0\Delta, \square : A \vdash_i e \Rightarrow A' \dashv \Gamma_2}{\Gamma, \square, \Delta \vdash_i (e : A) \Rightarrow B \dashv \Gamma_3 + \Gamma_1, \Delta}$$

## Stationary rules

$$\frac{\Gamma, \Delta, a, \square : A \vdash_i e \Rightarrow A' \dashv \Gamma', a, \Theta}{\Gamma, \square : \forall \{a\}. A, \Delta \vdash_i e \Rightarrow \forall \{a\}. A \dashv \Gamma'}$$

$$\frac{0\Gamma, 0\Delta, \square : A \vdash_i e \Rightarrow A' \dashv \Gamma'}{\Gamma, \square : !_r A, \Delta \vdash_i e \Rightarrow !_r A \dashv r\Gamma' + \Gamma, \Delta}$$

# Functions

$$\frac{\Gamma, \Delta, 0 \ x : A, \square : B \vdash_i e \Rightarrow B' \dashv \Gamma_1, r \ x : A, \Theta \quad \Gamma_1 \vdash A \Leftarrow \text{Type}_r \dashv \Gamma_2}{\Gamma, \square : A \rightarrow B, \Delta \vdash_i \lambda x. e \Rightarrow A \rightarrow B \dashv \Gamma_2}$$
$$\frac{\Gamma[\hat{a}_1, \hat{a}_2, \hat{a} = \hat{a}_1 \rightarrow \hat{a}_2], \Delta, 0 \ x : \hat{a}_1, \square : \hat{a}_2 \vdash_i e \Rightarrow A \dashv \Gamma_1, r \ x : \hat{a}_1, \Theta \quad \Gamma_1 \vdash \hat{a}_1 \Leftarrow \text{Type}_r \dashv \Gamma_2}{\Gamma[\hat{a}], \square : \hat{a}, \Delta \vdash_i \lambda x. e \Rightarrow \hat{a} \dashv \Gamma_2}$$

$$\Gamma, \blacktriangleright_{\hat{a}}, \hat{a}, 0 \ x : \hat{a}, \square \vdash_i e \Rightarrow A \dashv \Gamma_1, r \ x : \hat{a}, \Gamma_4$$

$$\Gamma_1 \vdash \hat{a} \Leftarrow \text{Type}_r \dashv \Gamma_2, \blacktriangleright_{\hat{a}}, \Gamma_3$$

$$B = \forall \{\text{unsolved}(\Gamma_3)\}. \langle \Gamma_3 \rangle (\hat{a} \rightarrow \forall \{\text{unsolved}(\Gamma_4)\}. \langle \Gamma_4 \rangle A)$$

$$\Gamma, \square, \Delta \vdash_i \lambda x. e \Rightarrow B \dashv \Gamma_2$$