DEP Typing Rules

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These are the typing judgement rules as implemented in type derivation.

$$\frac{\Gamma \vdash e_1 : (x{:}\tau_1) => \tau_2 \quad \Gamma \vdash e_2 : \tau_1' \quad \tau_1 \equiv_\alpha \tau_1'}{\Gamma \vdash (e_1 e_2) : \beta(\tau_2[e_2/x], \Gamma)} \quad (4)$$

$$\frac{\Gamma(v).type = \tau}{\Gamma \vdash v : \beta(\tau, \Gamma)} \quad (1)$$

$$\frac{(x', e') = rescope(x, e, \Gamma) \quad \Gamma' = \Gamma[x' \mapsto (\beta(a, \Gamma, None))]}{\Gamma' \vdash e' : \tau_2 \quad \Gamma \vdash \tau_1 : \#s_1 \quad \Gamma' \vdash \tau_2 : \#s_2}{\Gamma \vdash (x : \tau_1) -> e : \beta((x' : \tau_1) => \tau_2, \Gamma)} \quad (5)$$

$$\frac{}{\Gamma \vdash \#s : \beta(\#(s+1), \Gamma)} \quad (2)$$

$$\frac{}{\Gamma \vdash \texttt{flag} : \beta(\#0, \Gamma)} \quad (3)$$

$$\frac{(x', \tau_2') = rescope(x, \tau_2, \Gamma) \quad \Gamma' = \Gamma[x' \mapsto (\beta(a, \Gamma, None))]}{\Gamma \vdash \tau_1 : \#s_1 \quad \Gamma' \vdash \tau_2' : \#s_2}{\Gamma \vdash (x : \tau_1) => \tau_2 : \beta(\#s_2, \Gamma)} \quad (6)$$