controllable-refinement

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The type system based on STLC, introducing user-controllable type refinement. Meta type variables are A, B. Meta predicate variable is P. A type with predicate write as A_P, introduce predicate write as P_+, eliminate write as P_-.

- verify-predicate

$$\frac{\Gamma, f : A_P \to B, x : A_P}{fx : B}$$

- introduce-predicate

$$\frac{\Gamma, f : A_{P_+} \to B, x : A}{fx : B, x : A_P} \quad \frac{\Gamma, f : A_{P_+} \to B, x : A_P}{fx : B, x : A_P}$$

- eliminate-predicate

$$\frac{\Gamma, f : A_{P_-} \to B, x : A_P}{fx : B, x : A} \quad \frac{\Gamma, f : A_{P_-} \to B, x : A}{fx : B, x : A}$$

Notice that it can be extended to with polymorphism without changing previous definition.