Formal Systems and their Applications Assignment: Adding exceptions to a simply typed lambda calculus

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1 NatInd Evaluation Rules

1.1 E-NatIndBase

This rule describes the evaluation rule for the base case of natural induction.

$$\overline{\text{NatInd } P \; b \; i \; 0 \; \rightarrow \; b}$$

1.2 E-NatIndInd

This rule describes the evaluation rule for the induction step of natural induction.

$$\overline{\text{NatInd } P \; b \; i \; (\text{succ } t) \; \rightarrow \; (i \; t) \; (\text{NatInd } P \; b \; i \; t)}$$

1.3 E-NatInd

This rule describes the evaluation rule for other cases.

$$\frac{t \rightarrow t'}{\text{NatInd } P \; b \; i \; t \; \rightarrow \text{NatInd } P \; b \; i \; t'}$$