

Exposé 1

Introduction
Pure λ -calculus
Typed λ -calculus
SN of typed λ -calculus
Conclusion

A termination proof in typed λ -calculus

Karim Nour

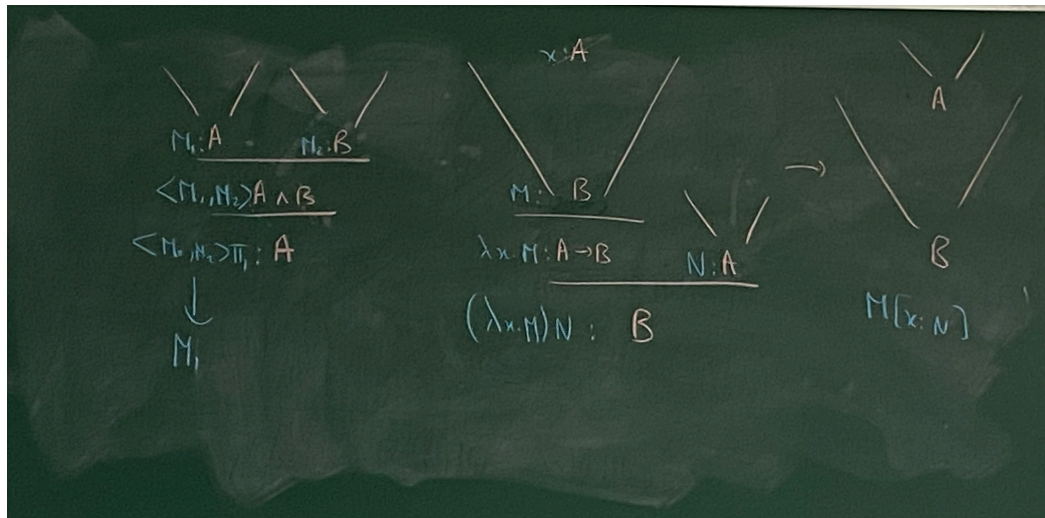
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A termination proof in typed λ -calculus



$$\begin{array}{c}
 \begin{array}{c}
 \diagup \quad \diagdown \quad \diagup \quad \diagdown \\
 x:A \quad \quad \quad y:B \\
 M: A \vee B \quad N_1: C \rightarrow D \quad N_2: C \rightarrow D \\
 \hline
 M(x, N_1, y, N_2): C \rightarrow D \\
 \hline
 (M(x, N_1, y, N_2))N \quad D
 \end{array}
 \quad
 \begin{array}{c}
 \diagup \quad \diagdown \quad \diagup \quad \diagdown \\
 x:A \quad \quad \quad y:B \\
 M: A \vee B \quad N_1: C \rightarrow D \quad N_2: C \rightarrow D \quad N_3: C \\
 \hline
 M(x, (N_1)N, y, (N_2)N): D
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \begin{array}{c}
 \diagup \quad \diagdown \\
 \alpha: \exists(A \rightarrow B) \quad U: A \rightarrow B \\
 \hline
 (\exists)U: \perp
 \end{array}
 \quad
 \begin{array}{c}
 \diagup \quad \diagdown \\
 x: \exists B \quad U: A \rightarrow B \quad N: A \\
 \hline
 (\exists)(U)N: \perp
 \end{array}
 \\
 \hline
 M \quad \perp \\
 \hline
 M \alpha M: A \rightarrow B \quad N: A \\
 \hline
 (M \alpha M)N: B
 \end{array}
 \quad
 \begin{array}{c}
 \diagup \quad \diagdown \\
 M(\exists U := (\exists)(U)N): \perp \\
 \hline
 M \alpha M(\exists): B
 \end{array}$$

