Types, inference, and F# data types

The INFDEV@HR Team

Hogeschool Rotterdam
Rotterdam, Netherlands

Introduction

Introduction


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(λ(p:Boolean) (q:Boolean)→(((p Boolean) q) p)
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   (((Boolean Boolean) q) Boolean))
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(λ(p:Boolean) (q:Boolean)→(((  (∀α ⇒(α→α→α))
   Boolean) Boolean) Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))
   Boolean) Boolean) Boolean))
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$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean}) \rightarrow ((((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\ \underline{\texttt{Boolean}})\ \texttt{Boolean})\ \texttt{Boolean}))$$

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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))
    Boolean) Boolean) Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))
    (∀α ⇒(α→α→α))) Boolean) Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))
    (∀α ⇒(α→α→α))) Boolean) Boolean))
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(λ(p:Boolean) (q:Boolean)→((
    ((∀α ⇒(α→α→α)) (∀α ⇒(α→α→α))) Boolean)
    Boolean))
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$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow((\underline{((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\ (\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ \texttt{Boolean}})\ \texttt{Boolean}))$$

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(λ(p:Boolean) (q:Boolean)→((
    ((∀α ⇒(α→α→α)) (∀α ⇒(α→α→α))) Boolean)
    Boolean))
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(λ(p:Boolean) (q:Boolean)→((
    ((∀α ⇒(α→α→α))→(∀α ⇒(α→α→α))→(∀α ⇒(α→α→α)))
    Boolean) Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α))) Boolean)
    Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α))) Boolean)
    Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α))) Boolean)
    Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α))) Boolean)
    Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α))) Boolean)
    Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α)))
    (∀α ⇒(α→α→α)) Boolean))
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Introduction

$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow((((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ (\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ \texttt{Boolean}))$$

Introduction

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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α))) (∀α ⇒(α→
    α→α))) Boolean))
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(λ(p:Boolean) (q:Boolean)→((((∀α ⇒(α→α→α))→
    (∀α ⇒(α→α→α))→(∀α ⇒(α→α→α)))
    (∀α ⇒(α→α→α))) Boolean))
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Introduction

$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean}) \to ((((\forall\alpha\ \Rightarrow(\alpha\to\alpha\to\alpha)) \to (\forall\alpha\ \Rightarrow(\alpha\to\alpha\to\alpha))) \to (\forall\alpha\ \Rightarrow(\alpha\to\alpha\to\alpha))) \underline{(\forall\alpha\ \Rightarrow(\alpha\to\alpha\to\alpha))}\ \texttt{Boolean}))$$

Introduction

$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow((((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow (\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ \underline{(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))}\ \texttt{Boolean}))$$

$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow(((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ \texttt{Boolean}))$$

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(λ(p:Boolean) (q:Boolean)→(((∀α ⇒(α→α→α))→(
    ∀α ⇒(α→α→α))) Boolean))
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$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow(((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ \texttt{Boolean}))$$

$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow(((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ \underline{\texttt{Boolean}}))$$

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$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean}) \rightarrow (((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)) \rightarrow (\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ \underline{\texttt{Boolean}}))$$

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(λ(p:Boolean) (q:Boolean)→(((∀α ⇒(α→α→α))→(
    ∀α ⇒(α→α→α))) Boolean))
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(λ(p:Boolean) (q:Boolean)→(((∀α ⇒(α→α→α))→(
    ∀α ⇒(α→α→α))) (∀α ⇒(α→α→α)) ))
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$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow(((\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))\ (\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha))))$$

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(λ(p:Boolean) (q:Boolean)→(
    ((∀α ⇒(α→α→α))→(∀α ⇒(α→α→α)))
    (∀α ⇒(α→α→α))))
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(λ(p:Boolean) (q:Boolean)→ (∀α ⇒(α→α→α)) )
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$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean}) \rightarrow (\forall\alpha\ \Rightarrow (\alpha \rightarrow \alpha \rightarrow \alpha)))$$

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$$(\lambda(\texttt{p:Boolean})\ (\texttt{q:Boolean})\rightarrow(\forall\alpha\ \Rightarrow(\alpha\rightarrow\alpha\rightarrow\alpha)))$$

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$$(\lambda(p:Boolean)\rightarrow(Boolean\rightarrow Boolean))$$

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(λ(p:Boolean)→(Boolean→Boolean))
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(λ(p:Boolean)→(Boolean→Boolean))
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(Boolean→Boolean→Boolean)
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This is it!

The best of luck, and thanks for the attention!