Facultad de Ciencias, UNAM
Lenguajes de Programación
Tarea extra: Tabla de verdad de la conjunción

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Recordemos que

$$\wedge \ =_{def} \ \lambda x.\lambda y.xyF$$

Por lo tanto,

$$\begin{aligned}
\wedge TT &=_{def} (\lambda x.\lambda y.xyF)\ TT \\
&\to_\beta (\lambda y.TyF)\ T \\
&\to_\beta TTF \\
&=_{def} (\lambda x.\lambda y.x)\ TF \\
&\to_\beta (\lambda y.T)\ F \\
&\to_\beta T
\end{aligned}$$

$$\begin{aligned}
\wedge TF &=_{def} (\lambda x.\lambda y.xyF)\ TF \\
&\to_\beta (\lambda y.TyF)\ F \\
&\to_\beta TFF \\
&=_{def} (\lambda x.\lambda y.x)\ FF \\
&\to_\beta (\lambda y.F)\ F \\
&\to_\beta F
\end{aligned}$$

$$\begin{aligned}
\wedge FT &=_{def} (\lambda x.\lambda y.xyF)\ FT \\
&\to_\beta (\lambda y.FyF)\ T \\
&\to_\beta FTF \\
&=_{def} (\lambda x.\lambda y.y)\ TF \\
&\to_\beta (\lambda y.y)F \\
&\to_\beta F
\end{aligned}$$

$$\begin{aligned}
\wedge FF &=_{def} (\lambda x.\lambda y.xyF)\ FF \\
&\to_\beta (\lambda y.FyF)\ F \\
&\to_\beta FFF \\
&=_{def} ((\lambda x.\lambda y.y)\ F)\ F \\
&\to_\beta (\lambda y.y)\ F \\
&\to_\beta F
\end{aligned}$$