

$\Gamma \vdash t : A \Rightarrow t \in SN$

Def $(\llbracket A \rrbracket) \in SN$ (3) \checkmark (CR1)

Def θ válida en $\Gamma \Leftrightarrow \forall x : A \in \Gamma$

$\theta(x) \in \llbracket A \rrbracket$

teorema (1) Adecuación
 $\Gamma \vdash t : A \Rightarrow \theta(t) \in \llbracket A \rrbracket$
 θ válida en Γ

teorema (2)
 id es válida en todo Γ
 $\forall x : A \in \Gamma$
 $\theta(x) = x \in \llbracket A \rrbracket$

$\Gamma \vdash t : A \Rightarrow t \in \llbracket A \rrbracket \subseteq SN$
 (par 1) (par 2) (par 3)

(CR2)
 $t \rightarrow r$
 $t \in \llbracket A \rrbracket \Rightarrow r \in \llbracket A \rrbracket$

(CR3)
 $Red(t) \subseteq \llbracket A \rrbracket$
 \Downarrow
 $tr \in \llbracket A \rrbracket$

$A := A \Rightarrow A \mid \mathbb{N} \mid \tau$
 $\llbracket \mathbb{N} \rrbracket = SN$
 $\llbracket \tau \rrbracket = SN$
 $\llbracket A \Rightarrow B \rrbracket = \{ t \mid \forall r \in \llbracket A \rrbracket, tr \in \llbracket B \rrbracket \} \subseteq SN$

$\Gamma \vdash t : A \Rightarrow \theta(t) \in \llbracket A \rrbracket$

$\forall t, \theta(t) \in \llbracket B \rrbracket \subseteq SN$

Caso. $\Gamma, x : A \vdash t : B$
 $\Gamma \vdash \lambda x. t : A \Rightarrow B$

$\forall r \in \llbracket A \rrbracket \in SN$
 $\lambda x. t \in \llbracket A \Rightarrow B \rrbracket$

$\llbracket A \times B \rrbracket = \{ t \mid \frac{\pi_1(t)}{\pi_2(t)} \in \llbracket A \rrbracket \times \llbracket B \rrbracket \}$

$(\lambda x. t) r \in \llbracket B \rrbracket$
 $t(\overline{r/x}) \in \llbracket B \rrbracket$
 $(\lambda x. t) r \in \llbracket B \rrbracket$
 $t' + r \in \llbracket B \rrbracket$
 $t' + r \in \llbracket B \rrbracket$

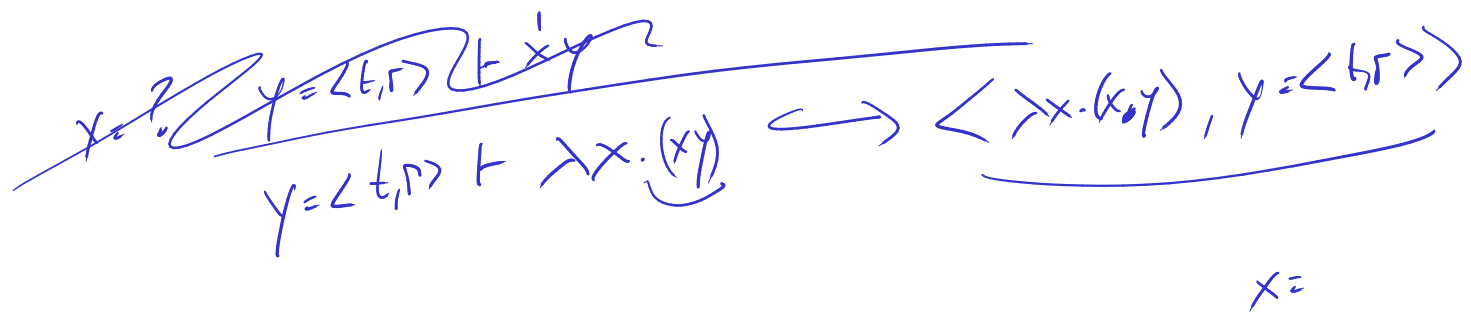
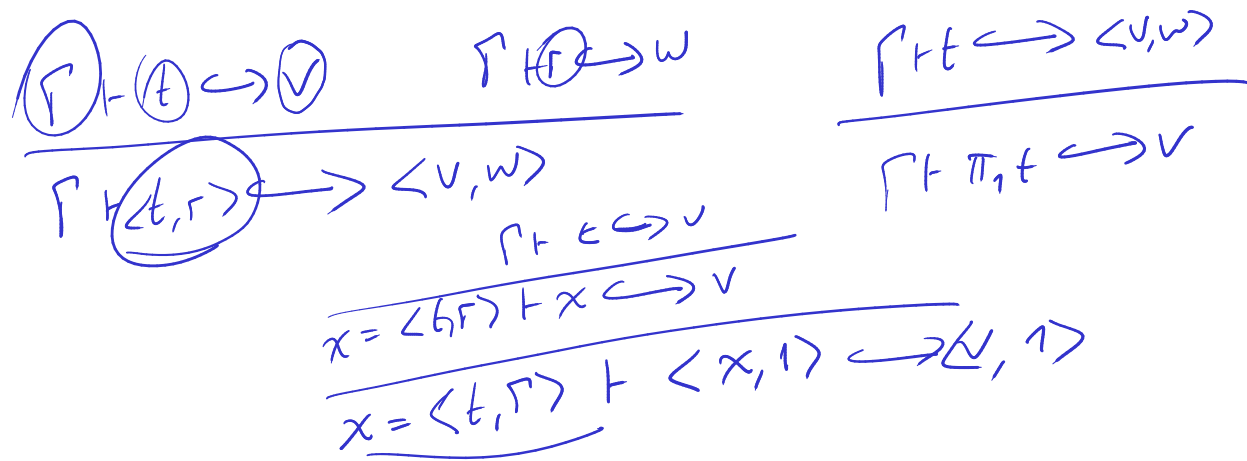
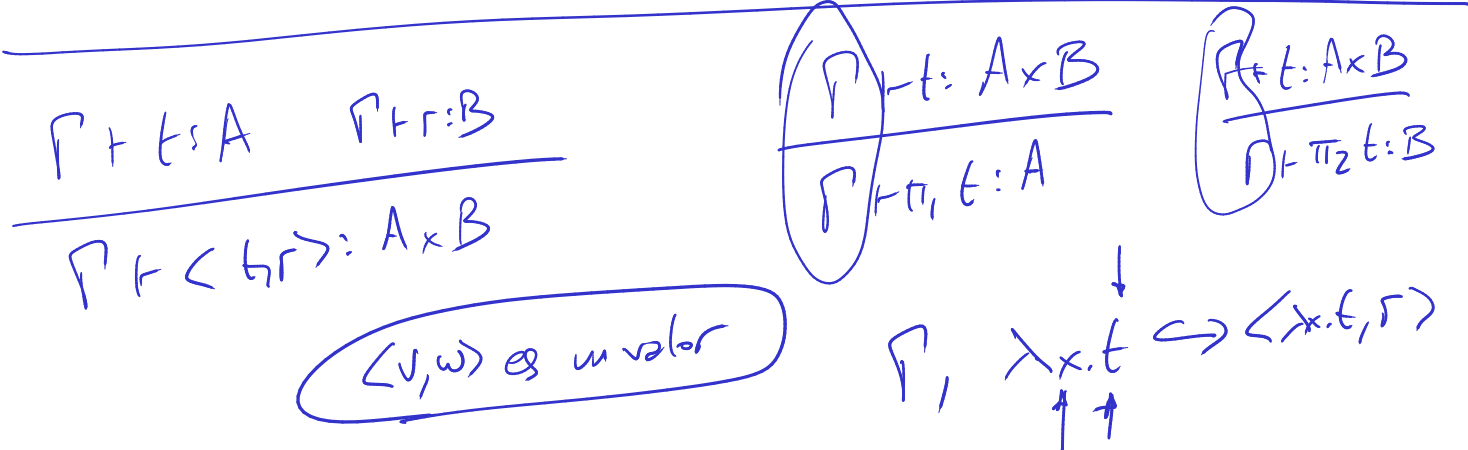
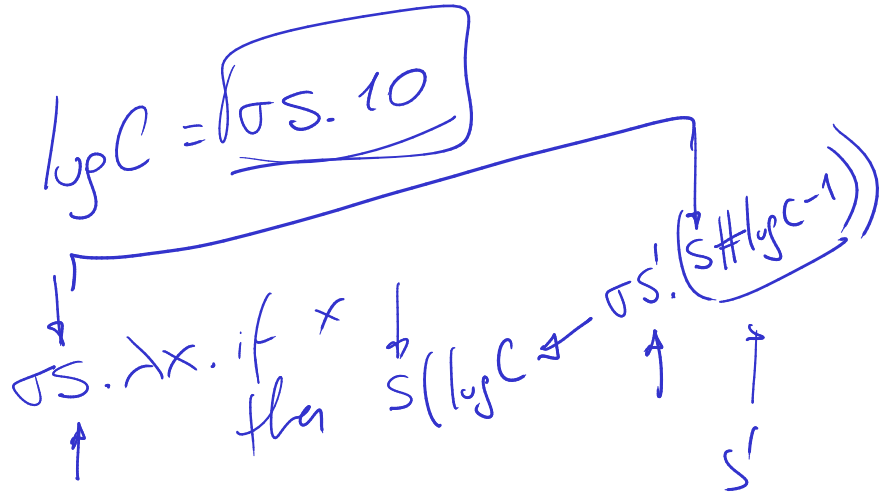
Interpretación

Complilacion

Registros y objetos

SR

SN



$$\llbracket (\lambda x:\text{nat}. 0) (\text{fix } x:\text{nat}. x) \rrbracket$$

$$= \llbracket \lambda x:\text{nat}. 0 \rrbracket (\llbracket \text{fix } x:\text{nat}. x \rrbracket)$$

$$= (\lambda \text{nat} \mapsto 0) \text{FIX}(\text{beNat} \mapsto b)$$

$$= (\lambda \text{nat} \mapsto 0) (\perp) \begin{matrix} \rightarrow 0 \text{ en CBW} \\ \rightarrow \perp \text{ en CBV} \end{matrix}$$

$$\perp @ = \perp$$



$$\Gamma \vdash \Gamma \hookrightarrow \langle \{l_1 = \sigma s.t_1, \dots, l_n = \sigma s.t_n\}, \Delta \rangle$$

$$\Gamma \vdash \Gamma (l_k \mapsto \sigma s.t'_k) \hookrightarrow \langle \{l_1 = \sigma s.t_1, \dots, \underline{l_k = \sigma s.t'_k}, \dots, l_n = \sigma s.t_n\} \rangle$$

$$x = \langle l, \sigma \rangle \vdash \{l = \sigma s.x\} \hookrightarrow \langle \{l = \sigma s.x\}, x = \langle l, \sigma \rangle \rangle$$

$$\Gamma \vdash \Gamma \hookrightarrow \langle \{l_1 = \sigma s.t_1, \dots, l_n = \sigma s.t_n\}, \Delta \rangle \quad \Delta, s = \langle \sigma, \sigma \rangle \vdash t_k \hookrightarrow v$$

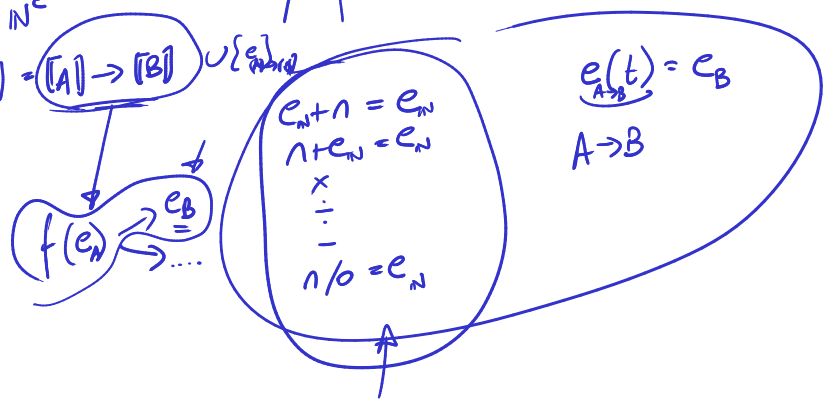
$$\Gamma \vdash \Gamma \# l_k \hookrightarrow v$$

$$\overline{(\lambda s.t_k) s}$$

$$\Gamma \vdash \lambda x.t \hookrightarrow \langle \lambda x.t, \Gamma \rangle$$

$N^e = N \cup \{\text{error}\}$
 $A^e = A \cup \{\text{error}\}$

$\llbracket \text{Not} \rrbracket = N^c$
 $\llbracket A \rightarrow B \rrbracket = \llbracket A \rrbracket \rightarrow \llbracket B \rrbracket \cup \{\text{error}\}$



$\llbracket t + r \rrbracket_\theta = \llbracket t \rrbracket_\theta + \llbracket r \rrbracket_\theta$

$\frac{(\lambda x. t) \Gamma}{A} \longrightarrow \frac{t[\Gamma/x]}{A}$



$t := x \mid \lambda x. t \dots \mid n \mid b \mid$

$n \in N$ $b = \text{true} \mid \text{false}$

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