Homework 11

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Due: Wednesday, Nov 12

Homework: 1. Show that $x : X \vdash_L Y/(X \setminus Y)$

Answer:

$$\dfrac{x : X \vdash X^{Ax} \quad \dfrac{\overline{y : Y \vdash Y}^{Ax}}{\vdash Y \leftarrow Y}}{x : X \vdash Y \leftarrow (X \to Y)}$$

2. Assume that and has type $\alpha \setminus (\alpha/\alpha)$, for any type α. Show that John and some girl is an expression of type $s/(np \setminus s)$.

Answer: $\dfrac{\dfrac{\overline{x : np \vdash np}^{Ax} \quad \overline{y : \alpha \setminus (\alpha/\alpha) \vdash \alpha \setminus (\alpha/\alpha)}^{Ax} \quad \overline{z : np \vdash np}^{Ax}}{x : np, y : \alpha \setminus (\alpha/\alpha), z : np \vdash np} \quad \dfrac{\overline{a : s \vdash s}^{Ax}}{\vdash s \leftarrow s}}{x : np, y : \alpha \setminus (\alpha/\alpha), z : np \vdash s \leftarrow (np \to s)}$

3. Show that John kissed and Mary hugged some turtle is a sentence.

$$\dfrac{\dfrac{\dfrac{\overline{x : np \vdash np}^{John} \quad \overline{y : np \setminus s/np \vdash np \setminus s/np}^{kissed}}{x : np, y : np \setminus s/np \vdash s/np} \quad \overline{z : \alpha \setminus (\alpha/\alpha) \vdash \alpha \setminus (\alpha/\alpha)}^{and} \quad \dfrac{\overline{a : np \vdash np}^{Mary} \quad \overline{b : np \setminus s/np \vdash np \setminus s/np}^{hugged}}{a : np, b : np \setminus s/np \vdash s/np}}{x : np, y : np \setminus s/np, z : \alpha \setminus (\alpha/\alpha), a : np, b : np \setminus s/np \vdash s/np} \quad \overline{c : np \vdash np}^{someturtle}}{x : np, y : np \setminus s/np, z : \alpha \setminus (\alpha/\alpha), a : np, b : np \setminus s/np, c : np \vdash s}$$