PLACEHOLDER

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Introduction

This is an interesting introduction to an interesting subject

1 Definitions

Definition

The annotated terms are defined by the following grammar:

$$\begin{aligned}P, Q ::= & x \to y \;\; ; \;\; 0_x \;\; ; \\ & \epsilon_x.P \;\; ; \;\; \lambda_x y.P \;\; ; \\ & u_x(t).P \;\; ; \;\; \bar{u}_x\langle v\rangle.P \;\; ; \\ & P|_x Q \;\; ; \;\; P||_x Q \;\; ; \\ & (\nu u)P.\end{aligned}$$

Definition

We define a cut-eliminating reduction rule as follows:

$$\begin{array}{ccr}
\epsilon_x.P||_x 0_x \rightsquigarrow P \qquad P||_x x \to y \rightsquigarrow P[y/x] & & \textit{those two rules are symmetrical} \\
(P|_x Q)||_x \lambda_x y.R \rightsquigarrow P||_x (Q[y/x]||_y R) & & \\
\lambda_x y.R||_x (P|_x Q) \rightsquigarrow (R||_x P)||_y Q[y/x] & & \\
\bar{u}_x\langle v\rangle.P||_x u_x(t).Q \rightsquigarrow P||_x Q[v/t] & & \textit{this rule is symmetrical} \\
\epsilon_x.P||_y Q \rightsquigarrow \epsilon_x.(P||_y Q) \qquad \lambda_x y.P||_z Q \rightsquigarrow \lambda_x y.(P||_z Q) & & \textit{those two are as well} \\
u_x(t).P||_y Q \rightsquigarrow u_x(t).(P||_y Q) \qquad \bar{u}_x\langle v\rangle.P||_y Q \rightsquigarrow \bar{u}_x\langle v\rangle.(P||_y Q) & & \textit{those two are as well} \\
(P|_x Q)||_y R \rightsquigarrow (P||_y R)|_x Q & & \textit{if } y \textit{ only appear in } P \\
(P|_x Q)||_y R \rightsquigarrow P|_x (Q||_y R) & & \textit{if } y \textit{ only appear in } Q
\end{array}$$

Proposition

confluence of $\rightsquigarrow$ up to $\cong$

Remark: that commuting prefixes is not nice looking

Definition

Define the $\to$ and $\equiv$ restrictions of the two preceding relations here

2 A typing system that works with cut elimination

Definition

Define the typing system here

Proposition

Cut elimination holds and terminates

▷ proof here □

Proposition

cut elimination works under the restrained $\rightarrow$ *and* $\equiv$

▷ proof here □

3 Links with the usual π-calculus

Definition

Define π-calculus

Definition

Define projection $\lfloor \cdot \rfloor$

Proposition

Something about $\to$ and $\equiv$ related to projection

$\triangleright$ proof here $\square$

Open about $\rightsquigarrow$ here or in the conclusion.

Conclusion

A nice conclusion and working trails for later here.