Assignment 9: CCS

ETH Zurich

1 Derivations

By using SOS rules for CCS prove the existence of the following transitions where you assume that $\mathrm{A} \stackrel{\mathsf{def}}{=} b.a.\mathrm{B}$:

1. $(\mathrm{A} \mid \overline{b}.0) \setminus \{b\} \xrightarrow{\tau} (a.\mathrm{B} \mid 0) \setminus \{b\}$
2. $(\mathrm{A} \mid \overline{b}.a.\mathrm{B}) + (\overline{b}.\mathrm{A}) \xrightarrow{\overline{b}} (\mathrm{A} \mid a.\mathrm{B})$

2 Labelled Transition Systems

Consider the following defining CCS equations:

$$\begin{aligned} \mathrm{CM} &\stackrel{\mathsf{def}}{=} coin.\overline{coffee}.\mathrm{CM} \\ \mathrm{CS} &\stackrel{\mathsf{def}}{=} \overline{pub}.\overline{coin}.coffee.\mathrm{CS} \\ \mathrm{UNI} &\stackrel{\mathsf{def}}{=} (\mathrm{CM} \mid \mathrm{CS}) \setminus \{coin, coffee\} \end{aligned}$$

Use the rules of the SOS semantics for CCS to derive the labelled transitions system for the process UNI defined above. The proofs can be ommitted and a drawing of the LTS is enough.