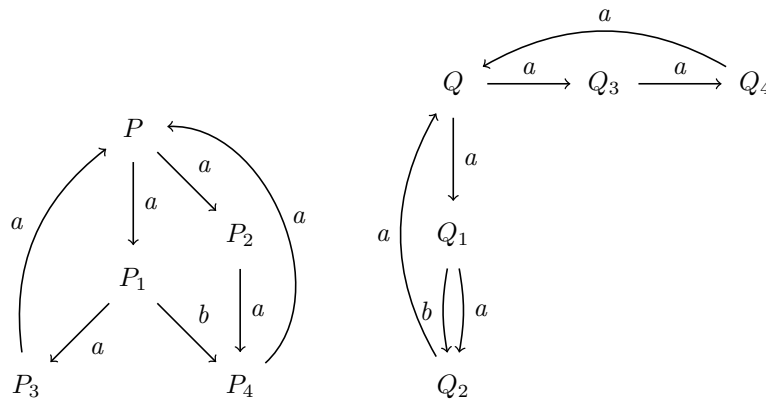


Assignment 10: CCS advanced concepts

ETH Zurich

1 Strong Bisimulation

Consider the following labelled transition system:



Show that $P \sim Q$ by finding a strong bisimulation \mathcal{R} such that $P \mathcal{R} Q$.

2 Weak Bisimulation

Suppose we have the following definitions of processes

$$\begin{aligned} S &\stackrel{\text{def}}{=} a.\bar{b}.S \\ T &\stackrel{\text{def}}{=} \bar{a}.e.b.T \\ ST &\stackrel{\text{def}}{=} (S|T) \setminus \{a, b\} \end{aligned}$$

Further we have

$$\begin{aligned} U &\stackrel{\text{def}}{=} e.x.y.U \\ V &\stackrel{\text{def}}{=} \bar{x}.\bar{y}.V \\ UV &\stackrel{\text{def}}{=} (U|V) \setminus \{x, y\} \end{aligned}$$

Your task is to

1. Represent ST and UV as LTSs.
2. Show that ST and UV are weakly bisimilar.
3. Suppose we further have $UV' \stackrel{\text{def}}{=} (U|V) \setminus \{y\}$. Show that ST and UV' are not weakly bisimilar.