Mandatory Assignment 1

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September 22, 2012

This assignment is a part of the Advance Mobile and Distributed Systems Seminar.

1 Exercise 1, p. 12

$$\begin{aligned} \mathrm{SYSTEM}_1 &\stackrel{\mathrm{def}}{=} (v\, talk_i, switch_i, give_i, alert_i : i = 1, 2) \\ &(\mathrm{CAR}(talk_1, switch_1) | \mathrm{BASE}_1 | \mathrm{IDLEBASE}_2 | \mathrm{CENTRE}_1) \end{aligned} \tag{1}$$

$$\begin{aligned} \mathrm{CENTRE}_1 &\stackrel{\mathrm{def}}{=} \overline{give_1}\langle talk_2 switch_2 \rangle.alert2.\mathrm{CENTRE}_2 \\ \mathrm{CENTRE}_2 &\stackrel{\mathrm{def}}{=} \overline{give_2}\langle talk_1 switch_1 \rangle.alert1.\mathrm{CENTRE}_1 \end{aligned} \tag{2}$$

2 Exercise 2, p. 13

$$\begin{aligned}\mathrm{CAR}(talk, switch) \stackrel{\mathrm{def}}{=}\ & talk.\mathrm{CAR}(talk, switch) \\ & + switch(talk' switch').\mathrm{CAR}(talk', switch')\end{aligned} \tag{3}$$

$$\begin{aligned}\mathrm{BASE}(talk, switch, give, alert) \stackrel{\mathrm{def}}{=}\ & talk.\mathrm{BASE}(task, switch, give, alert) \\ & + give(talk' switch').\overline{switch}\langle talk' switch'\rangle. \\ & \mathrm{IDLEBASE}(task, switch, give, alert)\end{aligned} \tag{4}$$

$$\mathrm{IDLEBASE}(talk, switch, give, alert) \stackrel{\mathrm{def}}{=} alert.\mathrm{BASE}(talk, switch, give, alert) \tag{5}$$

$$\mathrm{BASE_i} \stackrel{\mathrm{def}}{=} \mathrm{BASE}(talk_i, switch_i, give_i, alert_i) \quad (i = 1, 2) \tag{6}$$

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