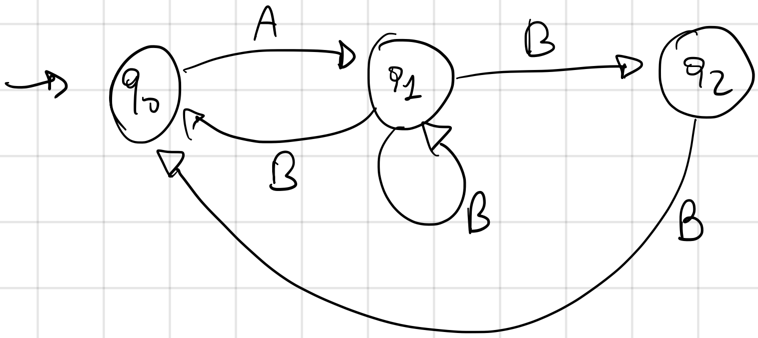
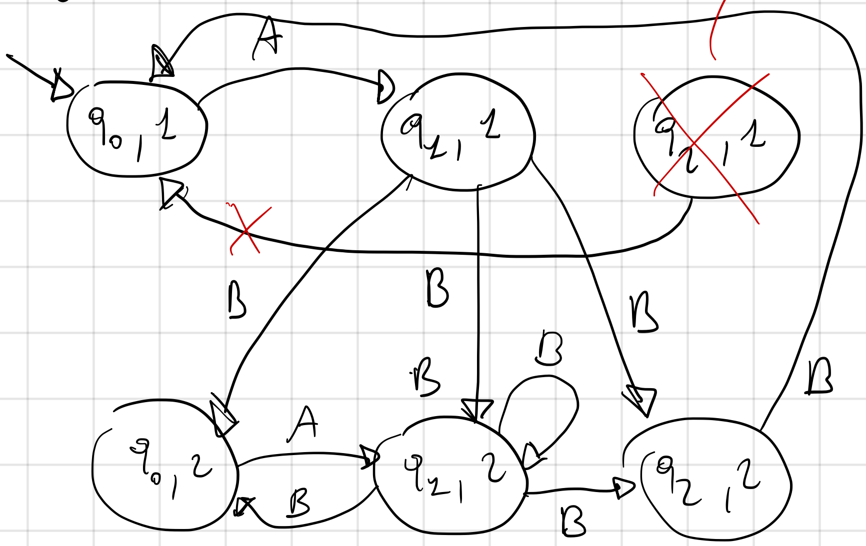


$F = \{\{q_1\}, \{q_2\}\}$

GNBA

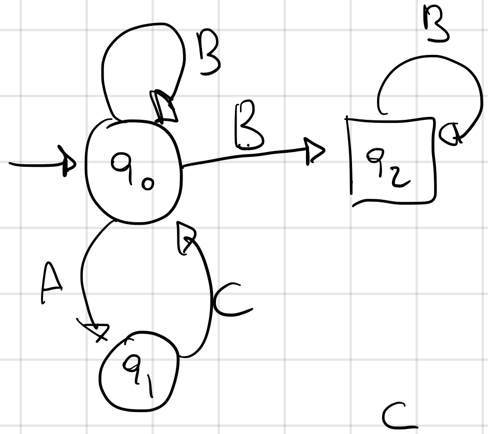
$\mathcal{L}_\omega = \left(A\left[(BA)^* B^*\right]^* BB\right)^\omega$

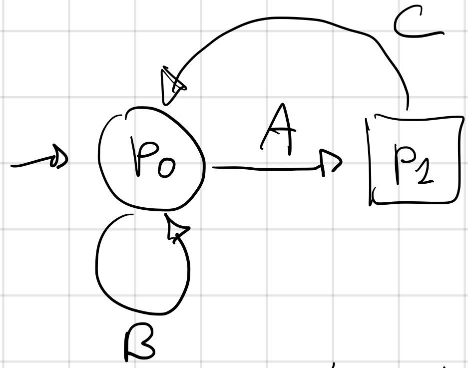
not reachable from initial state



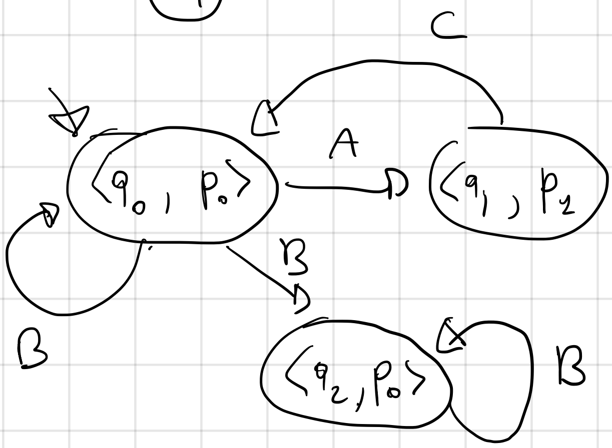
$F = \{\langle q_1, 1\rangle\}$

$A_1 : \quad (AC+B)^* B^\omega$ $\qquad$ $A_2 \quad (B^* AC)^\omega$





$$\frac{s_1 \xrightarrow{\alpha} s_1' \qquad s_2 \xrightarrow{\alpha} s_2'}{\langle s_1, s_2 \rangle \xrightarrow{\alpha} \langle s_1', s_2' \rangle}$$

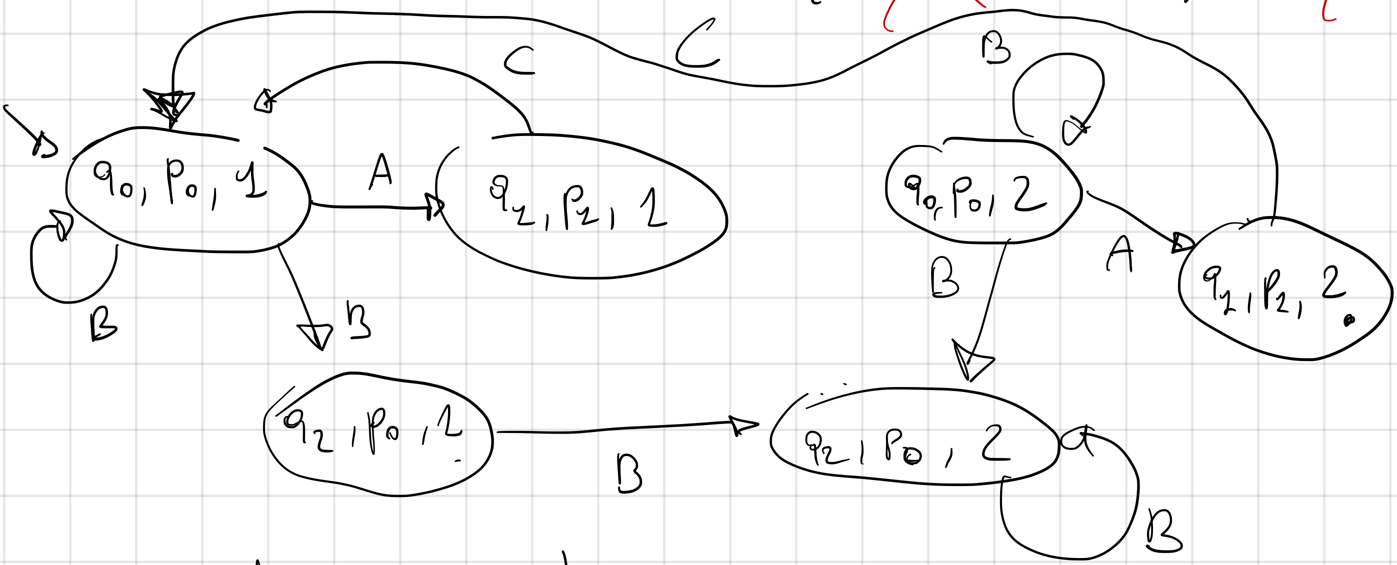


GNBA

not reachable

$F = \{ \{ \langle q_2, p_0 \rangle, \cancel{\langle q_2, p_1 \rangle} \},$

$\{ \cancel{\langle q_0, p_1 \rangle}, \langle q_1, p_1 \rangle, \cancel{\langle q_2, p_1 \rangle} \} \}$



$F = \{ \langle q_2, p_0, 1 \rangle \}$ $\qquad$ $\mathcal{L}_\omega = \emptyset$

$$\varphi = \Box(b \to (b\,\mathcal{U}(a \wedge \neg b)))$$

$$\equiv \{ \psi_1 \to \psi_2 \equiv \neg\psi_1 \vee \psi_2 \}$$

$$\Box(\neg b \vee \neg(b\,\mathcal{U}(a \wedge \neg b)))$$

$$\equiv \{ \neg(\varphi_1 \mathcal{U} \varphi_2) \equiv \neg\varphi_2 \mathcal{W} (\neg\varphi_1 \wedge \neg\varphi_2) \}$$

$$\Box(\neg b \vee (\neg(a \wedge \neg b)\,\mathcal{W}\,(\neg b \wedge \neg(a \wedge \neg b))))$$

$$\equiv \{ \text{De Morgan: } \neg(\varphi_1 \wedge \varphi_2) \equiv \neg\varphi_1 \vee \neg\varphi_2 \}$$

$$\Box(\neg b \vee ((\neg a \vee \neg\neg b)\,\mathcal{W}\,(\neg b \wedge (\neg a \vee \neg\neg b))))$$

$$\{ \text{Double negation} \}$$

$$\Box(\neg b \vee ((\neg a \vee b)\,\mathcal{W}\,(\neg b \wedge (\neg a \vee b))))$$

✓ in PNF

$$\neg\Box\,(b \to (b\,\mathcal{U}\,(a \wedge \neg b)))$$

$$\equiv \{\ \neg\Box\varphi \equiv \Diamond\neg\varphi\ \}$$

$$\Diamond\,(\neg\,(b \to (b\,\mathcal{U}\,(a \wedge \neg b))))$$

$$\equiv \{\ \neg(\varphi_1 \to \varphi_2) \equiv \varphi_1 \wedge \neg\varphi_2\ \}$$

$$\Diamond\,(b \wedge \neg\,(b\,\mathcal{U}\,(a \wedge \neg b)))$$

$$\equiv \{\ \Diamond\varphi \equiv true\,\mathcal{U}\,\varphi\ \}$$

$$true\,\mathcal{U}\,(b \wedge \neg\,(b\,\mathcal{U}\,(a \wedge \neg b)))$$

✓ in minimal LTL syntax