Exercise 33

Let $\mathfrak{A}$ be a *DWBA* and $\mathfrak{A}\prime$ be a deterministic Staiger-Wagner automtaton and $\alpha \in \Sigma^\omega$. Let the $\mathcal{F}$ of the Staiger-Wagner automaton be construct as follows.

Proof.

$\mathfrak{A}$ accepts α
$\Leftrightarrow$ from some point i the run $\rho(i)$ on α stays in a SSC S' with accepting states only
$\Leftrightarrow$ all loops in the S' are accepting

$\square$

Exercise 34

Given

closed under co-reachable loops and for all loops $S, S', S \leadsto S', S \in \mathcal{F} \to S' \in \mathcal{F}$
$\Leftrightarrow$ All *strongly connected components* $U \subseteq Q$ are completly in $\mathcal{F}$
or there is no state $s \in U$ with $s \in S, S \in \mathcal{F}$, where S is a loop

Exercise 35