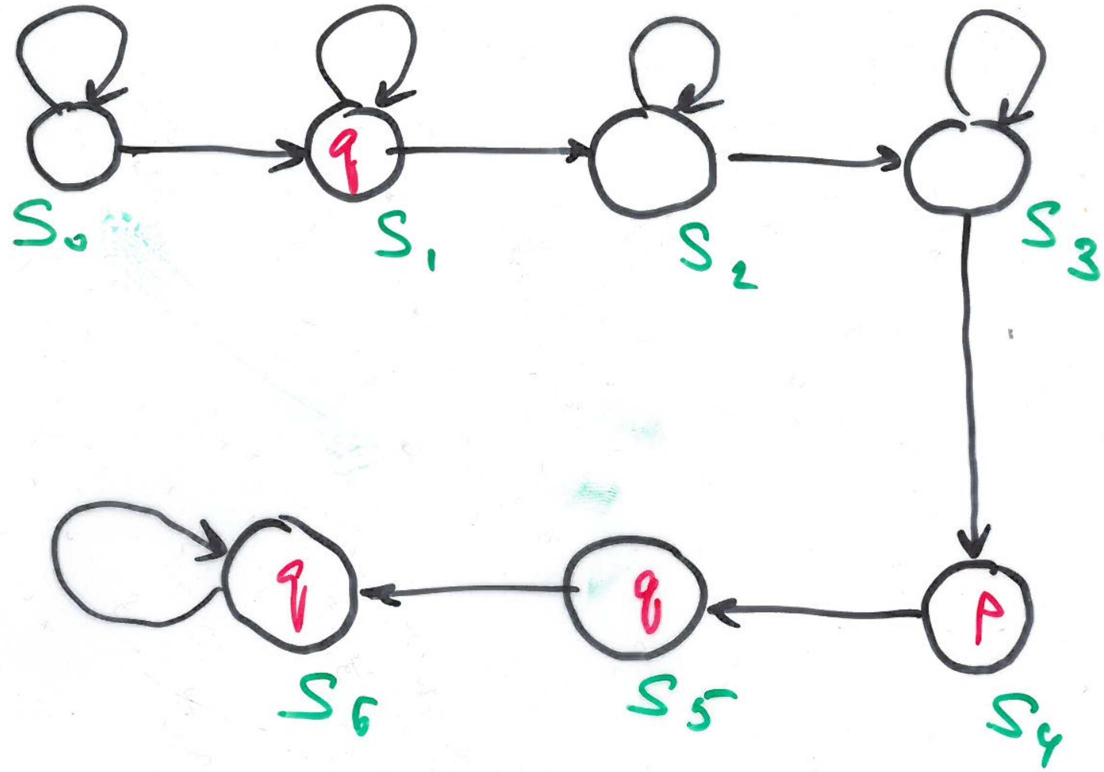

Compute $[\![EF\,p]\!]$ using iterations of a monotone operator, like in the fixpoint theorem we studied

not on BDDs,

+ sets

Compute $[\![EG\, q]\!]$

Solution: It is computed using monotone function

$$G(X) = [\![q]\!] \cap pre_{\exists}(X)$$

$G^{n+1}(S)$ is the answer.

$$S = \{s_0, \ldots, s_6\} = G^0$$

$$G^1(S) = [\![q]\!] \cap pre_{\exists}(S)$$

$$= \{s_1, s_5, s_6\}$$

$$G^2(S) = [\![q]\!] \cap pre_{\exists}\{G^1(S)\}$$

$$= \{s_1, s_5, s_6\}$$

So, $\longrightarrow$ the gfp(G) which is $[\![EG\, q]\!]$

Solution:

$$[\![EF\,p]\!] = [\![E[\top \,U\, p]]\!]$$

So, we can use the monotone function G to compute it

$$G(X) = [\![p]\!] \cup pre_{\exists}(X)$$

By Th $*$, $G^{n+1}(\emptyset)$ is the answer.

$$G^1(\emptyset) = [\![p]\!] \cup pre_{\exists}(\emptyset) = [\![p]\!] = \{s_4\}$$

$$G^2(\emptyset) = G\,G^1(\emptyset) = \{s_3, s_4\}$$

$$G^3(\emptyset) = G(G^2(\emptyset)) = \{s_2, s_3, s_4\}$$

$$G^4(\emptyset) = \{s_1, s_2\, s_3\, s_4\}$$

$$G^5(\emptyset) = \{s_0, \ldots s_4\}$$

$$G^6(\emptyset) = \{s_0, \ldots s_4\}$$

So, $\{s_0, \ldots, s_4\}$ is the $lfp(G) = G^5(\emptyset) = G^{n+1}(\emptyset)$ which is $[\![EF\,p]\!]$