D_0	$\{3,5,6,7,8\}$	D_1	D_2	no
D_1	$\{2,3,4,5,6,7,8\}$	D_3	D_2	no
D_2	$\{2,4\}$	D_4	D_5	no
D_3	$\{1,2,3,4,5,6,7,8\}$	D_6	D_2	no
D_4	$\{1\}$	D_7	D_5	no
D_5	$\varnothing$	D_5	D_5	no
D_6	$\{0,1,2,3,4,5,6,7,8\}$	D_6	D_2	yes
D_7	$\{0\}$	D_5	D_5	yes

The NFA uses the source's literal, union, concatenation and star fragments, with shared continuation endpoints. A literal adds a labelled edge; a union branches by epsilon and rejoins; concatenation shares its continuation; a star has epsilon exit and epsilon entry into a body that returns to the star state. Induction on these four constructors proves that each fragment accepts exactly its expression's language. For the DFA, D_0 is the epsilon closure of the NFA start, and each table transition is

$$\delta_D(S,c) = \varepsilon\text{-closure}\{t : \exists s \in S,\ s \xrightarrow{c} t\}.$$

Induction on input length proves that the reached subset is exactly the set of reachable NFA states after that input. It accepts precisely when it contains the NFA final state. Thus both requested conversions are fully specified and proved equivalent. The empty subset is included to give a total transition function.

Structural or analytic derivation