

Indirect Method:

In this method,

Step 01: Convert NFA with ϵ moves to NFA without ϵ moves.

Step 02: Than NFA without ϵ moves is converted to the DFA.

RGPV PYQs:

Convert the following NFA with ϵ in to DFA using the indirect method of conversion.



NFA with ϵ

Solution:

Step 01: Convert NFA with ϵ moves to NFA without ϵ moves.

- ϵ -Closure of q_0 : $\{q_0, q_1, q_2\}$
- ϵ -Closure of q_1 : $\{q_1, q_2\}$
- ϵ -Closure of q_2 : $\{q_2\}$



State	a	b	C
ϵq_0	$\{q_0, q_1, q_2\}$	$\{q_1, q_2\}$	$\{q_2\}$
q_1	\emptyset	$\{q_1, q_2\}$	$\{q_2\}$
q_2	\emptyset	\emptyset	$\{q_2\}$

Transition table: NFA without ϵ

Step 02: NFA without ϵ moves is converted to the DFA using the subset construction method.

State	a	b	C
$\{q_0\}$	$\{q_0, q_1, q_2\}$	$\{q_1, q_2\}$	$\{q_2\}$
$\{q_1\}$	DeadState	$\{q_1, q_2\}$	$\{q_2\}$
$\{q_2\}$	DeadState	DeadState	$\{q_2\}$
$\{q_0, q_1, q_2\}$	$\{q_0, q_1, q_2\}$	$\{q_1, q_2\}$	$\{q_2\}$

{q1, q2}	DeadState	{q1, q2}	{q2}
DeadState	DeadState	DeadState	DeadState



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- 46. NFA accepting two consecutive a's or two consecutive b's.
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