PR 2 TBFO

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Ex. 2.3.1

Convert DFA to NFA

	0	1
→ p	{p,q}	{p}
q	{r}	{r}
r	{s}	∅
*s	{s}	{s}

⇒

	0	1
→ p	{p, q}	{p}
{p, q}	{p, q, r}	{p, r}
{p, q, r}	{p, q, r, s}	{p, r}
* {p, q, r, s}	{p, q, r, s}	{p, r, s}
* {p, q, s}	{p, q, r, s}	{p, r, s}
* {p, r, s}	{p, q, s}	{p, s}
* {p, s}	{p, q, s}	{p, s}
{p, r}	{p, q, s}	{p}

Ex. 2.3.2

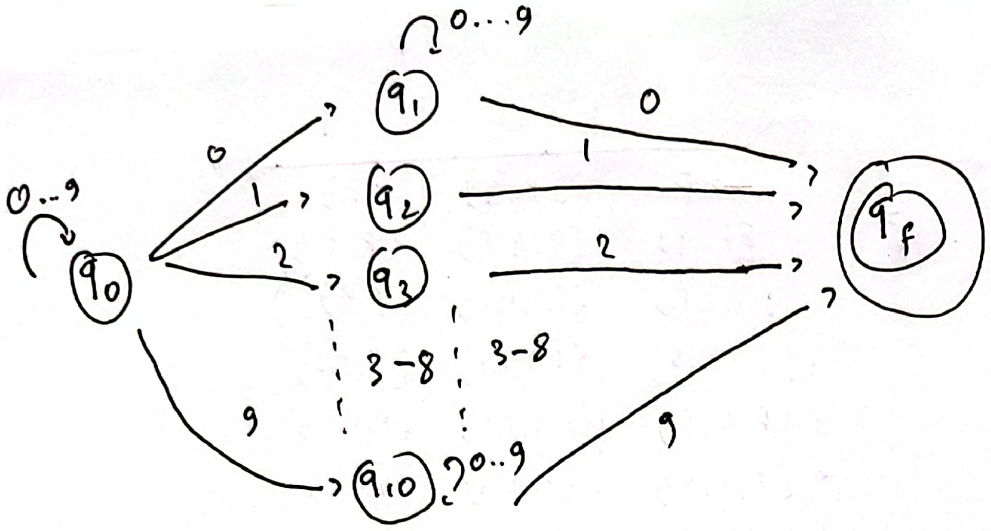
Convert DFA to NFA

	0	1
→ p	{q, s}	{q}
*q	{r}	{q, r}
r	{s}	{p}
*s	∅	{p}

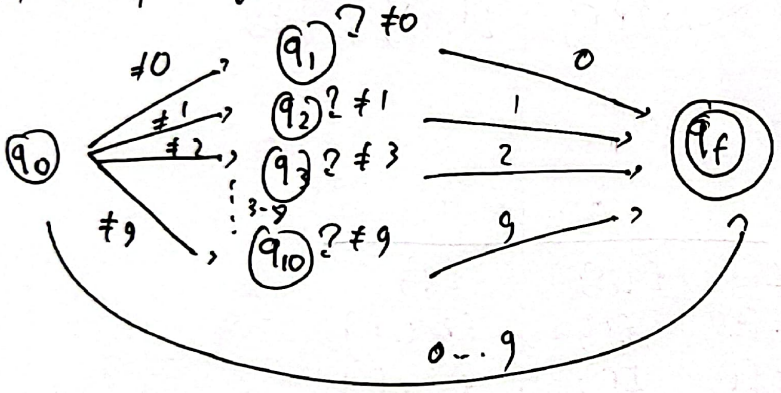
	0	1
→ p	{q, s}	{q}
* {q, s}	{r}	{p, q, r}
* {q}	{r}	{q, r}
* {p, q, r}	{q, r, s}	{p, q, r}
{r}	{s}	{p}
* {q, r}	{r, s}	{p, q, r}
* {q, r, s}	{r, s}	{p, q, r}
* {s}	∅	{p}
* {r, s}	{s}	{p}
∅	∅	∅
s	∅	{p}

Ex. 2.3.4

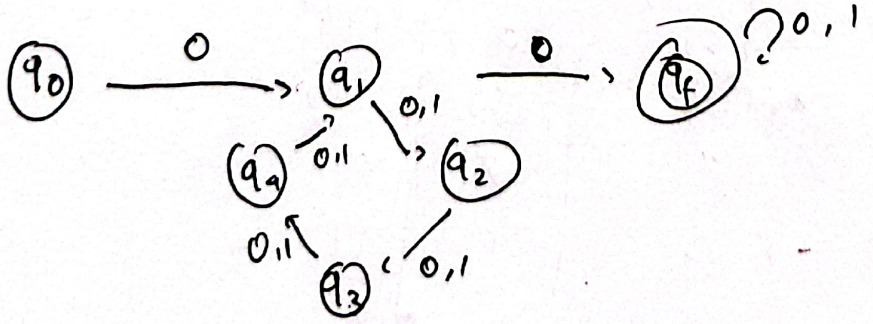
a.) Set of strings over alphabet {0, 1, ..., 9} such that the final digit has appeared.



b.) Set of strings over alphabet {0, 1, ..., 9} that the final digit has not appeared before.



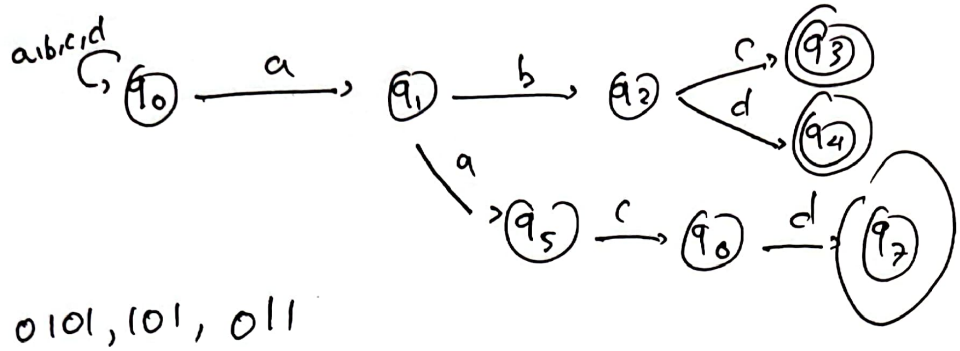
c) Set of strings of 0's and 1's such that there are two 0's separated by a number of positions that is multiple of 4. 0 is allowable multiple of 4.



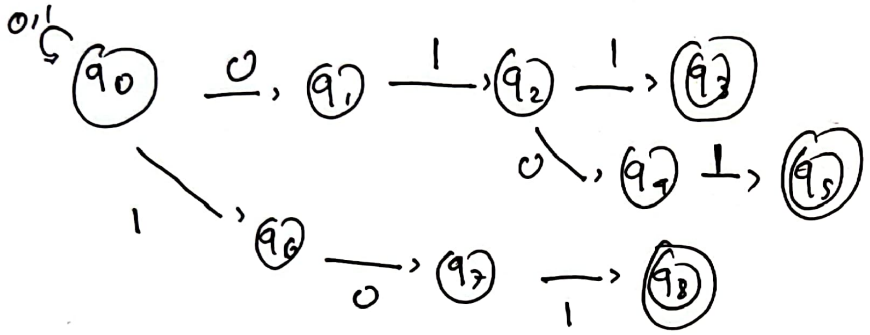
Ex. 2.9.1

NFA for:

a.) abc, abd, and aacd. Assume the alphabet is {a, b, c, d}



b.) 0101, 101, 011



c.) ab, bc, ca