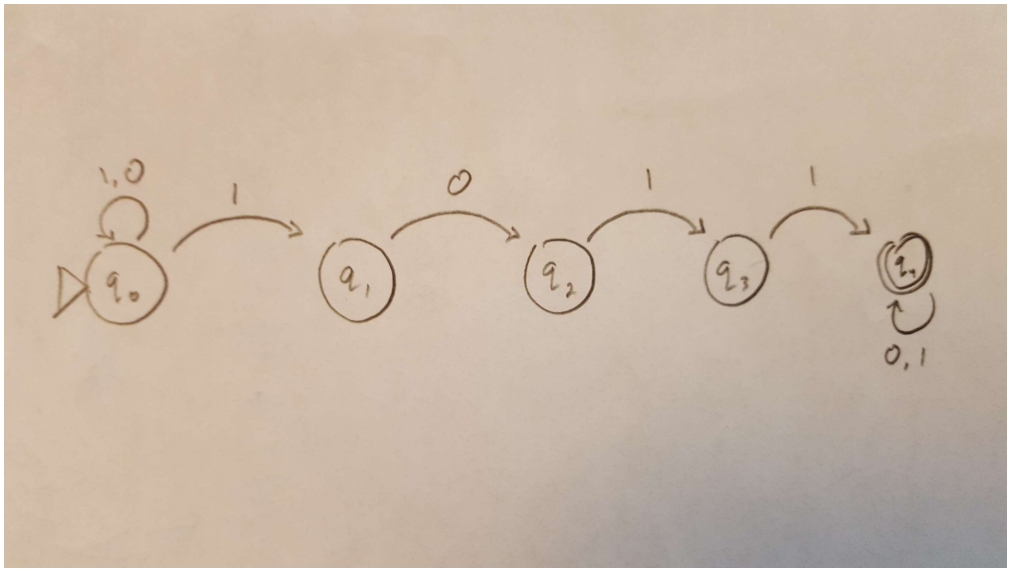
1

In [10]:
```
from IPython.display import Image
Image('nondeterminate.jpg', width=500)
```

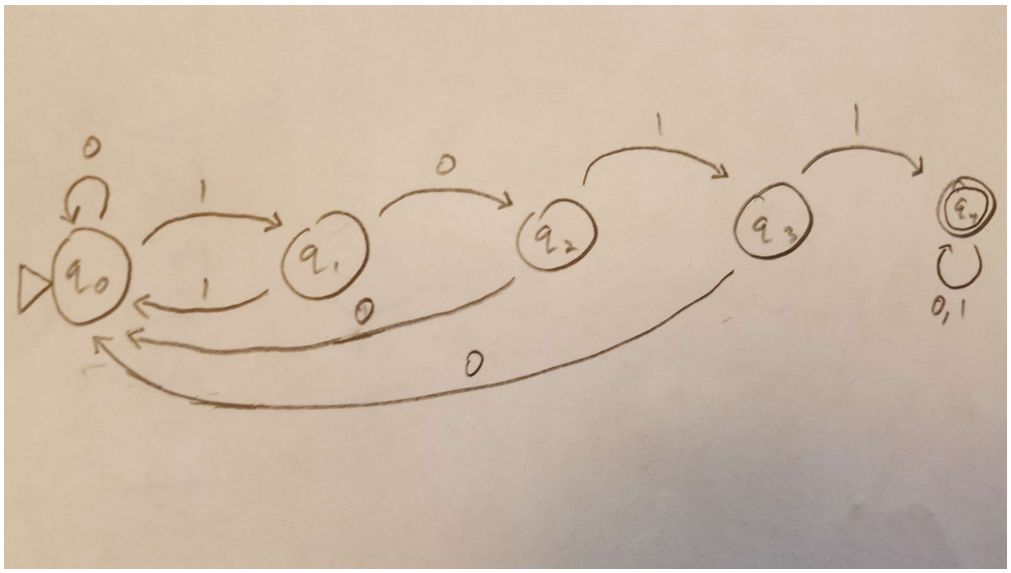
Out[10]:



2

In [11]:
```
from IPython.display import Image
Image('determinate.jpg', width=500)
```

Out[11]:



$q_0, 0 \rightarrow q_0$

$q_0, 1 \rightarrow q_1$

$q_1, 0 \rightarrow q_2$

$q_1, 1 \rightarrow q_0$

$q_2, 0 \rightarrow q_0$

$q_2, 1 \rightarrow q_3$

$q_3, 0 \rightarrow q_0$

$q_3, 1 \rightarrow q_4$

$q_4, 0 \rightarrow q_4$

$q_4, 1 \rightarrow q_4$

3

Since one can theoretically represent any character in an alphabet using a binary alphabet (e.g. one could represent {a, b, c, d} as {00, 01, 10, 11}) there shouldn't really be an advantage to using a larger alphabet in one of these automata.

6

```
In [5]: '/^0*10*$'
```

```
Out[5]: '/^0*10*$'
```

```
In [ ]:
```