

## Lecture 4

### More on Regular Sets

Here is another example of a regular set that is a little harder than the example given last time. Consider the set

$$\{x \in \{0,1\}^* \mid x \text{ represents a multiple of three in binary}\} \quad (4.1)$$

(leading zeros permitted,  $\epsilon$  represents the number 0). For example, the following binary strings represent multiples of three and should be accepted:

<i>Binary</i>	<i>Decimal equivalent</i>
0	0
11	3
110	6
1001	9
1100	12
1111	15
10010	18
$\vdots$	$\vdots$

Strings not representing multiples of three should be rejected. Here is an automaton accepting the set (4.1):

		0	1
$\rightarrow$	0F	0	1
	1	2	0
	2	1	2

