Construct a Turing machine that computes the function:

$$f(w) = \text{(the flip of each bit in } w\text{)}$$

$\cdots$	B	1	0	1	1	1	0	0	B	$\cdots$

```
Flip each bit of the input: $1 \to 0$ and $0 \to 1$
Go to the first input symbol
```

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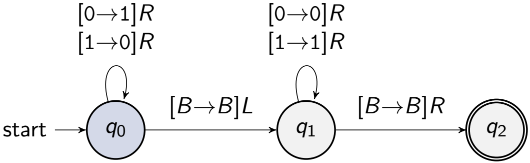
[0→1]R
[1→0]R
[0→0]R
[1→1]R
start
q_0
[B→B]L
q_1
[B→B]R
q_2

Flip each bit of the input: 1 → 0 and 0 → 1.

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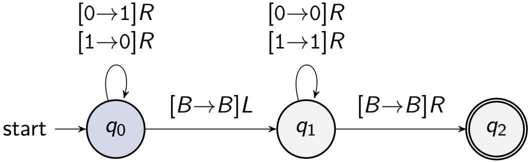
[0→1]R
[1→0]R
[0→0]R
[1→1]R
[B→B]L
[B→B]R
start
q_0
q_1
q_2

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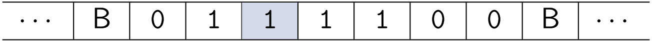
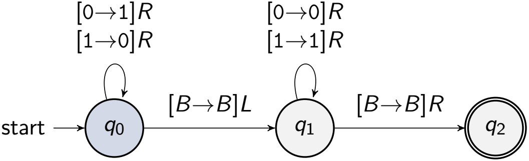


$\cdots$	B	0	1	1	1	1	0	0	B	$\cdots$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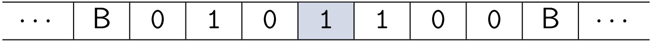

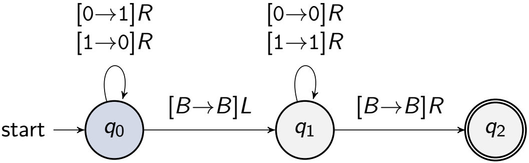

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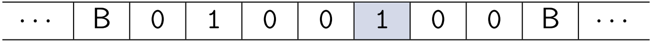

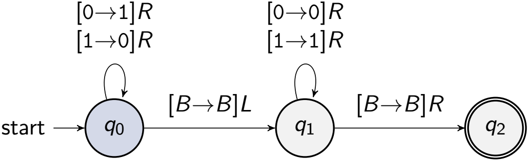
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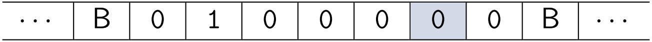

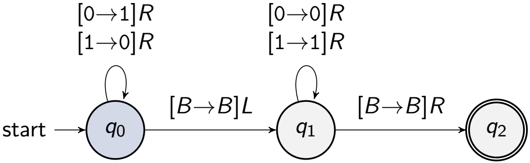

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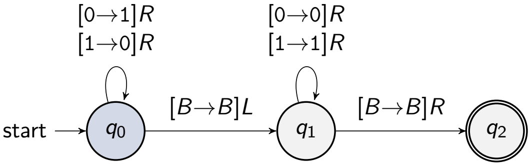
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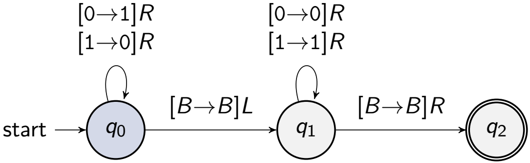

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$[1\to1]R$
$[B\to B]L$
$[B\to B]R$
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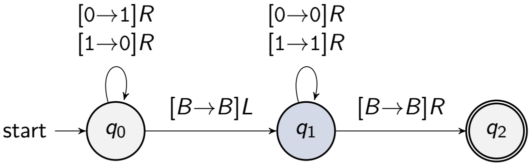
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[1→0]R
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q_0
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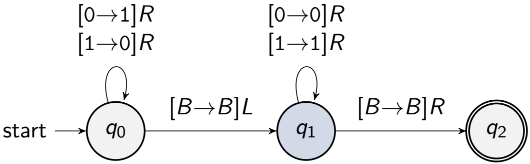

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$[1\to0]R$
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$[1\to1]R$
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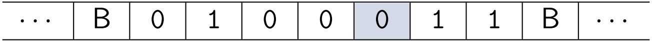

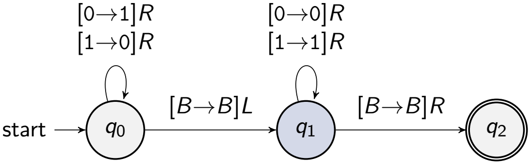
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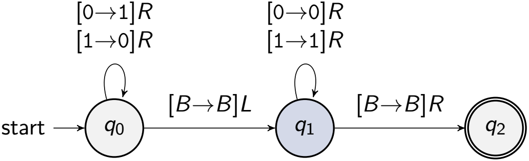
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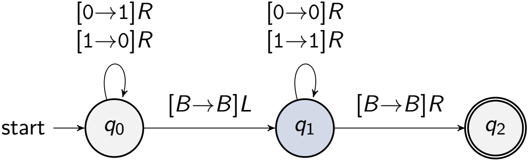

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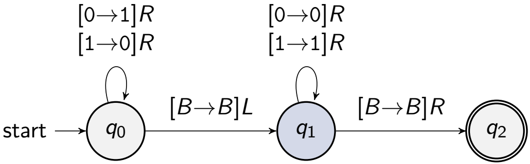

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$[1 \to 0]R$
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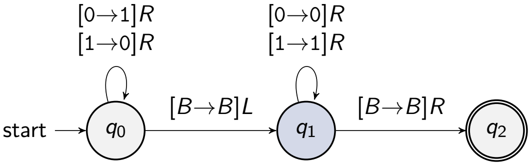
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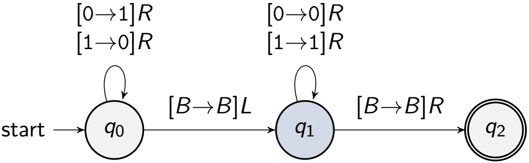
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[1→0]R
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q_0
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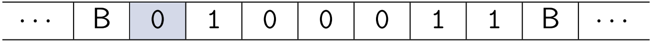
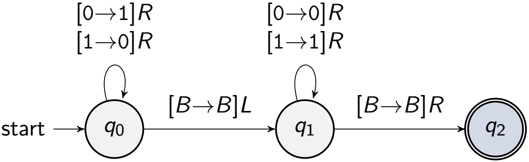


$\cdots$	B	0	1	0	0	0	1	1	B	$\cdots$



[0→1]R
[1→0]R
[0→0]R
[1→1]R
[B→B]L
[B→B]R
start
q0
q1
q2

Computed! $f(1011100) = 0100011$