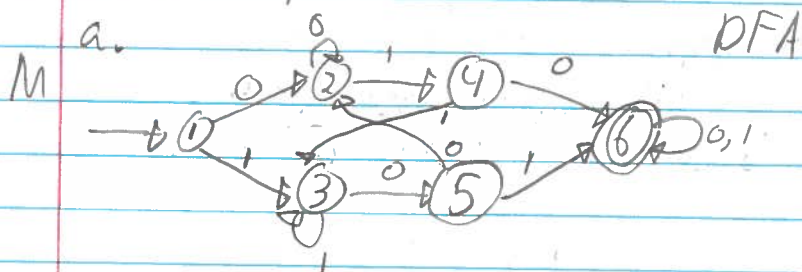


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b. Base case: $w = \epsilon$, w does not contain 010 or 101
so ϵ is not accepted in state 1

Hyp. Assume that for all w of length $< n$, $w \in M$ iff 010, or 101 are substrings of w

Ind step: assume w of length n , w is either $0u$ or $1u$. if u is accepted by M , then the addition of 0 or 1 still has w accepted.

Assuming

In the case where u is not accepted the addition of 1 will only be accepted if the first two digits of u are 01. In the addition of 0 in front of u , w is only accepted if the first two digits of u is 10.