## 3 bit shift register "Remember the last three bits"



## NFA practice

What is the language of this NFA?


# NFA that recognizes "binary strings with a 1 in the third position from the end" 

"Perfect Guesser": The NFA has input $x$, and whenever there is a choice of what to do, it magically guesses a transition that will eventually lead to acceptance (if one exists)

Perfect guesser view makes this easier.
Design an NFA for the language in the title.

## Regularity

So NFAs/DFAs what can and can't they do?
Can NFAs do more than DFAs?
How do they relate to context-free-grammars? Regular expressions?
i.e. is there a language $L$ such that $L$ is the language of an NFA but not a DFA? Or vice versa?
What about CFGs/regexes?


