



## 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?

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