TM: a 7-tuple (Q,Σ,Γ,δ,q0,qaccept,q reject) where Q,Σ,Γ are finite sets
Q:sets of states
Σ: input alphabet (not contain blank symbol␣)
Γ: tape alphabet, where ␣ ϵ Γ and Σ≤ Γ
δ: QxΓ->QxΓx{L,R} transition function
q0ϵQ: start state
qaccept ϵQ: accept state
qrejectϵQ: reject state where qreject ≠qaccept
Enumerator: is a turing machine with an attached printer, which starts with a blank input on its work tape.
Church-Turing Thesis: is the connection between the informal notion of algorithm and the precise definition.
_T_A multi tape TM is not more powerful than a single tap TM
_F_A non-deter TM is more powerful than a Det TM
Increase order: Regular, Context Free, Turing Decidable, Turing Recognizable
1. Scan the input from left to right till the end of the tape whether the combined string w and w^R is odd or even in length. If if is good, reject it, otherwise, move to stage 2.
2. read the first character, replace it with an X to mark the position. Then, move the head to the right till the end of the tape and read the last character of the combined string. If its matches with the first character mark it with an X as we did, the move the head to the left till it meets the marked X, then make the head read the character next the right of X, then move the head to the right until it reached X that we ‘ve read, read the character next to the left of X. If it matches with the last marked character, repeat stage 2 until the combined string becomes all X’s, then move to stage 3; if any of them does not match, reject it.
3. Accept it