$0^i 1^i$ alg $\qquad n = 10$

$\vdash 0\,0\,0\,0\,0\,1\,1\,1\,1\,1\,\sqcup\,\sqcup \ldots$

$\frac{n}{2}$

n

$O(n^2)$

what does this mean

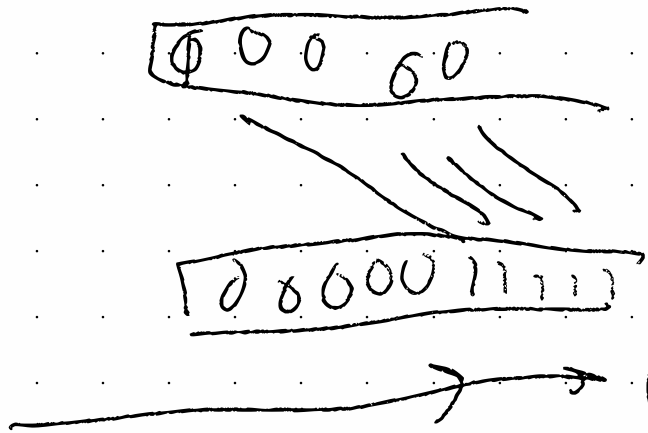
$O(n \log n)$

1 0 0 0 0 0 1 1 1 1 1 1 ...

0 → parity #0's

1 → == parity #1's

$\log n$



|| p/t $O(n)$

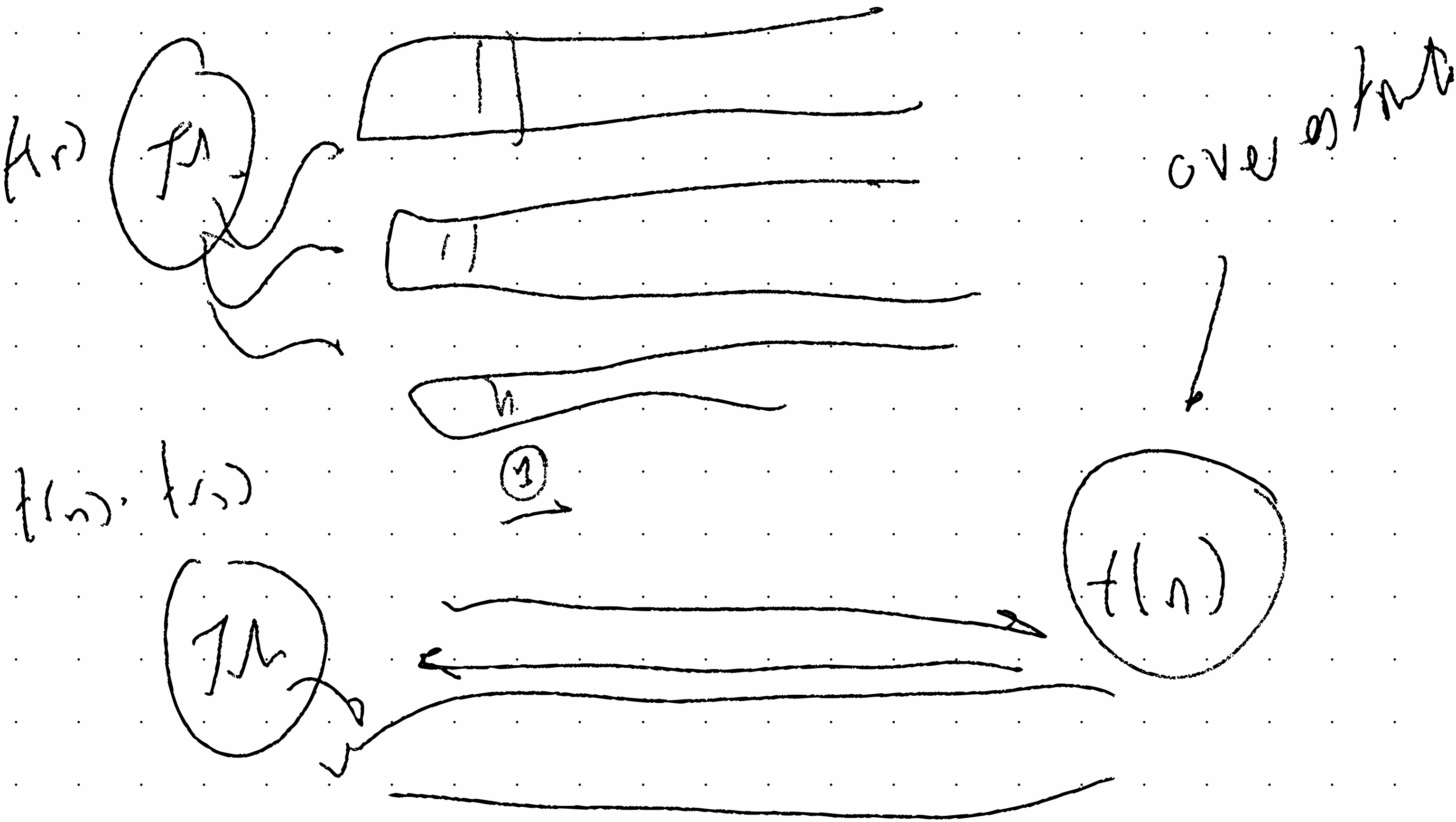
1 tape $O(n^2)$, $O(n \log)$

2 tape $O(n)$

So how fast is recognition of

$0^i 1^i$?

If a k-tape TM computes in time $T(n)$, then a 1 tape machine can compute it in time $(T(n))^2$


f(n)
f(n), f(n)
1
f(n)

all reasonable ~~mdt~~.
models of TMs. diff only
by a polynomial difference

P = all alg polynomial time
decidable

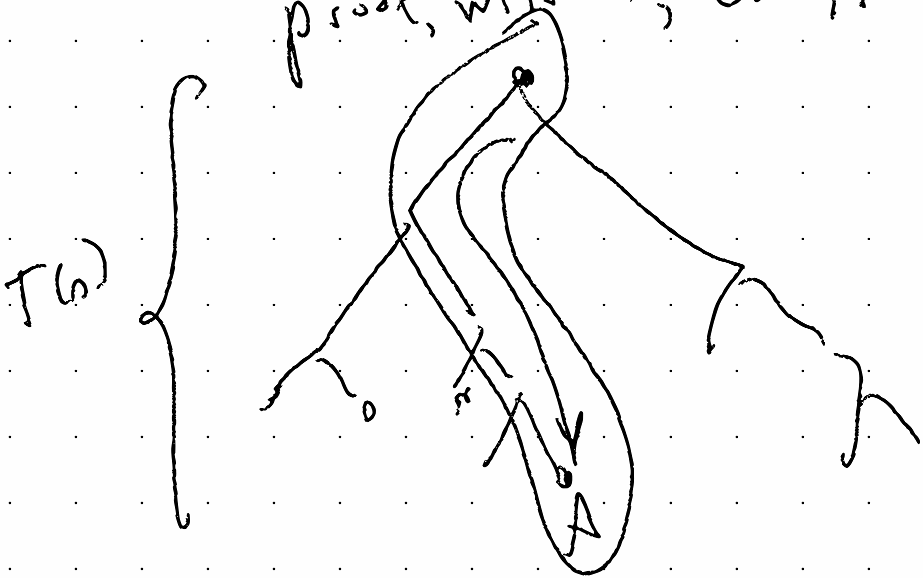
NP-

problem which an answer can be verified by a P time TM.

A NTM can be simulated by a TM in time $O(2^{T(n)})$

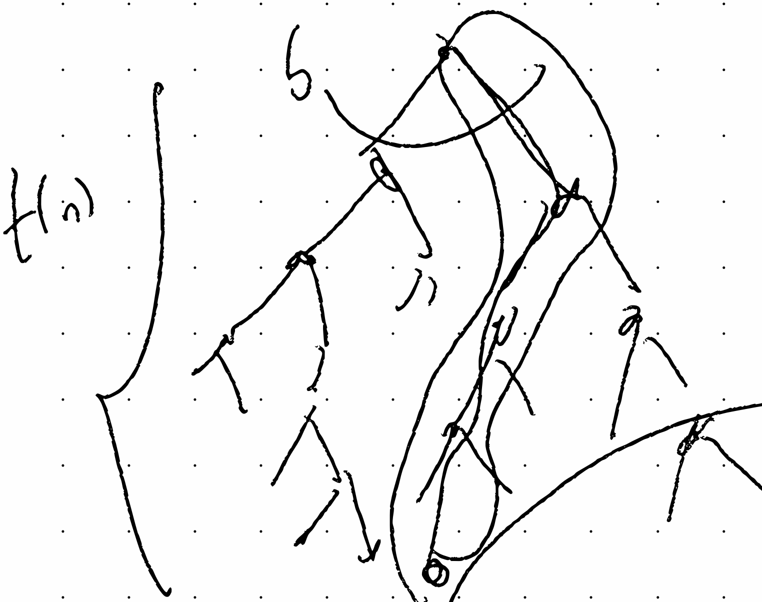
where NTM runs in time $T(n)$

proof, witness, certificate



NTM accepts in T(n)

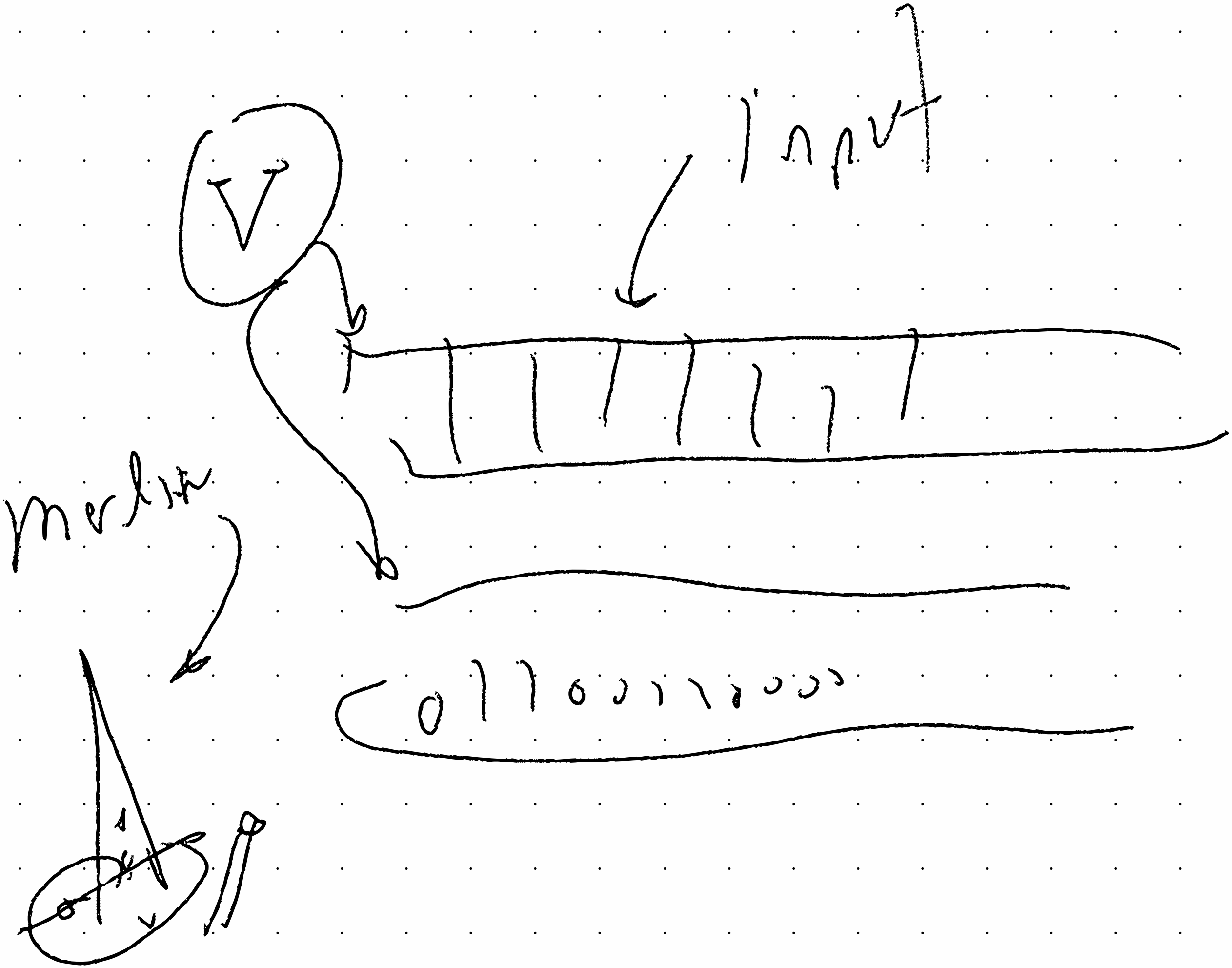
$\forall x \in L$, $NTM(x) = A$ in time $O(T(n))$



breadth first search

$t(n)\, b^{t(n)}$

$O(2^{t(n)})$


V
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