

24/03/2014

P = probability of good choice.

16

January Thursday

(1-p) = complement above.

16-01-2014

Population size 2n

Probability of atleast n+1 people or voters making good decision.

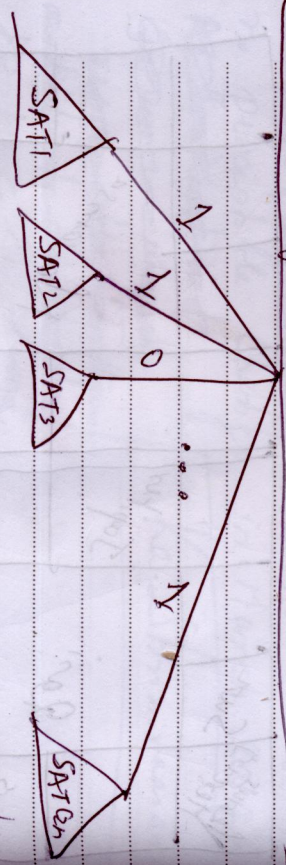
$$P(\text{good} \geq n+1) = P(n+1) + P(n+2) + \dots + P(2n) \\ = \binom{2n}{n+1} p^{n+1} (1-p)^{n-1} + \binom{2n}{n+2} p^{n+2} (1-p)^{n-2} + \dots$$

$$+ \dots + \binom{2n}{2n} p^{2n}$$

When p = 1 above is  $\sum \binom{2n}{k} p^k = \sum \binom{2n}{k} 1^k = 1$

NP complete Democracy Circuit

Corresponding MAJORITY with SAT circuit is



each voter has a SAT circuit

which needs to be assigned by a candidate. Candidate is chosen if atleast

(n+1) SATs are satisfied

If all voters are zero-error

above is an error-free democracy

circuit which is NP-complete.

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Previous is for RHS of P(good) when all voters are perfect.

17-01-2014

Voters are perfect.

January Friday

17

LHS of P(good) is pseudorandom choice

which is in P and probability of good choice is no of good voters since chosen one is

"one of the voters". If all voters are error-free

pseudorandom choice is in P.

Example: 3 voters

$$n+1 = 2$$

0 0 0

0 0 1

0 1 0

0 1 1

1 0 0

1 0 1

1 1 0

1 1 1

8 possible good or bad voting patterns

for 3 voters

$$= P(2) + P(3)$$

$$= \frac{3}{8} + \frac{1}{8} = \frac{4}{8} = \frac{1}{2}$$



$$= \frac{3!}{2!1!} + \frac{3!}{3!} = 3 + 1 = 4$$

$$\frac{4}{2^3} = \frac{1}{2}$$

If good and bad decisions are (unequally) distributed some bit patterns in above should never occur.

non-uniformly

Electron Campaign is the process of satisfying the voter circuits.

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Even MAX-SAT is

18 January  
Saturday

NP-Complete.

18-01-2014

26/3/2014

Subtle variation in the democracy

SAT + Majority circuit is that a

candidate can vote for himself (a real world

election process). Thus with perfect zero

error voting and pseudorandom choice

there exists a P algorithm for NP. Is this

Philosophical

the Shorin reason

implication of

26/3/2014

With more perfection, "hard

problems become "easy". Thus

becoming "zero-one" itself is by learning

from mistakes and applying that.

Experience. Quick reminder of

Experience = Natural ability \* e (experience)

Either problem definition is wrong or something

missing in above. This would imply that

invertible functions are the only possibility

with zero-one and one-way functions

cannot exist if everything is perfect in

judgements.

December 2013						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

20-01-2014

January 20  
Monday

February 2014						
S	M	T	W	T	F	S
	2	3	4	5	6	7
	8	9	10	11	12	13
	14	15	16	17	18	19
	20	21	22	23	24	25
	26	27	28			