

3SAT Survey

Edward Lee

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1 Schöning's Algorithm

The paper [1] presents a simple randomized algorithm for solving k -SAT

- Guess an initial assignment $a \in \{0, 1\}^n$ uniformly at random
- Repeat $3n$ times:
 - If the formula is satisfied by a - stop and accept a .
 - Let C be some clause not being satisfied by a : Pick one of the $\leq k$ literals in the clause at random and flip its value in the current assignment.

2 PPSZ Algorithm

References

- [1] Uwe Schöning. A probabilistic algorithm for k -sat and constraint satisfaction problems. In *Proceedings of the 40th Annual Symposium on Foundations of Computer Science, FOCS '99*, pages 410–, Washington, DC, USA, 1999. IEEE Computer Society.