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vC Mv C [illegible] $-$ [illegible] $+$ [illegible] $\leq$ [illegible]

[illegible] $+$ [illegible] $-$ [illegible] $\leq$ [illegible]

$-$ [illegible] $\leq -$ [illegible]

[illegible] $\leq$ [illegible]

[illegible] $\geq$ [illegible]

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[illegible] [illegible] $+$ [illegible] $-$ [illegible] $\leq$ [illegible]

[illegible] $-$ [illegible] $\leq -$[illegible]

[illegible] [illegible] $\leq$ [illegible]

[illegible] $\geq$ [illegible]

rvr ro [illegible] $+$ [illegible] $-$ [illegible] $+$ [illegible]

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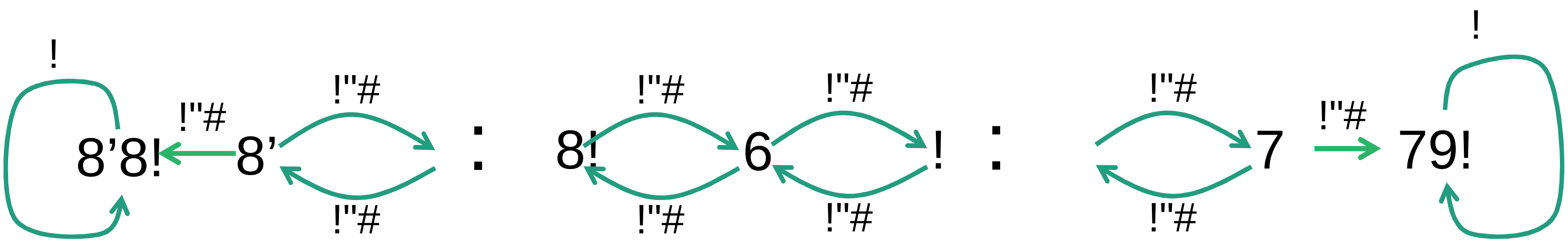

!" #$

4 #8; & (

```
Given a 2-CNF  c
Choose a random assignment  f  to its variables
repeat  *many times*
    if  f  is satisfying  output  f
    else
       pick an unsatisfied clause at random
       flip one of the variables in this clause
output  `unsatisfiable'
```

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0 = 0 +

$$P \; Z \begin{pmatrix} P_{1,1} & P_{1,2} & & P_{1,j} \\ P_{2,1} & P_{2,2} & & P_{2,j} \\ & & & \\ P_{i,1} & P_{i,2} & & P_{i,j} \\ & & & \end{pmatrix}$$

$$P_{i,j} \; Z \, \Pr(X_t \; Z \, a_j \mid X_{t\,J1} \; Z \, a_i)$$

,

$$\begin{pmatrix} 1/2 & 1/4 & 1/4 \\ 1/2 & 0 & 1/2 \\ 1/4 & 1/4 & 1/2 \end{pmatrix}$$

& =

$$\sum_j P_{i,j} \; Z 1$$

% & '

Formula of total probability: If $A_1, \cdots, A_k$ are disjoint event such that $A_1 + \cdots + A_k =$ Sample Space, then for any even B

$$\Pr(B) = \Pr(A_1)\Pr(B \mid A_1) + \cdots + \Pr(A_k)\Pr(B \mid A_k)$$

Let $\{a_1, \cdots, a_n\}$ be the states of M.C.

By $p_i(t)$ we denote the probability $\Pr(X_t = a_i)$,

$p(t) = (p_1(t), \cdots, p_n(t))$

Then by the formula of total probability

$$\Pr(X_t = a_j) = \sum_{i=1}^{n} \Pr(X_{t-1} = a_i)\Pr(X_t = a_j \mid X_{t-1} = a_i)$$

$$p_j(t) = \sum_{i=1}^{n} p_i(t-1) P_{i,j}$$

$$p(t) = p(t-1) \, P$$