Transform Order by Reversals : ILP vs SAT-solver

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Professor Dan Gusfield Group

Lei Zuo

For Integer Linear Programming, we have the following conditions:

1.

For each k from 1 to $n-1$:

$$NOP(k) + \sum_{(p,q):p<q} R(p,q,k) = 1$$

For an equivalent cnf, we see that there is one and only one 1 among all these values.

$$(NOP(k) \wedge \neg R_1 \wedge \neg R_2 \wedge .....) \vee (\neg NOP(k) \wedge R_1 \wedge \neg R_2 \wedge .....) \vee .....$$

2

For i from 1 to n:

$$\sum_{q=1}^{n} X(1,i,i,q) = 1$$

For an equivalent cnf, we see that there is one and only one 1 among all these values.

3

For i from 1 to n:

$$\sum_{p=1}^{n} X(n-1,i,p,Q_2(i)) = 1$$

For an equivalent cnf, we see that there is one and only one 1 among all these values.