

# P=NP via a Novel Reduction to 2-SAT

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Kaoru Aguilera Katayama

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**Abstract**

P=NP

## 1 Proof

The reduction from 3-SAT to 2-SAT is performed as follows: A clause  $(a \vee b \vee c)$  in 3-SAT is translated into 2-SAT as  $(a \vee b) \vee (b \vee c)$ . This serves as the fundamental structure of the conversion.

Another example of this transformation is:  $(a \wedge b \wedge c) \vee (a \vee b \vee c)$  is translated as  $(a \wedge b) \wedge (b \wedge c) \vee (a \vee b) \vee (b \vee c)$ .

Consequently, we demonstrate that 3-SAT can be solved by converting it to 2-SAT. Given that 3-SAT is NP-complete, and 2-SAT can be solved in linear time  $O(n + m)$ , it follows that:

$$\boxed{P = NP}$$