

A toy backtracking algorithm for SAT: an example

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$$\overline{1} \vee 2, \overline{3} \vee 4, \overline{4} \vee \overline{2} \vee \overline{1} \vee \overline{7}, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2}$$

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1

$\bar{1} \vee 2, \bar{3} \vee 4, \bar{4} \vee \bar{2} \vee \bar{1} \vee \bar{7}, \bar{5} \vee \bar{6}, 6 \vee \bar{5} \vee \bar{2} \Rightarrow$

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1	$\bar{1} \vee 2, \bar{3} \vee 4, \bar{4} \vee \bar{2} \vee \bar{1} \vee \bar{7}, \bar{5} \vee \bar{6}, 6 \vee \bar{5} \vee \bar{2}$	\Rightarrow	(UnitPropagate)
1 2	$\bar{1} \vee 2, \bar{3} \vee 4, \bar{4} \vee \bar{2} \vee \bar{1} \vee \bar{7}, \bar{5} \vee \bar{6}, 6 \vee \bar{5} \vee \bar{2}$	\Rightarrow	

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1 2 3	$\bar{1} \vee 2, \bar{3} \vee 4, \bar{4} \vee \bar{2} \vee \bar{1} \vee \bar{7}, \bar{5} \vee \bar{6}, 6 \vee \bar{5} \vee \bar{2}$	\Rightarrow	

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1 2 3 4 $\bar{7}$ 5	$\bar{1} \vee 2, \bar{3} \vee 4, \bar{4} \vee \bar{2} \vee \bar{1} \vee \bar{7}, \bar{5} \vee \bar{6}, 6 \vee \bar{5} \vee \bar{2}$	\Rightarrow	

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1 2 3 4 $\bar{7}$ 5 $\bar{6}$	$\bar{1} \vee 2, \bar{3} \vee 4, \bar{4} \vee \bar{2} \vee \bar{1} \vee \bar{7}, \bar{5} \vee \bar{6}, 6 \vee \bar{5} \vee \bar{2}$		CONFLICT!

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1 2 3 4 $\bar{7}$ 5 6	$\bar{1} \vee 2, \bar{3} \vee 4, \bar{4} \vee \bar{2} \vee \bar{1} \vee \bar{7}, \bar{5} \vee \bar{6}, 6 \vee \bar{5} \vee \bar{2}$		solution found!