Abstract DPLL - Example 1

$$\emptyset \parallel \quad \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} \quad \Longrightarrow$$

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Abstract DPLL - Example 1

$$\emptyset \parallel \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} \implies \text{(Decide)}$$

$$1^{d} \parallel \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} \implies$$

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Abstract DPLL - Example 1

$$\emptyset \parallel \bar{1} \vee 2,\ \bar{3} \vee 4,\ \bar{5} \vee \bar{6},\ 6 \vee \bar{5} \vee \bar{2} \Longrightarrow \text{(Decide)}$$

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Abstract DPLL - Example 1

$$
\begin{array}{rcll}
\emptyset & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{Decide}) \\
1^{d} & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{UnitProp}) \\
1^{d}\, 2 & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{Decide}) \\
1^{d}\, 2\, 3^{d} & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{UnitProp}) \\
1^{d}\, 2\, 3^{d}\, 4 & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{Decide}) \\
1^{d}\, 2\, 3^{d}\, 4\, 5^{d} & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{UnitProp}) \\
1^{d}\, 2\, 3^{d}\, 4\, 5^{d}\, \overline{6} & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{Backtrack}) \\
1^{d}\, 2\, 3^{d}\, 4\, \overline{5} & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} & \Longrightarrow \quad (\text{Decide}) \\
1^{d}\, 2\, 3^{d}\, 4\, \overline{5}\, 6^{d} & \| & \overline{1} \vee 2,\ \overline{3} \vee 4,\ \overline{5} \vee \overline{6},\ 6 \vee \overline{5} \vee \overline{2} &
\end{array}
$$

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Abstract DPLL - Example 2

$$\emptyset \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow$$

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Abstract DPLL - Example 2

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Abstract DPLL - Example 2

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Abstract DPLL - Example 2

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Abstract DPLL - Example 2

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Abstract DPLL - Example 2

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Abstract DPLL - Example 2

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$$1\ \overline{2} \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow$$

Abstract DPLL - Example 2

$$\emptyset \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow \quad (\text{UnitProp})$$

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$$1\ \overline{2} \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow \quad (\text{UnitProp})$$

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Abstract DPLL - Example 2

$$\emptyset \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow \quad (\text{UnitProp})$$

$$1 \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow \quad (\text{Decide})$$

$$1\ 2^{d} \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow \quad (\text{UnitProp})$$

$$1\ 2^{d}\ 3 \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow \quad (\text{Backtrack})$$

$$1\ \overline{2} \parallel \overline{1} \vee 2 \vee 3,\ 1,\ \overline{2} \vee 3,\ \overline{2} \vee \overline{3},\ 2 \vee 3,\ 2 \vee \overline{3} \quad \Longrightarrow \quad (\text{UnitProp})$$

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$$\mathit{fail}$$