2.6.1 Theorem (Soundness & Completeness)

The resolution calculus is sound and complete:

N is unsatisfiable iff $N \Rightarrow^{*}_{\text{RES}} N'$ and $\perp \in N'$ for some N'

Resolution Reduction Rules

Subsumption $(N \uplus \{C_1, C_2\}) \Rightarrow_{RES} (N \cup \{C_1\})$
provided $C_1 \subset C_2$

Tautology Deletion $(N \uplus \{C \vee P \vee \neg P\}) \Rightarrow_{RES} (N)$

Condensation $(N \uplus \{C_1 \vee L \vee L\}) \Rightarrow_{RES} (N \cup \{C_1 \vee L\})$

Subsumption Resolution $(N \uplus \{C_1 \vee L, C_2 \vee comp(L)\})$
$\Rightarrow_{RES} (N \cup \{C_1 \vee L, C_2\})$
where $C_1 \subseteq C_2$

2.6.5 Theorem (Resolution Termination)

If reduction rules are preferred over inference rules and no inference rule is applied twice to the same clause(s), then $\Rightarrow^+_{RES}$ is well-founded.