CTE-NOOP

x = branch constraints

x = node constraints

$$\exists_{\substack{\mathbf{A}_2 \\ \mathbf{A} \in \mathbf{O}}} . \exists_{\substack{open_{\mathbf{f},2} \\ \mathbf{f} \in \mathbf{F}}} . \forall b_2 . \exists_{\substack{\mathbf{A}_1 \\ \mathbf{A} \in \mathbf{O}}} . \exists_{\substack{open_{\mathbf{f},1} \\ \mathbf{f} \in \mathbf{F}}} . \forall b_1 . \exists_{\substack{\mathbf{A}_0 \\ \mathbf{A} \in \mathbf{O}}} . \exists_{\substack{open_{\mathbf{f},0} \\ \mathbf{f} \in \mathbf{F}}} .$$

$$\bigwedge_{\substack{\mathbf{i} \in [0..\mathbf{depth}]}} \bigwedge_{\mathbf{A} \in \mathbf{O}} \left(\mathbf{A_i} \Rightarrow \bigwedge_{\mathbf{f} \in \mathbf{Cond_A}} open_{\mathbf{f},\mathbf{i}} \right) \qquad \color{blue}{1}$$

$$\wedge \left(\bigwedge_{\substack{\mathbf{i} \in [1..\mathbf{depth}]}} b_{\mathbf{i}} \Rightarrow \bigwedge_{\mathbf{f} \in \mathbf{G}} \left(open_{\mathbf{f},0} \vee \bigvee_{\substack{\mathbf{A} \in \mathbf{O} \\ \mathbf{f} \in \mathbf{Add_A}}} \mathbf{A}_0 \right) \right) \qquad \color{red}{2}$$

$$\wedge \left(\bigwedge_{\substack{\mathbf{i} \in [1..\mathbf{depth}]}} \neg b_{\mathbf{i}} \Rightarrow \bigwedge_{\mathbf{f} \in \mathbf{F} \setminus \mathbf{I}} \neg open_{\mathbf{f},0} \right) \qquad \color{red}{3}$$

$$\wedge \bigwedge_{\substack{\mathbf{i} \in [1..\mathbf{depth}]}} \bigwedge_{\mathbf{f} \in \mathbf{F}} \left(\left(open_{\mathbf{f},\mathbf{i}} \wedge \neg b_{\mathbf{i}} \wedge \bigwedge_{\mathbf{j} \in [1..\mathbf{i}-1]} b_{\mathbf{j}} \right) \Rightarrow \left(open_{\mathbf{f},0} \vee \bigvee_{\substack{\mathbf{A} \in \mathbf{O} \\ \mathbf{f} \in \mathbf{Add_A}}} \mathbf{A}_0 \right) \right) \qquad \color{red}{4}$$

$$\wedge \bigwedge_{\substack{\mathbf{i} \in [1..\mathbf{depth}]}} \bigwedge_{\mathbf{f} \in \mathbf{F}} \left(\left(open_{\mathbf{f},0} \wedge b_{\mathbf{i}} \wedge \bigwedge_{\mathbf{j} \in [1..\mathbf{i}-1]} \neg b_{\mathbf{j}} \right) \Rightarrow \left(open_{\mathbf{f},\mathbf{i}} \vee \bigvee_{\substack{\mathbf{A} \in \mathbf{O} \\ \mathbf{f} \in \mathbf{Add_A}}} \mathbf{A}_{\mathbf{i}} \right) \right) \qquad \color{red}{5}$$

$$\wedge \bigwedge_{\substack{\mathbf{i} \in [1..\mathbf{depth}]}} \bigwedge_{\mathbf{f} \in \mathbf{F}} \left(\left(open_{\mathbf{f},\mathbf{i}} \wedge \neg b_{\mathbf{i}} \wedge \bigwedge_{\mathbf{j} \in [1..\mathbf{i}-1]} b_{\mathbf{j}} \right) \Rightarrow \bigwedge_{\substack{\mathbf{A} \in \mathbf{O} \\ \mathbf{f} \in \mathbf{Del_A}}} \neg \mathbf{A}_0 \right) \qquad \color{red}{6}$$

$$\wedge \bigwedge_{\substack{\mathbf{i} \in [1..\mathbf{depth}]}} \bigwedge_{\mathbf{f} \in \mathbf{F}} \left(\left(open_{\mathbf{f},0} \wedge b_{\mathbf{i}} \wedge \bigwedge_{\mathbf{j} \in [1..\mathbf{i}-1]} \neg b_{\mathbf{j}} \right) \Rightarrow \bigwedge_{\substack{\mathbf{A} \in \mathbf{O} \\ \mathbf{f} \in \mathbf{Del_A}}} \neg \mathbf{A}_{\mathbf{i}} \right) \qquad \color{red}{7}$$

$$\wedge \bigwedge_{\substack{\mathbf{i} \in [0..\mathbf{depth}]}} \bigwedge_{\mathbf{A} \in \mathbf{O}} \bigwedge_{\mathbf{f} \in (\mathbf{Add_A} \cup \mathbf{Cond_A})} \bigwedge_{\substack{\mathbf{B} \in \mathbf{O} \\ \mathbf{A} \neq \mathbf{B} \wedge \mathbf{f} \in \mathbf{Del_B}}} (\neg \mathbf{A_i} \vee \neg \mathbf{B_i}) \qquad \color{blue}{8}$$