Inference Rules of G4ip (LJT)

$$\frac{}{A, \Gamma \vdash A}\ \mathit{Axiom} \qquad\qquad \frac{}{\mathit{false}, \Gamma \vdash G}\ \mathit{false}\text{-L}$$

(A being atomic)

$$\frac{B, C, \Gamma \vdash G}{B \& C, \Gamma \vdash G}\ \&\text{-L} \qquad\qquad \frac{\Gamma \vdash B \quad \Gamma \vdash C}{\Gamma \vdash B \& C}\ \&\text{-R}$$

$$\frac{B, \Gamma \vdash G \quad C, \Gamma \vdash G}{B \vee C, \Gamma \vdash G}\ \vee\text{-L} \qquad \frac{\Gamma \vdash B}{\Gamma \vdash B \vee C}\ \vee\text{-R}_1 \qquad \frac{\Gamma \vdash C}{\Gamma \vdash B \vee C}\ \vee\text{-R}_2$$

$$\frac{B, A, \Gamma \vdash G}{A \texttt{->} B, A, \Gamma \vdash G}\ \texttt{->}\text{-L}_1 \qquad\qquad \frac{B, \Gamma \vdash C}{\Gamma \vdash B \texttt{->} C}\ \texttt{->}\text{-R}$$

(A being atomic)

$$\frac{C \texttt{->} (D \texttt{->} B) \Gamma \vdash G}{(C \& D) \texttt{->} B, \Gamma \vdash G}\ \texttt{->}\text{-L}_2$$

$$\frac{C \texttt{->} B, D \texttt{->} B, \Gamma \vdash G}{(C \vee D) \texttt{->} B \Gamma \vdash G}\ \texttt{->}\text{-L}_3$$

$$\frac{D \texttt{->} B, \Gamma \vdash C \texttt{->} D \quad B, \Gamma \vdash G}{(C \texttt{->} D) \texttt{->} B \Gamma \vdash G}\ \texttt{->}\text{-L}_4$$

$B \texttt{<->} C$ is defined as $B \texttt{->} C \& C \texttt{->} B$

Figure 1: Inference rules for G4ip; see for example [Dyckhoff, 1992].

[Dyckhoff, 1992] Dyckhoff, R. Contraction-Free Sequent Calculi for Intuitionistic Logic. *Journal of Symbolic Logic*, 57(3):795–807.