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.