System PJ (approximately)

CS 6118 - Types and Semantics

Initial Rule

\[
\text{Axiom} \quad A \vdash A
\]

Structural Rules

Exchange

\[
\frac{\Gamma, A, B, \Gamma' \vdash C}{\Gamma, B, A, \Gamma' \vdash C}
\]

Contraction

\[
\frac{A, A, \Gamma \vdash B}{A, \Gamma \vdash B}
\]

Weakening

\[
\frac{A, \Gamma \vdash B}{\Gamma \vdash B}
\]

Cut Rule

\[
\frac{\Gamma \vdash A \quad A, \Gamma' \vdash B}{\Gamma, \Gamma' \vdash B}
\]

Proposition Rules

\[
\frac{}{\bot \vdash \bot}
\]

\[
\frac{A, B, \Gamma \vdash C}{A \land B, \Gamma \vdash C}
\]

\[
\frac{\Gamma \vdash A \quad \Gamma \vdash B}{\Gamma \vdash A \land B}
\]

\[
\frac{A, \Gamma \vdash C \quad B, \Gamma \vdash C}{A \lor B, \Gamma \vdash C}
\]

\[
\frac{}{A \vdash A \lor B}
\]

\[
\frac{\Gamma \vdash A \quad \Gamma \vdash A \lor B}{A \vdash A \lor B}
\]

\[
\frac{A \vdash B \quad B \vdash C}{A \lor B \vdash C}
\]

\[
\frac{}{A \vdash A \lor B}
\]

\[
\frac{A, \Gamma \vdash B \quad \Gamma \vdash A \lor B}{A \lor B, \Gamma \vdash C}
\]

\[
\frac{}{\Gamma \vdash A \lor B}
\]