Symbolic Logic — Rules of Transformation in Lemmon's Proof System — Jonah N. Schupbach

Rule of Assumptions (A) [p. 9]	**Any wff ϕ may be introduced at any stage of a proof given itself as an assumption of the proof.** ** *Assumption* = wff included in a proof but not derived *In the Proof System*: we write the wff down on a new line, write A to the right of it, and put its own line number to the left of it (where we keep track of assumptions)
Modus (Ponendo) Ponens (MPP) [p. 9]	**Given ϕ and $(\phi \to \gamma)$, we may derive γ. Conclusion γ depends on any assumptions on which ϕ or $(\phi \to \gamma)$ depends.** *In the Proof System*: we write the wff γ down on a new line, write "MPP" to the right of it along with the line numbers corresponding to wffs ϕ and $(\phi \to \gamma)$. To the left, we write down all of the assumptions that ϕ or $(\phi \to \gamma)$ depends on.
Modus (Tollendo) Tollens (MTT) [p. 12]	**Given $-\gamma$ and $(\phi \to \gamma)$, we may derive $-\phi$. Conclusion $-\phi$ depends on any assumptions on which $-\gamma$ or $(\phi \to \gamma)$ depends.**
Double Negation (DN) [p. 13]	**Given wff ϕ, we may derive $--\phi$. Given wff $--\phi$, we may derive ϕ. In either case, the conclusion depends on the same assumptions as the premise.**
Conditional Proof (CP) [p. 14]	**Given a proof of γ resting upon ϕ as an assumption, we may derive $(\phi \to \gamma)$ on the remaining assumptions (if any).**
&-*Introduction* (&I) [p. 19]	**Given ϕ and γ, we may derive $(\phi \& \gamma)$. Conclusion $(\phi \& \gamma)$ depends on any assumptions on which ϕ or γ depends.**
&-*Elimination* (&E) [p. 20]	**Given $(\phi \& \gamma)$, we may derive either ϕ or γ separately. In either case, the conclusion depends on the same assumptions as the premise.**
$\vee$-*Introduction* ($\vee$I) [p. 22]	**Given either ϕ or γ separately, we may derive $(\phi \vee \gamma)$. In either case, the conclusion depends on the same assumptions as the premise.**
$\vee$-*Elimination* ($\vee$E) [p. 22]	**Given $(\phi \vee \gamma)$, together with a proof of λ resting upon ϕ as an assumption and a proof of λ resting upon γ as an assumption, we may derive λ. Conclusion λ depends on any assumptions on which $(\phi \vee \gamma)$ depends plus those on which λ depends in its derivation from ϕ (apart from ϕ), plus those on which λ depends in its derivation from γ, (apart from γ).**
Reductio ad Absurdum (RAA) [p. 26]	**Given a proof of $(\gamma \& -\gamma)$ resting upon ϕ as an assumption, we may derive $-\phi$ as a conclusion resting on the remaining assumptions (if any).**