

## Introduction Rules

## Elimination Rules

$$\frac{\Gamma \vdash A \quad \Gamma \vdash B}{\Gamma \vdash A \wedge B} \wedge I$$

$$\frac{\Gamma \vdash A \wedge B}{\Gamma \vdash A} \wedge E_L \quad \frac{\Gamma \vdash A \wedge B}{\Gamma \vdash B} \wedge E_R$$

$$\frac{\Gamma \vdash A}{\Gamma \vdash A \vee B} \vee I_L \quad \frac{\Gamma \vdash B}{\Gamma \vdash A \vee B} \vee I_R$$

$$\frac{\Gamma \vdash A \vee B \quad \Gamma, u:A \vdash C \quad \Gamma, w:B \vdash C}{\Gamma \vdash C} \vee E^{u,w}$$

$$\frac{\Gamma, u:A \vdash B}{\Gamma \vdash A \supset B} \supset I^u$$

$$\frac{\Gamma \vdash A \supset B \quad \Gamma \vdash A}{\Gamma \vdash B} \supset E$$

$$\frac{\Gamma, u:A \vdash p}{\Gamma \vdash \neg A} \neg I^{p,u}$$

$$\frac{\Gamma \vdash \neg A \quad \Gamma \vdash A}{\Gamma \vdash C} \neg E$$

$$\frac{}{\Gamma \vdash \top} \top I$$

*no  $\top$  elimination*

*no  $\perp$  introduction*

$$\frac{\Gamma \vdash \perp}{\Gamma \vdash C} \perp E$$

$$\frac{\Gamma \vdash [a/x]A}{\Gamma \vdash \forall x. A} \forall I^a$$

$$\frac{\Gamma \vdash \forall x. A}{\Gamma \vdash [t/x]A} \forall E$$

$$\frac{\Gamma \vdash [t/x]A}{\Gamma \vdash \exists x. A} \exists I$$

$$\frac{\Gamma \vdash \exists x. A \quad \Gamma, u:[a/x]A \vdash C}{\Gamma \vdash C} \exists E^{a,u}$$

We also have a new rule for hypotheses which was an implicit property of the hypothetical judgments before.

$$\frac{}{\Gamma_1, u:A, \Gamma_2 \vdash A} u$$