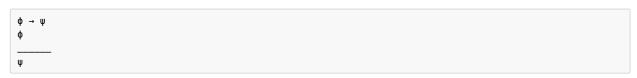
Inference Rules



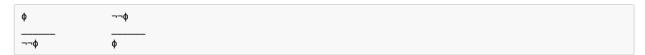
mp



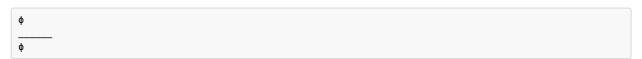
mt



dn



r



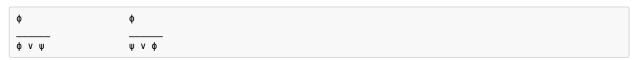
•



adj

φ	φ
Ψ	Ψ
φ Λ ψ	ΨΛΦ

add



mtp

φ ν ψ	φ v ψ
¬ψ	¬φ
ф	Ψ

 $\frac{\forall \alpha \phi \alpha}{\phi \beta}$

Provided that β is a name (or a variable) and $\phi\beta$ comes from $\phi\alpha$ by proper substitution of β for $\alpha.$

eg

 $\frac{\varphi \beta}{\exists \alpha \varphi \alpha}$

Provided that α is a variable and $\phi\beta$ comes from $\phi\alpha$ by proper substitution of β for α .

ei

 $\frac{\exists \alpha \phi \alpha}{\phi \beta}$

Provided that β is a new variable and $\phi\beta$ comes from $\phi\alpha$ by proper substitution of β for α .

Derived rules:

nc (T40)

 $\frac{\neg(\phi \to \psi)}{\phi \land \neg \psi} \qquad \frac{\phi \land \neg \psi}{\neg(\phi \to \psi)}$

cdj (T45,T46)

sc (T33,T49)

dm (T63-T66)

nb (T90)

$$\frac{\neg(\phi \leftrightarrow \psi)}{(\phi \leftrightarrow \neg \psi)} \qquad \frac{(\phi \leftrightarrow \neg \psi)}{\neg(\phi \leftrightarrow \psi)}$$

qn (T203-T206)

¬∀хфх	¬4×Ег	∀хфх	хфх
 Зх¬фх		 ¬Зх¬фх	
¬∀х¬фх	¬∃х¬фх	∀х¬фх	xφrxE
—————— хфхЕ	 ∀xφx	—————— ¬∃хфх	

av (T231-T232)

Ахфх	¥φ×
	∃yφy

Given the total proper substitution of y for x, and provided no variable capturing arises in ϕy .