

$P \vee 1 \equiv 1$	$P \wedge 1 \equiv P$	$P \rightarrow 1 \equiv 1$
$P \vee 0 \equiv P$	$P \wedge 0 \equiv 0$	$P \rightarrow 0 \equiv \neg P$
$P \vee P \equiv P$	$P \wedge P \equiv P$	$1 \rightarrow P \equiv P$
$P \vee \neg P \equiv 1$	$P \wedge \neg P \equiv 0$	$0 \rightarrow P \equiv 1$
$\neg\neg P \equiv P$	$P \rightarrow P \equiv 1$	$P \rightarrow Q \equiv \neg P \vee Q$
$P \rightarrow Q \equiv \neg Q \rightarrow \neg P$	$\neg(P \rightarrow Q) \equiv P \wedge \neg Q$	

$P \wedge Q \equiv Q \wedge P$	$P \wedge (Q \wedge R) \equiv (P \wedge Q) \wedge R$	$P \wedge (Q \vee R) \equiv (P \wedge Q) \vee (P \wedge R)$
$P \vee Q \equiv Q \vee P$	$P \vee (Q \vee R) \equiv (P \vee Q) \vee R$	$P \vee (Q \wedge R) \equiv (P \vee Q) \wedge (P \vee R)$

$\neg(P \wedge Q) \equiv \neg P \vee \neg Q$	$A \wedge (A \vee B) \equiv A$
$\neg(P \vee Q) \equiv \neg P \wedge \neg Q$	$A \vee (A \wedge B) \equiv A$
	$A \wedge (\neg A \vee B) \equiv (A \wedge B)$
	$A \vee (\neg A \wedge B) \equiv (A \vee B)$

MP $\frac{A \quad A \rightarrow B}{\therefore B}$	MT $\frac{A \rightarrow B, \neg B}{\therefore \neg A}$	Conj $\frac{A, B}{\therefore A \wedge B}$	Simp $\frac{A \wedge B}{\therefore A}$
Add $\frac{A}{\therefore A \vee B}$	DS $\frac{A \vee B, \neg B}{\therefore A}$	HS $\frac{A \rightarrow B, B \rightarrow C}{\therefore A \rightarrow C}$	

UI $\frac{\forall x W(x)}{\therefore W(t)}$	UG $\frac{W(t)}{\therefore \forall x, W(x)}$	EG $\frac{W(t)}{\therefore \exists x, W(x)}$	EI $\frac{\exists x W(x)}{\therefore W(t)}$
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$\neg\forall x W(x) \equiv \exists x \neg W(x)$	$\neg\exists x W(x) \equiv \forall x \neg W(x)$
$\exists x (A(x) \vee B(x)) \equiv \exists x A(x) \vee \exists x B(x)$	$\forall x (A(x) \wedge B(x)) \equiv \forall x A(x) \wedge \forall x B(x)$
$\exists x (A(x) \rightarrow B(x)) \equiv \forall x A(x) \rightarrow \exists x B(x)$	$\forall x \forall y W(x, y) \equiv \forall y \forall x W(x, y)$
$\exists x \exists y W(x, y) \equiv \exists y \exists x W(x, y)$	

$\forall x (C \vee A(x)) \equiv C \vee \forall x A(x)$	$\forall x (C \wedge A(x)) \equiv C \wedge \forall x A(x)$
$\exists x (C \vee A(x)) \equiv C \vee \exists x A(x)$	$\exists x (C \wedge A(x)) \equiv C \wedge \exists x A(x)$
$\forall x (C \rightarrow A(x)) \equiv C \rightarrow \forall x A(x)$	$\exists x (C \rightarrow A(x)) \equiv C \rightarrow \exists x A(x)$
$\forall x (A(x) \rightarrow C) \equiv \exists x A(x) \rightarrow C$	$\exists x (A(x) \rightarrow C) \equiv \forall x A(x) \rightarrow C$

$\forall x A(x) \rightarrow \exists x A(x)$	$\exists x (A(x) \wedge B(x)) \rightarrow \exists x A(x) \wedge \exists x B(x)$
$\forall x A(x) \vee \forall x B(x) \rightarrow \forall x (A(x) \vee B(x))$	$\forall x (A(x) \rightarrow B(x)) \rightarrow (\forall x A(x) \rightarrow \forall x B(x))$
$\exists y \forall x W(x, y) \rightarrow \forall x \exists y W(x, y)$	