

Context	Goal	Rule
	$P \wedge Q \rightarrow Q \wedge P$	IMPLINTRO
$H1 : P \wedge Q$	$Q \wedge P$	ANDELIM H1
$H2 : P$ $H3 : Q$	$Q \wedge P$	ANDINTRO

Context	Goal	Rule
	Q	ASSUMPTION H3

Context	Goal	Rule
	P	ASSUMPTION H2

Context	Goal	Rule
	$P \wedge Q \rightarrow Q \wedge P$	IMPLINTRO
$H1 : P \wedge Q$	$Q \wedge P$	ANDELIM H1
$H2 : P$ $H3 : Q$	$Q \wedge P$	ANDINTRO

Context	Goal	Rule
	Q	ASSUMPTION H3

Context	Goal	Rule
	P	ASSUMPTION H2

Context	Goal	Rule
	$P \vee Q \leftarrow Q \vee P$	IMPLINTRO H1 ^{E1 E2 E3}
$H1 : P \vee Q$	$Q \vee P$	ANDELIM H1 ^{E4}
$H1^{E5} : P$ $H2 : Q$	$Q \vee P$	ANDINTRO ^{E6}

Context	Goal	Rule
	R	ASSUMPTION H2 ^{E8}

Context	Goal	Rule
	P	ASSUMPTION H3 ^{E7}

^{E1} Rule IMPLINTRO expects 0 assumptions, but received 1 assumption (H1).

^{E2} The rule IMPLINTRO requires the goal $P \vee Q \leftarrow Q \vee P$ to contain the symbol \rightarrow .

^{E3} Tried to use undefined assumption H1.

^{E4} The rule ANDELIM requires the assumption $H1 : P \vee Q$ to contain the symbol \wedge .

^{E5} Tried to redefine assumption H1.

^{E6} The rule ANDINTRO requires the goal $Q \vee P$ to contain the symbol \wedge .

^{E7} Tried to use undefined assumption H3.

^{E8} The rule ASSUMPTION requires assumption $H2 : Q$ and goal R to match.

Context	Goal	Rule
	$P \wedge Q \rightarrow Q \wedge P$	IMPLINTRO
$H1 : P \wedge Q$	$Q \wedge P$	ANDELIM H1
$H2 : P$ $H3 : Q$	$Q \wedge P$	ANDINTRO

Context	Goal	Rule
	Q	ASSUMPTION H3
	Q	ASSUMPTION H3
	Q	ASSUMPTION H3

Context	Goal	Rule
	P	ASSUMPTION H2

Context	Goal	Rule	Context	Goal	Rule
	A			A	
	B			B	
	C			C	

Context	Goal	Rule
	A	
	B	
	C	

Context	Goal	Rule
	Q	ASSUMPTION H3

Context	Goal	Rule
	Q	ASSUMPTION H3

Context	Goal	Rule
	$(P \vee P \wedge Q) \rightarrow Q \wedge P$	IMPLINTRO
H1 : $P \vee Q \wedge P$	$Q \wedge P$	ORELIM H1

Context	Goal	Rule
H2 : P	$Q \wedge P$	ANDINTRO

Context	Goal	Rule
H3 : $P \wedge Q$	$Q \wedge P$	ANDELIM H3
H4 : P H5 : Q	$Q \wedge P$	ANDINTRO

Context	Goal	Rule
	Q	ASSUMPTION H5

Context	Goal	Rule
	P	ASSUMPTION H2

Context	Goal	Rule
	Q	ASSUMPTION H5

Context	Goal	Rule
	P	ASSUMPTION H4

Context	Goal	Rule
	$(P \vee P \wedge Q) \rightarrow Q \wedge P$	IMPLINTRO
$H1 : P \vee Q \wedge P$	$Q \wedge P$	ORELIM H1

Context	Goal	Rule
$H2 : P$	$Q \wedge P$	ANDINTRO

Context	Goal	Rule
	Q	ASSUMPTION H5

Context	Goal	Rule
	P	ASSUMPTION H2

Context	Goal	Rule
$H3 : P \wedge Q$	$Q \wedge P$	ANDELIM H3
$H4 : P$ $H5 : Q$	$Q \wedge P$	ANDINTRO

Context	Goal	Rule
	Q	ASSUMPTION H5

Context	Goal	Rule
	P	ASSUMPTION H4