

Lecture 13

1	$A \Rightarrow \neg A$	
2	A	
3	$\neg A$	by $E \Rightarrow 3$
4	\perp	by $I \perp, 2, 3$
	$\neg A$	by $I \neg, 2-4$

Exercise

Derive $\neg A$ from $A \Rightarrow (A \wedge \neg A)$

1		$A \Rightarrow (A \wedge \neg A)$	
2			
3			
4			
5			
6			

by \Rightarrow 1, 2
by \wedge 1, 2, 3, 4
by \perp 2, 5
by \neg 2-5

Exercise

Show that $A \vee \neg A$

1		$\neg(A \vee \neg A)$
2		
3		
4		
5		$A \vee \neg A$

1	
2	→ (A ∪ A)
3	A
4	A ∪ A
5	⊥
6	→ A
7	A ∪ A
8	⊥
9	A ∪ A

by
by
by
by
by

I-∨ 3
I-⊥ 2, 4
IP 3-5
I-∨ 6
I-⊥ 2, 7
IP-→ 2-8

	B	
	⊥	
	→ B	IP
	⊥	
	→ B	
	⊥	
	B	E