5. Inconsistency

a. Derive: $A \supset A, \sim (A \supset A)$

1	$\sim (A \supset A)$	Assumption
2	$\quad A$	A / ⊃ I
3	$\quad A$	2 R
4	$\quad A \supset A$	2–3 ⊃I
5	$\sim (A \supset A)$	1 R

c. Derive: $A, \sim A$

1	$A \equiv B$	Assumption
2	$B \supset \sim A$	Assumption
3	A	Assumption
4	A	3 R
5	B	1, 4 ≡E
6	$\sim A$	2, 5 ⊃E

e. Derive: $A, \sim A$

1	$A \supset \sim A$	Assumption
2	$\sim A \supset A$	Assumption
3	$\quad A$	A / ~ I
4	$\quad \sim A$	1, 3 ⊃E
5	$\quad A$	3 R
6	$\sim A$	A / ~ I
7	A	2, 6 ⊃E

g. Derive: $A \vee B, \sim (A \vee B)$

1	$\sim (A \vee B)$	Assumption
2	$C \supset A$	Assumption
3	$\sim C \supset A$	Assumption
4	$\quad C$	A / ~ I
5	$\quad A$	2, 4 ⊃E
6	$\quad A \vee B$	5 ∨I
7	$\quad \sim (A \vee B)$	1 R
8	$\sim C$	4–7 ~ I
9	B	3,8 ⊃E
10	$A \vee B$	9 ∨I
11	$\sim (A \vee B)$	1 R