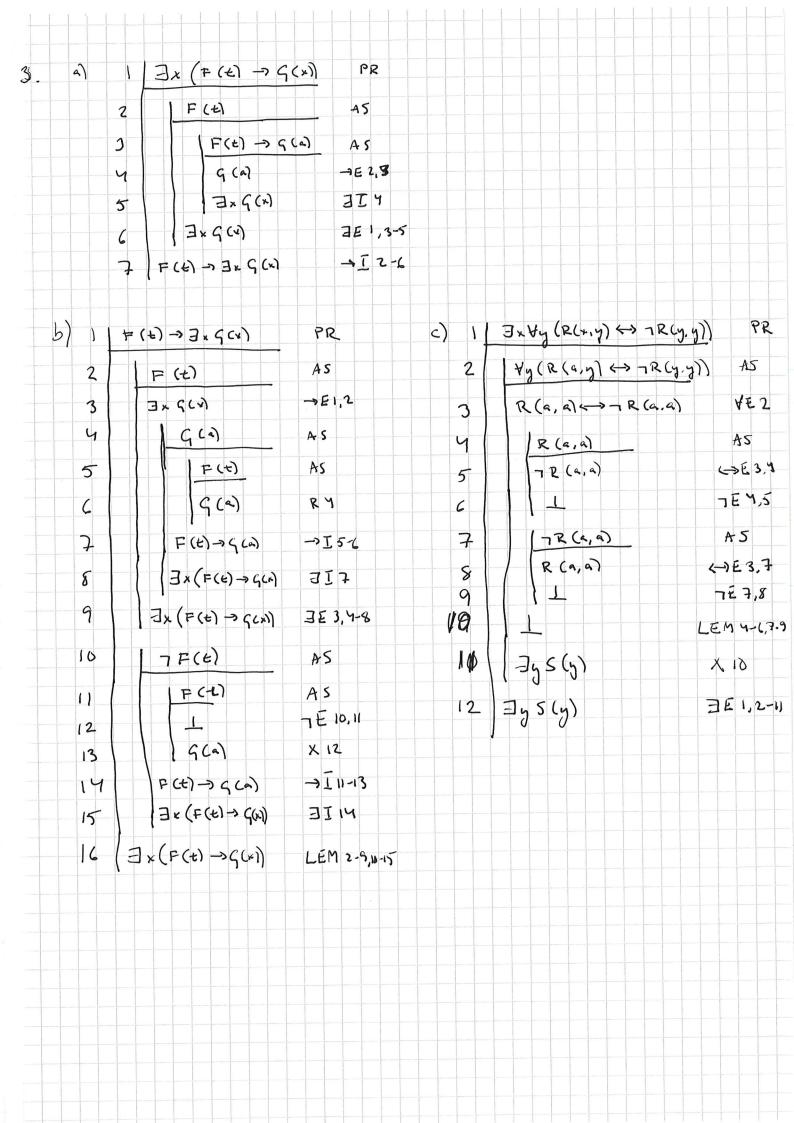
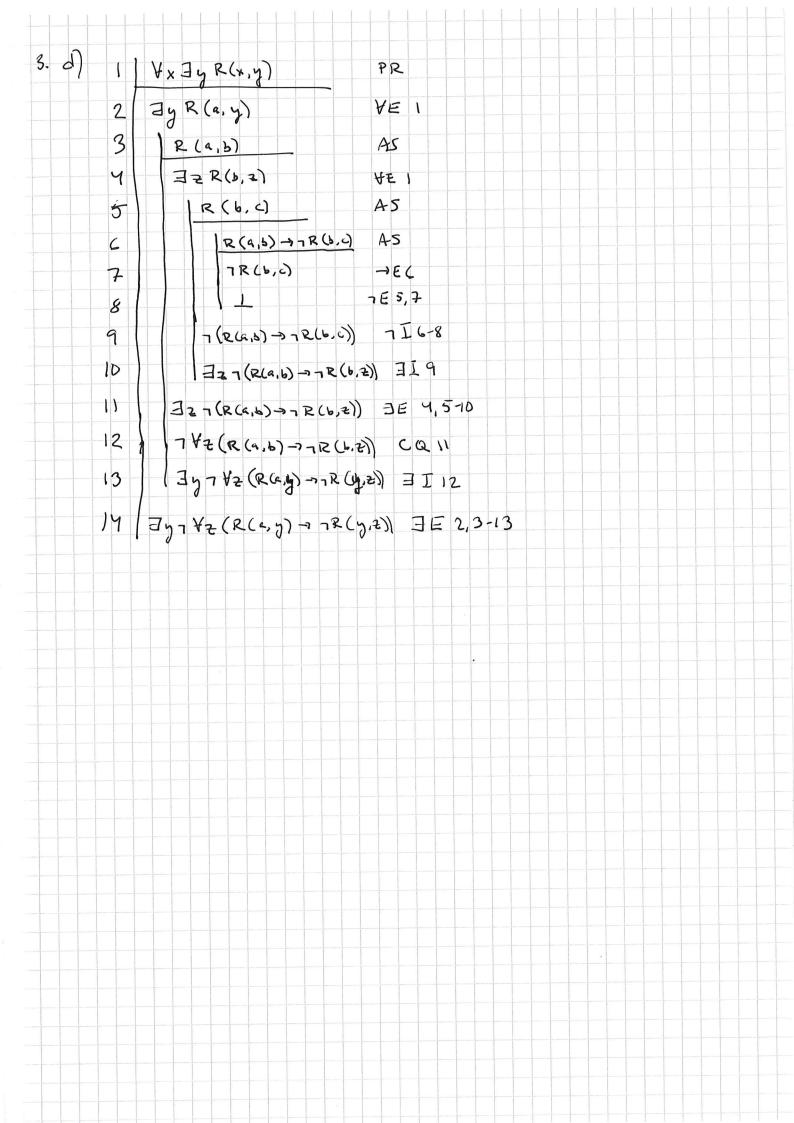


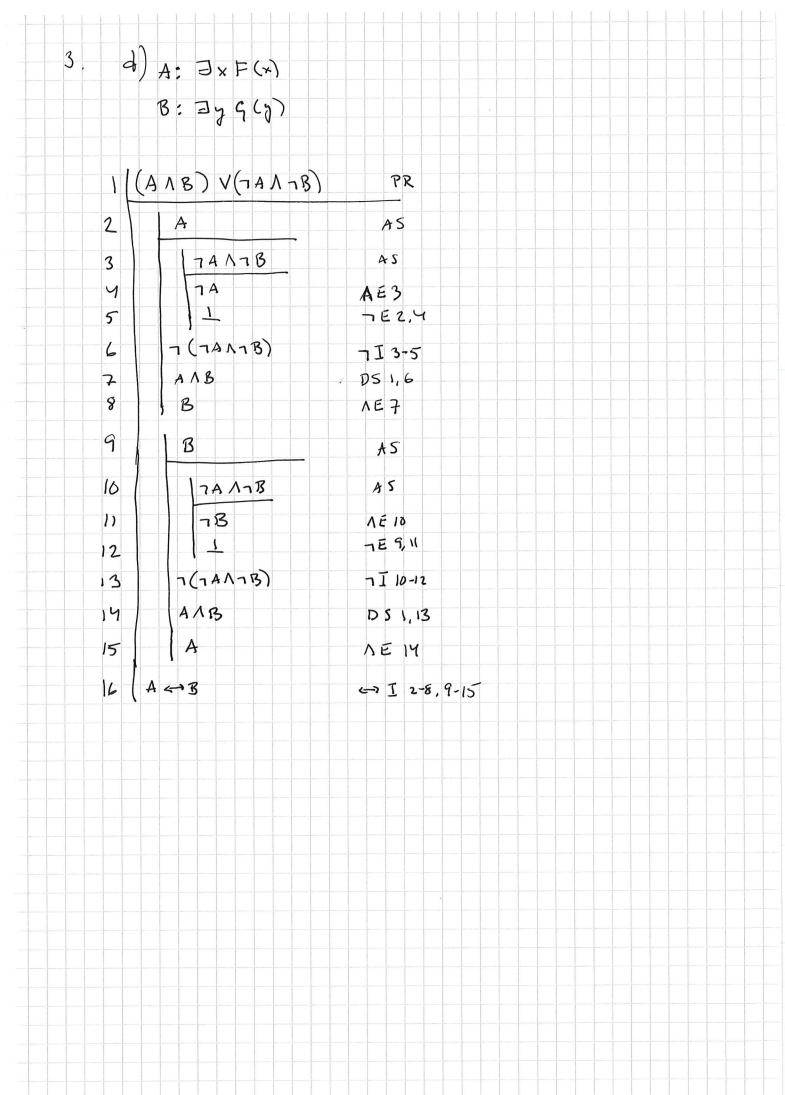
2.						
C .		73x (9(x) x F(x))	PR		4x(F(x) -> G(x)	PR
	2	3x (q(x) x H(x))	PR -	2 7	Bx (G(x) A H(x))	PR
	3	Yx 7 (qcx) A F(x))	CQI	3	Dx (H(x) A F(x))	AS
	7	G (a) A H (a)	A S	4	H (a) N F (a)	A S
	5	G (a)	154	5	(A)	NEY
	6	7 (G(A) A F(A)	VE 3	6	F(a)	1EY
	7	7 9 (a) V7 F(a)	DMG	7	F (a) - G (a)	AE )
	8	7 F (a)	DS 5,7	8	G (a)	7£ 6,7
	9	4(2)	NEY	9	G (a) A H(a)	15,8
	10	H(a) 17 7 F(a)	1 8,9	10	= x (S(x) NH(x)	719
		(H(N) A7F(N)				7E 2,10
		∃x (H(x) ∧¬≠(x))	BE 2,4-11	12		JE 3,4-11
				13)	13×(州(メ) ハト(ハ))	7] 3-12
<i>b</i> )	11	= (((x) A7 P(x))	PR	d) 11	3x (F(m) 1 4(m))	PZ
	2	$\forall x (q(x) \rightarrow H(x))$	PR	2	4x (9(2) -> 4(2))	PR
	3	(q(a) 1 7 F(a)	A.S	3	[F(a) 1 G(a)	45
	4	G (a)	NE3	4	P(a)	N£3
	5	7 F (a)	NE3	5	۲ (م)	<b>NE3</b>
	6	G(A) -> H(A)	YE Z	6	G (a) -> H(c)	YE 2
		H(a)	->E4.6	7	H(a)	→だ5,८
	7 8	HC0) 1 - FC0)	VI 2'3	8	Han AFan	17.7
	9	Jx (H(AA7 F(x))	318	9	MUST V (MCM) XE	8 1E
		JX(H(X)Anf(X))	JE 1,3-9	10	(HC) AF (V))	₹ 1,3-9

2. e) 1	(マンハイショ)*モト	28	
2	3x (G(x) N H(x))	PR	
3	G (1) NH (4)	A-5	
ч	G (a)	ne3	
5	H (4)	n E 3	
6	Yx 7 (F(x) 1 (x))	CQI	
7	7(=(0) 1 9(0)	4EC	
- G	7 F(a) V 7 G(9)	DM 7	
9	7 = (4)	054,8	
( D	H (e) 17 F (n)	NI 5.9	
II.	(x) 7-1 (x) H) x E	€ 10 E	
		∃E 2,3-1)	
12	(メキャハハキ(x))	5E 2,5 ft	
			-
			-
			-
-			
			-





3. e)	/ Vy 3x (R(y,x) V Q(y,x))	PR
2	17 Vy (3x R(y,x) V 3x Q(y,x))	AS
3	ヨッフ(ヨ×R(yx) V ヨ×Q(yx)	CQ2
Ч	17 (3xR(a,x) V 3xQ(a,y)	AS
5	73xQ(a,x) / 73xQ(a,x)	DMY
6	7 3x R (a, x)	NE 5
7	7 3x Q (4, x)	NE5
8	] = x (R(a, u) V a (a, y))	YEI
9	(a,b) v Q (a,b)	AS
10	)   (R(4,6)	AS
1)	7× R(4,x)	3510
12		7 E C, 13
17	) a(a,b)	As
	1 (3 x a (a, x)	a [ B
16		7 € 3,14
1.2		VE 9, 10-12, 13-15
	+	3E 8,8-14
) (		∃E 8, 8-16 ∃E 3, 4-17
)	9 ) Hy (3x R(y,x) V 3x Q(y,x))	IP 2-18



9) Vx Vy (F(x) → (q(y) → ¬R(x,y,x))) PR Vy(=(a) →(G(y) → 72 (a, y, a))) Y€ 1 F(a) → (g(b) → ¬R(a,b,a)) VE 2 ) R (a,b,a) AS 1 9 (6) F(a) AS G(b) + 7 R(a, b, a) 7E 3,6 7 7 R(a, b, a) →E 5.7 9 7E 4,8 7 I 6-9 7 F (a) 10 7 5-10 G(b) -> 7 F(a) 11  $R(a,b,a) \rightarrow (a(b) \rightarrow \pi = (a))$ 12 -> I 4-11 13/ ty (R(a,y,a) -> (G(y) -> = F(a)) VI 12 14 \ \x \y ( R (x,y,x) → (G(y) → 7 F(x))) YI 13

3. (3)	\\\ (\F(\x) \rightarrow \B\(\gamma\)\) \\ \F(\gamma\)))	PR
2	Vx Vy V2 (R(y,x) → (R(2,y) → 7 =(2)))	PR
3	\ \delta \ \times \	AS
4	F(a) -> 3y (R(y,a) 1 F(y))	¥ E 1
5	F(*)	VE 3
6	∃y (R(y, a) ∧F(y))	→E 4,5
7	R (b,a) n F (b)	A5
5	R(b,a)	157
9	Yy Yz (R (y, a) → (R(z,y) → 7 = (z)))	VE2
10	Y2 (R(b, 4) → (R(2, b) → 7F(2)))	¥£ 9
L I	F(6)	NE 7
12.	F(b) -> => (R(y,b) A F(y))	AE)
13	= y(2(y,2) 1 = (y))	→E 11,12
IM	(R(c,b) A F(c)	AS
15	$R(5,a) \rightarrow (R(c,b) \rightarrow \gamma F(c))$	AE 10
16	R(c,b) -> 7 F(c)	→ E 8,15
17	R (c,b)	NE 14
18	77(0)	→ E 16.17
19	F(c)	NE 14
20		7 E 18,19
21		JE 13, 14-20
22		3E 6,7-21
23	7 \( \forall x \opi(x) \)	¬