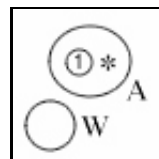


## 8.6.xa. Exercise answers

1.	$(\exists x: Wx \wedge (\forall y: \neg y = x) \neg Wy) Ax$	1
	$\textcircled{a}$	
	$Wa \wedge (\forall y: \neg y = a) \neg Wy$	2
	$Aa$	(3)
2 Ext	$Wa$	(3)
2 Ext	$(\forall y: \neg y = a) \neg Wy$	
3 REG	$(\exists x: Ax) Wx$	X, (4)
	•	
4 QED	$(\exists x: Ax) Wx$	1
1 PRCh	$(\exists x: Ax) Wx$	

lx Wx: 3

	$A(lx Wx)$	(2)
	$(\forall x: Ax) \neg Wx$	lx Wx:2
2 SB	$\neg W(lx Wx)$	
	$\textcircled{a}$	
	$Wa$	
	$(\forall x: Wx) a = x$	
	$lx Wx = a$	(lxWx)—a, *
	•	
3 Nc=	$\perp$	
	$(\forall x: Wx) (\exists y: Wy) \neg x = y$	*:4
	$lx Wx = *$	
	$\neg W*$	
	$\circ$	$A(lx Wx), \neg W(lx Wx),$ $\neg W*, (lxWx)=* \Rightarrow \perp$
	$\perp$	5
5 IP	$W*$	4
	$(\exists y: Wy) \neg * = y$	
	$(unfinished)$	
	$\perp$	4
4 MCR	$\perp$	
3 SD	$\perp$	1
1 PRCh	$(\exists x: Ax) Wx$	



2.

	$(\exists x: Ax) Wx$	1
	$\neg \exists x (\exists y: \neg y = x) (Wx \wedge Wy)$	(11)
	(a)	
	Aa	(3)
	Wa	(4), (8)
	$(\forall x: Wx \wedge (\forall y: \neg y = x) \neg Wy) \neg Ax$	a:3
3 SC	$\neg ((Wa \wedge (\forall y: \neg y = a) \neg Wy))$	4
4 MPT	$\neg (\forall y: \neg y = a) \neg Wy$	5
	(b)	
	$\neg b = a$	(9)
	Wb	(8)
	Wa $\wedge$ Wb	(9)
8 Adj	$(\exists y: \neg y = a) (Wa \wedge Wy)$	X
9 REG	$\exists x (\exists y: \neg y = x) (Wx \wedge Wy)$	X, (10)
10 EG	•	X, (11)
	$\perp$	
11 Nc		7
	$\neg Wb$	
7 RAA		6
	$(\forall y: \neg y = a) \neg Wy$	
6 RUG		5
	$\perp$	
5 CR		2
	$(\exists x: Wx \wedge (\forall y: \neg y = x) \neg Wy) Ax$	
2 RNcP		1
1 PRCh	$(\exists x: Wx \wedge (\forall y: \neg y = x) \neg Wy) Ax$	

$\text{Ix Wx}: 2$

	$(\exists x: Ax) Wx$	1
	$\neg \exists x (\exists y: \neg y = x) (Wx \wedge Wy)$	(11)
	ⓐ	
	Aa	(4), (5)
	Wa	(3), (8)
	ⓑ	
	Wb	
	$(\forall y: Wy) b = y$	a:3
	$\text{Ix Wx} = b$	a, b— $\text{IxWx}$ , *
3 SB	b = a	a—b— $(\text{IxWx})$ , *
	•	
4 QED=	A( $\text{Ix Wx}$ )	2
	$(\forall x: Wx) (\exists y: Wy) \neg x = y$	a:5
	$\text{Ix Wx} = *$	a, c, $(\text{IxWx})$ —*
5 SB	$(\exists y: Wy) \neg a = y$	6
	ⓒ	
	Wc	(8)
	$\neg a = c$	(9)
	$\neg A(\text{Ix Wx})$	
8 Adj	$Wc \wedge Wa$	X, (9)
9 REG	$(\exists y: \neg y = c) (Wc \wedge Wy)$	X, (10)
10 EG	$\exists x (\exists y: \neg y = x) (Wx \wedge Wy)$	X, (11)
	•	
11 Nc	$\perp$	
7 UP	A( $\text{Ix Wx}$ )	6
6 PRCh	A( $\text{Ix Wx}$ )	2
2 SD	A( $\text{Ix Wx}$ )	1
1 PRCh	A( $\text{Ix Wx}$ )	