1) Anyone who repairs his or her own car is highly skilled and saves a lot of money on repairs. Some people who repair their own cars have menial jobs. Therefore, some people with menial jobs are highly skilled.

x = people.
R = repairs his/her own car.
S = highly skilled.
M = saves a lot of money on repairs.
J = has a menial job.

1) $(x)[Rx \supset (Sx \cdot Mx)]$	Premise (A sentence)
2) $\exists(x)(Rx \cdot Jx)$	Premise (I sentence)
/∴ $\exists(x)(Jx \cdot Sx)$	Conclusion (I sentence)

4) $Ra \cdot Ja$	2; EI (flag a)
5) $Ra \supset (Sa \cdot Ma)$	1; UI
6) Ra	4; Simp
7) $Sa \cdot Ma$	6, 5; MP
8) Sa	7; Simp
9) $Ja \cdot Sa$	8, 6; Conj
10) $\exists(x)(Jx \cdot Sx)$	9; EG

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2) Some police officers are forced to moonlight (take a second job). No individual who works two jobs can be fully alert on the job. A police officer who is not fully alert on the job will make errors of judgment. Therefore, some police officers will make errors of judgment.

x = people
P = police officers.
M = moonlight with a second job.
F = fully alert on the job.
E = makes errors of judgement.

1) $\exists(x)(Px \cdot Mx)$	Premise (I sentence)
2) $(x)(Mx \supset \sim Fx)$	Premise (E sentence)
3) $(x)[(Px \cdot \sim Fx) \supset Ex]$	Premise (A sentence)
/∴ $\exists(x)(Px \cdot Ex)$	Conclusion (I sentence)

4) $Pa \cdot Ma$	1; EI (flag a)
5) $Ma \supset \sim Fa$	2; UI
6) $(Pa \cdot \sim Fa) \supset Ea$	3; UI
7) Ma	4; Simp
8) $\sim Fa$	7, 5; MP
9) Pa	4; Simp
10) $Pa \cdot \sim Fa$	9, 8; Conj
11) Ea	10, 6; MP
12) $Pa \cdot Ea$	11, 9; Conj
13) $\exists(x)(Px \cdot Ex)$	12; EG

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3) If any jewelry is missing, then if all the servants are honest, it will be returned. If any servant is honest, then they all are. Therefore if any jewelry is missing, then if at least one servant is honest, then it will be returned.

x = servants.
M = servant causes jewelry to go missing.
R = servant returns missing jewelry.
H = servant is honest.

1) $(x)(Hx) \supset (x)(Mx \cdot Rx)$	Premise
2) $\exists(x)(Hx) \supset (x)(Hx)$	Premise
/∴ $\exists(x)(Hx) \supset (x)(Mx \cdot Rx)$	Conclusion

3) $\exists(x)(Hx) \supset (x)(Hx)$	2
4) $(x)(Hx) \supset (x)(Mx \cdot Rx)$	1
5) $\exists(x)(Hx) \supset (x)(Mx \cdot Rx)$	3, 4: HS

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4) Any businessman who is a poet must be a wealthy man. Wealthy men are all conservatives. If some conservative does not like poetry, then no poets are conservative. Therefore, if there is a wealthy man who does not like poetry, then no businessman is a poet.

x = men.
B = businessman.
P = poet.
W = wealthy man.
C = conservative.
L = likes poetry.

1)	$(x)[(Bx \cdot Px) \supset Wx]$	Premise 1
2)	$(x)(Wx \supset Cx)$	Premise 2
3)	$\exists(x)(Cx \cdot \sim Lx) \supset (x)(Px \supset \sim Cx)$	Premise 3
/∴	$\exists(x)(Wx \cdot \sim Lx) \supset \sim(x)(Bx \supset Px)$, which is the same as	
	$\exists(x)(Wx \cdot \sim Lx) \supset \exists(x)(Bx \cdot \sim Px)$	Conclusion

4)	→	$\exists(x)(Wx \cdot \sim Lx)$	Assum, CP
5)		→ Flag a	FS; EG
6)		$Wa \cdot \sim La$	4; EI
7)		$(Ba \cdot Pa) \supset Wa$	1; UI
8)		$Wa \supset Ca$	2; UI
9)		$(Ca \cdot \sim La) \supset (Pa \supset \sim Ca)$	3; EI, UI
10)		Wa	6; Simp
11)		Ca	10, 8; MP
12)		~La	6; Simp
13)		$Ca \cdot \sim La$	12, 11; Conj
14)		$Pa \supset \sim Ca$	13,9; MP
15)		$\sim\sim Ca \supset \sim Pa$	14; Contra
16)		$Ca \supset \sim Pa$	15; DN
17)		~Pa	16, 11; MP
18)		~Pa V Ba	17; Add
19)		Ba	18; DS
20)		→ $Ba \cdot \sim Pa$	19; Conj
21)	→	$\exists(x)(Bx \cdot \sim Px)$	20; EG
22)		$\exists(x)(Wx \cdot \sim Lx) \supset \exists(x)(Bx \cdot \sim Px)$	4 to 21; CP

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5) Any senator who votes with the banking lobby has his or her own interests at heart. Every senator from Texas has his or her own interests at heart. Therefore, if a senator is from Texas, they will vote with the banking lobby.

x = senators.
V = voting with the banking lobby.
H = having one's own interests at heart.
T = being from Texas.

1) $(x)(Vx \supset Hx)$
2) $(x)(Tx \supset Hx)$
/∴ $(x)(Tx \supset Vx)$

Let's disprove this using the natural interpretation method.
x = people.
V = being republican.
H = being in favor of fair elections.
T = being democrat.

1) All Republicans are in favor of fair elections.
2) All Democrats are in favor of fair elections.
3) Therefore, all Republicans are Democrats.