

Prove $\exists x Bx$ from the premises $\forall x((Ax \wedge Bx) \vee (Cx \wedge Dx))$ and $\exists x \neg Cx$.

1	(1) $\forall x((Ax \wedge Bx) \vee (Cx \wedge Dx))$	Premise
2	(2) $\exists x \neg Cx$	Premise
2	(3) $\neg C\alpha$	\exists -elimination on 2
2	(4) $\neg C\alpha \vee \neg D\alpha$	\vee -introduction on 3
2	(5) $\neg(C\alpha \wedge D\alpha)$	DeMorgan law on 4
1	(6) $(A\alpha \wedge B\alpha) \vee (C\alpha \wedge D\alpha)$	\forall -elimination on 1
1,2	(7) $A\alpha \wedge B\alpha$	modus tollendo ponens on 5,6
1,2	(8) $B\alpha$	\wedge -elimination on 7
1,2	(9) $\exists x Bx$	\exists -introduction on 8