Homework 4 Key

1. \(Ox \equiv x\) is a person born in Ontario, \(Ux \equiv x\) is a US citizen

\[(\exists x)(Ox \& Ux)\]

2. \(Ax \equiv x\) is a person born in Alaska, \(Ux \equiv x\) is a US citizen

\[(x)(Ax \rightarrow Ux)\]

3. \(Ox \equiv x\) is a person born in Ontario, \(Ex \equiv x\) is eligible to become the US President

\[(x)(Ox \rightarrow \neg Ex) \text{ or } \neg (\exists x)(Ox \& Ex)\]

4. \(Px \equiv x\) is a Princeton student, \(Ux \equiv x\) is a US citizen

\[(\exists x)(Px \& \neg Ux)\]

5. \(r \equiv \text{Rob}, Tx \equiv x\) is a tall person, \(Cx \equiv x\) is a Canadian

\(Tr \& Cr\)

6. \(Lx \equiv x\) may attend this lecture, \(Px \equiv x\) is a Princeton student

\[(x)(Lx \rightarrow Px)\]

7. \(Rx \equiv x\) is round, \(Sx \equiv x\) is square

\[(\exists x)Rx \& (\exists x)Sx \& \neg (\exists x)(Rx \& Sx)\]

8. \(Dx \equiv x\) is a dog, \(Cx \equiv x\) is a cat, \(Gx \equiv x\) is a good housepet

\[(x)((Dx \lor Cx) \rightarrow Gx)\]