I will give a proof for the following claim:

$$\exists x\, \neg x = x \vdash \forall x\, Px$$

I write down the premiss as an assumption.

$$\exists x \neg x = x$$

In order to apply ∃Elim later I assume $\neg a = a$.

$$\neg a = a$$

$$\exists x\, \neg x = x$$

I assume $a = a$ and immediately discharge this assumption in accordance with =Intro.

$$\neg a = a \qquad [a = a]$$

$$\exists x \neg x = x$$

So I have a contradiction. Applying ¬Intro to $\neg\forall x\, Px$ (which has never be assumed) I infer $\forall x\, Px$.

$$\exists x \neg x = x \qquad \dfrac{\neg a = a \qquad [a = a]}{\forall x\, Px}$$

I apply ∃Elim and discharge the assumption $\neg a = a$.

$$\dfrac{\exists x\, \neg x = x \qquad \dfrac{[\neg a = a] \qquad [a = a]}{\forall x\, Px}}{\forall x\, Px}$$

$$\dfrac{\exists x\, \neg x = x \qquad \dfrac{[\neg a = a] \qquad [a = a]}{\forall x\, Px}}{\forall x\, Px}$$