

1.  $\forall x (\text{Cube}(x) \rightarrow \text{Small}(x))$

2.  $\exists x \text{Cube}(x)$

3.  $\boxed{a} \text{Cube}(a)$

4.  $\text{Cube}(a) \rightarrow \text{Small}(a)$

$\forall$  Elim: 1

5.  $\text{Small}(a)$

$\rightarrow$  Elim: 4, 3

6.  $\exists x \text{Small}(x)$

$\exists$  Intro: 5

7.  $\exists x \text{Small}(x)$

$\exists$  Elim: 2, 3–6

8.  $\exists x \text{Cube}(x) \rightarrow \exists x \text{Small}(x)$

$\rightarrow$  Intro: 2–7

9.  $(\forall x (\text{Cube}(x) \rightarrow \text{Small}(x)) \rightarrow$   
 $\quad (\exists x \text{Cube}(x) \rightarrow \exists x \text{Small}(x)))$

$\rightarrow$  Intro: 1–8