

## The Importance of Provisos for $\forall I$ and $\exists E$

1.

Consider:

- |                 |                                   |                     |
|-----------------|-----------------------------------|---------------------|
| 1. $\Gamma$     | $\vdash Cb$                       | .....premise        |
| 2. $\Gamma, Ib$ | $\vdash Cb$                       | .....1              |
| 3. $\Gamma$     | $\vdash Ib \supset Cb$            | .....2, $\supset I$ |
| 4. $\Gamma$     | $\vdash \forall x(Ix \supset Cx)$ | .....3, $\forall I$ |

Let:

$Cx$  means  $x$  is corrupt

$Ix$  means  $x$  is Italian American

$b$  is a constant referring to Buddy Cianci

2.

Consider:

- |                     |                                  |                       |
|---------------------|----------------------------------|-----------------------|
| 1. $\Gamma$         | $\vdash \exists x Hx$            | .....premise          |
| 2. $\Delta$         | $\vdash Ct$                      | .....premise          |
| 3. $Ht$             | $\vdash Ht$                      | .....A                |
| 4. $\Delta, Ht$     | $\vdash Ct \wedge Ht$            | .....2,3, $\wedge I$  |
| 5. $\Delta, Ht$     | $\vdash \exists x(Cx \wedge Hx)$ | .....4, $\exists I$   |
| 6. $\Gamma, \Delta$ | $\vdash \exists x(Cx \wedge Hx)$ | .....1,5, $\exists E$ |

Let:

$Hx$  means  $x$  is a herbivore

$Cx$  means  $x$  is a carnivore

$t$  is a constant referring to Tom