Basic translations

All cubes are small. $\forall x(Cube(x) \rightarrow Small(x))$

Some cubes are small. $\exists x(Cube(x) \land Small(x))$

No cube is small. $\forall x(Cube(x) \rightarrow \neg Small(x))$ OR $\neg\exists x(Cube(x) \land Small(x))$

Some cubes are not small. $\exists x(Cube(x) \land \neg Small(x))$ OR $\neg\forall x(Cube(x) \rightarrow Small(x))$

Only cubes are small. $\forall x(Small(x) \rightarrow Cube(x))$

At Least

There is at least 1 cube. $\exists x Cube(x)$

There are at least 2 cubes. $\exists x\exists y(Cube(x) \land Cube(y) \land x\neq y)$

There are at least 3 cubes. $\exists x\exists y\exists z(Cube(x) \land Cube(y) \land Cube(z) \land x\neq y \land y\neq z \land z\neq x)$

Exactly

There is exactly 1 cube. $\exists x(Cube(x) \land \forall y(Cube(y) \rightarrow y=x))$

There are exactly 2 cubes. $\exists x\exists y(Cube(x) \land Cube(y) \land x\neq y \land \forall z(Cube(z) \rightarrow (z=x \lor z=y)))$

There are exactly 3 cubes.
$\exists x\exists y\exists z(Cube(x) \land Cube(y) \land Cube(z) \land x\neq y \land y\neq z \land z\neq x \land \forall w(Cube(w) \rightarrow (w=x \lor w=y \lor w=z)))$

At Most

There is at most 1 cube. $\forall x\forall y((Cube(x) \land Cube(y)) \rightarrow x=y)$

There are at most 2 cubes. $\forall x\forall y\forall z((Cube(x) \land Cube(y) \land Cube(z)) \rightarrow (x=y \lor y=z \lor z=x))$

There are at most 3 cubes.
$\forall x\forall y\forall z\forall w((Cube(x) \land Cube(y) \land Cube(z) \land Cube(w)) \rightarrow (x=y \lor x=z \lor x=w \lor y=z \lor y=w \lor z=w))$

'The'

The cube is small. $\exists x(Cube(x) \land \forall y(Cube(y) \rightarrow y=x) \land Small(x))$

The smallest object is c. $\forall x(x\neq c \rightarrow Smaller(c,x))$

The smallest object is a cube. $\exists x(Cube(x) \land \forall y(y\neq x \rightarrow Smaller(x,y)))$

Donkey

Every cube adjoins a tet is also smaller than it.

Standard Donkey (Stronger) $\forall x \forall y((Cube(x) \wedge Tet(y) \wedge Adjoins(x, y)) \rightarrow Smaller(x,y))$

Donkey-coop (Weaker) $\exists y(Tet(y) \wedge \forall x((Cube(x) \wedge Adjoins(x,y)) \rightarrow Smaller(x,y)))$

Mother / Bieber

Every cube adjoins a tet.

Bieber (Stronger) $\exists y(Tet(y) \wedge \forall x(Cube(x) \rightarrow Adjoins(x,y))$

Mother (Weaker) $\forall x(Cube(x) \rightarrow \exists y(Tet(y) \wedge Adjoins(x,y)))$

Not Every

a is not smaller than every cube.

Negated Existential (Stronger) $\neg\exists x(Cube(x) \wedge Smaller(a,x))$

Negated Universal (Weaker) $\neg\forall x(Cube(x) \rightarrow Smaller(a,x))$

No Some

No cube adjoins some tet.

Negated Existential (Stronger) $\neg\exists x\exists y(Cube(x) \wedge Tet(y) \wedge Adjoins(x,y))$

Existential Negation (Weaker) $\exists y(Tet(y) \wedge \neg\exists x(Cube(x) \wedge Adjoins(x,y)))$

Emergency Tier

Tier	Rules	Subproof needed?
0 (Very emergency)	$\wedge$Elim, $\rightarrow$Elim, $\leftrightarrow$Elim, M.T., D.S.	No
1	$\neg$Intro, $\rightarrow$Intro, $\leftrightarrow$Intro, $\forall$Intro	Yes (Fresh for $\forall$Intro)
2	$\exists$Elim	Yes (Fresh)
3	$\forall$Elim	No
4	$\vee$Elim	Yes
5 (Not so emergency}	All the others	No