Tutorial 7

Everyone who loves someone who loves them back is happy.
Mary loves Everyone.
There is someone who loves Mary.

$\forall x \; \exists y \quad loves(x, y) \wedge loves(y, x) \Rightarrow Happy(x)$
$\forall x \quad loves(Mary, x)$.
$\exists y \; loves(y, Mary)$.

$\forall x \exists y \neg(loves(x, y) \wedge loves(y, x)) \vee Happy(x)$
$\forall x \quad loves(Mary, x)$.
$\exists y \; loves(y, Mary)$.

$\forall x \; others(y) \neg(loves(x, others(y)) \wedge loves(others(y), x))$
$\vee Happy(x)$.
$\forall x \; loves(Mary, x)$.
$others(y) \; loves(others(y), Mary)$.

$\forall x \; others(y)] (\neg loves(x, others(y)) \vee \neg loves(others(y), x))$
$\vee Happy(x)$.
..
..
1.1) $\neg loves(x, others(y)) \vee \neg loves(others(y), x)$
1.2) $Happy(x)$
2) $loves(Mary, x)$
3) $loves(others(y), Mary)$.

q - H

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