Fifth Problem Set

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Problem 1

Problem 2

(a)

$\forall x \text{ So}(x) \rightarrow (\text{G}(x) \leftrightarrow \text{M}(x))$

(b)

$\forall x[S(x) \wedge \exists y D(xy)] \rightarrow J(y)$

(c)

$(\exists x S(x) \wedge G(x)) \wedge (\forall x S(x) \rightarrow (F(x) \wedge M(x)))$

(d)

$A(xy) := x$ is after y
$\forall x(I(x) \rightarrow \exists y(A(xy)))$

(e)

$\forall x \forall y[(I(x) \wedge I(y)) \wedge \neg(= xy)] \rightarrow (A(xy) \vee A(yx) \wedge \neg(A(xy) \wedge A(yx)))$

(f)

$\neg[\exists x(I(x) \rightarrow (\forall y(Y(y) \rightarrow A(yx))))]$

(g)

$\neg[\exists x(I(x) \rightarrow \neg(\exists y(I(y) \rightarrow A(xy))))]$

(h)

$B(xy) := x$ is before y
$\forall x \forall y((I(x) \wedge I(y)) \rightarrow (A(xy) \rightarrow B(yx)))$