

580-2009-12-08

Note Title

12/8/2009

(a) Every barber shaves all persons who do not shave themselves.

(b) No barber shaves any person who shaves himself.

(c) There are no barbers.

(a) $\forall x \forall y (\neg \text{Shaves}(x, x) \wedge \text{IsBarber}(y)) \Rightarrow \text{Shaves}(y, x)$

$\forall x \forall y (\text{Shaves}(x, x) \vee \neg \text{IsBarber}(y) \vee \text{Shaves}(y, x))$

(a) $\{ \text{Shaves}(x, x), \neg \text{IsBarber}(y), \text{Shaves}(y, x) \}$

(b) $\forall x (\text{Shaves}(x, x) \Rightarrow \neg \exists y (\text{IsBarber}(y) \wedge \text{Shaves}(y, x)))$

$$\forall x (\neg \text{Shaves}(x,x) \vee \neg \exists y (\text{IsBarber}(y) \wedge \text{Shaves}(y,x)))$$

$$\forall x (\neg \text{Shaves}(x,x) \vee \forall y \neg (\text{IsBarber}(y) \wedge \text{Shaves}(y,x)))$$

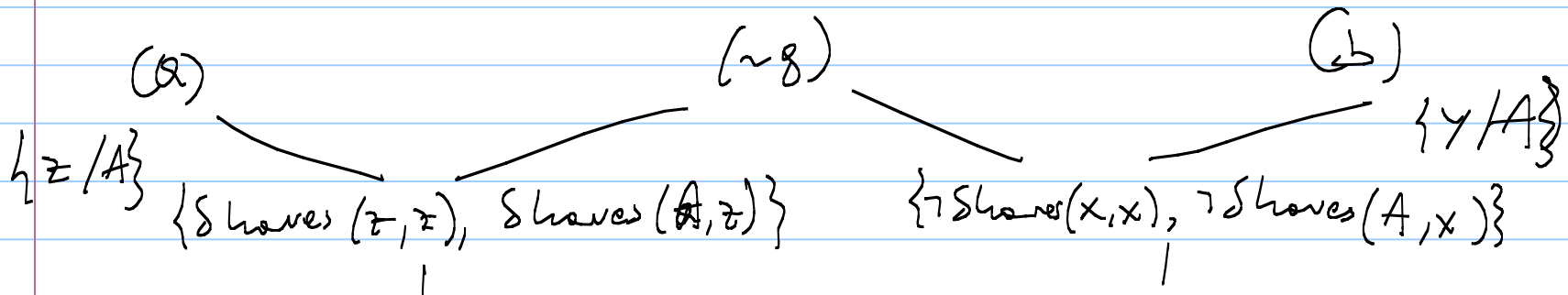
$$\forall x (\neg \text{Shaves}(x,x) \vee \forall y (\neg \text{IsBarber}(y) \vee \neg \text{Shaves}(y,x)))$$

$$(b) \{ \neg \text{Shaves}(x,x), \neg \text{IsBarber}(y), \neg \text{Shaves}(y,x) \}$$

$$(g) \neg \exists x \text{IsBarber}(x)$$

$$(\sim g) \neg \neg \exists x \text{IsBarber}(x) \quad \exists x \text{IsBarber}(x)$$

$$(\sim g) \{ \text{IsBarber}(A) \}$$

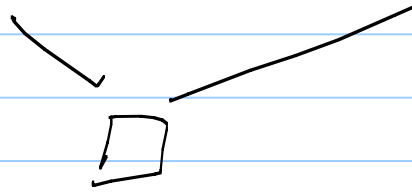


factor ↓

{ Shaves (A, A) }

factor ↓

{ 7 Shaves (A, A) }



Instead of factoring, one could do non-binary resolution

12.

% Exercise 6.15 [P]

% remove\3

% Requires the second list to be nonempty

% rem(X, [], []).

rem(X, [X|Xs], Xs).

rem(X, [Y|Xs], [Y|Ys]) <-

rem(X, Xs, Ys).

subseq([X|Xs], [X|Ys]) <-

subseq(Xs, Ys).

subseq(Xs, [_|Ys]) <-

subseq(Xs, Ys).

We reviewed
← this code

We reviewed a solution to Ex. 12.16 (a).

We reviewed the first part of the
Fall 2008 review session on decomposition
of binary relations.