

781- 2013 04 02

Note Title

2013-04-02

Credity policy w/ project:

• Homework 40 → 30

Midterm 15 → 10

Final 35 → 30 → 25

Presentation 10

Project 15 → 25

Exercise 61 (Schöningh)

Convert $F = (\forall x \exists y P(x, g(y, f(x))) \vee \neg Q(z)) \vee$

$\forall x \exists u P(x, g(u, f(x))) \vee \neg Q(z) \vee \neg \forall w R(w, y)$ (rename)

$\forall x \exists u P(x, g(u, f(x))) \vee \neg Q(z) \vee \exists w \neg R(w, y)$ (push negation in)

$\forall x \exists u \exists w [P(x, g(u, f(x))) \vee \neg Q(z) \vee \neg R(w, y)]$ (prenex)

Exercise 62 (Schöningh)

Find the Skolem form of the formula

$$\forall x \exists y \forall z \exists w (\neg P(a, w) \vee Q(f(x), y))$$

$$\forall x \forall z \exists w (\neg P(a, w) \vee Q(f(x), g(x))) \quad (\text{replace } y \text{ with } g(x))$$

$$\forall x \forall z (\neg P(a, h(x, z)) \vee Q(f(x), g(x))) \quad (\text{replace } w \text{ with } h(x, z))$$

Exercise 63. Transform to rectified prenex Skolem form.

$$\forall z \exists y (P(x, g(y), z) \vee \neg \forall x Q(x)) \wedge \neg \forall z \exists x \neg R(f(x, z), z)$$

$$\forall z \exists y (P(x, g(y), z) \vee \exists x \neg Q(x)) \wedge \exists z \forall x R(f(x, z), z)$$

$$\forall z \exists y (P(x, g(y), z) \vee \exists w \neg Q(w)) \wedge \exists t \forall s R(f(s, t), t)$$

$$\forall z \exists y \exists w \exists t \forall s [P(x, g(y), z) \vee \neg Q(w) \wedge R(f(s, t), t)]$$

$$\forall z \exists w \exists t \forall s [P(x, g(\underline{h_1(z)}), z) \vee \neg Q(w) \wedge R(f(s, t), t)]$$

$$\forall z \exists t \forall s [P(x, g(\underline{h_1(z)}), z) \vee \neg Q(\underline{h_1(z)}) \wedge R(f(s, t), t)]$$

$$\forall z \forall s [P(x, g(h(z)), z) \vee \neg Q(h_1(z)) \wedge R(f(s, h_2(z)), h_2(z))]$$

Presentations

Tuesday, 4/16; Sakhib & Aikjo

Thursday, 4/18 ; Walker + Omar

Tuesday, 4/23 ; Selvi & McCosh