

Exercise Sheet 9
CS 2210 Logic for Computer Scientists (Hitzler)
Solutions due: Thursday November 13, 2014, 9:30am

Exercise 52 Identify all predicate symbols and all terms in Example 3.1.5 3.

Exercise 53 Determine all predicate symbols and all function symbols, with arities, of the formula

$$\forall \varepsilon \exists \delta \forall x ((\varepsilon > 0 \wedge \delta > 0) \rightarrow (|x - 2| < \delta \rightarrow |x^3 - 2^3| < \varepsilon)).$$

Exercise 54 Give all subformulas of Example 3.1.5 4. Which of them are closed? Which of them are open?

Exercise 55 Give a structure for the formula

$$\forall x \forall y (Q(x, y) \rightarrow Q(y, x)).$$

Exercise 56 Give two structures for the first formula in Example 3.2.8, one of which is a model for the formula, and one of which is not a model for the formula.

Exercise 57 Show that $(U_{\mathcal{B}}, I_{\mathcal{B}})$ as in Example 3.2.2 is a model for

$$\forall x \exists y (P(x) \wedge Q(s(x), y)).$$