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**Tutorials for “Automated Reasoning II”  
Exercise sheet 7**

**Exercise 7.1:** ( *P* )

Apply Nelson-Oppen to the LRA, EUF combination and the formula

$$f(x_1, 0) \geq x_3 \wedge f(x_2, 0) \leq x_3 \wedge x_1 \approx x_2 \wedge x_3 - f(x_1, 0) \geq 1$$

where I assume appropriate sorts for the variables and function declarations.

**Exercise 7.2:** ( *P* )

Apply Nelson-Oppen to the LRA, EUF combination and the formula

$$g(g(x) - g(y)) \approx z \wedge f(0) > z + 2 \wedge x \approx y$$

where I assume appropriate sorts for the variables and function declarations.

**Exercise 7.3:** ( *P* )

Extend the Fourier-Motzkin procedure such that it computes all implied equalities for a conjunction of LRA literals.