Exercise5

Attached Files:

- proof-check.zip (50.991 KB)
- makex5.zip (37.342 KB)
- theories.zip (9.884 KB)
- Arithmetic.thr (1.868 KB)

Topic: Program Reasoning

Instructions:

- Download **proof-check.zip**, uncompress (produces **proof-check** folder, and use your command-line/terminal window inside that folder to issue the command: **stack install**.
  If that succeeds, then you will have installed an executable called **prfchk**. See the **README.md** file included with it for details on **prfchk**.
- Download M**akex5.zip**, uncompress (produces M**akex5** folder, and use your command-line/terminal window inside that folder to issue the command: **stack install**.
  If that succeeds, then you will have installed an executable called **makex5**.
- Go to the folder (FPCW say) where you put Exercise1. It should still have the **makex.conf** file left over from that exercise. Download and uncompress **theories.zip** here.
- Enter the theories folder and execute the following: **makex5**. You should not need to re-enter any details. It should create the following files inside **theories**: **Ex5.hs, Ex5Q1.thr, Ex5Q2.thr, Ex4Q3.thr, Ex5Q4.thr.**
- Prove the theorems in the four generated .thr files by editing them, using **prfchk** to get feedback.
- Do NOT modify **Ex5.hs** in any way!!!!
- Submit only your modified versions of the four **.thr** files (individually, not gathered into a zip or tar archive).

This exercise supplies you with four theory files each containing one theorem to be proven. Your task is to construct such proofs.

NOTE: Do NOT add any LAWs to the four theory files!!

Notice: a revised version of Arithmetic.thr has been added

Q1: why doesn't NORM work with subtraction?

A1: NORM only works for operators that are both commutative and associative. Subtraction is neither.