CSC236 Fall 2016

Office Hour 03

In the office hour this week, we further discussed the following topics/examples:

- We re-discussed Example 31. In particular, there were clarifications on where/how in the proof WOP was used. Some students found the following rephrasing of the problem useful: if there is a cycle in an RRT, the set of cycles in the RRT is a nonempty set of natural numbers and its least element is 3.

- We also discussed Example 41: not only to revisit the structural induction also at some point we extended it to some trinary operations (or functions with 3 arguments), tried to make conjectures on them and outlined the proof. Some students also had doubts on the notation, in particular where $\odot$ was used instead of + or $\times$ just to shorten the proof; otherwise, we had to cover the proof for both for + and $\times$ in a different way (such as cases). Some students also had doubts on the meaning of + and $\times$ of if the meaning of the operators would affect the proof; the answer is no; the operators could mean anything you wish; the proof will remain the same.

- We also discussed some of the questions of A1; in particular,

  o that there are both *constructive* and *nonconstructive* approaches in the proof for Q2. Some of us may find one much easier than the other.

  o that the scratch work of Q3 could look like generating *b*, *beneb*, *benebeneb*, *etc.*, as well as verifying the conjecture holds for each.

  o that in answering Q5, you could just use $\div$ in your notation based on its definition given to you in the question, or you may want to use $\lfloor\ \rfloor$, whichever you are more comfortable with.

- We also (re)discussed and compared the two approaches that we had for Example 23, one of which was discussed in class and the other in the Office Hour of Week02.