

CS101.3 Homework 3: repeat

Due: Friday, Feb 6, 3PM

Collaboration: You are allowed and encouraged to work together and collaborate with others. However, your submission must be your own; you must write up your homework without referring to material developed with other groups.

You may use the WWW for reference material. You may use the material you found to develop your understanding, but your submission must be your own.

Summary: you may use any and all resources at your disposal, but your submission must be your own work.

For this homework, consider a variation of IMP where instead of the **while** expressions we have the “**repeat** c **until** b ” expressions. The intended meaning of **repeat** is the straightforward one — c is executed until b becomes false, and c is always executed at least one.

1. Write the large-step operational semantics of **repeat**.
2. Write the denotational semantics of **repeat**.
3. Prove the equivalence of the operational and denotational semantics. When considering cases in your proof, only write down the **repeat** part, omitting the cases that will be handled the same way as in IMP.