

FPV Tutorübung

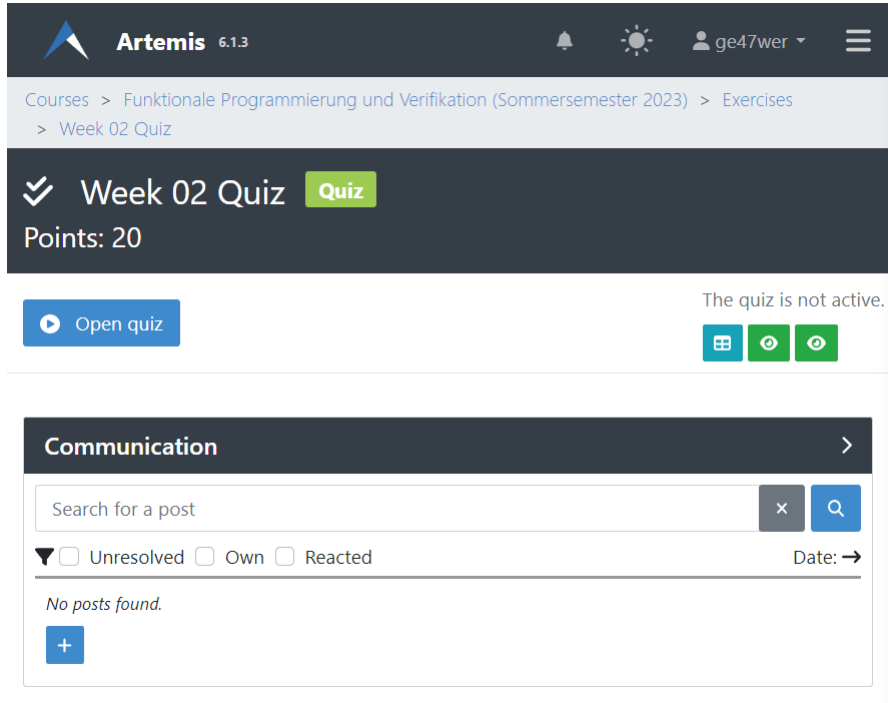
Woche 2

Preconditions, Postconditions and Local Consistency

Manuel Lerchner

02.05.2023

Quiz



Artemis 6.1.3

Courses > Funktionale Programmierung und Verifikation (Sommersemester 2023) > Exercises > Week 02 Quiz

✓ Week 02 Quiz **Quiz**

Points: 20

[Open quiz](#) The quiz is not active.

Communication

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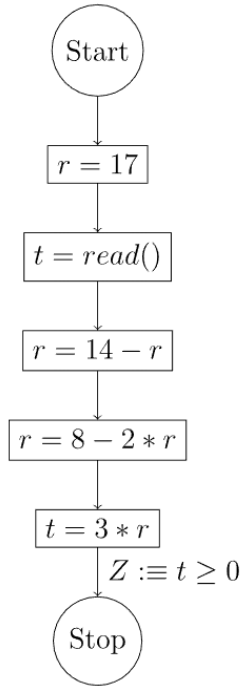
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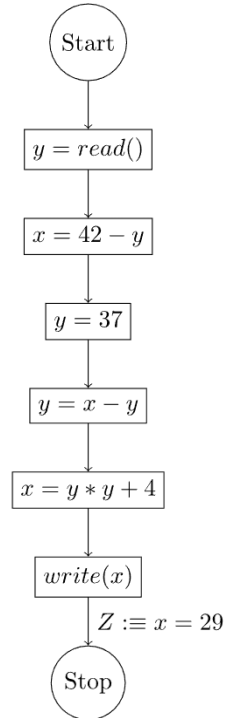
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T01: From Post- to Preconditions

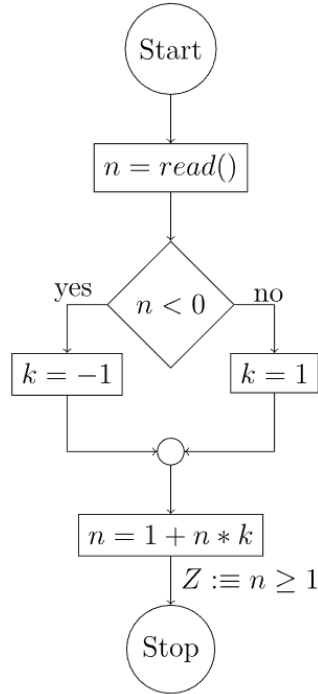
1.



2.



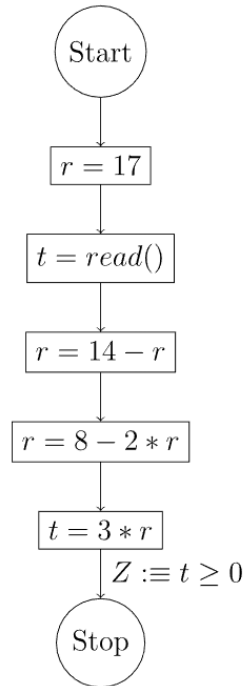
3.



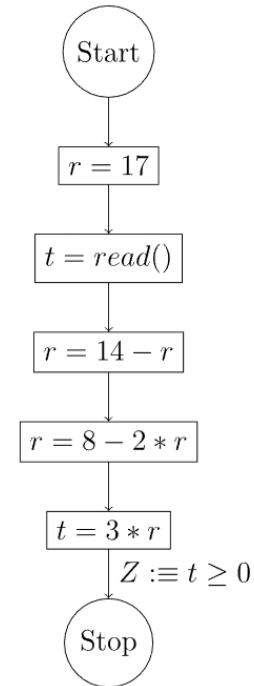
1. For each of these graphs show whether the assertion Z holds...
 - (a) ...using strongest postconditions and
 - (b) ...using weakest preconditions.
2. Discuss advantages and disadvantages of either approach.

T01: From Post- to Preconditions 1

Post-Condition:

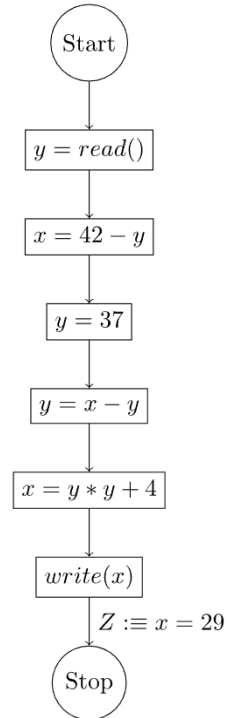


Pre-Condition:

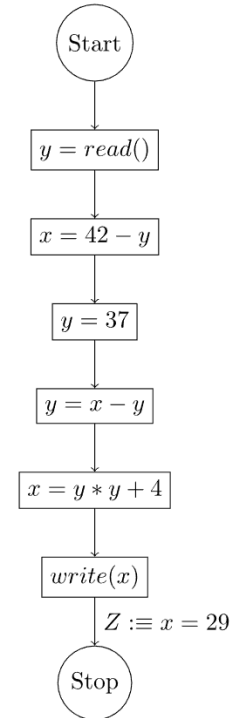


T01: From Post- to Preconditions 2

Post-Condition:

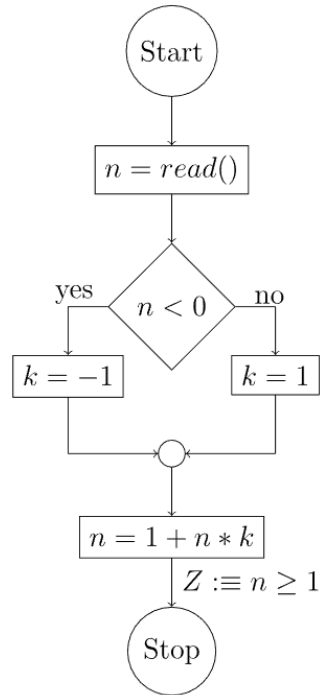


Pre-Condition:

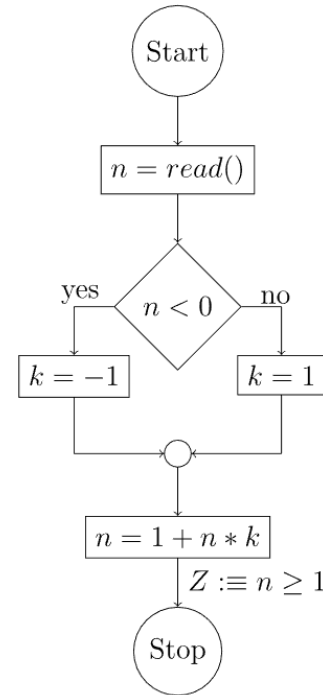


T01: From Post- to Preconditions 3

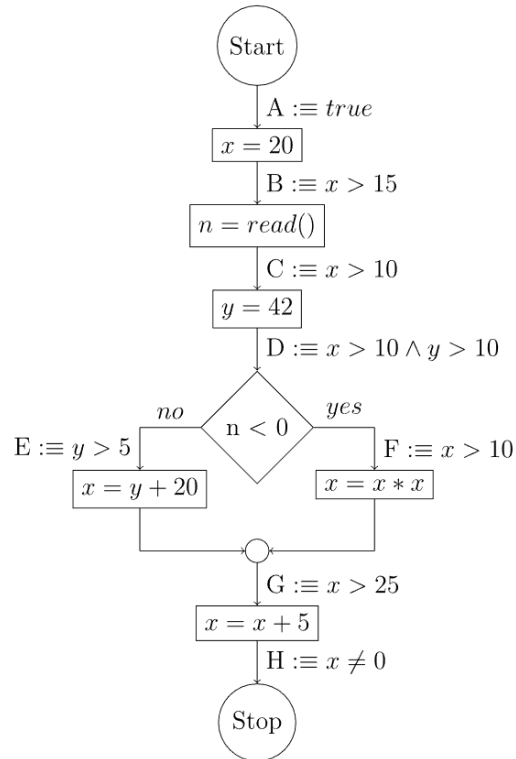
Post-Condition:



Pre-Condition:

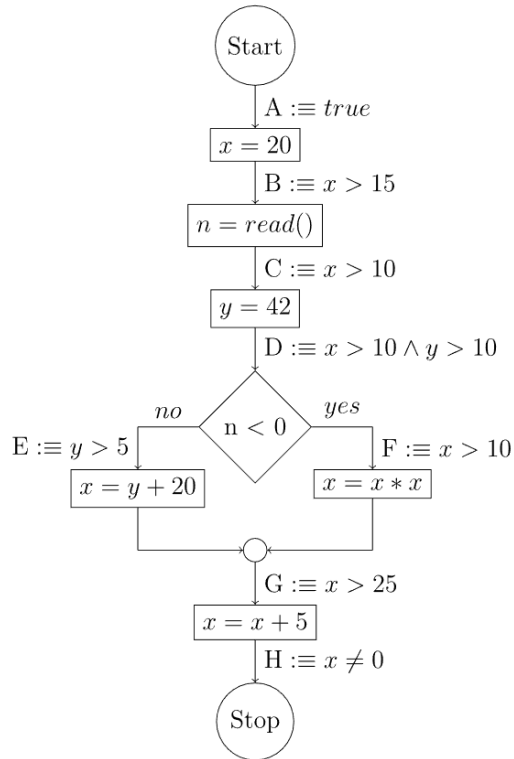


T02: Local Consistency

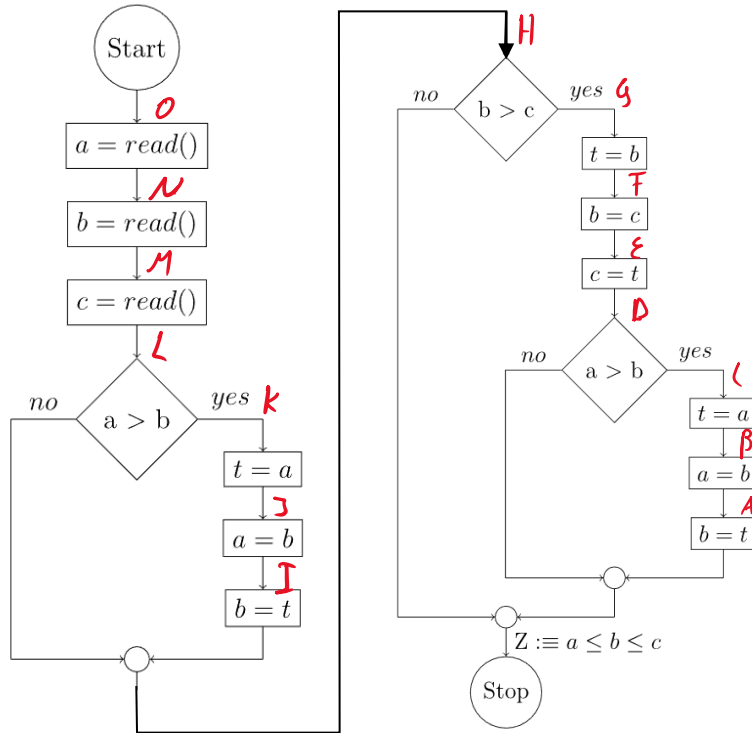


Check whether the annotated assertions prove that the program computes an $x \neq 0$ and discuss why this is the case.

T02: Local Consistency (Extra Space)



T03: Trouble Sort



1. Annotate each program point in the following control flow diagram with a suitable assertion, then show that your annotations are locally consistent and prove that Z holds at the given program point.
2. Discuss the drawbacks of annotating each program point with an assertion before applying weakest preconditions, and discuss how you could optimize the approach to proving that Z holds.

T03: Trouble Sort (Extra Space)

