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Hand in until 16:00 on June 02, 2021
Discussion: June 02, 2021

Tutorial for Program Verification Exercise Sheet 10

In this exercise sheet we continue to work with the Hoare proof system.

Submit your solution by uploading it as PDF in ILIAS.

Exercise 1: Soundness of the Composition Rule

2 Points

Prove that the composition rule of the Hoare proof system displayed below is sound.

$$(compo) \frac{\{\varphi_1\}st_1\{\varphi_2\} \quad \{\varphi_2\}st_2\{\varphi_3\}}{\{\varphi_1\}st_1st_2\{\varphi_3\}}$$

More precisely, prove the following lemma from the lecture:

If the Hoare triple $\{\varphi_1\}st_1\{\varphi_2\}$ is valid and the Hoare triple $\{\varphi_2\}st_2\{\varphi_3\}$ is valid, then the Hoare triple $\{\varphi_1\}st_1st_2\{\varphi_3\}$ is valid.