Seminar 10
week 10 (2 December 2024 – 6 December 2024)

1. **Discussion of the assignment A6. The deadline of the assignment A6 is week 12 (16 - 20 December 2024). Please construct the typecheckeing tree proof for the following program using the ruled from Lecture 8:**

```
Prg=  int v; Ref int a; v=10;new(a,22);
      fork(wH(a,30);v=32;print(v);print(rH(a)));
      print(v);print(rH(a))
```

Here is the starting point of the proof tree contruction. S is the rest of the program after int v. G is the type environment contructed during the typechecking. The constructed proof tree is the mathematical and logical proof of the given program corrrectness.

[]|- int v :void, [v:int]   [v:int] |- S:void, G

[] |- intv; S ,, void , G

2. **Discussion the implementation of the following problems (that can be problems for the final practical exam):**
   a. **implementation of syncronization mechanisms (lock, countdownlatch, semaphore, barrier, atomic operations),**
   b. **implementations of new IO operations (buffered writing/reading, writing to a file)**
   c. **implementation of some communications primitives (send/receive) between threads,**
   d. **adding procedures to the ToyLanguage.**
   e. **other constructions for the ToyLanguage**