

# Language Based Security

*Summer Semester 2006*

*2. Homework*

*17 May 2006*

## Exercise 1:

Consider the following C program.

```
main () {
  char s[20];
  int i,j;
  for (i=0; i<=10; i++) {
    j = 2*i;
    s[j] = 'a';
  }
}
```

- a) Produce the instrumented C program for cleanness analysis.
- b) Produce an integer program by removing other kinds of data from the program.
- c) Apply interval analysis to check cleanness of the above program.

## Exercise 2:

- a) Consider the transformations  $\llbracket k \rrbracket^\#$  for interval analysis. Are these functions distributive?
- b) Consider the transformations  $\llbracket k \rrbracket^\# : 2^S \rightarrow 2^S$  for exact analysis of the set of possible concrete states at each node ( $\mathcal{S}$  is the set of possible concrete states). Are these functions distributive?