Hochschule Aalen
Fakultät Elektronik und Informatik
Studienbereich Informatik

Advanced Programming with MOSTflexiPL

Lecture in Wintersemester 2025/2026
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2. Task Sheet (November 4, 2025)

Aufgabe 3: Assignment Operators

a) Define infix operators `+!`, `-!`, `*!`, `:!` and `-:-!` with the same meaning as `+=`, `-=`, `*=`, `/=` und `%=` for `int` variables in C. The result value shall always be the new value of the variable.

Use indirect exclusions to specify that these operators have the same binding properties as the predefined assignment operator `=!`.

b) Define postfix operators `+!` and `-!` with the same meaning as the prefix operators `++` and `--` for `int` variables in C, i. e., the expressions `x+!` and `x-!` shall be equivalent to `x +! 1` and `x -! 1`, respectively.

c) Define an infix operator `<->` that swaps the contents of two `int` variables.
Its result value shall be the variable (not its value) on the right hand side.

Make the operator `<->` either left- or right-associative in order to make chained applications to any number of variables (e. g., `x <-> y <-> z`) unambiguous.
What is the meaning of such a chained application of the operator?

Aufgabe 4: Operators for Characters

Define the following operators for arbitrary characters `c`:

- `c ? 0-9` tests, whether `c` is a digit (0 to 9).
- `c ? a-z` tests, whether `c` is a lower case letter (a to z).
- `c ? A-Z` tests, whether `c` is an upper case letter (A to Z).
- `c ! a-z` returns for an upper case letter `c` the corresponding lower case letter.
  Other `char` values (including unnatural values) are returned unchanged.
- `c ! A-Z` returns for a lower case letter `c` the corresponding upper case letter.
  Other `char` values (including unnatural values) are returned unchanged.