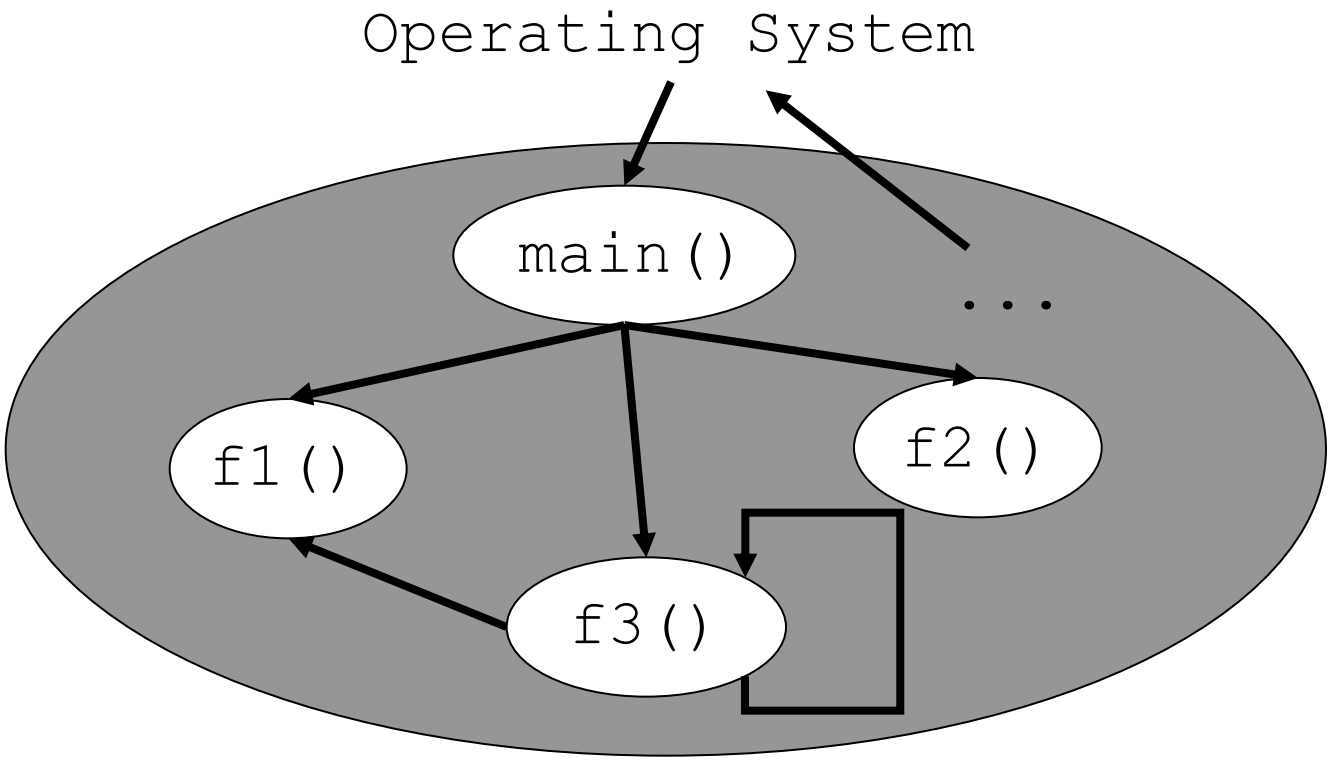
FACHHOCHSCHULE
TECHNIKUM WIEN

Computer Science 1
Introduction to Programming

Functions

- Global Picture



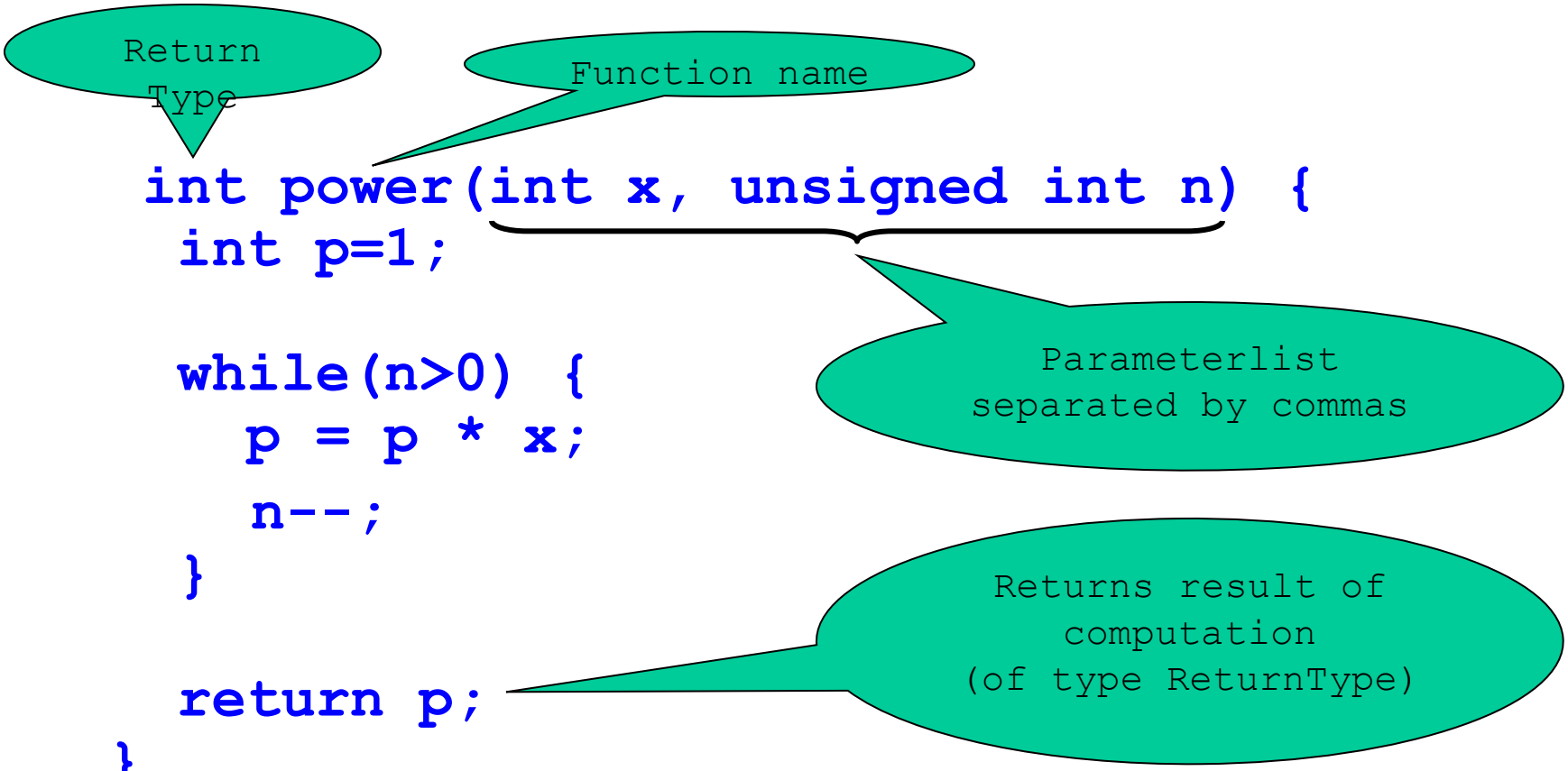
Functions

- **Syntax:**
  - ReturnType Name(Parameter1, … ParameterN) {
    Statements;
    }

- **Example:**
  - int main() {
    return 0;
    }

Example Power (1)

- Function **power(x, n)** computes x^n



Example Power (2)

Function call from main:

```
include <stdio.h>

int power(int x, unsigned int n);

void main()
{
   int result=power(2,3);
   printf("2 power 3: %d\n",result);

}
```

Function prototype

Function call
Assignment of return value

Example Power (3)

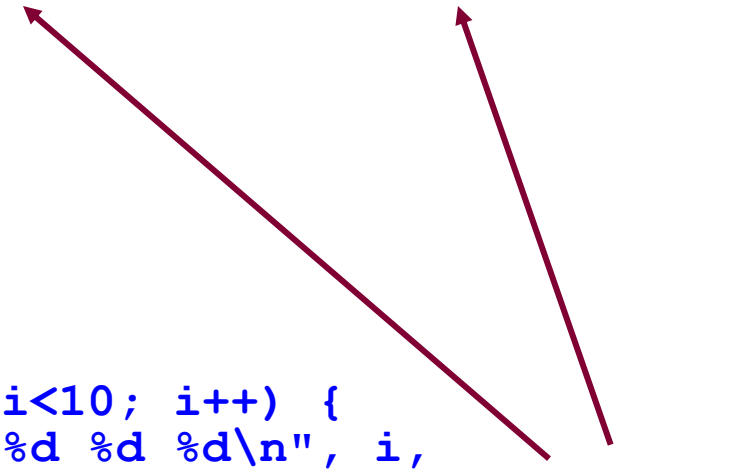
- Actual parameters
- Formal parameters

```
include <stdio.h>

int power(int x, unsigned int n)
{
   ...
}

void main() {
     int i;

     for (i=0; i<10; i++) {
       printf("%d %d %d\n", i,
                            power(2,i),
                            power(-3,i));
     }
}
```



Scope of Variables Example

```
int a=1; /* global variable */

void f() {
   int b=1;
   int c=2;
   printf("%d, %d, %d\n", a, b, c);

   a=a+1;
   b=b+1;
   c=c+2;
}

int main() {
   int c=1;
   while (a<4) {
      f();
      c++;
}
```

Ausgabe:

```
1, 1, 2
2, 1, 2
3, 1, 2
```