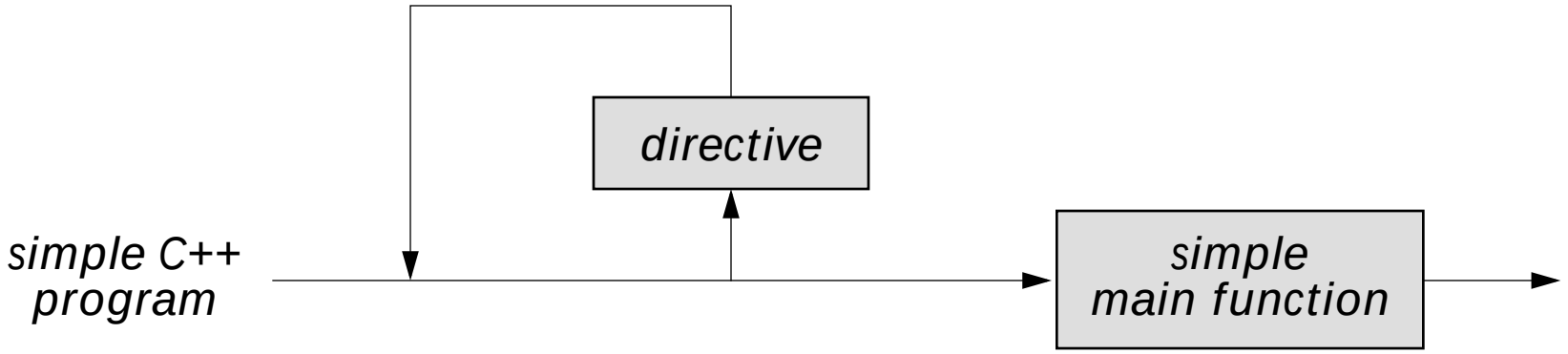
Chapter 7

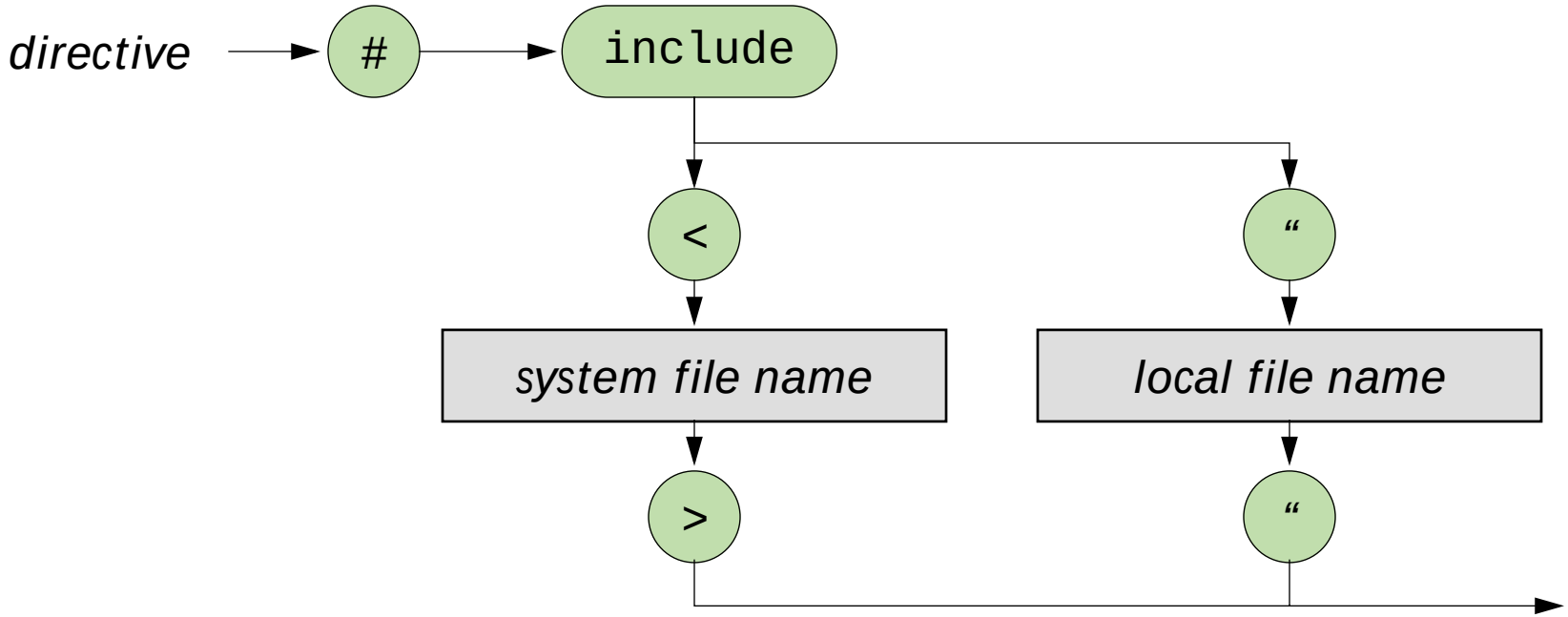
A Taste of C++

7.1 The Function main()

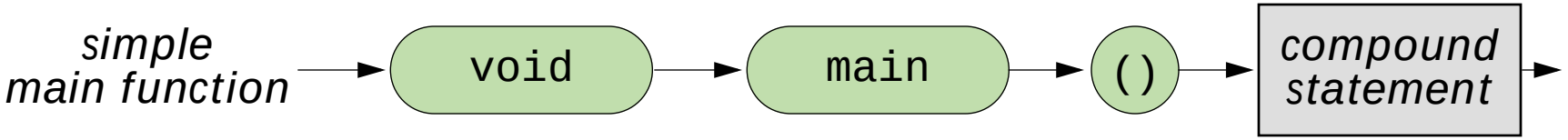
```
#include <iostream.h>

void main()
{
  int pounds;
  float kilos;

  cout << “How many pounds do you weigh?”;
  cin >> pounds;

  kilos = pounds / 2.2;

  cout << “You weigh “ << kilos;
  cout << “ kilos” << endl;
}
```

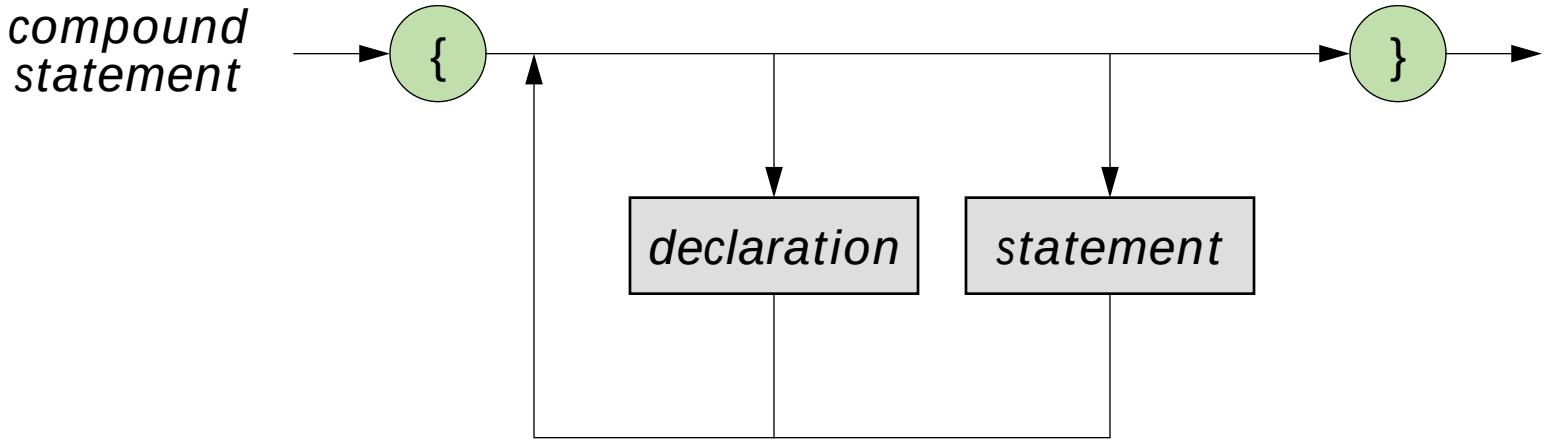
Top-level Diagram for Simple C++ Programs and Directives



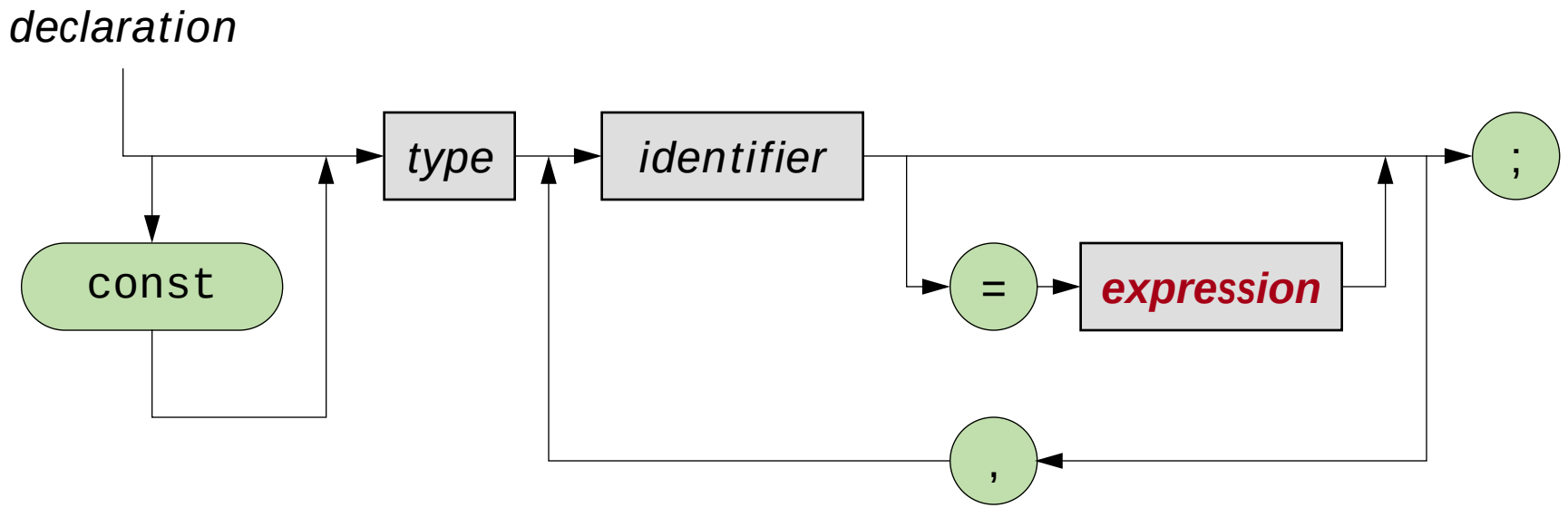


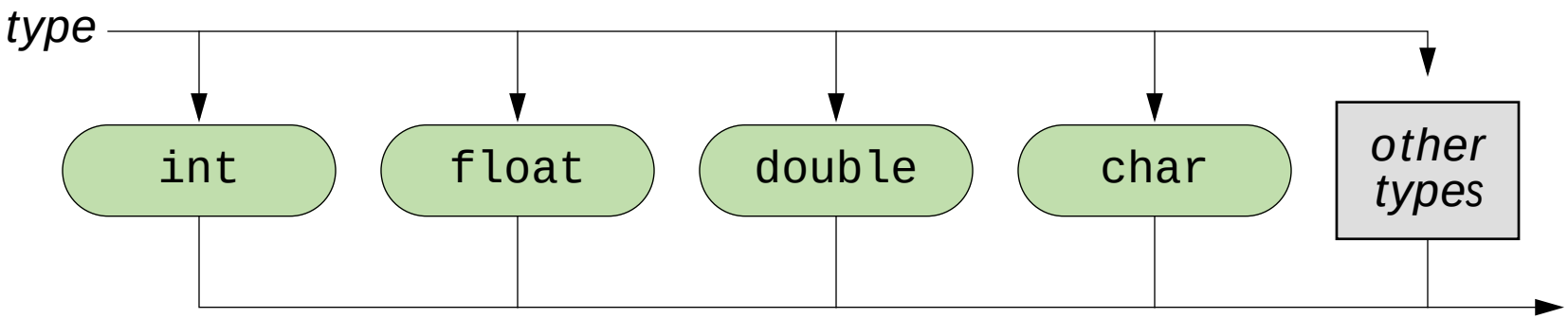
Syntax Diagram for Simple `main()` Function



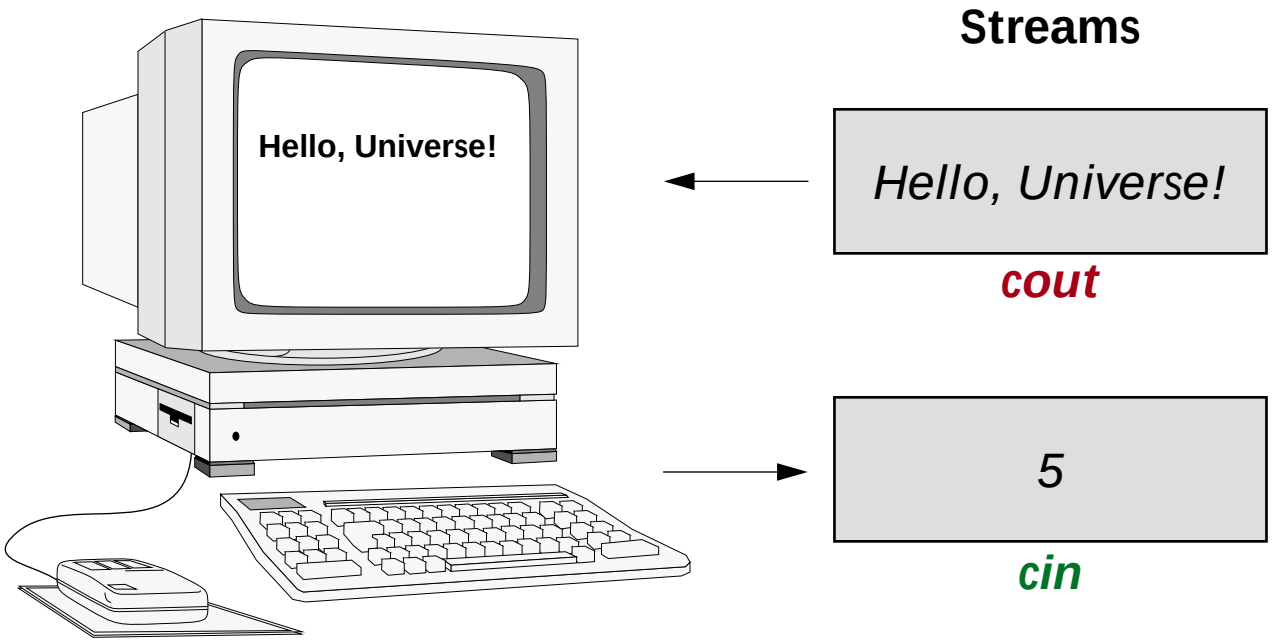


Syntax Diagram for Type Declarations





7.2 The cout and cin Streams



C++ program:

```
<< “Hello, Universe!” << endl;
>> pounds;
```

The objects `cout` and `cin` are **streams**, structures that hold data temporarily.

`Cout` and `cin` are declared in the header file `iostream.h`.

- `cout` is an object of type `ostream`.
  - It acts as a buffer or holding place, that accepts output from a program and eventually causes it to appear on the screen.
  - The **insertion operator**, <<, puts data into the output buffer.
- `cin` is an object of type `istream`.
  - It acts as a buffer that retrieves data from the keyboard and provides it, piece by piece, to the program.
  - The **extraction operator, >>**, gets data from an input stream.
- The operators << and >> are defined to cascade:

```
cin >> pounds >> kilos;
cout << "Weight: "<<kilos<<" kilos"<<endl;
```

7.3 Comments

```
/*----------- poundsToKilos.cc -----------------------
  Converts pounds, entered as a whole number,
  to kilograms.
  Programmer: Christian Jacob, 10/05/2000
-----------------------------------------------------*/
#include <iostream.h>

void main()
{
   int pounds;  // weight in pounds (user input)
   float kilos; // metric weight -- real number (output)

   cout << "How many pounds do you weigh?"; // on screen
   cin >> pounds;          // input from keyboard

   kilos = pounds / 2.2; // pounds to kilos conversion

   cout << "You weigh " << kilos; // screen output
   cout << " kilos" << endl;
} // end of main()
```

7.4 References

- G. Blank and R. Barnes, *The Universal Machine*, Boston, MA: WCB/ McGraw-Hill, 1998. Chapters 3.1 and 3.2.3.