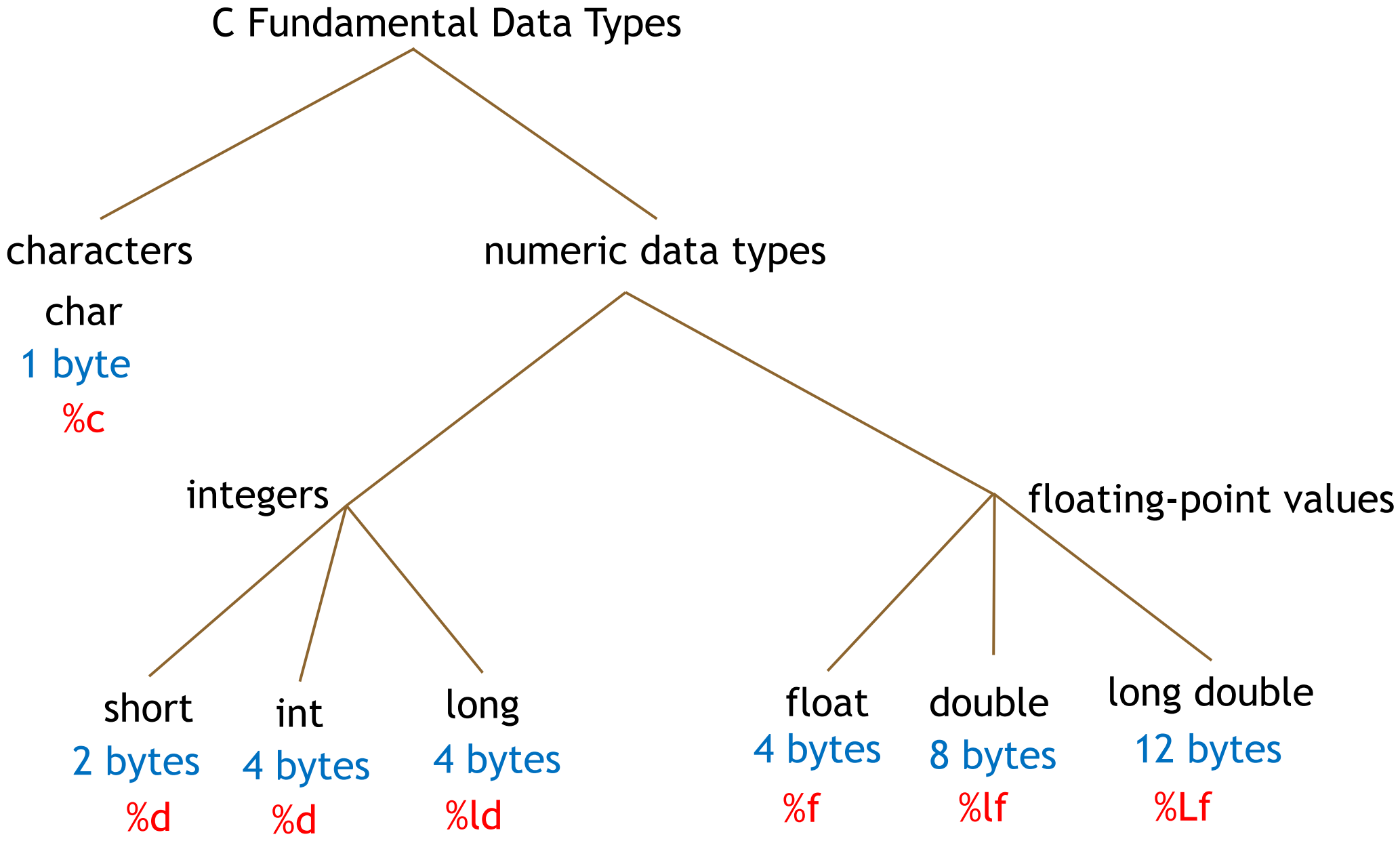
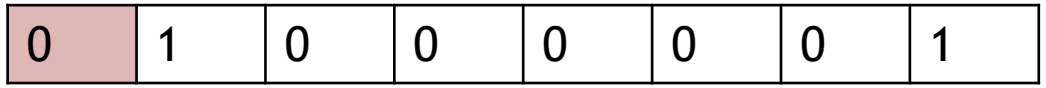

C Fundamental Data Types
characters
char
1 byte
%c
numeric data types
integers
short
2 bytes
%d
int
4 bytes
%d
long
4 bytes
%ld
floating-point values
float
4 bytes
%f
double
8 bytes
%lf
long double
12 bytes
%Lf

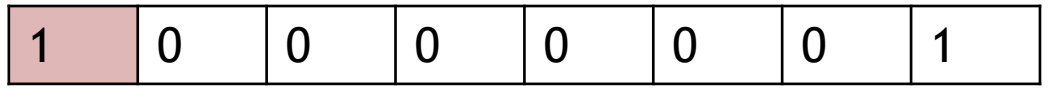
e.g.



= (+) 65

sign bit 2^6 2^5 2^4 2^3 2^2 2^1 2^0

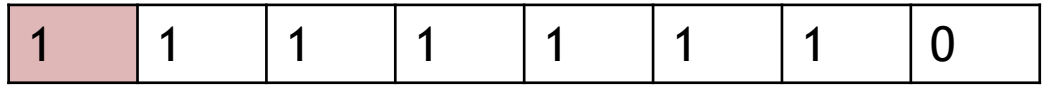
e.g.



= (+) 65

sign bit 2^6 2^5 2^4 2^3 2^2 2^1 2^0

Absolute value = complement of 000 0001 + 1



= 126 + 1 = (-) 127

sign bit 2^6 2^5 2^4 2^3 2^2 2^1 2^0

If an integer type is stored in N bits:

- Signed range: -2^{N-1} and $2^{N-1} - 1$
- Unsigned range: 0 to $2^N - 1$.

e.g. int

4 bytes = 32 bits

- int: -2^{31} and $2^{31}-1$ (-1 because of 0)
- unsigned int: 0 to $2^{32} - 1$