

C Programming Language: Chapter Notes

Daniel Duggan

October 27, 2025

1 Chapter 5 Notes

1.1 Relational Operators

Symbol	Meaning
<	less than
>	greater than
<=	less than or equal to
>=	greater than or equal to

The relational operators produce 0 when false and 1 when true e.g. `1 < 2` produces 1 (true). `1 > 2` produces 0 (false).

The expression `i < j < k` doesn't have the meaning one may expect, as `<` is left associative. It is equivalent to `(i < j) < k` i.e. it tests whether `i` is less than `j`, and then the 1 or 0 is compared with the value of `k`.

To test if `j` lies within `i` and `k`, the correct expression is `i < j && j < k`.

1.2 Equality Operators

Symbol	Meaning
==	equal to
!=	not equal to

Like the relational operators, the equality operators are left associative and produce 0 or 1. However, they have *lower precedence* than the relational operators, meaning the expression `i < j == j < k` is equivalent to `(i < j) == (j < k)`.

1.3 Logical Operators

Symbol	Meaning
!	logical negation
&&	logical <i>and</i>
	logical <i>or</i>

The logical operators often produce 0 or 1 as their result. They behave as follows:

- `!expr` has the value 1 if `expr` has the value 0.
- `expr1 && expr2` has the value 1 if both expressions are non-zero.
- `expr1 || expr2` has the value 1 if either `expr1` or `expr2` (or both) has a non-zero value.