🚧 🚦 Indentation Styles for C-like Programming Languages🚧

Indentation Style	while loop	for loop with nested if/else	Other example	cc-mode implementation properties	cperl-mode implementation properties	
	The purpose of this table is to describe all aspects of the various indentation styles used by C-like programming languages (C, C++, D, Java, Perl, …) and identify the properties that are required to develop indentation style formatters that can generate these formats properly. The table lists the various indentation styles and provides code snippet examples that can then be used to identify all required properties.					

🚧 I am first looking at the **cperl-mode** indentation aspects and variables. The values shown in the table reflects what the current code does (except for a minor modification for BSD).

- perltidy uses more options to control indentation than Emacs perl-mode code. I will probably have to test the indentation style generated by perltidy, document the options and compare with the Emacs Lisp code.
- I will also have to identify exactly what controls each variable and identify what aspects might be missing.
- Some of the indentation styles listed below are not explicitly supported by the cperl-mode code. I will add the values as I learn what they mean.
- For the list of values the following colour code is used:
  - **orange**: this value does not seem to control every aspect of the layout
  - **red**: a variable that is currently not used in the implementation
- For all examples (except K&R Linux kernel style where 8-columns hard tabs are required), the indentation steps is taken as 4 columns.
  - Some styles use 2 different steps of 2 columns each, and that would mean that 2 variables are required for expressing the indentation (one for each step).   This may be something that is missing to represent one aspects of all styles.

cperl-indent-level
The indentation is controlled by this variable. That might not be enough to represent the true layout of all styles; it might be necessary to use 2 different variables for truly represent the identation, or at least to be able to infer the second one from the first.

cperl-brace-offset
identifies the number of columns between the beginning of the previous statement and the indentation of the brace on the following line: ie: the offset on top of indentation-level

Text

```
int
some_func()
{
    int i;
    for (i = 0; i < 10; i++)
    {
        if (i % 2 == 0)
        {
            do_something(i);
        }
        else
        {
            do_something_else(i);
            do_third_thing(i);
        }
    }
    return i;
}
```

Indentation Style	while loop	for loop with nested if/else	Other example	cc-mode implementation properties	cperl-mode implementation properties	

Allman	`while (x == y)`
	`{`
	`    foo();`
	`    bar();`
	`}`
		`int`
		`some_func()`
		`{`
		`    int i;`
		`    for (i = 0; i < 10; i++)`
		`    {`
		`        if (i % 2 == 0)`
		`        {`
		`            do_something(i);`
		`        }`
		`        else`
		`        {`
		`            do_something_else(i);`
		`            do_third_thing(i);`
		`        }`
		`    }`
		`    return i;`
		`}`
			`int`
			`some_func()`
			`{`
			`    int c;`
			`#ifdef HAS_GETCH`
			`    while ((c = getch()) != EOF)`
			`#else`
			`    while ((c = getchar()) != EOF)`
			`#endif`
			`    {`
			`        do_something(c);`
			`    }`
			`}`
					• cperl-brace-offset
					• cperl-continued-brace-offset
					• cperl-continued-statement-offset
					• cperl-extra-newline-before-brace
					• cperl-extra-newline-before-brace-multiline
					• cperl-indent-level
					• cperl-label-offset
					• cperl-merge-trailing-else
						0
						0
						2
						t
						t
						4
						-2
						t

GNU
• **GNU-style code formatting**
	`while (x == y)`
	`  {`
	`    foo();`
	`    bar();`
	`  }`
		`int`
		`some_func()`
		`{`
		`  int i;`
		`  for (i = 0; i < 10; i++)`
		`    {`
		`      if (i % 2 == 0)`
		`        {`
		`          do_something(i);`
		`        }`
		`      else`
		`        {`
		`          do_something_else(i);`
		`          do_third_thing(i);`
		`        }`
		`    }`
		`  return i;`
		`}`
					• cperl-brace-offset
					• cperl-continued-brace-offset
					• cperl-continued-statement-offset
					• cperl-extra-newline-before-brace
					• cperl-extra-newline-before-brace-multiline
					• cperl-indent-level
					• cperl-label-offset
					• cperl-merge-trailing-else
						0
						0
						2
						t
						t
						2
						-2
						nil

Indentation Style	while loop	for loop with nested if/else	Other example	cc-mode implementation properties	cperl-mode implementation properties	
Whitesmith	```while (x == y) { foo(); bar(); }```	```int some_func() { int i; for (i = 0; i < 10; i++) { if (i % 2 == 0) { do_something(i); } else { do_something_else(i); do_third_thing(i); } } return i; }```			• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	0 0 4 t t 4 -4 nil
PBP (Perl Best Practice)⚠️ • Similar to K&R 1TB. • See **PBP Chucking section** for an example of the indentation style of a subroutine.	```while (x == y) { foo(); bar(); }```	```int some_func() { int i; for (i = 0; i < 10; i++) { if (i % 2 == 0) { do_something(i); } else { do_something_else(i); do_third_thing(i); } } return i; }```			• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	0 0 4 nil nil 4 -2 nil
K&R	```while (x == y) { foo(); bar(); }```	```int some_func() { int i; for (i = 0; i < 10; i++) { if (i % 2 == 0) { do_something(i); } else { do_something_else(i); do_third_thing(i); } } return i; }```			• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	0 -5 5 nil nil 5 5 nil

Indentation Style	while loop	for loop with nested if/else	Other example	cc-mode implementation properties	cperl-mode implementation properties	
K&R 1TB **One True Brace**	```while (x == y) { foo(); bar(); }```	```int some_func() { int i; for (i = 0; i < 10; i++) { if (i % 2 == 0) { do_something(i); } else { do_something_else(i); do_third_thing(i); } } return i; }```			• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	
K&R Linux Kernel • use hard tab characters • tab stop every 8 spaces • else is <u>cuddled</u>		```int some_func() { int i; for (i = 0; i < 10; i++) { if (i % 2 == 0) { do_something(i); } else { do_something_else(i); do_third_thing(i); } } return i; }```			• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	
Ratliff • Like K&R 1TB but the closing brace lines up with the indentation of the nested block.	```while (x == y) { foo(); bar(); }```	```int some_func() { int i; for (i = 0; i < 10; i++) { if (i % 2 == 0) { do_something(i); } else { do_something_else(i); do_third_thing(i); } } return i; }```	```for (i = 0; i < 10; i++) { if (i % 2 == 0) { do_something(i); } else { do_something_else(i); } }```		• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	

Indentation Style	while loop	for loop with nested if/else	Other example	cc-mode implementation properties	cperl-mode implementation properties	
Horstmann • Adapts Allman by placing the first statement of the block one the same line as the opening brace, reducing the. number of lines.	```while (x == y)` `{ foo();` ` bar();` `}```	```int` `some_func()` `{ int i;` ` for (i = 0; i < 10; i++)` ` { if (i % 2 == 0)` ` { do_something(i);` ` }` ` else` ` { do_something_else(i);` ` do_third_thing(i);` ` }` ` }` ` return i;` `}```	```while (x == y)` `{ something();` ` something_else();` ` //...` ` if (x < 0)` ` { printf("Negative");` ` negative(x);` ` }` ` else` ` { printf("Non-negative");` ` nonnegative(x);` ` }` `}` `final_thing();```		• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	
Pico • This is a style for the Pico language which lacks return statement. • For C like languages it is similar to Horstmann, but the closing brace is at the end of the last indented statement, making it similar to the Lisp style below.	```while (x == y)` `{ foo();` ` bar(); }```	```int` `some_func()` `{ int i;` ` for (i = 0; i < 10; i++)` ` { if (i % 2 == 0)` ` { do_something(i); }` ` else` ` { do_something_else(i);` ` do_third_thing(i); }}` ` return i; }```	```stuff(n):` `{ x: 3 * n;` ` y: do_stuff(x);` ` y + x }```		• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	
Lisp	```while (x == y)` ` { foo();` ` bar(); }```	```int` `some_func()` ` { int i;` ` for (i = 0; i < 10; i++)` ` { if (i % 2 == 0)` ` { do_something(i); }` ` else` ` { do_something_else(i);` ` do_third_thing(i); }}` ` return i; }```	```for (i = 0; i < 10; i++)` ` {if (i % 2 == 0)` ` {do_something(i);}` ` else` ` {do_something_else(i);` ` do_third_thing(i);}}```		• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	
Cperl 🚧					• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	0 0 2 nil nil 2 -2 t
C++ 🚧 **(cperl C++ style)**					• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	0 -4 4 t t 4 -4 nil

Indentation Style	while loop	for loop with nested if/else	Other example	cc-mode implementation properties	cperl-mode implementation properties	
PerlStyle 🚧					• cperl-brace-offset • cperl-continued-brace-offset • cperl-continued-statement-offset • cperl-extra-newline-before-brace • cperl-extra-newline-before-brace-multiline • cperl-indent-level • cperl-label-offset • cperl-merge-trailing-else	0 0 4 nil nil 4 -4 t