

Confusing But Valid Expressions in C (With Examples)

1. Multiple Unary Operators

```
+ +5      => 5
- -5      => 5
- +5      => -5
+ - - -5  => -5
```

Explanation: Unary + and - just change the sign. Multiple signs are applied from right to left.

2. Pre/Post Increment/Decrement

```
int i = 5;

++i;      // becomes 6
i++;      // still prints 6, but i becomes 7
```

```
int a = ++i + i++; // Undefined behavior: modifying i multiple times without
sequence point
```

3. Assignment in Expressions

```
int a = 5;

int b = (a = 3) + 2; // a becomes 3, b becomes 5
```

```
int x = 10;

printf("%d", x = 20); // prints 20
```

4. Comma Operator

```
int x = (1, 2, 3); // x = 3, last value is returned
```

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```
int y;  
y = (x = 10, x + 5); // x = 10, y = 15
```

5. Logical & Bang (!) Operators

```
int x = 5;  
int y = !!x; // y = 1 (non-zero becomes 1)  
int z = !!!x; // z = 0 (logical NOT of NOT of NOT)
```

6. Nested Ternary Operator

```
int x = 5;  
int y = (x > 0) ? ((x > 10) ? 100 : 50) : -1; // y = 50
```

7. White Space Confusion

```
int+++++x; // Valid! Becomes: int++ ++ +x; (though not recommended)
```

8. Confusing but Valid Arithmetic

```
int a = 5;  
printf("%d", a+++a); // a++ + a = 5 + 6 = 11 (a becomes 6 after a++)
```

9. Undefined Behavior (UB) Examples

```
a = a++ + ++a; // UB: modifying 'a' more than once without sequence point  
return &localVar; // UB: local variable destroyed  
printf("%s", getStr()); // if getStr returns local array, it's UB
```