

13a - Complex Declaration

Tuesday, 18 August 2026 02:34

$\text{int } *p \rightarrow p \text{ is an integer pointer}$

$\text{int } *p[10] \rightarrow p \text{ is an array of 10 int pointers.}$

$\text{int } (*p)(\text{int}) \rightarrow ??$

Translate into Simple English

i> * as "pointer to"

ii> [] as "array of"

iii> () as function returning

Translation Steps:

eg: $\text{int } *p[10];$

Step 1: Find the identifier. Then start with "identifier is".

Here 'p' is identifier.

p is

Step 2: Look at symbols on the right side of the identifier.

.. - - " .

If it's "[]" then you can say
"identifier is an array of".

Continue right until symbols end or you hit
")". See step 3 if "(".

p is array of 10....

Step 3: Keep going left ^{from identifier} (and translate to english)
until you run out of symbol or
hit "(".
hit "(".

on left, we have $\rightarrow \text{int}^*$

So,

p is array of 10 integer pointers
Step 1 Step 2 Step 3

Example

int (*p)[10]

p is pointer to array of 10 int
Step 1 resolving
parentheses
first

Step 2.

Q: $\text{int} * f();$
 means "function returning"
 f is a function returning integer pointer

Q: $\text{int} (*pf)();$
 pf is a pointer to function returning integer.

Q: $\text{int} (*pf)(\text{int});$
 pf is a pointer to function taking integer argument and returning int.

Q: $\text{int} ** (*fp1)(\text{int})[10];$

$fp1$ is a pointer to a function taking int as argument and returns pointer to array of 10 integer pointers