Principles of Programming Languages

CS 314

Recitation 4

Topics Today

C Programming: Pointers and Memory

C Programming-Example

```
int i=5, j = 10;
int *ptr, **pptr;
ptr= &i;
pptr = &ptr;
*ptr = 3;
**pptr = 7;
ptr = &j;
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*pptr = &i;
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```

RUTGERS

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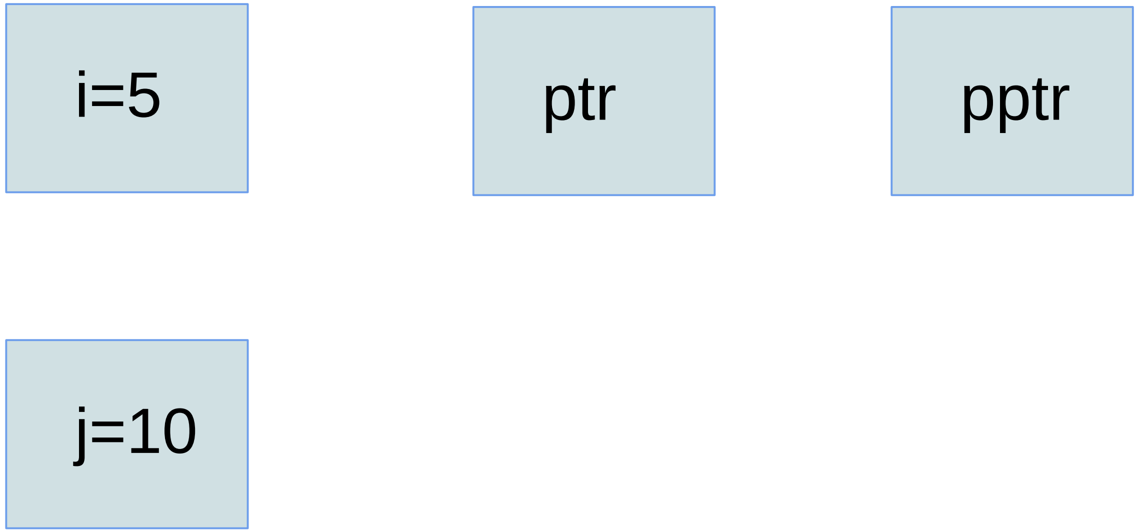

i=5

ptr

pptr

j=10

RUTGERS

C Programming-Example

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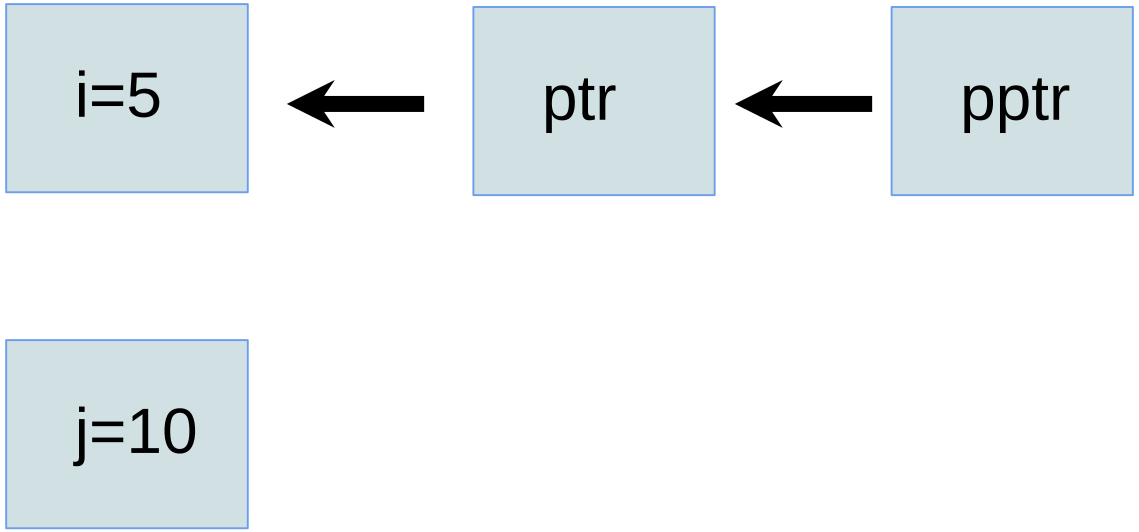

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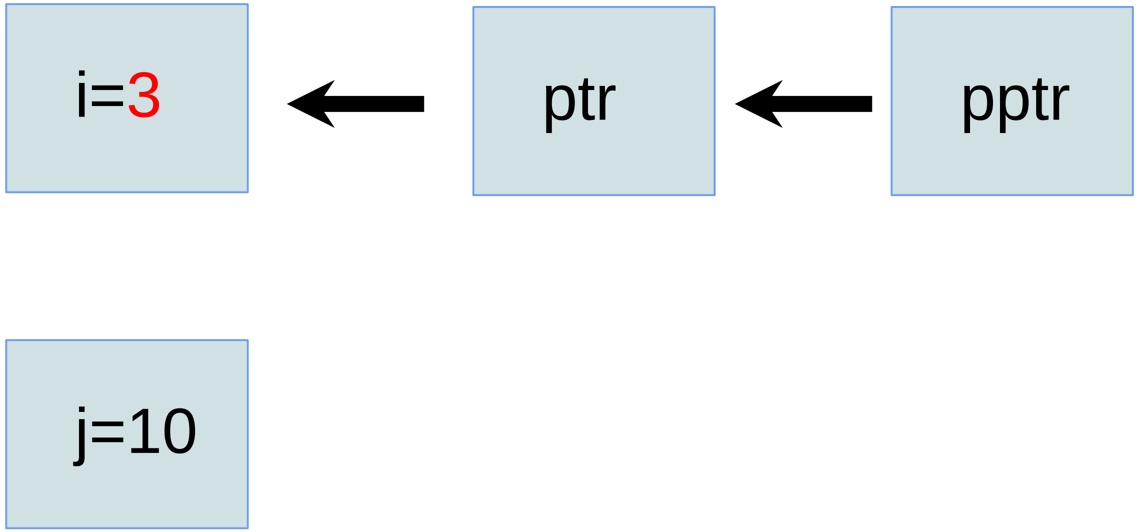

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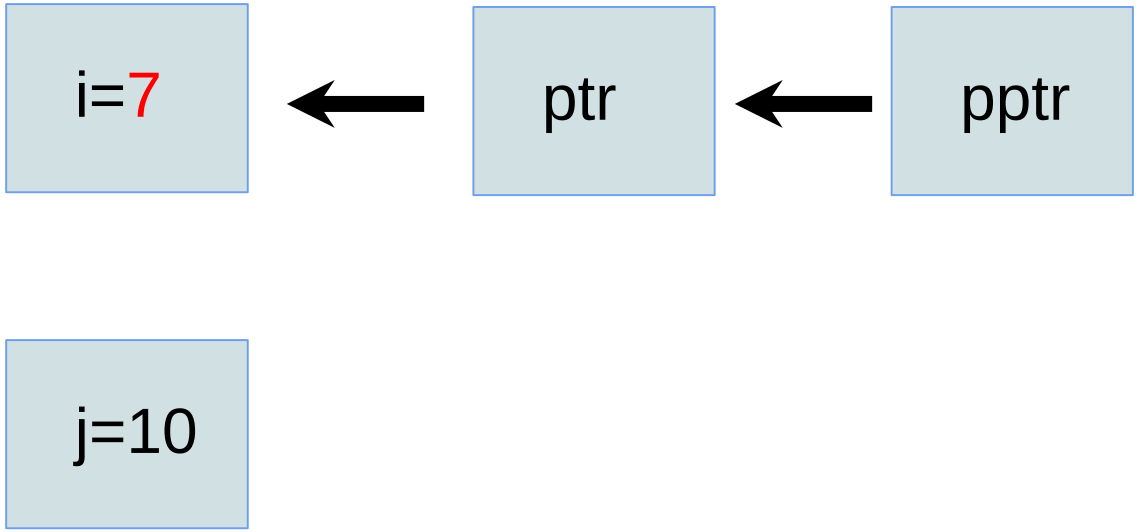

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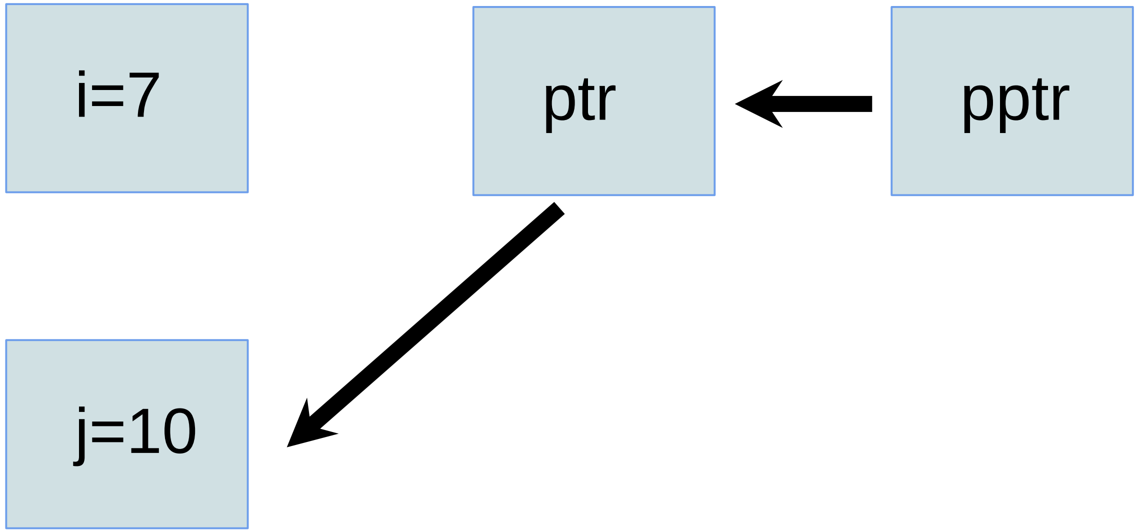

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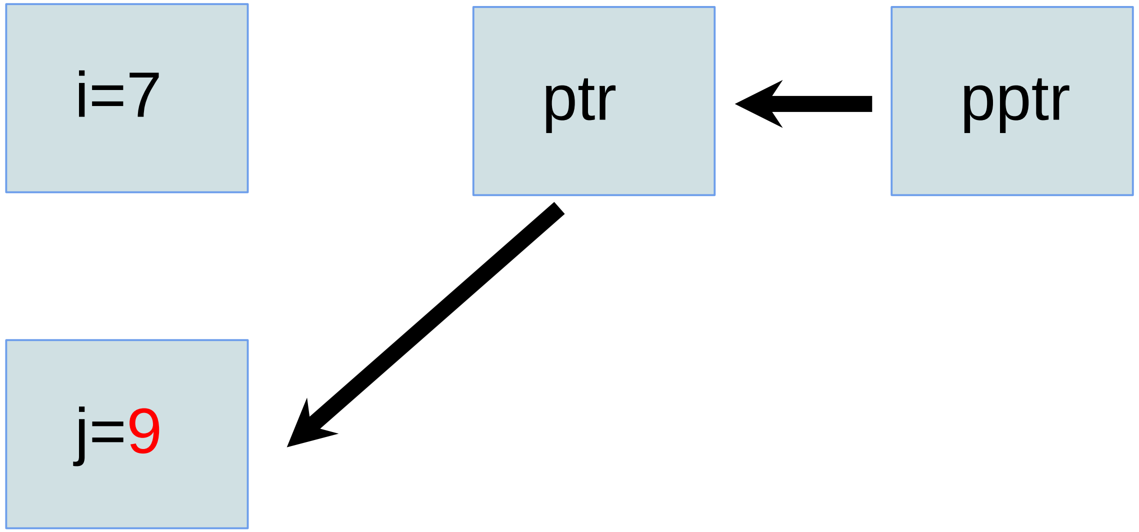

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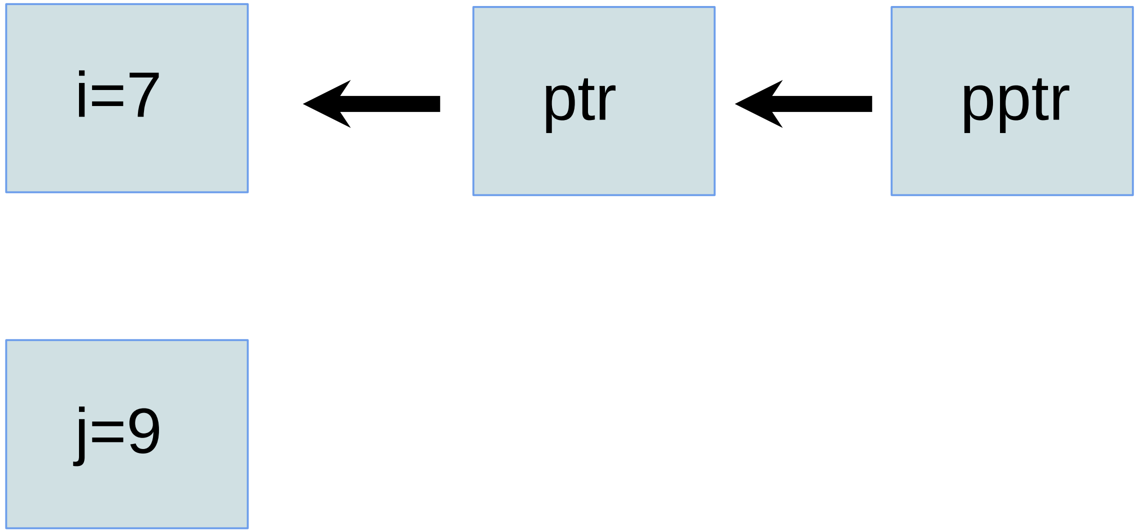

i=7

ptr

pptr

j=9

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C Programming-Example

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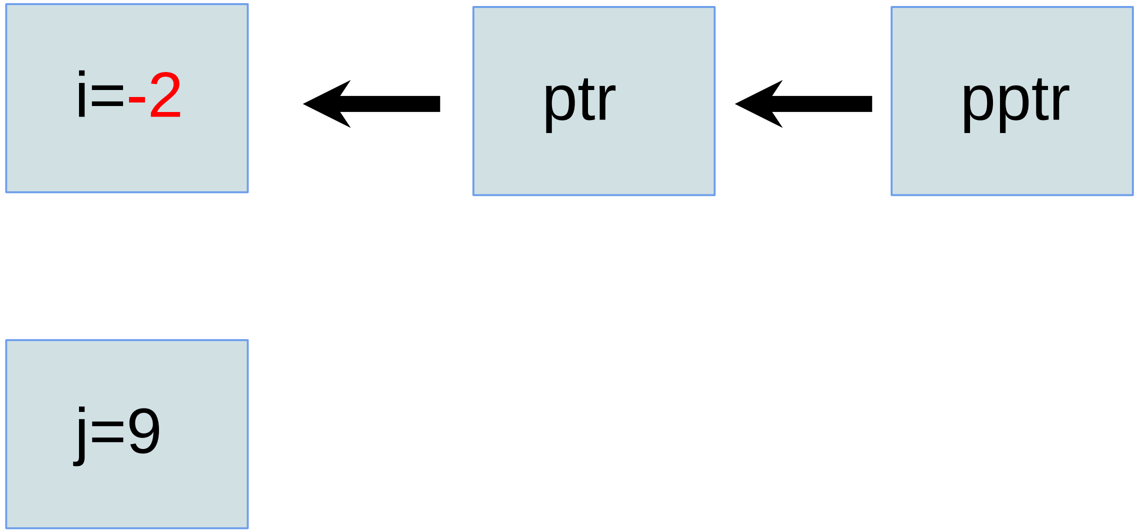

C Programming-Errors in Pointers

```
int *p;
p = 5;
*(p+1)=7;
```

Address 6 may not be allocated to this program, this program cannot access it.

C Programming-Errors in Pointers

```
int *p = malloc(8);
*p = 100;
free(p);
*p = 10;
```

It is not allowed to access an address after releasing it.