

SCS1312 Operating System Concepts

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`fork()`

fork()

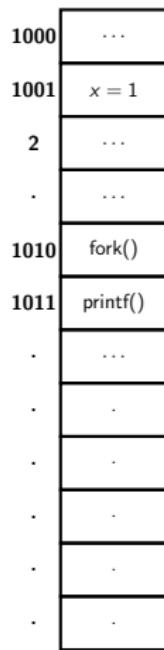
```
#include <unistd.h>
#include <stdio.h>

int main()
{
    int x=1;

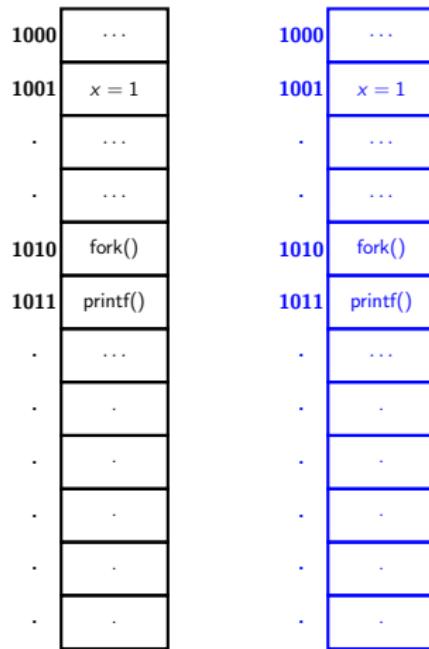
    fork();

    printf("%d\n", x);
}
```

fork()



fork()



fork()

```
#include <unistd.h>
#include <stdio.h>

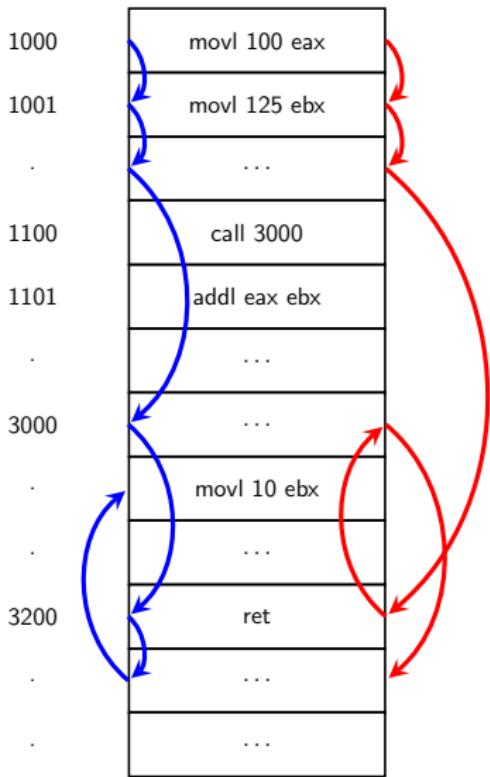
int main()
{
    int x=100;

    if(fork())
        printf("%d\n", x);
    else
        printf("Child\n");
}
```

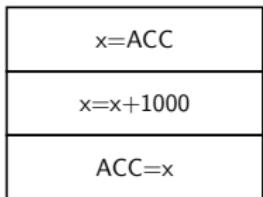
1000	movl 100 eax
1001	movl 125 ebx
.	...
1100	call 3000
1101	addl eax ebx
.	...
3000	...
.	...
3200	movl 10 ebx
.	...
3200	ret
.	...
	...

1000	movl 100 eax
1001	movl 125 ebx
.	...
1100	call 3000
1101	addl eax ebx
.	...
3000	...
.	...
3200	movl 10 ebx
.	...
3200	ret
.	...
	...

Thread

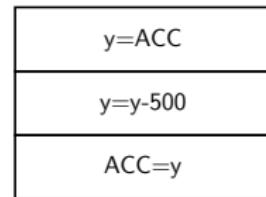


Payroll



x

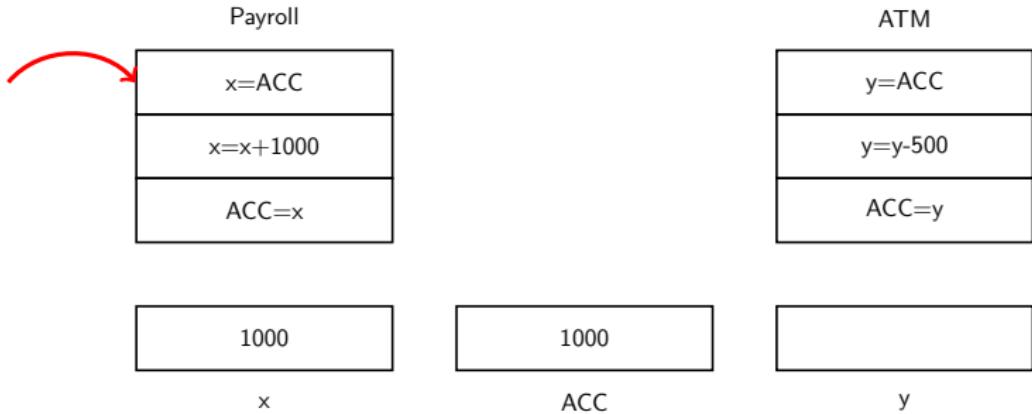
ATM

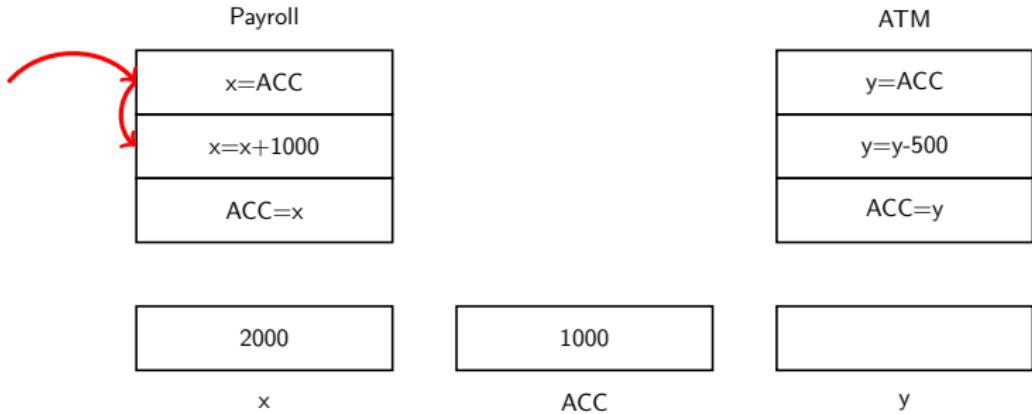


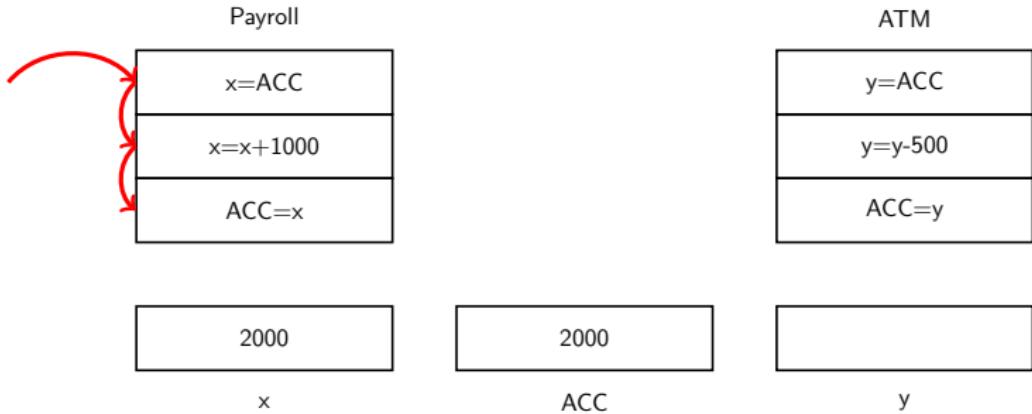
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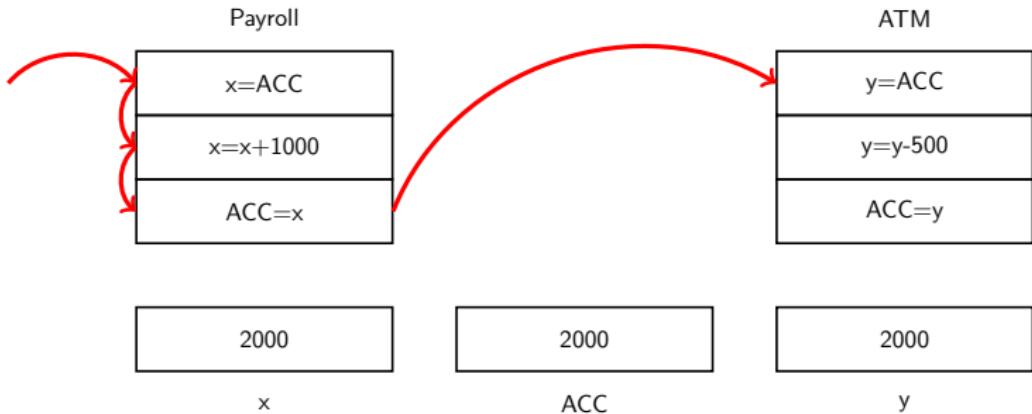
1000

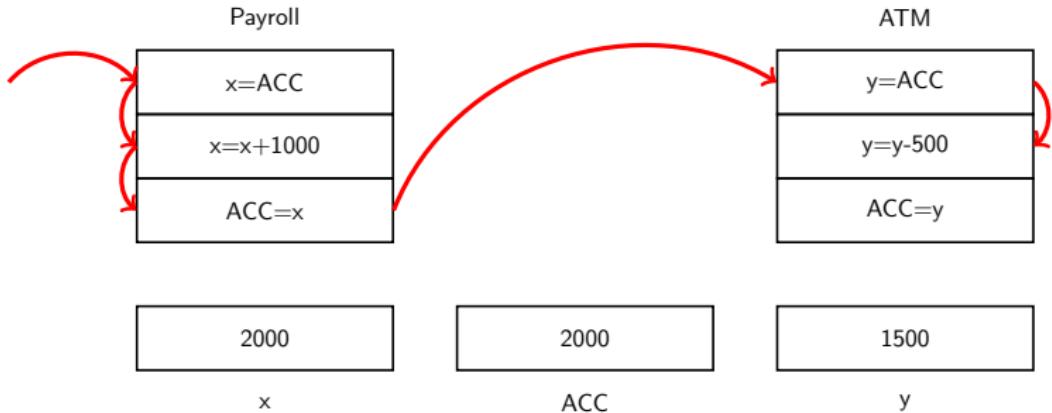
ACC

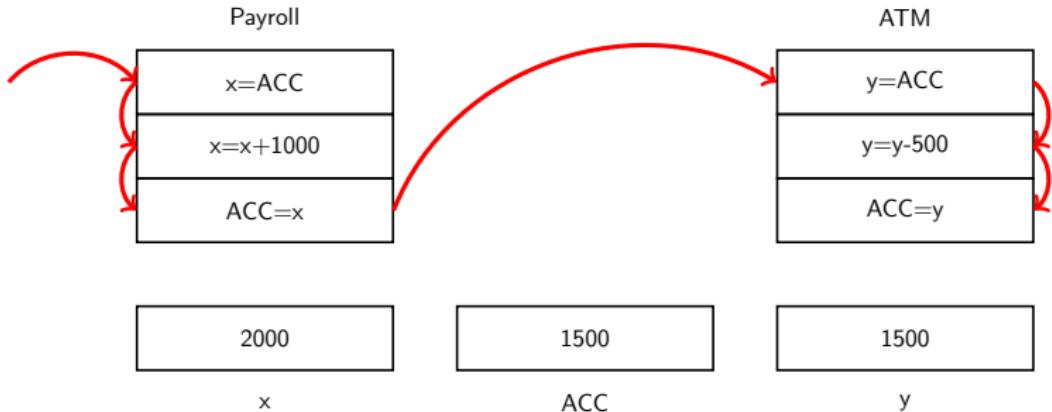




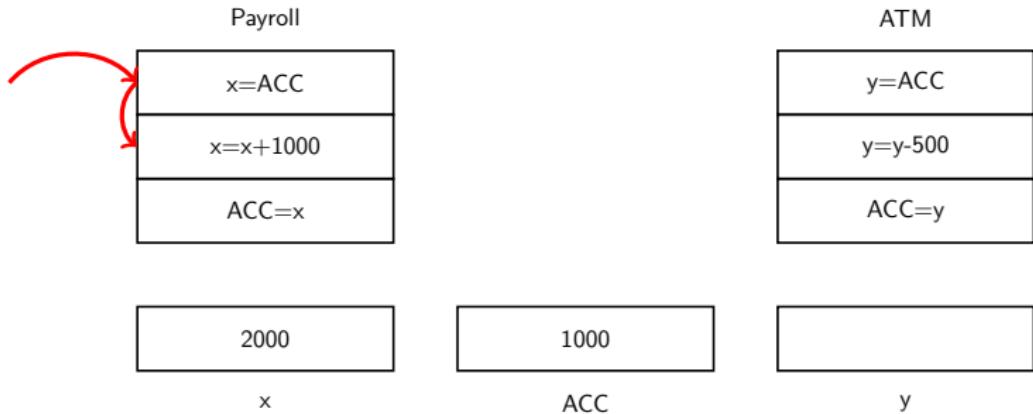




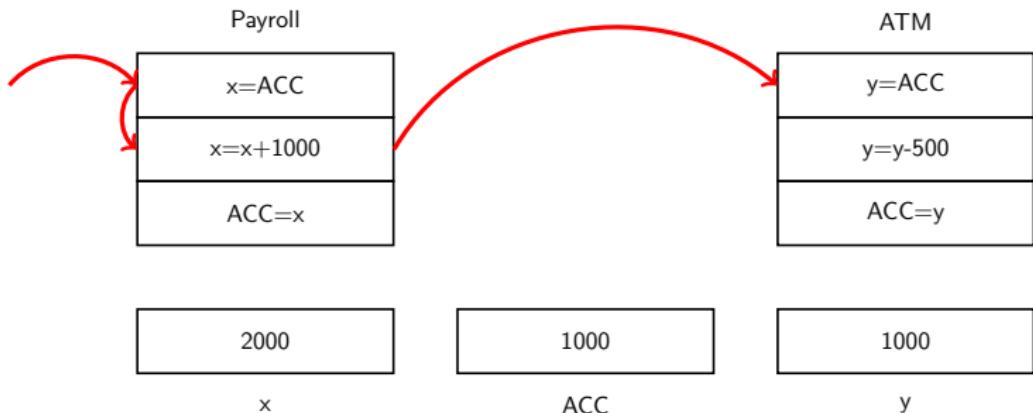




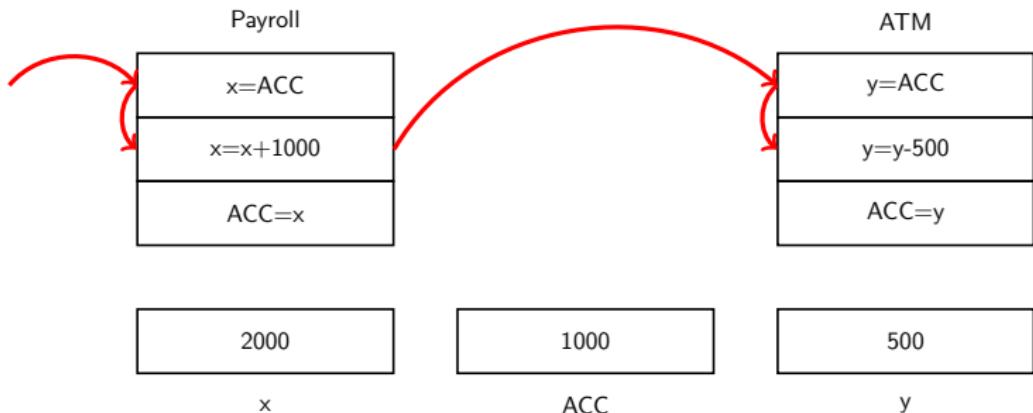
Another Path



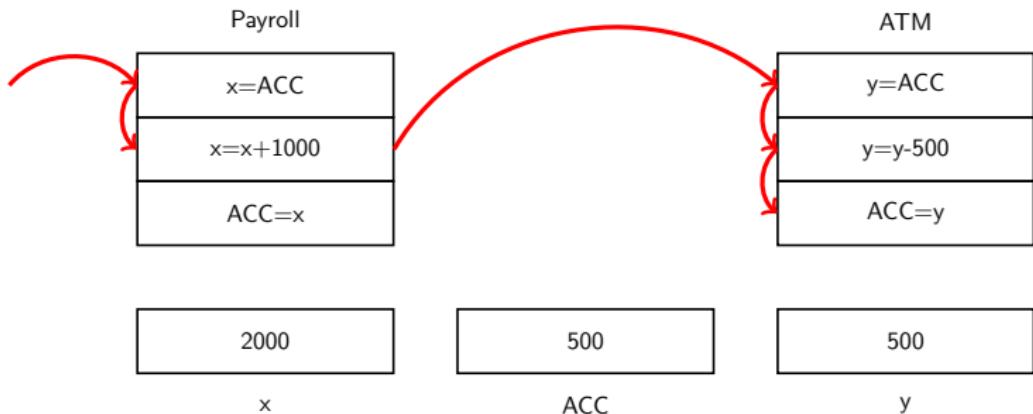
Another Path



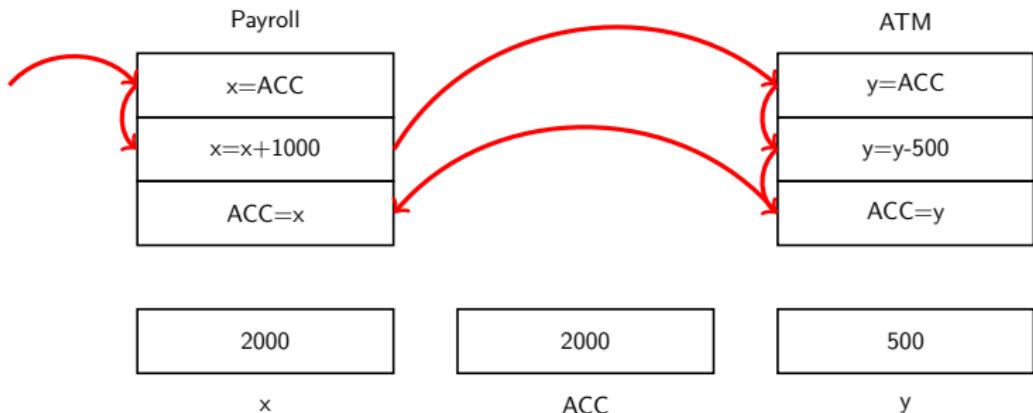
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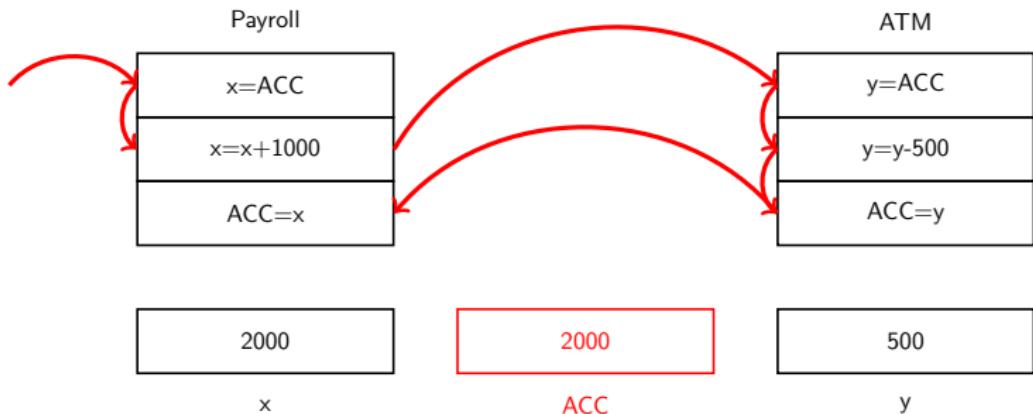
Another Path



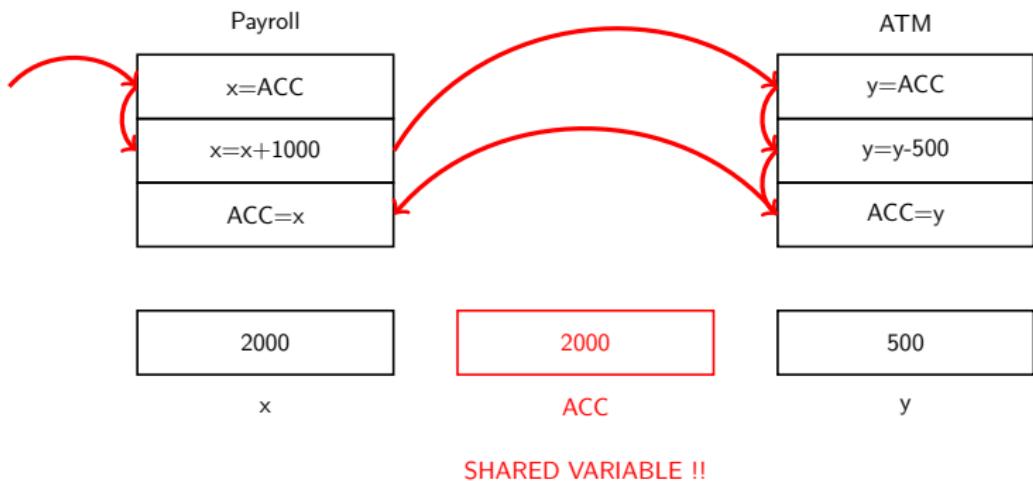
Another Path



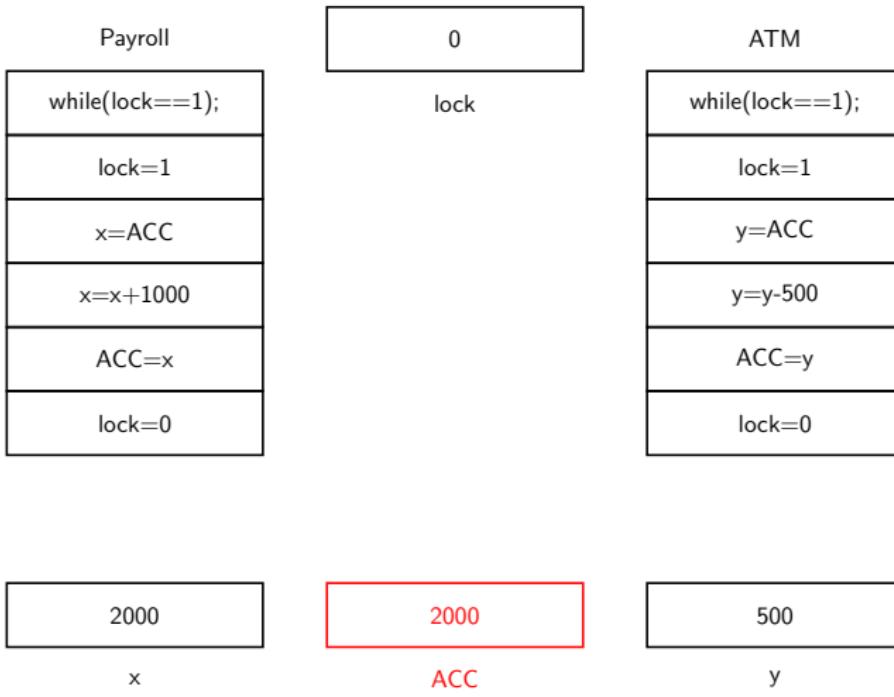
Another Path



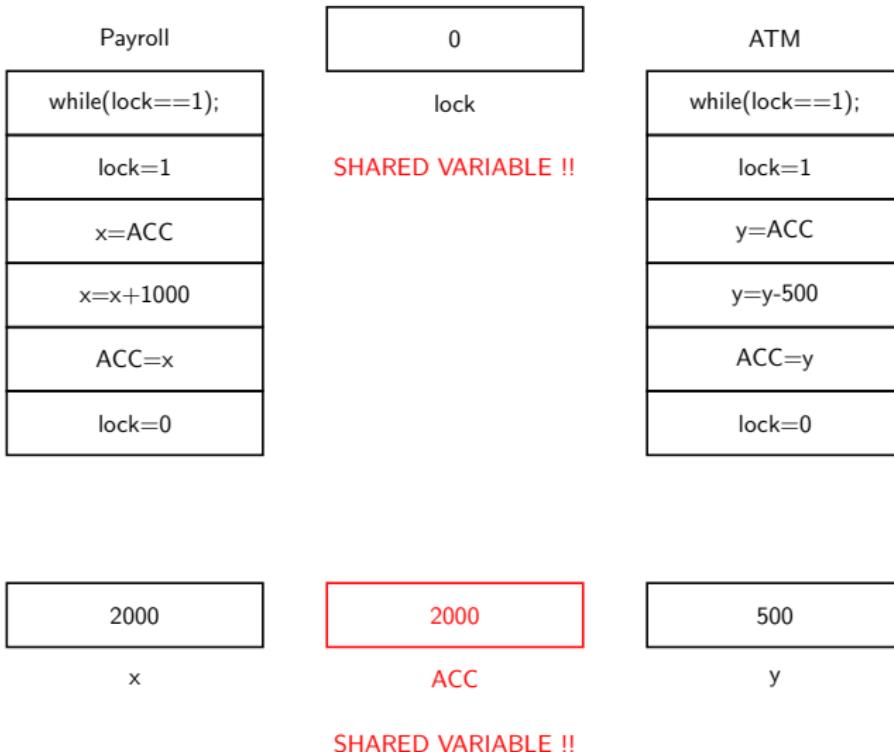
Another Path



Using a Lock



Using a Lock



- Race Condition
- Critical Section Problem

- Atomicity

General Structure

```
noncritical_section();
```

```
critical_section();
```

```
noncritical_section();
```

Test_And_Set(x)

Returns the current value of x and the sets the value of x to *True*.