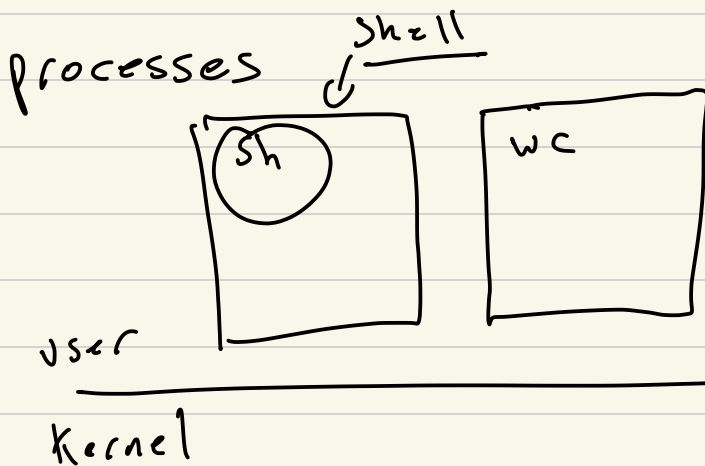
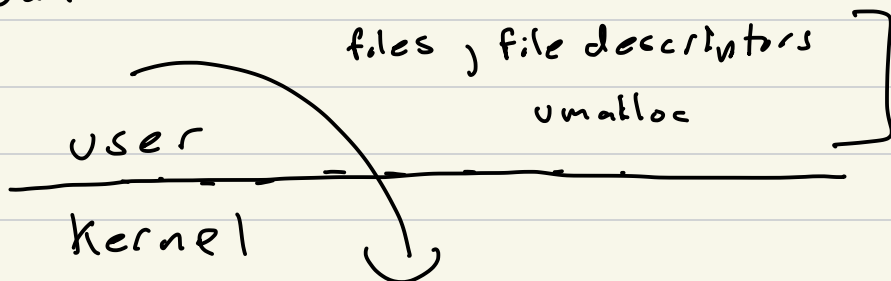


CS 326 File Redirection

A Goal:



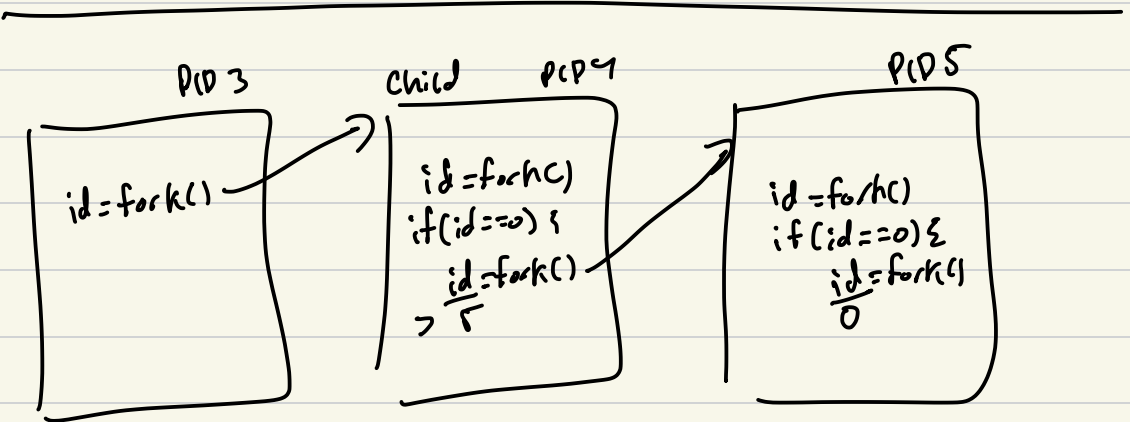
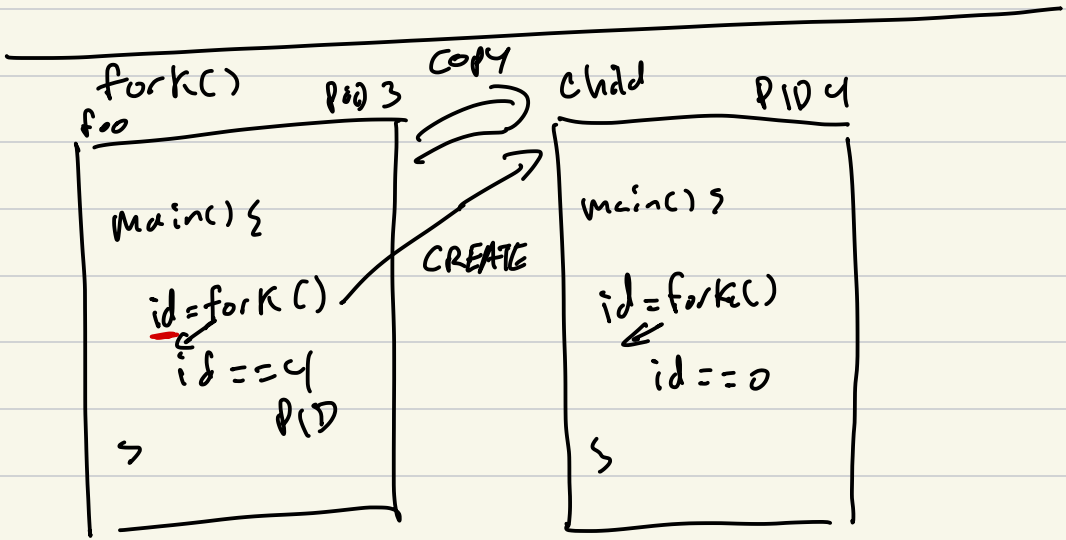
`fork()` / `exec()` / `wait()` / `exit()`

\$ ls > out.txt } redirection
file descriptors

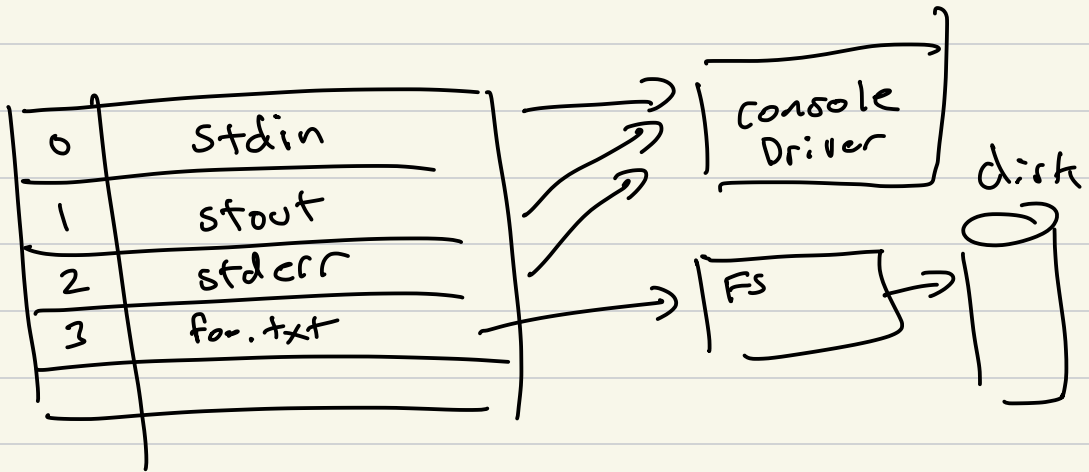
\$ ls | wc

↑
pipe

Pipe Redirection



File Descriptor Table

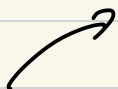
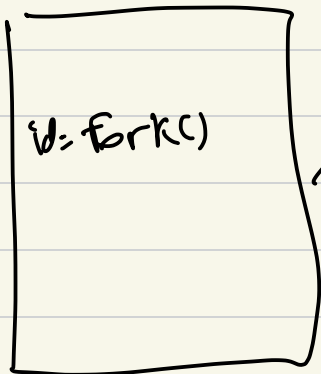


```
fd = Open ("foo.txt", O_CREATE | O_WRONLY);
```

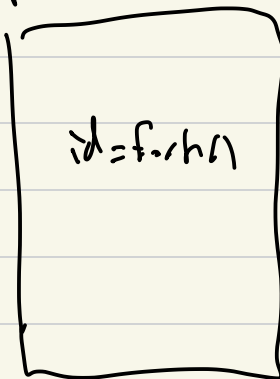
```
Write (fd, "hello", 5);
```

```
write (1, "hello", 5);
```

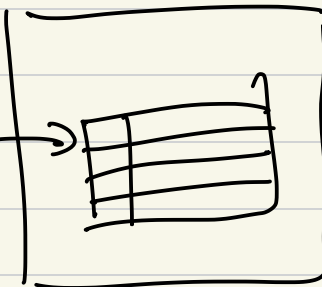
Process



Process



proc
struct



process
control
block

\$ ls > out.txt

```
id = fork()
```

```
if (id == 0) {
```

```
// child
```

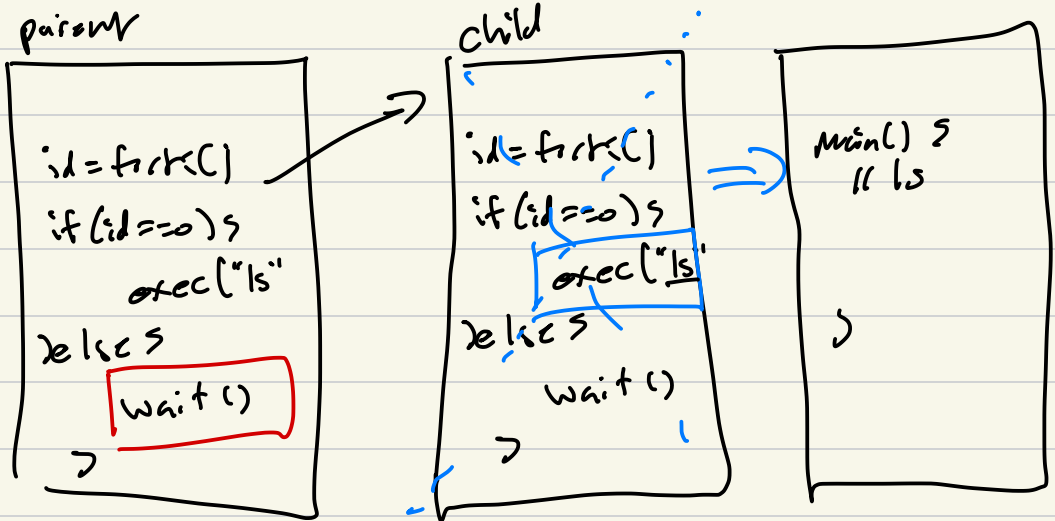
```
exec("ls", NULL);
```

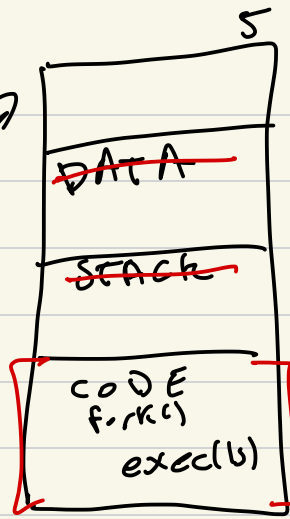
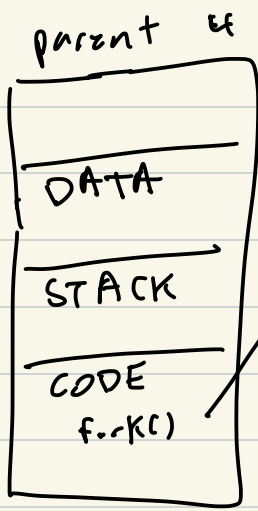
```
} else {
```

```
// parent
```

```
wait();
```

```
}
```

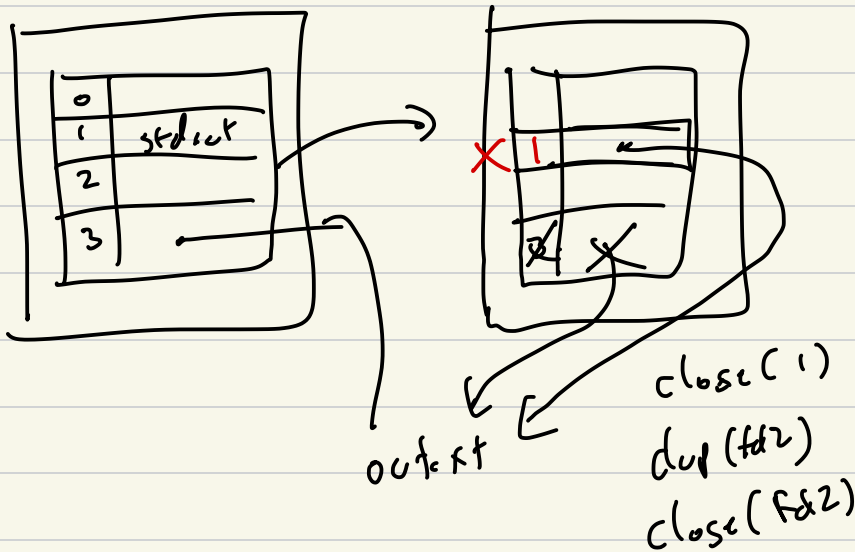
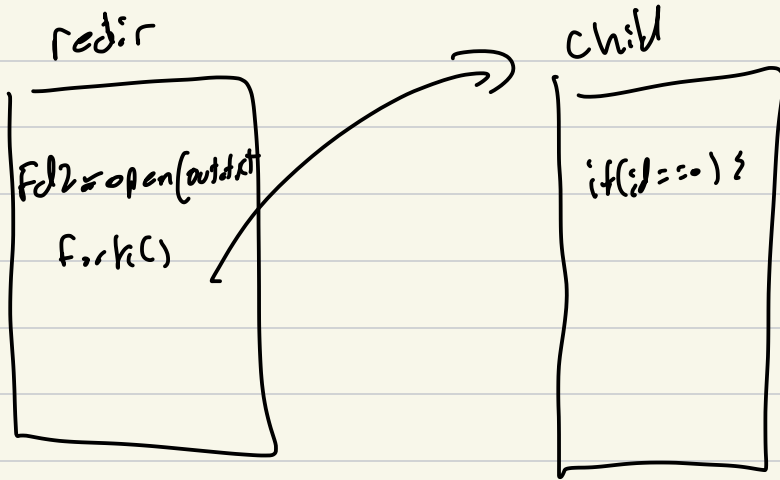




replaced
with code
for ls

\$ ls

\$



\$ ls > output