Sistemas Operativos (75.08)

Primer cuatrimestre 2022 - FIUBA

Repositorio

Preparación repositorio

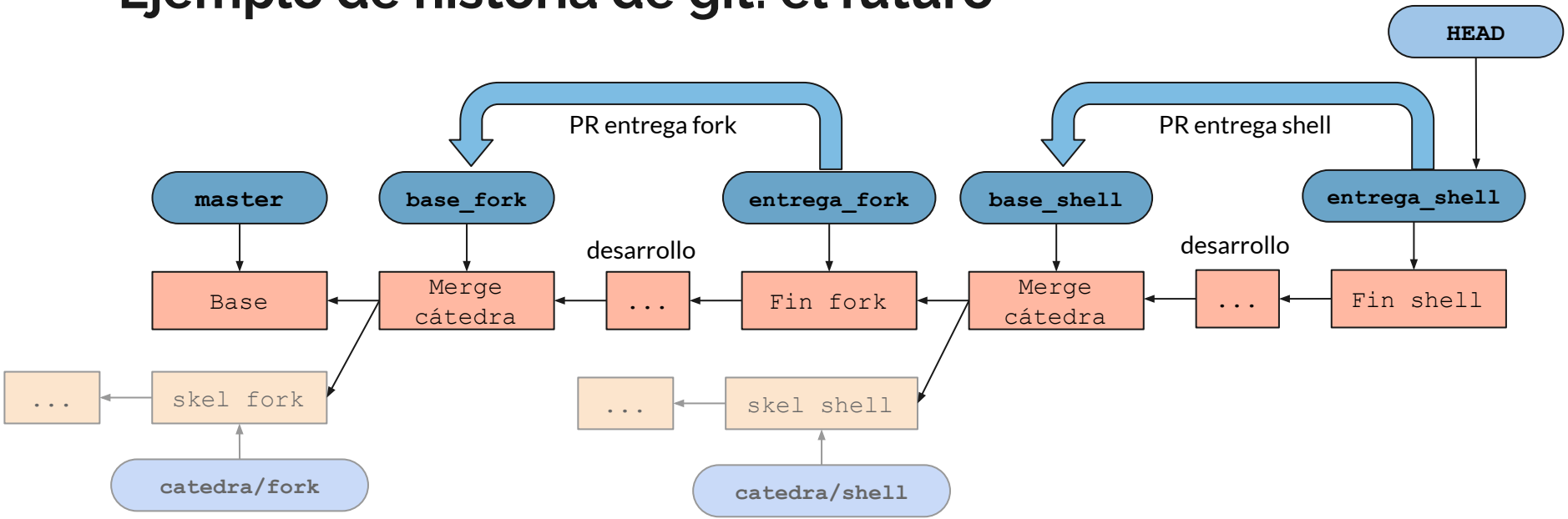
- git **checkout** ***entrega_fork //*** o también ***git checkout main***
- git **checkout** -b ***base_shell*** (crea la rama "**base_shell**")

- git **fetch** ***catedra***
- git **merge** ***catedra/shell*** (aparece el *merge commit*)

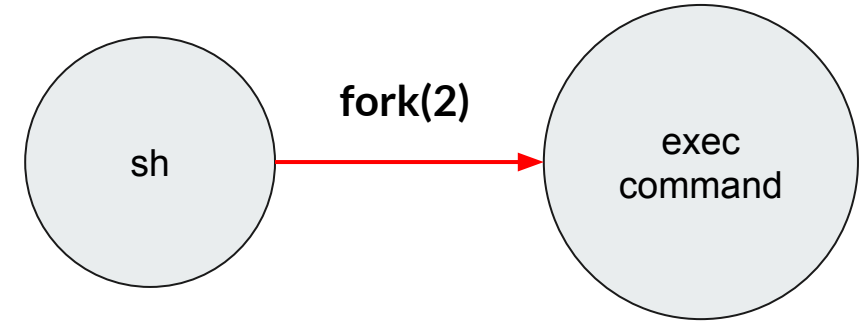
- git **push** -u origin ***base_shell***
- git **checkout** -b ***entrega_shell*** (crea la rama "**entrega_shell**")
- git **push** -u origin ***entrega_shell***

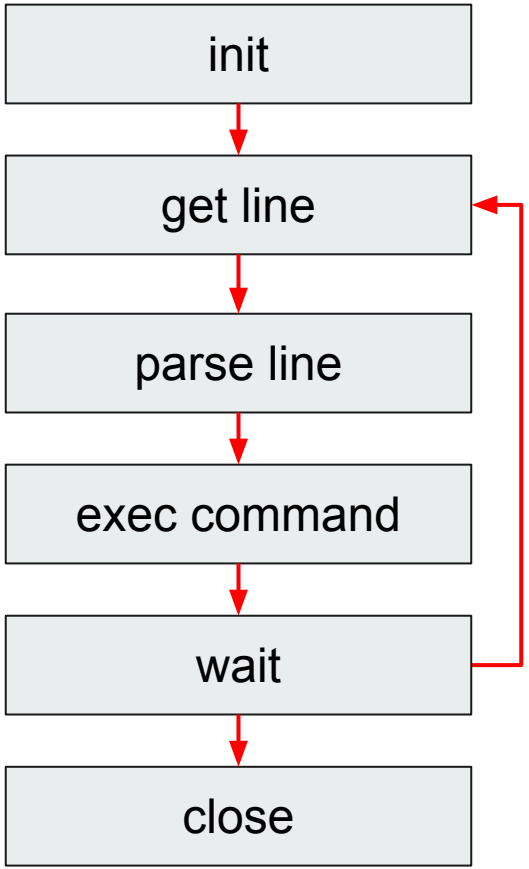
IMPORTANTE: todos los *commits* van en la rama ***entrega_shell***

Ejemplo de historia de git: el futuro



Lab shell

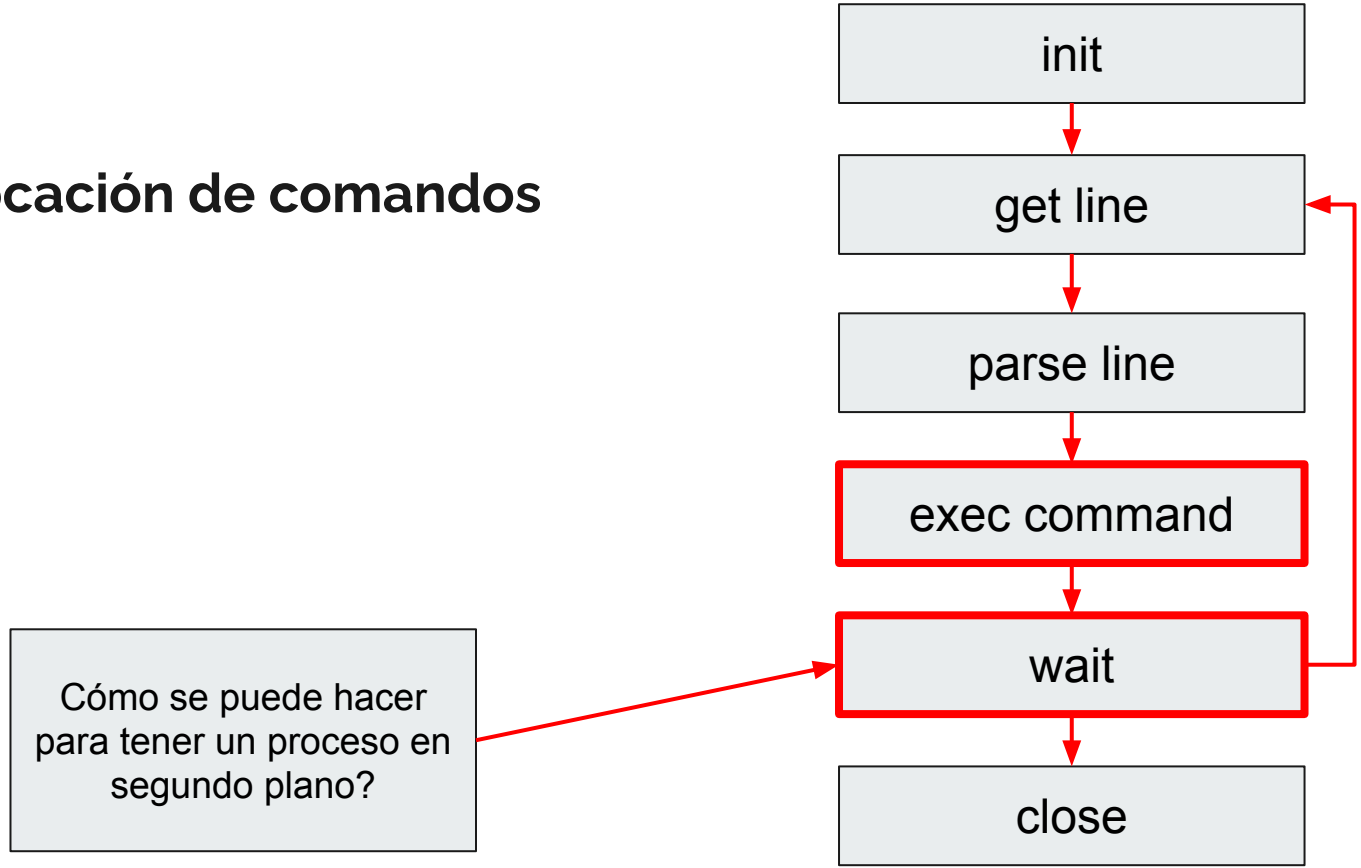

sh
fork(2)
exec
command


init
get line
parse line
exec command
wait
close

Parte 1: Invocación de comandos

Syscalls:

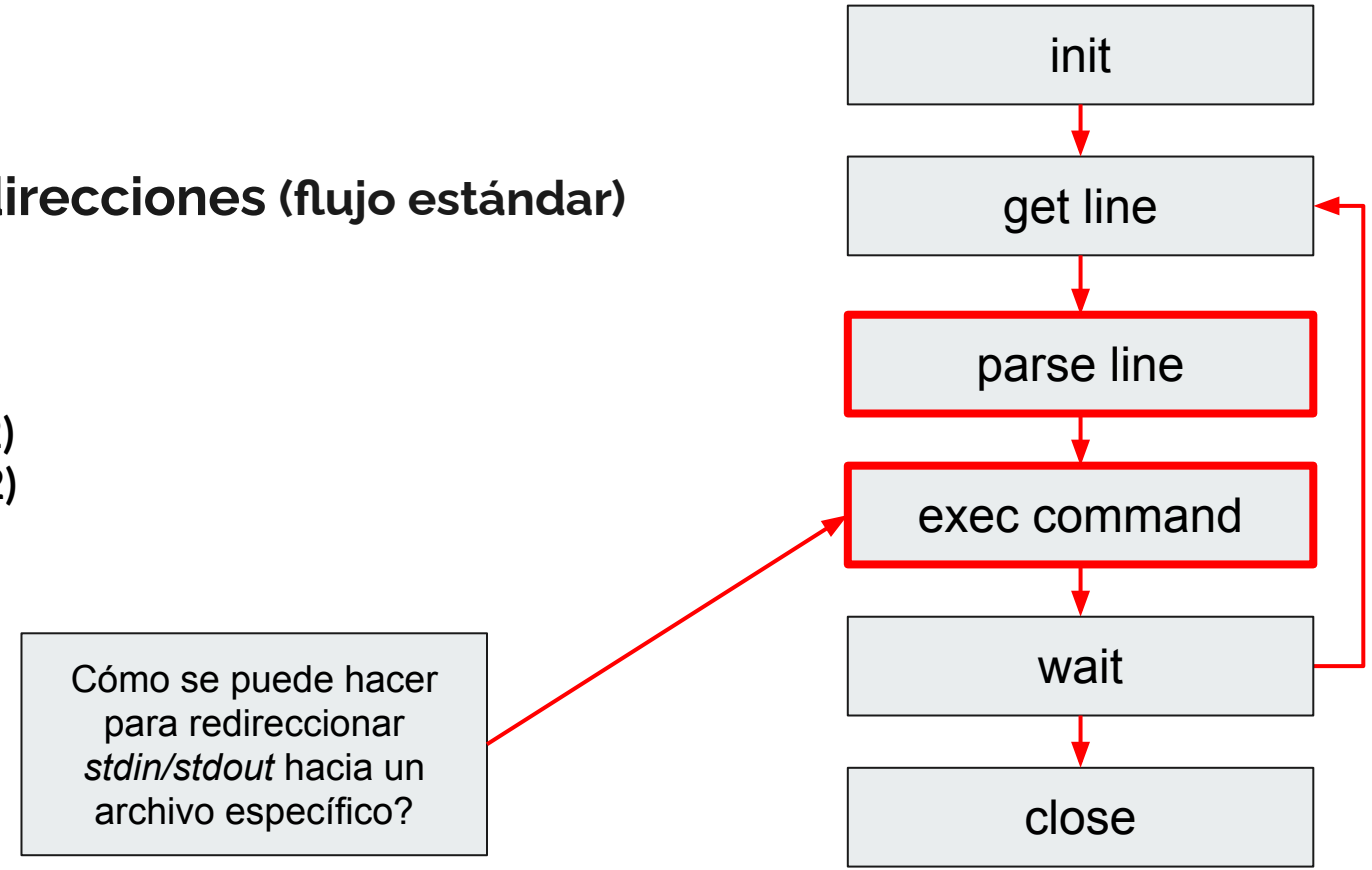
- **fork(2)**
- **exec(2)**
- **wait(2)**



Parte 2: Redirecciones (flujo estándar)

Syscalls:

- **dup(2)**
- **open(2)**
- **close(2)**



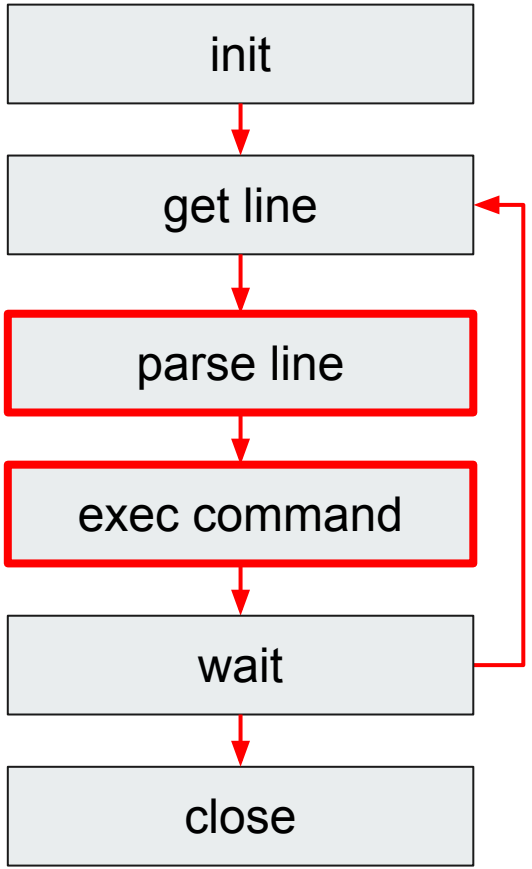
Parte 2: Redirecciones (flujo estándar)

Prueba 0:

1. close(1)
2. open(“file-out.txt”)

O también:

1. close(0)
2. open(“file-in.txt”)



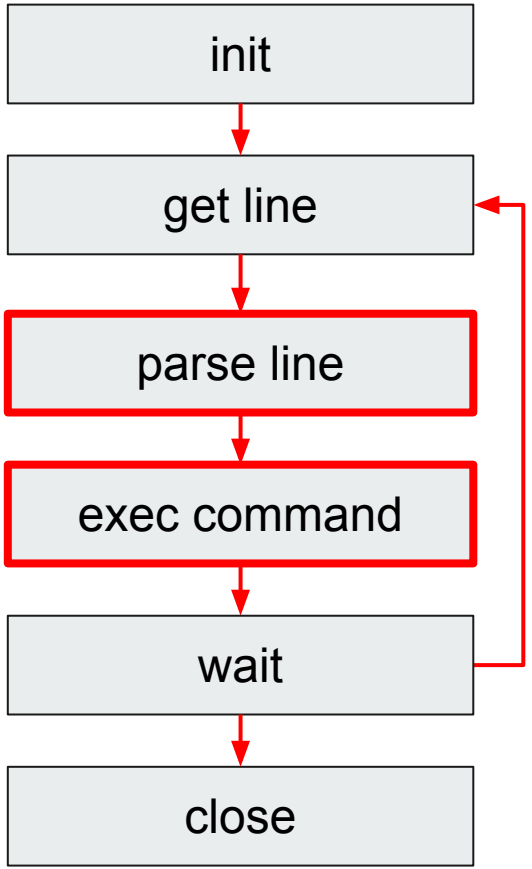
Parte 2: Redirecciones (flujo estándar)

Prueba 1:

1. fd = open(“file-out.txt”)
2. close(1)
3. dup(fd) // debería devolver 1
4. close(fd)

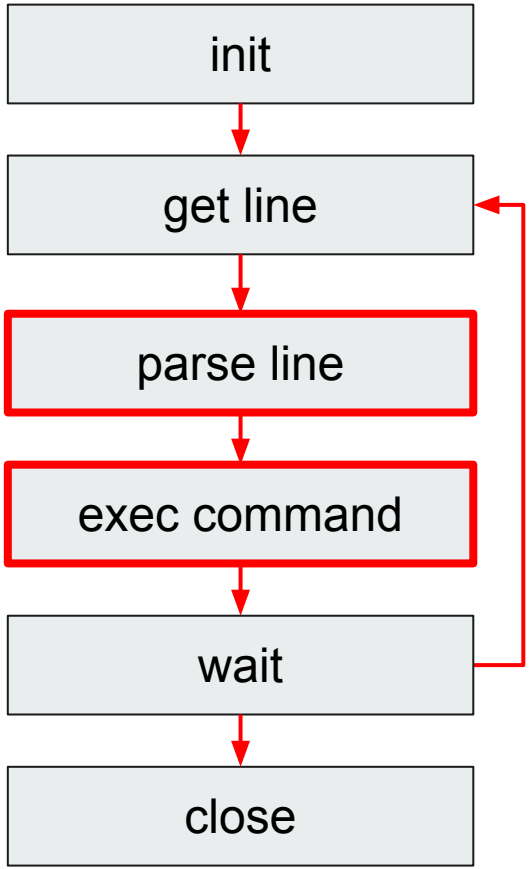
O también:

1. fd = open(“file-in.txt”)
2. close(0)
3. dup(fd) // debería devolver 0

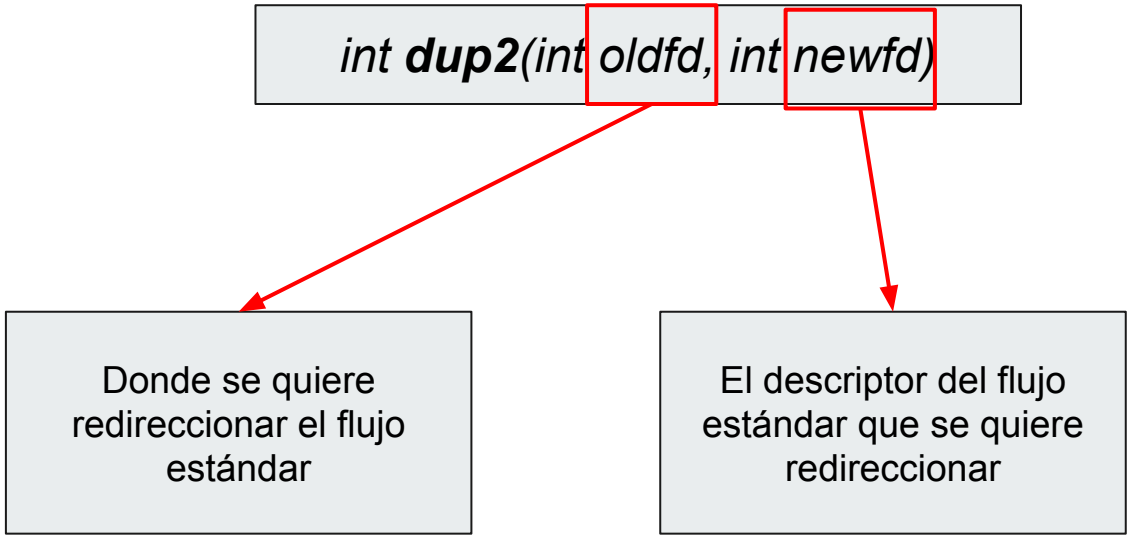


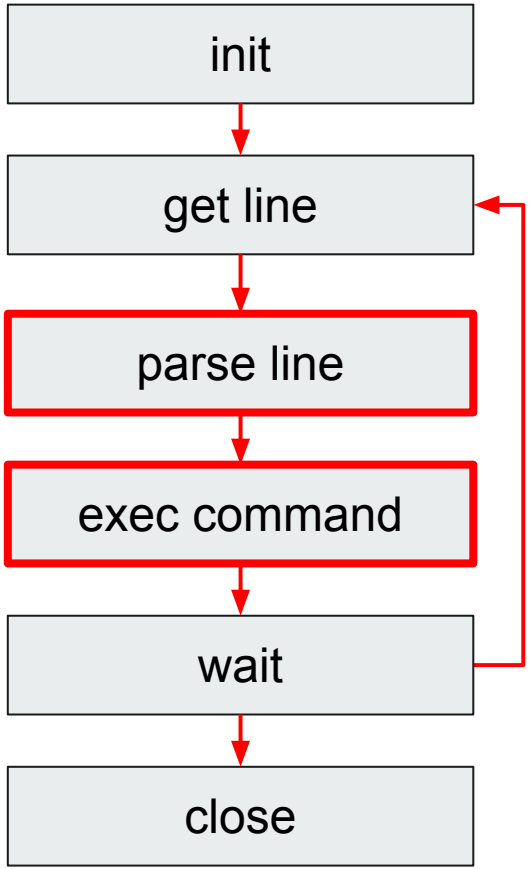
Parte 2: Redirecciones (flujo estándar)

*int **dup2**(int oldfd, int newfd)*

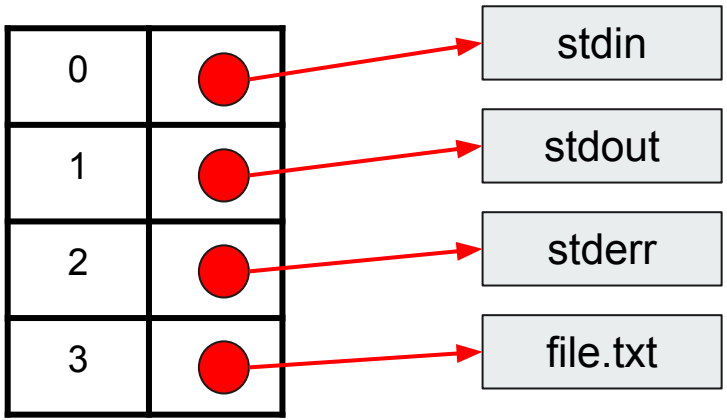


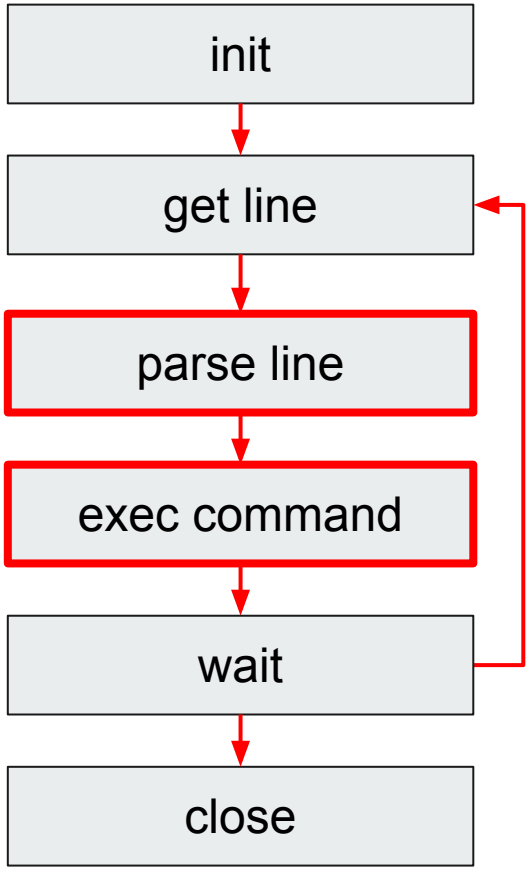
Parte 2: Redirecciones (flujo estándar)





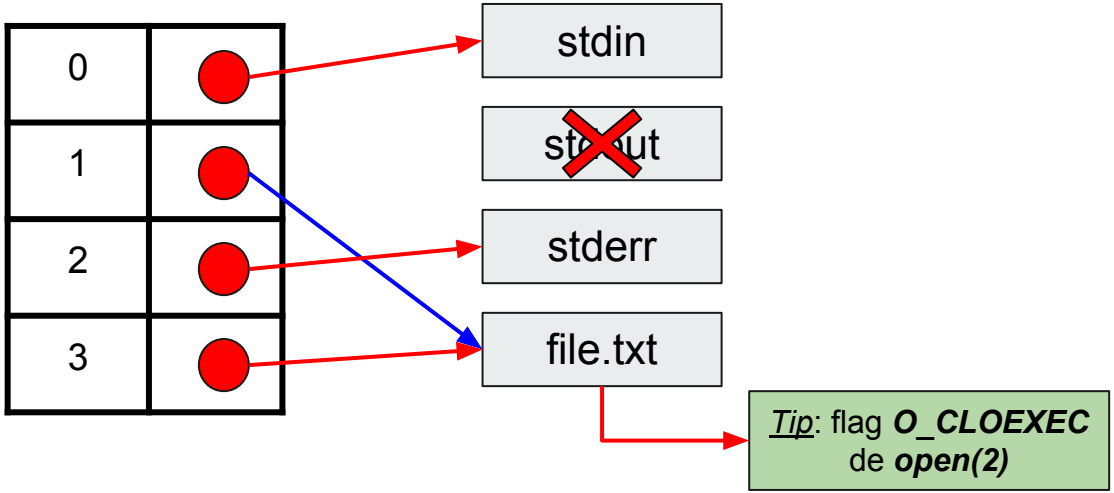
Parte 2: Redirecciones (flujo estándar)

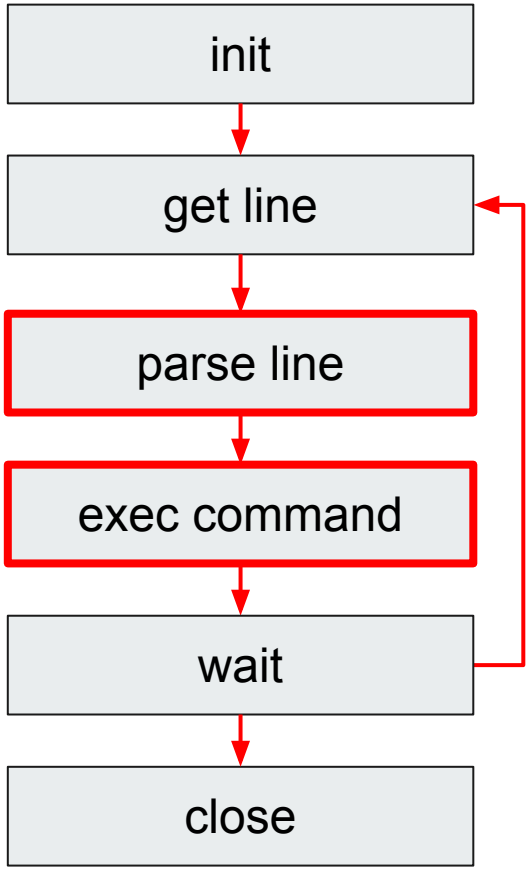




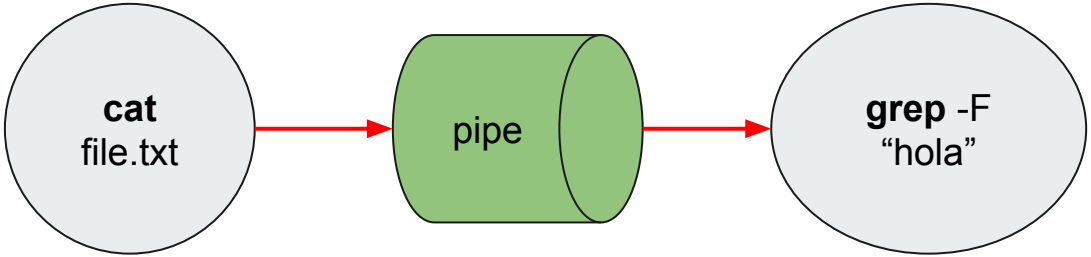
Parte 2: Redirecciones (flujo estándar)

*int **dup2**(**3** // file.txt, **1** // stdout)*

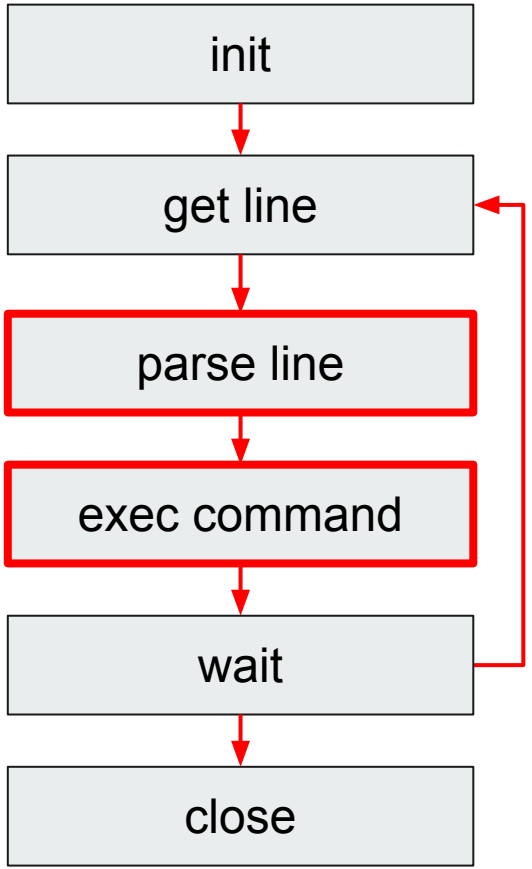




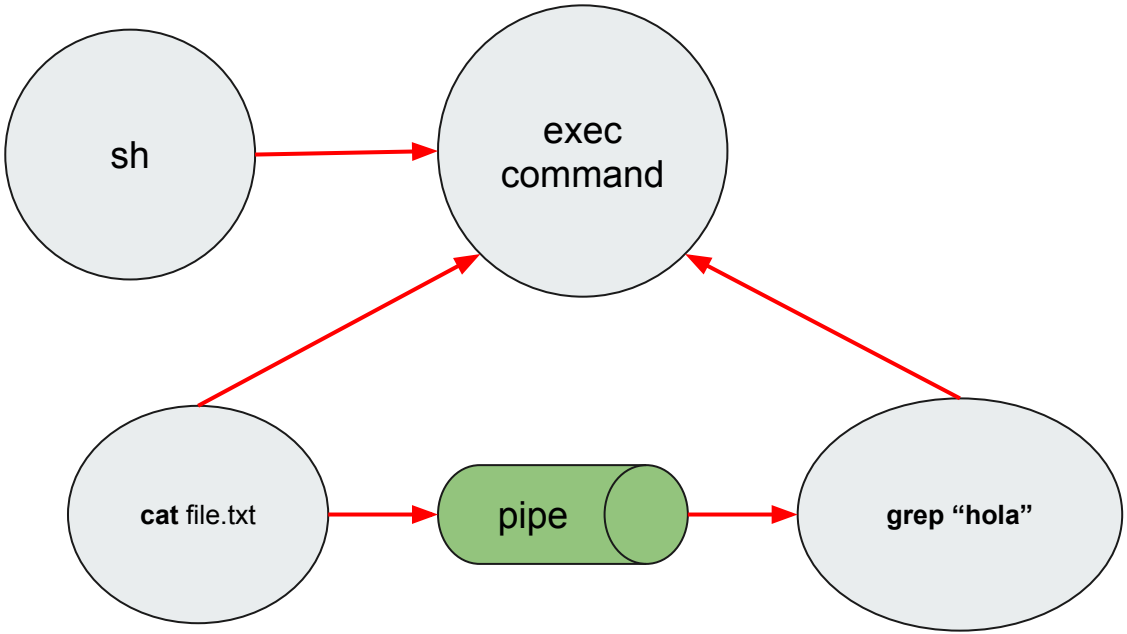
Parte 2: Redirecciones (pipes)

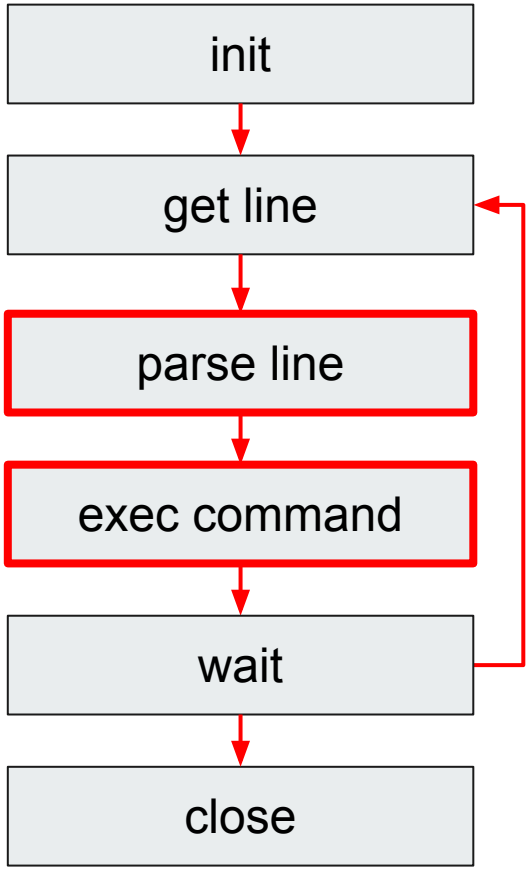


“tuberías simples”

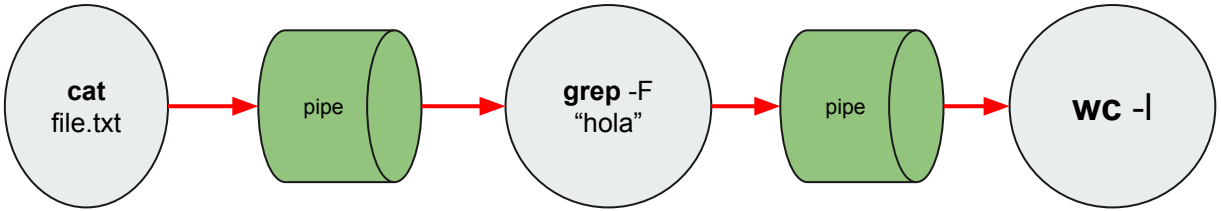


Parte 2: Redirecciones (pipes)

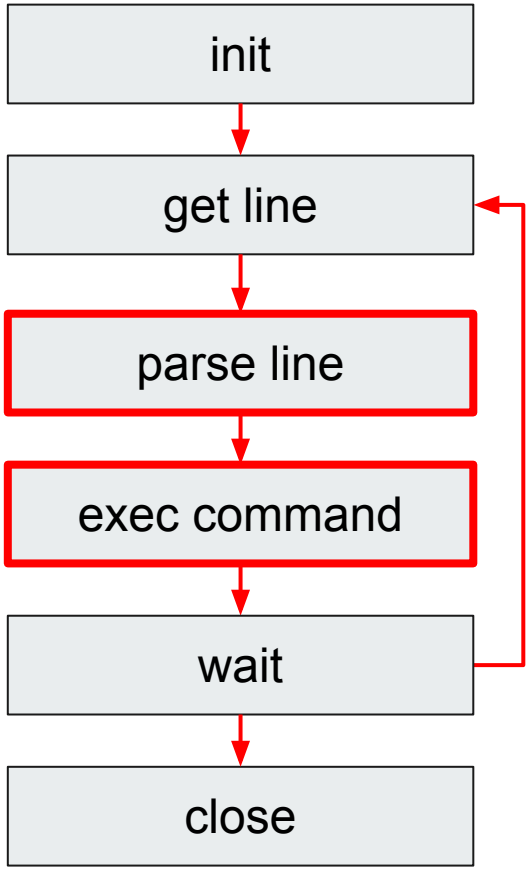




Parte 2: Redirecciones (pipes)

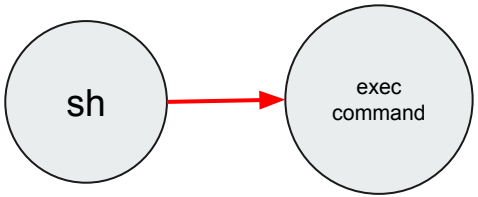


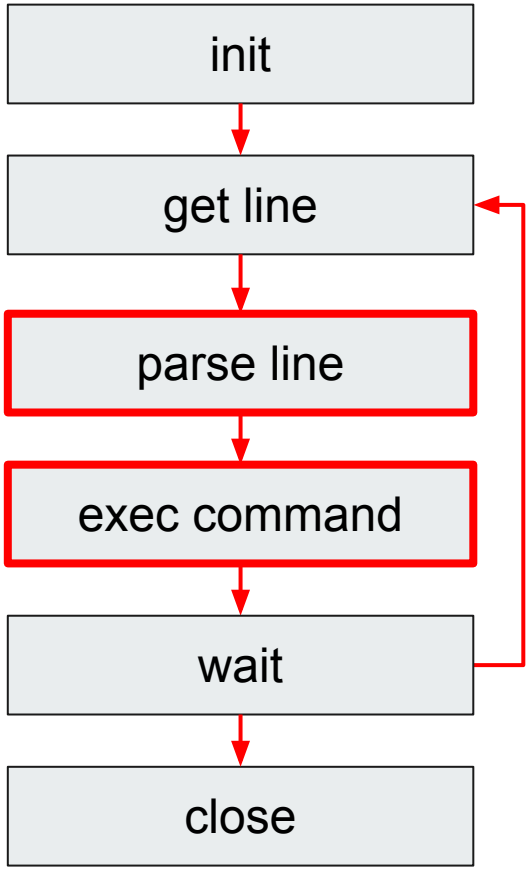
“tuberías múltiples”



```
cat file.txt | grep -F hola | wc -l
```

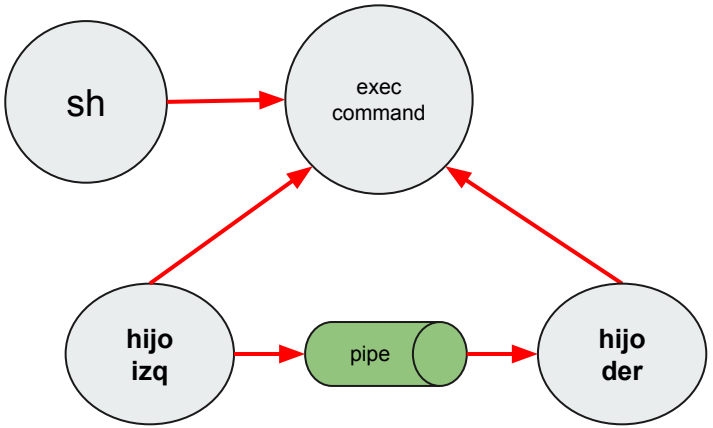
Parte 2: Redirecciones (pipes)

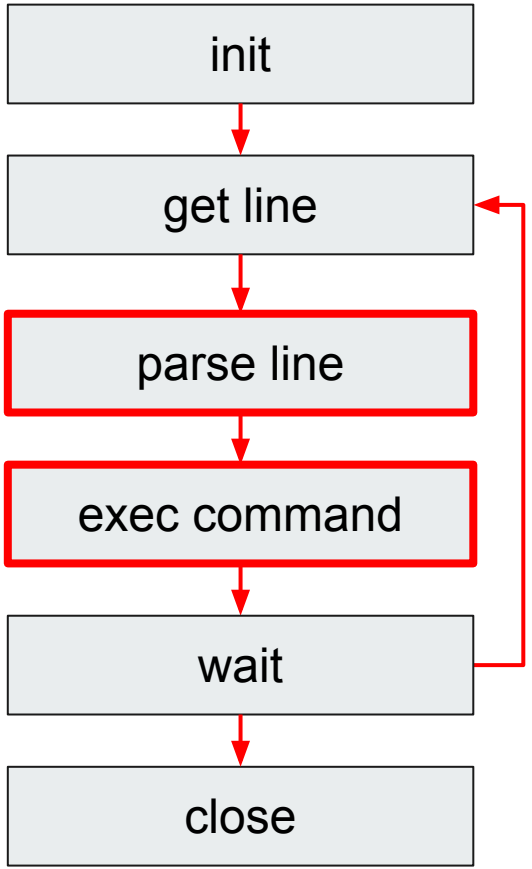




```
cat file.txt | grep -F hola | wc -l
```

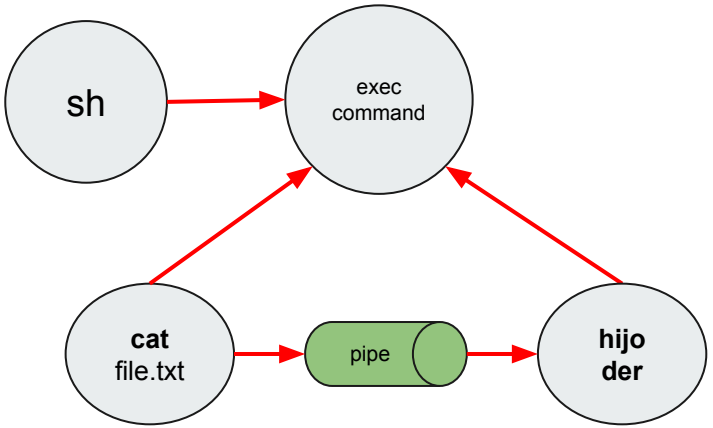
Parte 2: Redirecciones (pipes)

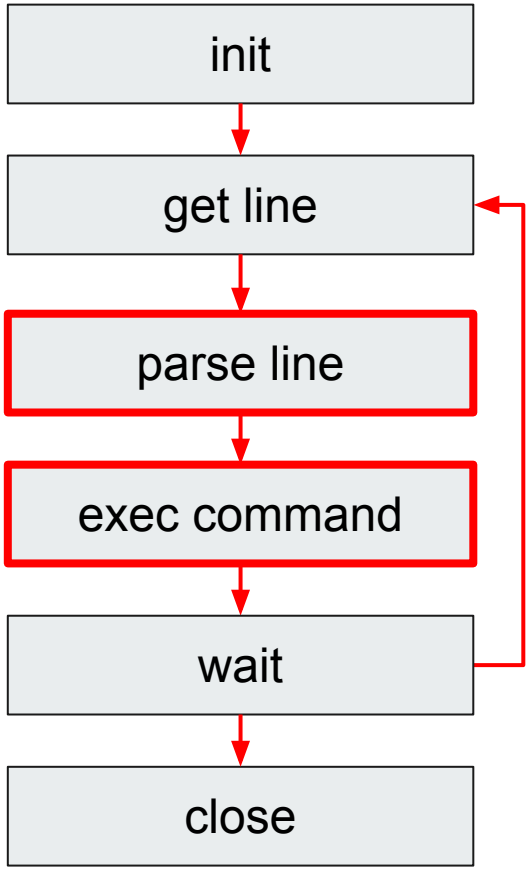




```
cat file.txt | grep -F hola | wc -l
```

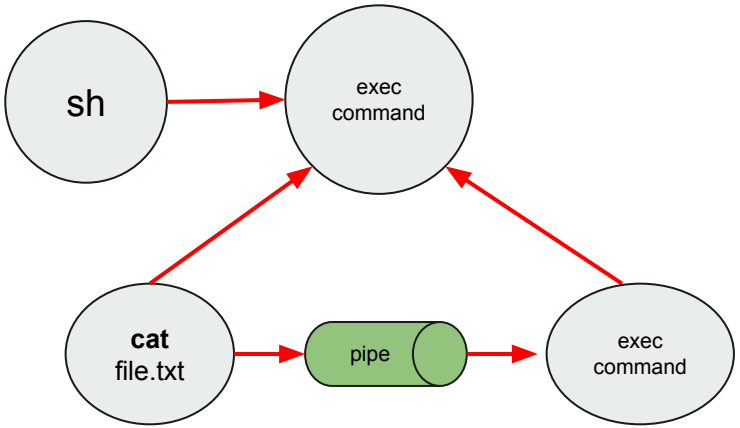
Parte 2: Redirecciones (pipes)

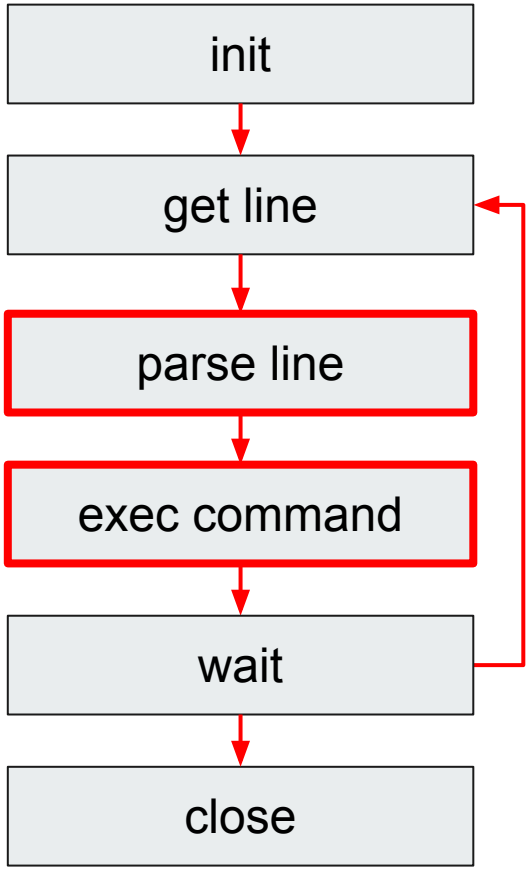




```
cat file.txt | grep -F hola | wc -l
```

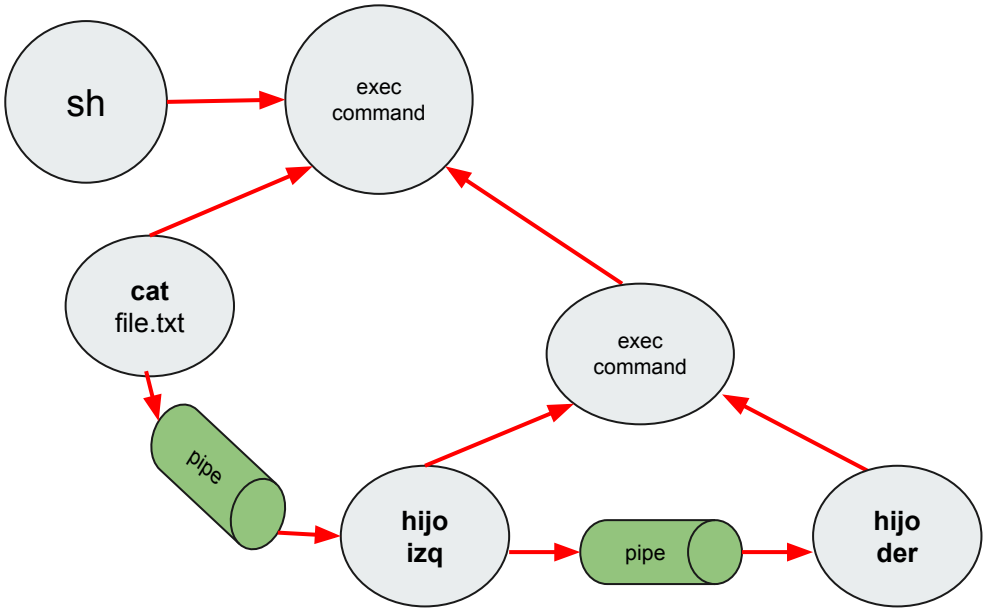
Parte 2: Redirecciones (pipes)

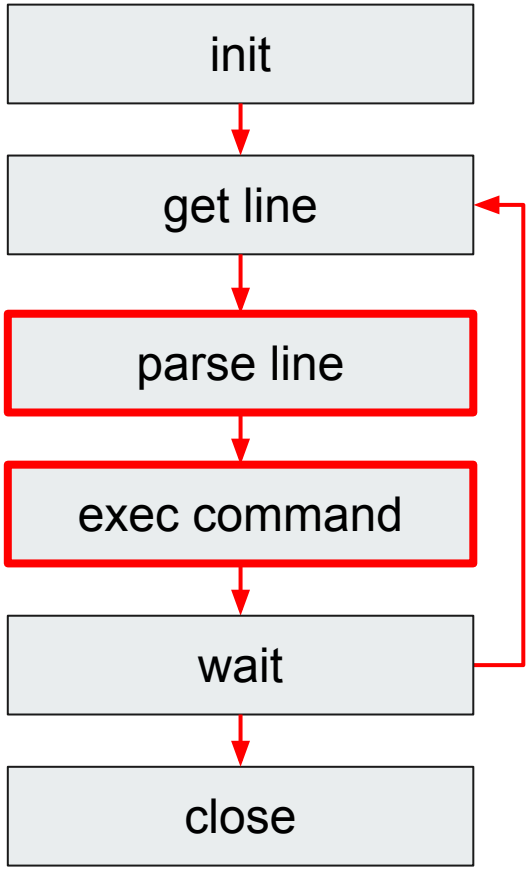




```
cat file.txt | grep -F hola | wc -l
```

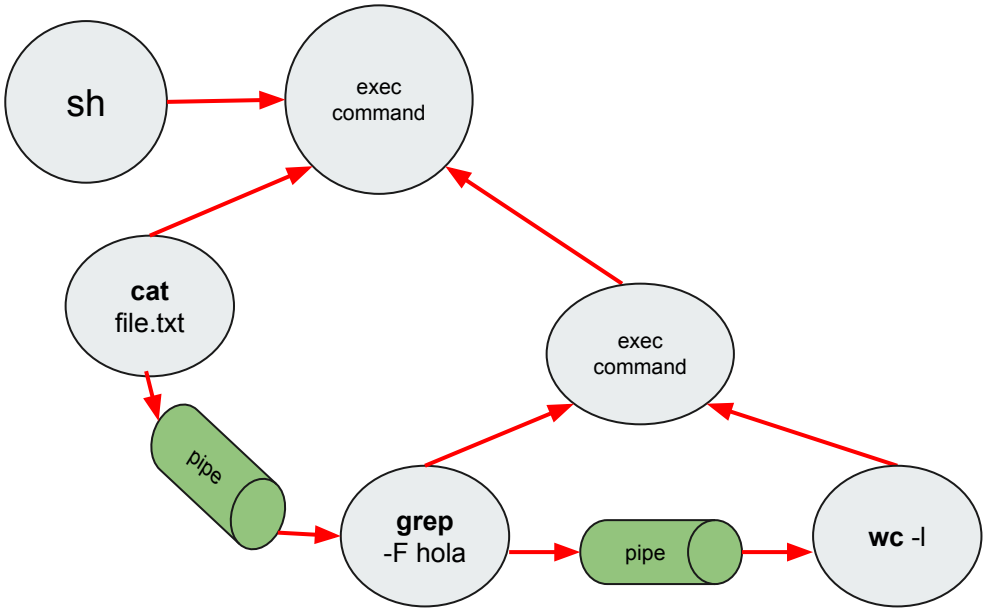
Parte 2: Redirecciones (pipes)

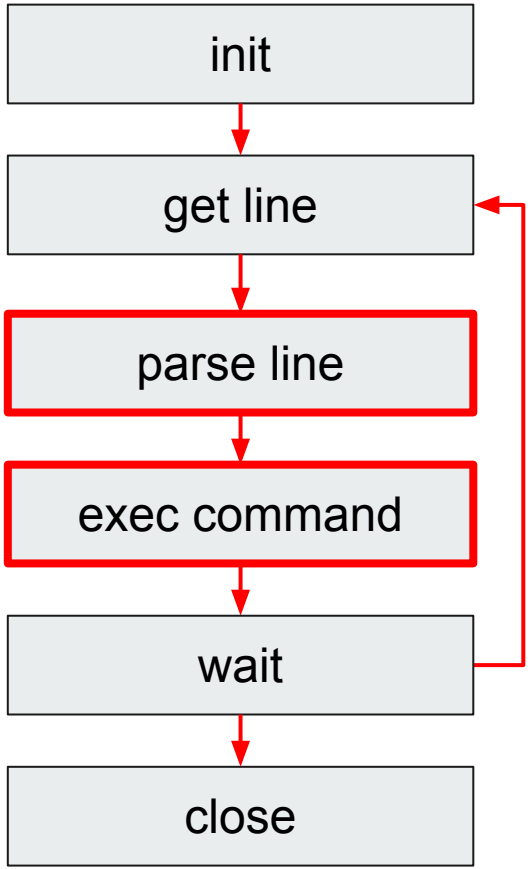




```
cat file.txt | grep -F hola | wc -l
```

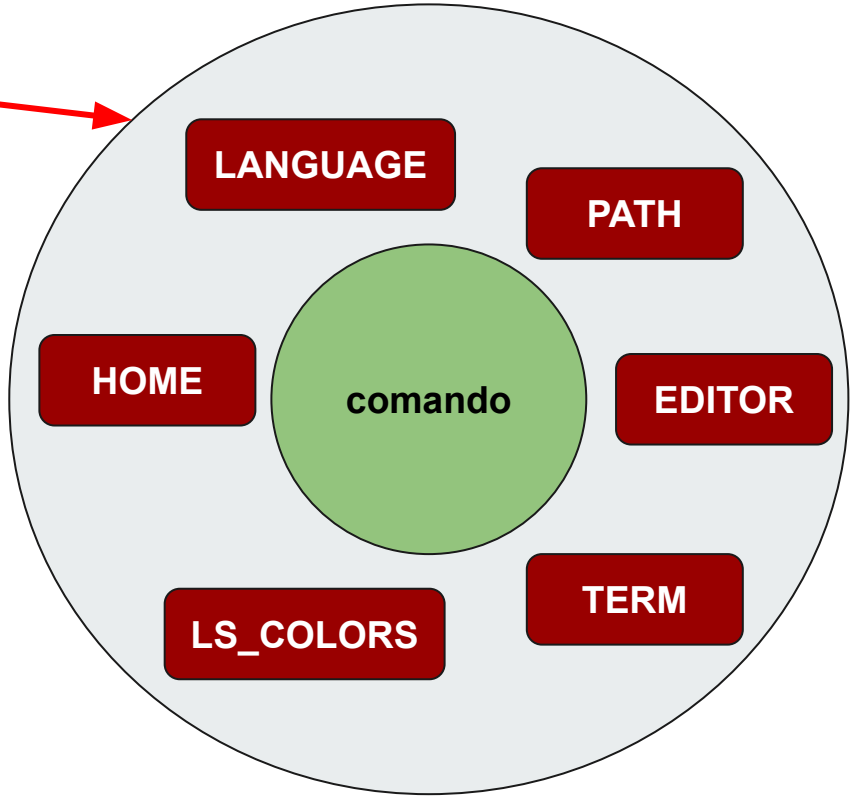
Parte 2: Redirecciones (pipes)





Parte 3: Variables de entorno

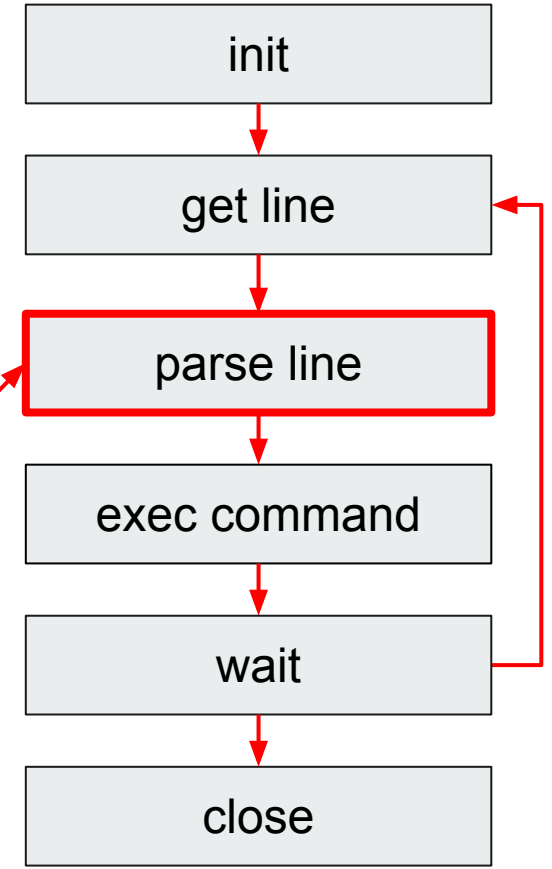
```
$ echo $PATH
```



Parte 3: Variables de entorno

```
$ echo $PATH
```

La “***expansión***” de estas *variables* ocurre antes que se ejecute el comando



Parte 3: Variables de entorno

- *Ejemplo* 1:

```
$ echo $PATH
```

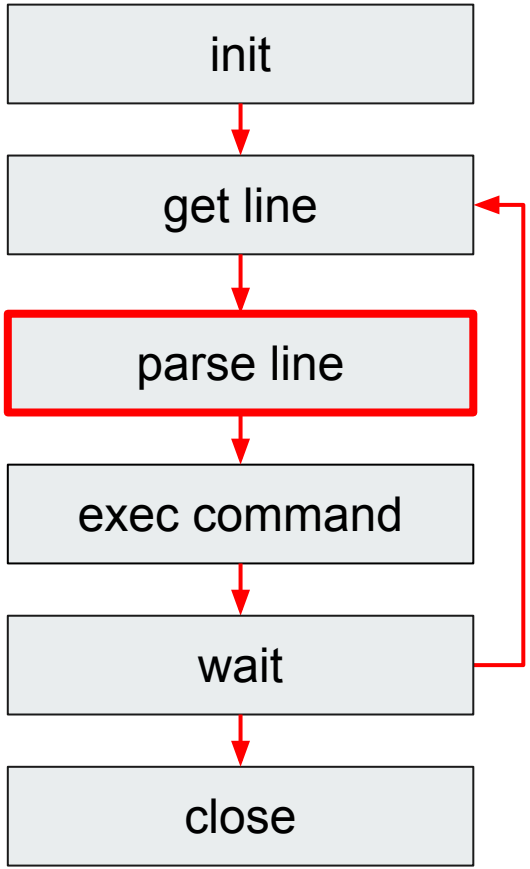
- *Ejemplo* 2:

```
$ echo $NO_EXISTE
```

- *Ejemplo* 3:

```
$ export NO_EXISTE=hola
```

```
$ echo $NO_EXISTE
```

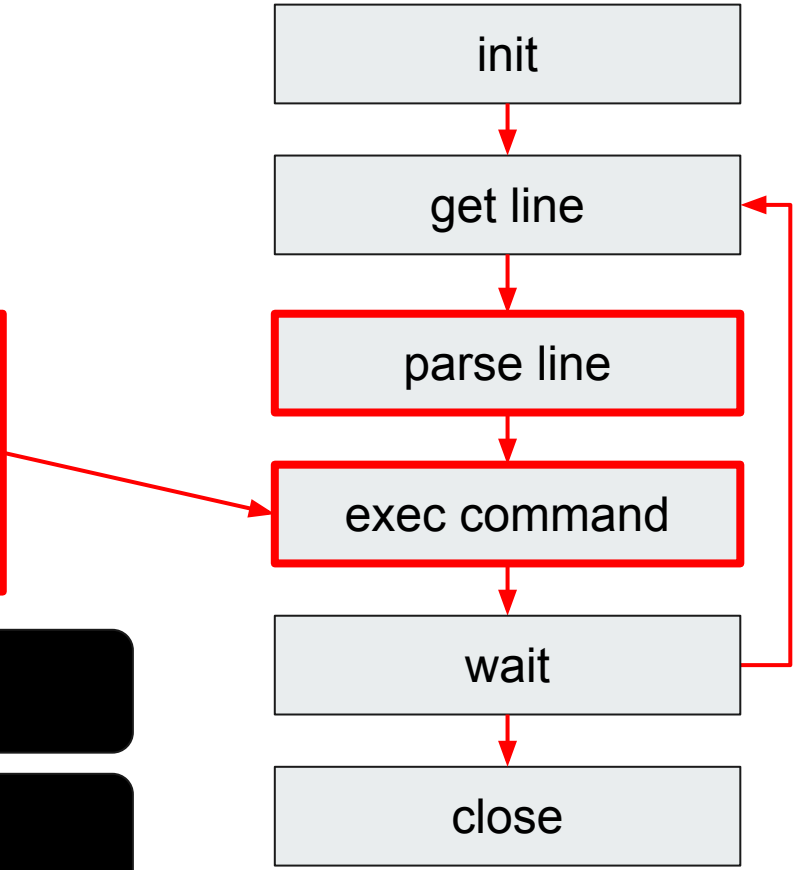


Parte 3: Variables de entorno

Cómo hacemos si queremos agregar ***variables** de **entorno** temporales*?

```
$ REPO_ID=1234 TOKEN=my_token  env
```

```
$ echo $REPO_ID $TOKEN
```



Parte 3: Variables de entorno (mágicas)

Ejemplos:

```
$ echo $_
```

```
$ echo $$
```

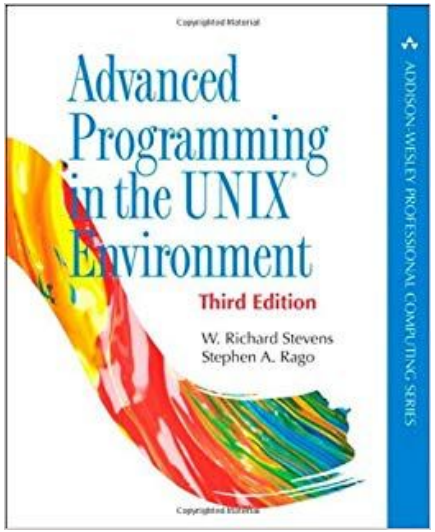
```
$ echo $?
```

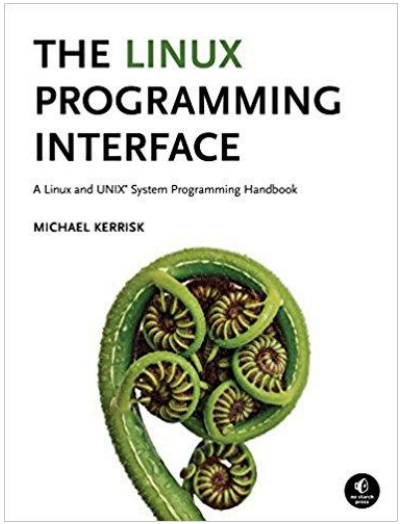
No existen en el ambiente/entorno del proceso. Son propias de la *shell*

status code del último proceso

¿Dónde aprender más?

- Páginas de manual (`man`)
- *The Linux Programming Interface*
  de Michael Kerrisk
- *Advanced Programming in the UNIX Environment*
  de Stevens & Rago





Parte 4: Extras (comandos *built-in*)

- **realizar acciones** en el proceso de la *shell*
- **optimizar** comandos

```
$ cd /home/labs/shell
```

```
$ exit
```

```
$ pwd
```