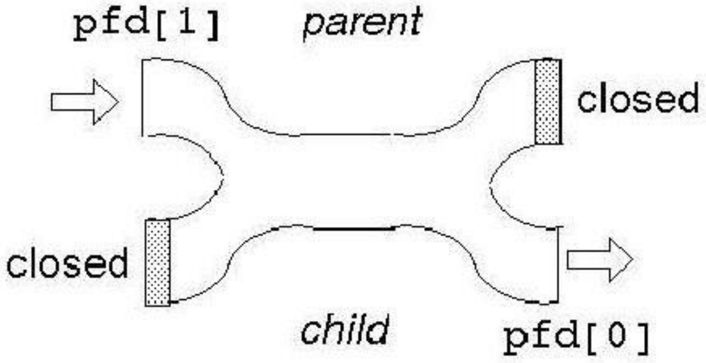
FIFO

FIFO

- A FIFO is sometimes known as a *named pipe.* That is, it is like a pipe(), except that it has a name! In this case, the name is that of a file that multiple processes can open() and read() and write() to.
- The shortcomings of normal pipes: you can't grab one end of a normal pipe that was created by an unrelated process.

FIFO

- Two individual copies of a program, they can both call **pipe()** all they want and still not be able to speak to one another.
- This is because you must **pipe(),** then **fork()** to get a child process that can communicate to the parent via the pipe.
- With FIFOs, though, each unrelated process can simply **open()** the pipe and transfer data through it.



Named vs Unnamed Pipe

- Initial access is different – via pipe system call (for unnamed pipe) and open system call (for named pipe)

- Afterwards processes can use regular system calls for files like read, write, close while manipulating pipes

- Only descendants of a process that issued pipe system call can share access to unnamed pipes

- All processes can access named pipe regardless of their relationships, subject to usual file permissions

FIFO

- Since the FIFO is actually a file on disk, you have to create it.
- For this call **mknod()** with the proper arguments.
- **`int mknod("myfifo", S_IFIFO | 0644 , 0);`**
- The FIFO file will be called *“myfifo”.*
- The second argument is the creation mode, which is used to tell **mknod()** to make a **FIFO** and sets access permissions to that file (octal 644) .
- Finally, a device number is passed. This is ignored when creating a FIFO, so you can put anything you want in there.
- **Once created open it, and use the system calls of File I/O**

mknod()

- `int mknod(const char *pathname, mode_t mode, dev_t dev);`
- Many UNIX implementations provide mkfifo() call to create a fifo
- Mkfifo() calls mknod() internally

```
#include <sys/stat.h>
int mkfifo(const char *pathname, mode_t mode);
Returns: 0 if OK, 1 on error
```

- The specification of the mode argument for the *mkfifo* function is the same as for the *open* function