

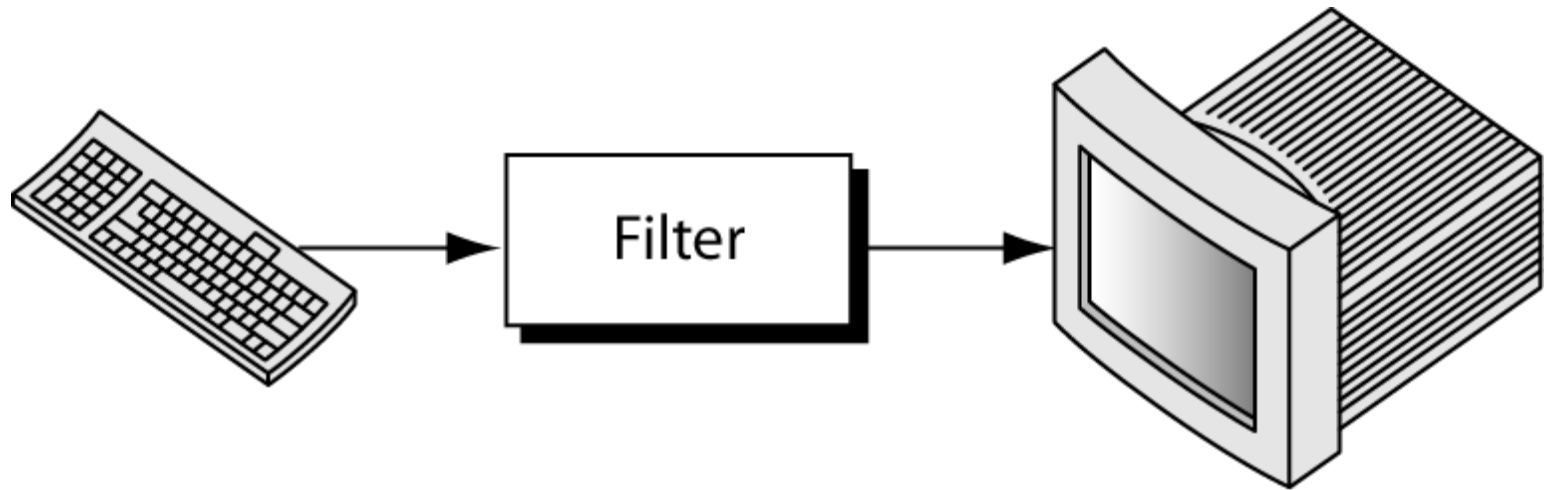
Filters

Topics

- Filters
 - tr, uniq
 - cut and paste
 - sort
- Networking utilities

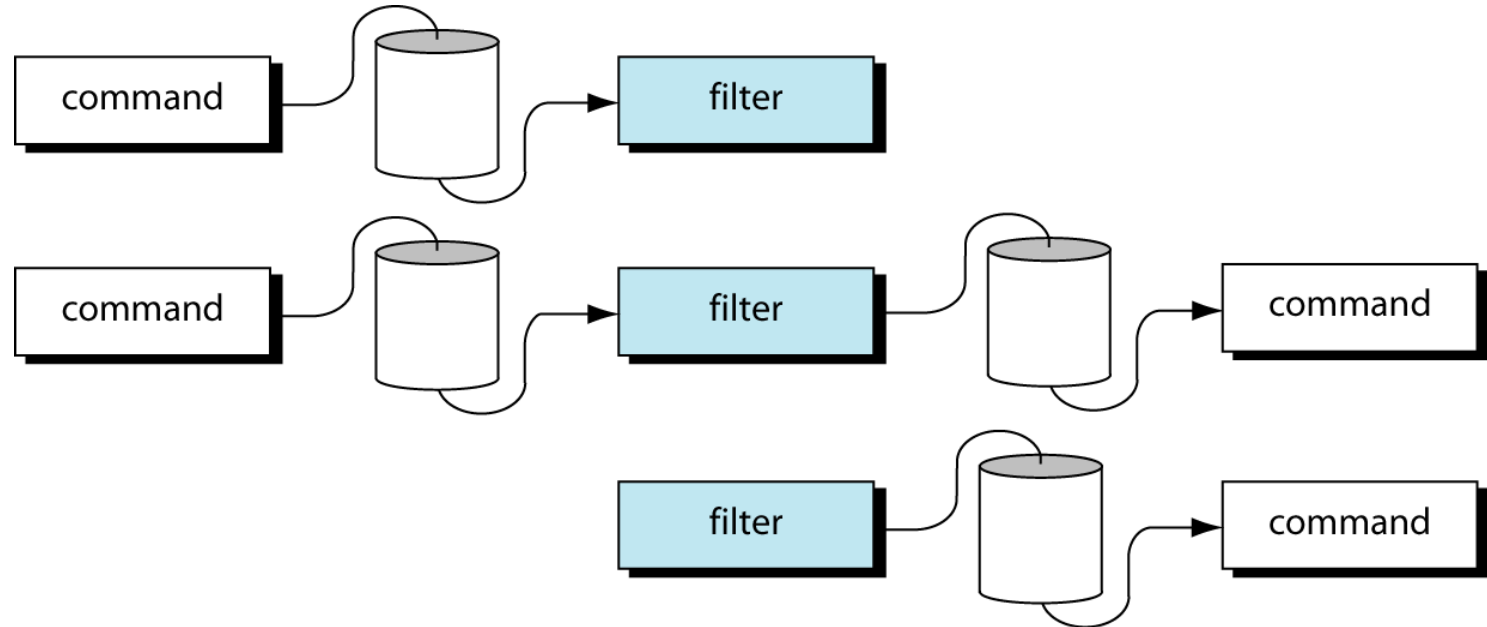


Filters



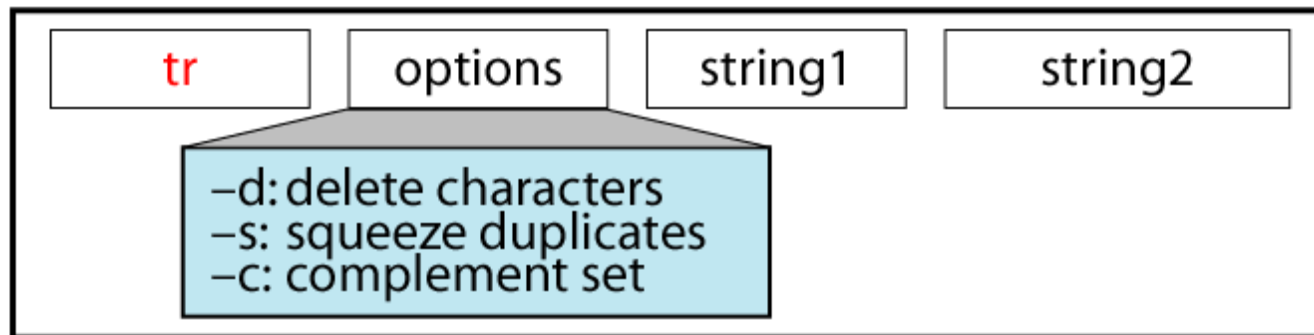
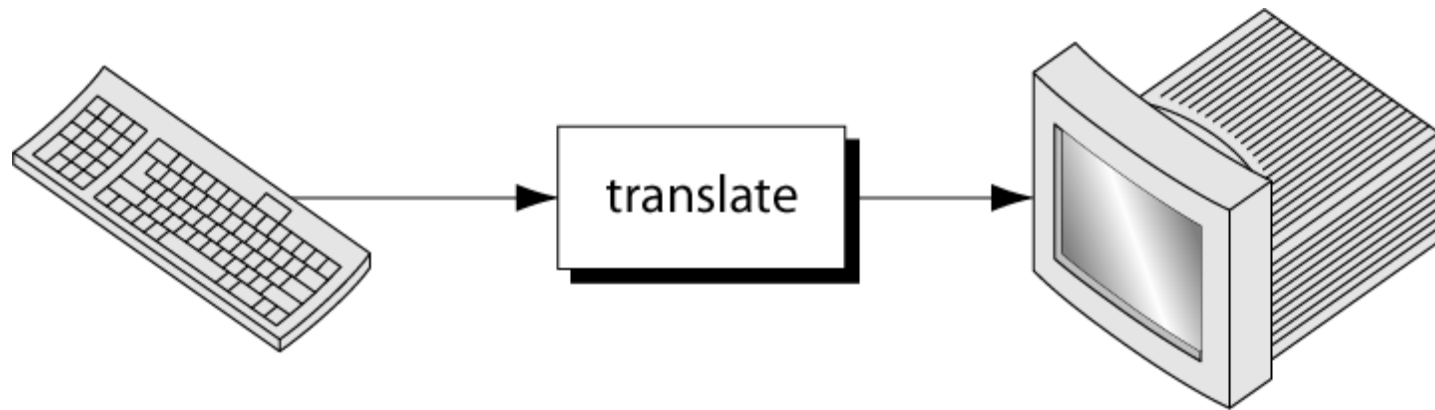
A filter is a command that takes input from the standard input, manipulates it, and sends the result to the standard output

Using Filters with Pipes



A filter is a command that takes input from the standard input, manipulates it, and sends the result to the standard output

tr – Replaces Characters





tr Examples

- Translate case

```
cat myfile | tr a-zA-Z A-Za-z
```

OR

```
a-zA-Z A-Za-z < myfile
```

- Encode & decode

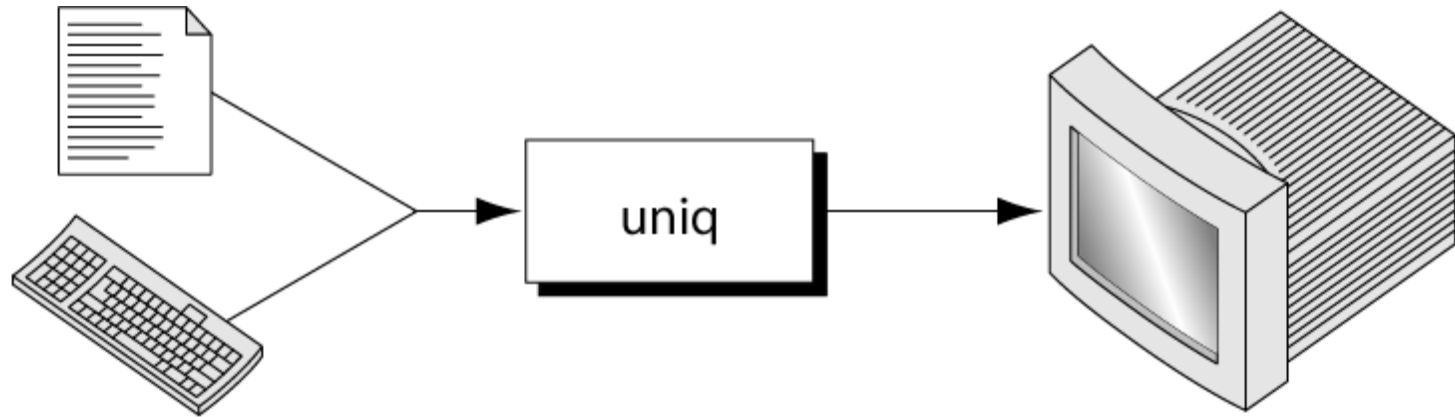
```
cat myfile | tr a-mA-Mn-zN-Za-mA-M > mysecret
```

```
cat mysecret | tr n-zN-Za-mA-M a-mA-Mn-zN-Z
```

- Break lines

```
cat myfile | tr -c a-zA-Z "\n"
```

uniq – Eliminate Duplicates



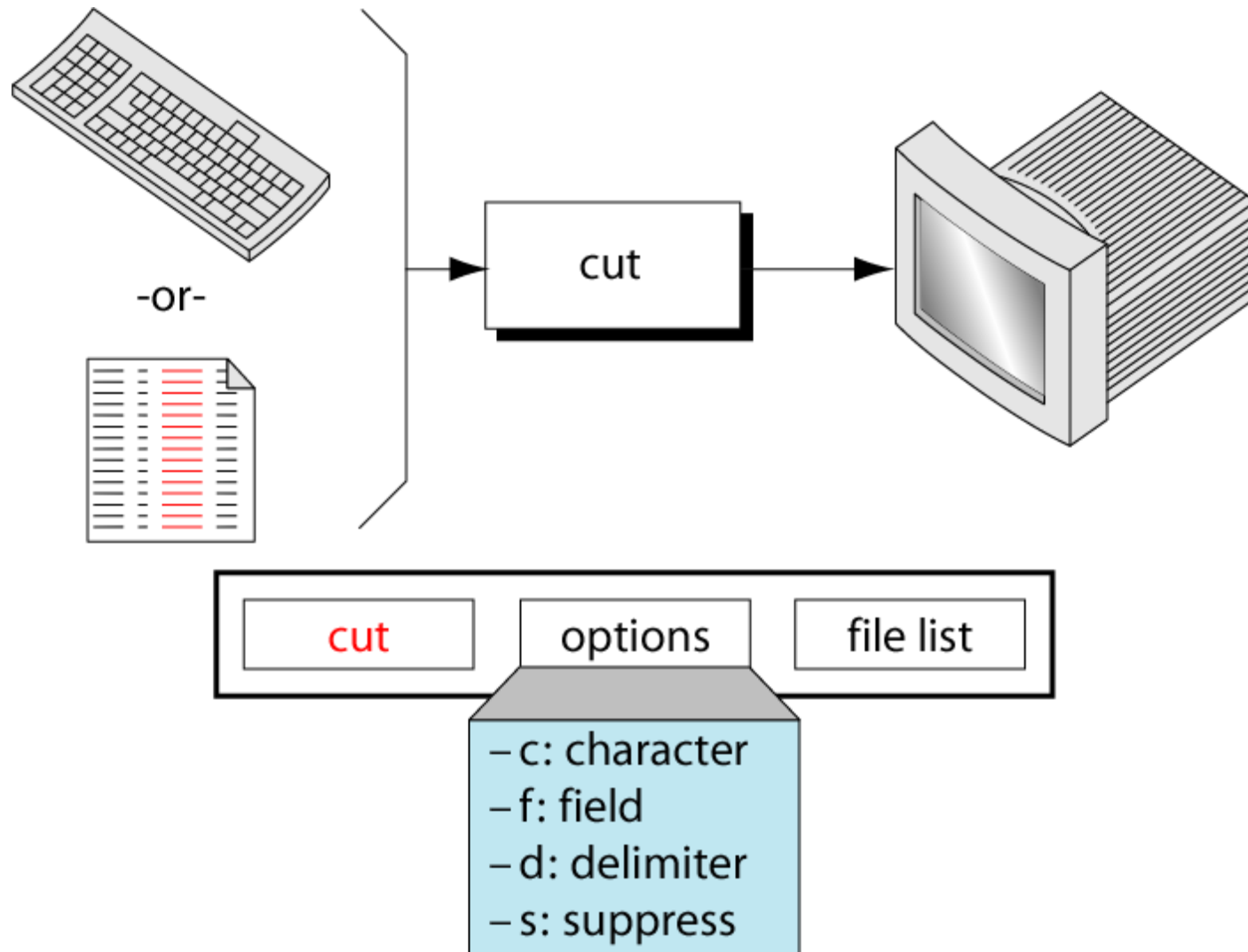
uniq

options

input file

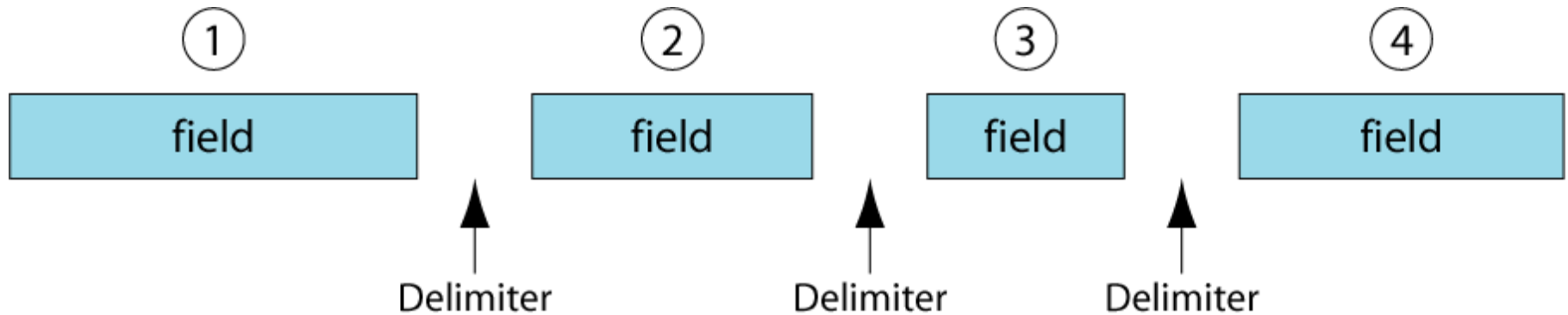
```
-u: only nonrepeated lines output  
or -d: only repeated lines output  
or -c: add count to lines  
-f: field  
-s: character
```

cut - Selects Characters/Fields

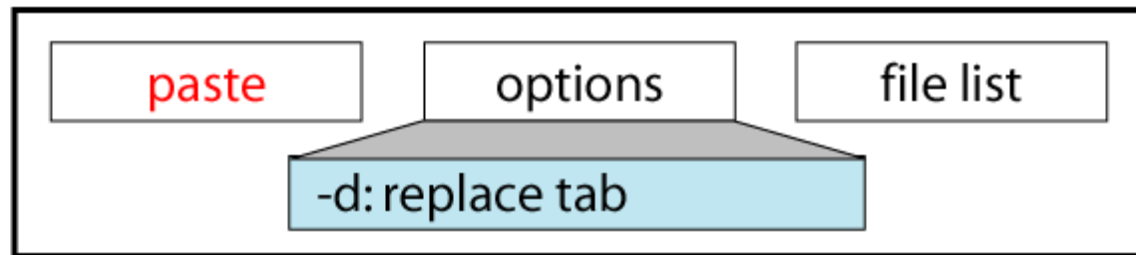
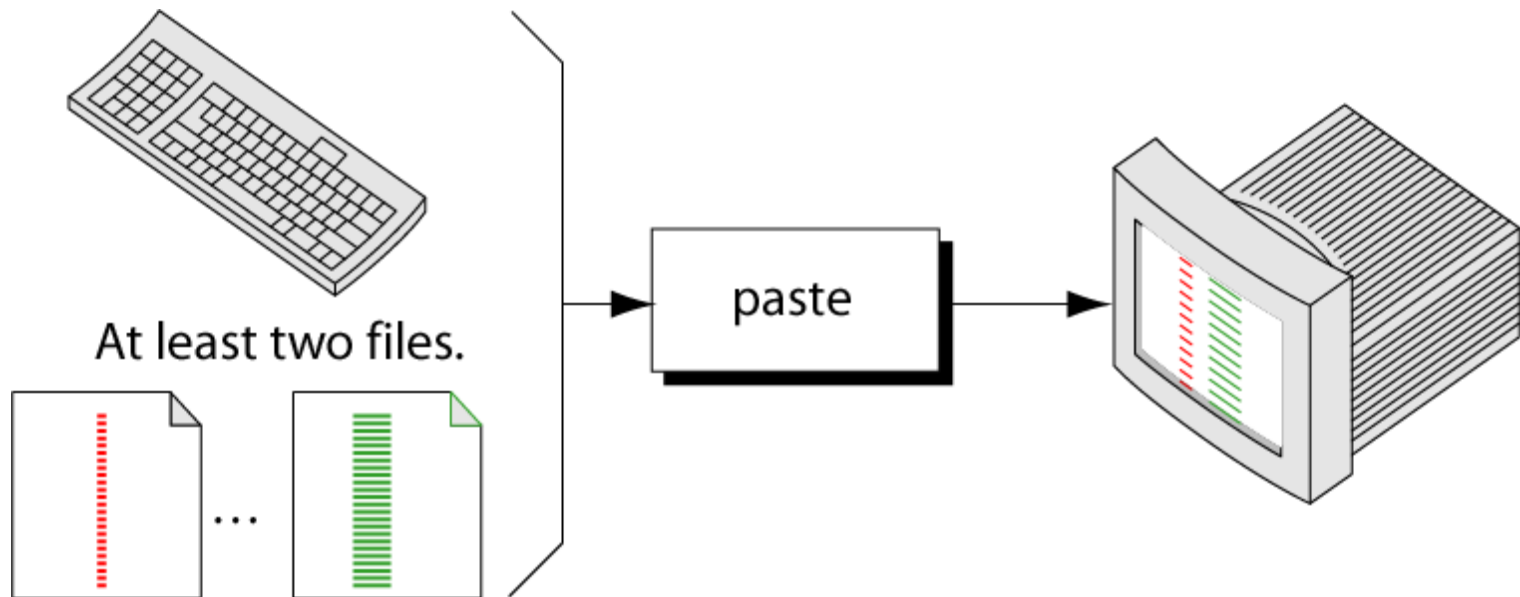




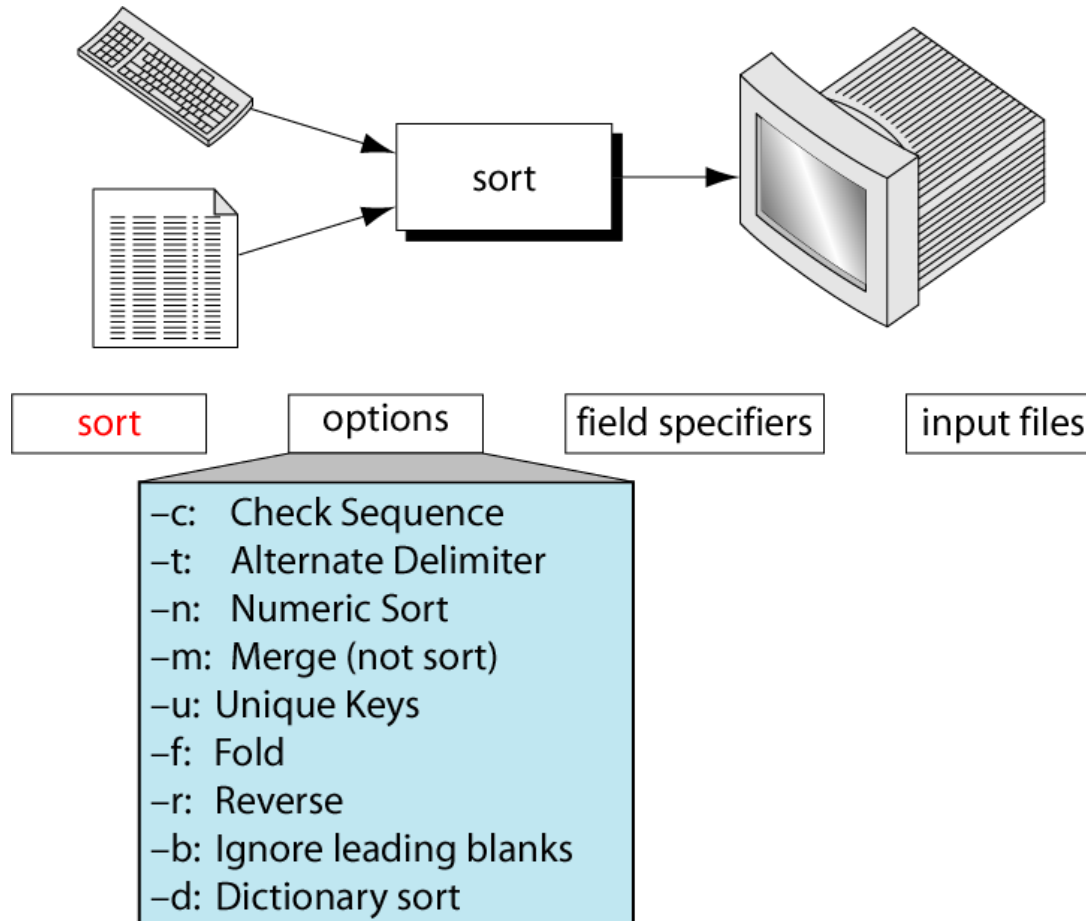
Fields Within A Line



paste – Joins Lines from Files



The sort Utility





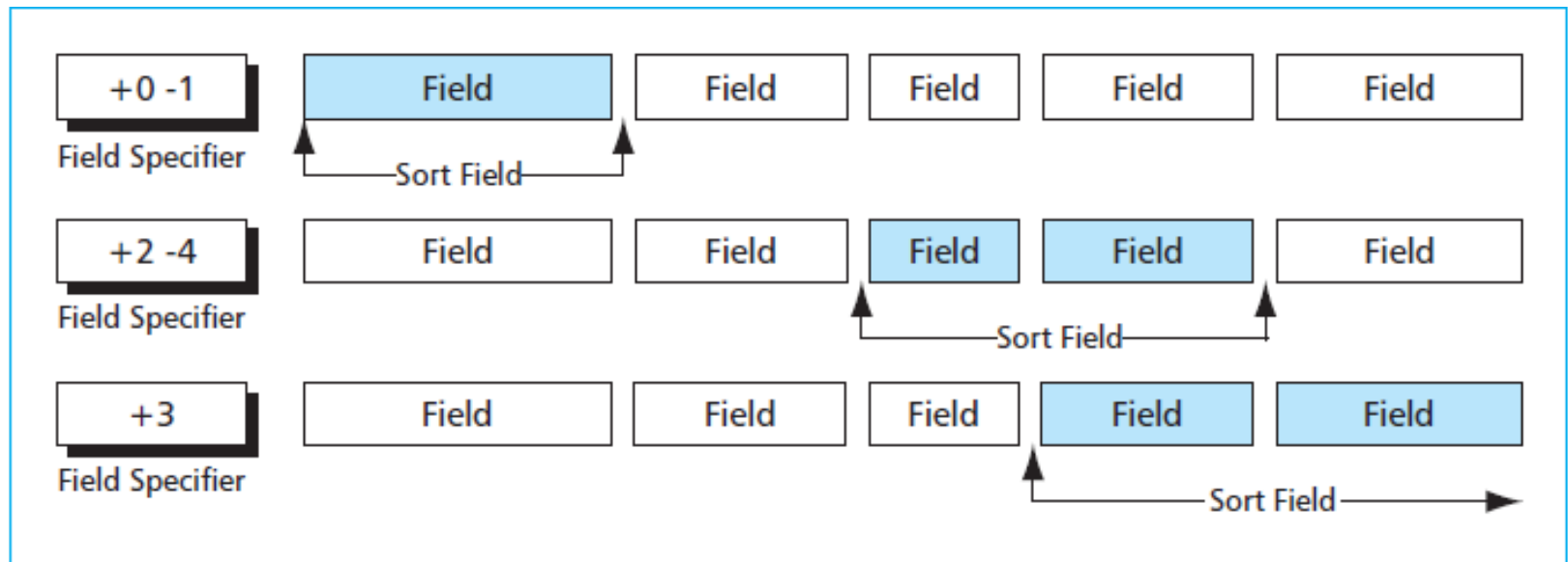
Sort By Lines

Unsorted	Sorted
James	Bond
Bond	James
8	!
27	27
!	8
~	Paula
Paulo	Paulo
Paula	~

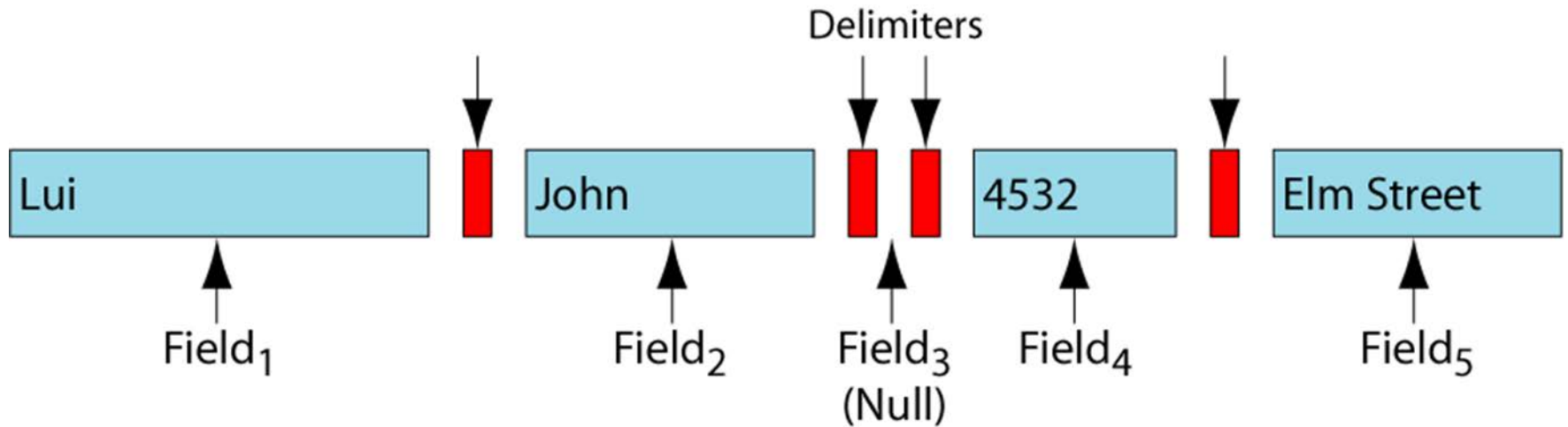
Sort By Fields

Field Specifiers:


$+number_1$ $-number_2$




Null Field Impact




Global and Local Options

 Global Option


\$ sort -n +2 -3 +4 -5

 Field Specifiers

(a) Global Options

 Local Option

\$ sort +2n -3 +4b -5

 Local Option

(b) Local Options

Sort Adjacent Fields

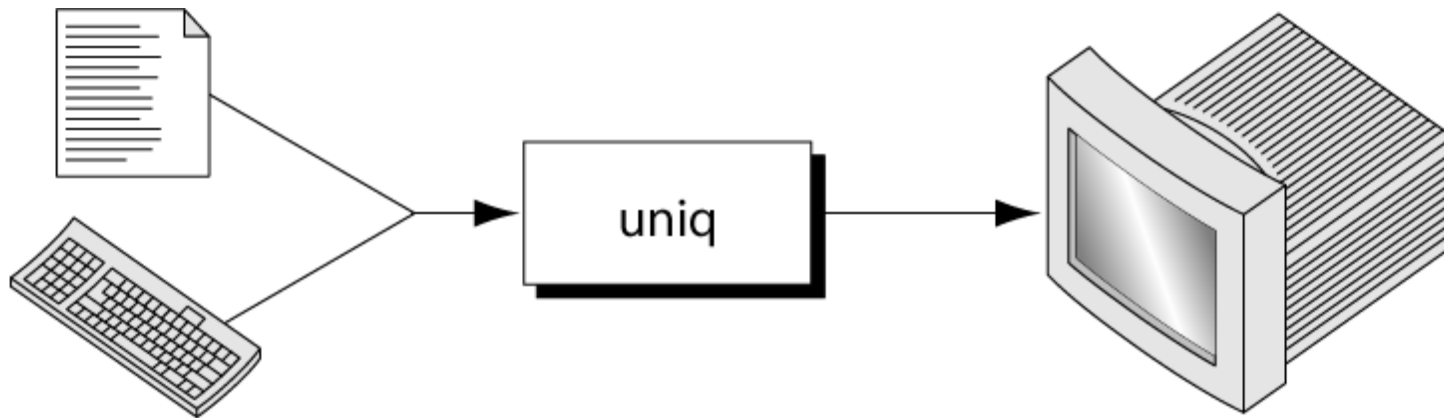
\$ sort +1 -3 census

		Field 2 (+1)			
Phoenix	AZ	983403	789704	591142	17705
San_Francisco	CA	723959	678974	390877	28170
San_Jose	CA	782248	629400	375309	24581
San_Diego	CA	1110549	875538	553612	18651
Los_Angeles	CA	3485398	2968528	1791011	19906
Washington	DC	7432	283702	24845	
Jacksonville	FL	003	325187	16215	
Chicago	IL	072	1434029	20349	
Indianapolis	IN	744952	711539	405829	18080
Boston	MA	574283	562994	297200	23746
Baltimore	MD	736014	786741	346187	20267
Detroit	MI	1027974	1203368	441736	19660
New_York	NY	7322564	7071639	3314000	22645
Columbus	OH	632910	288	17178	
Philadelphia	PA	1585577	895	19750	
Memphis	TN	610337	450	16484	
San_Antonio	TX	935933	785940	446701	14144
Dallas	TX	1006877	904599	649527	19485
Houston	TX	1630553	1595138	1049300	17598
Milwaukee	WI	628088	636297	306256	18842

Field 3
(+2)

Field 4
(+3)

unique Command



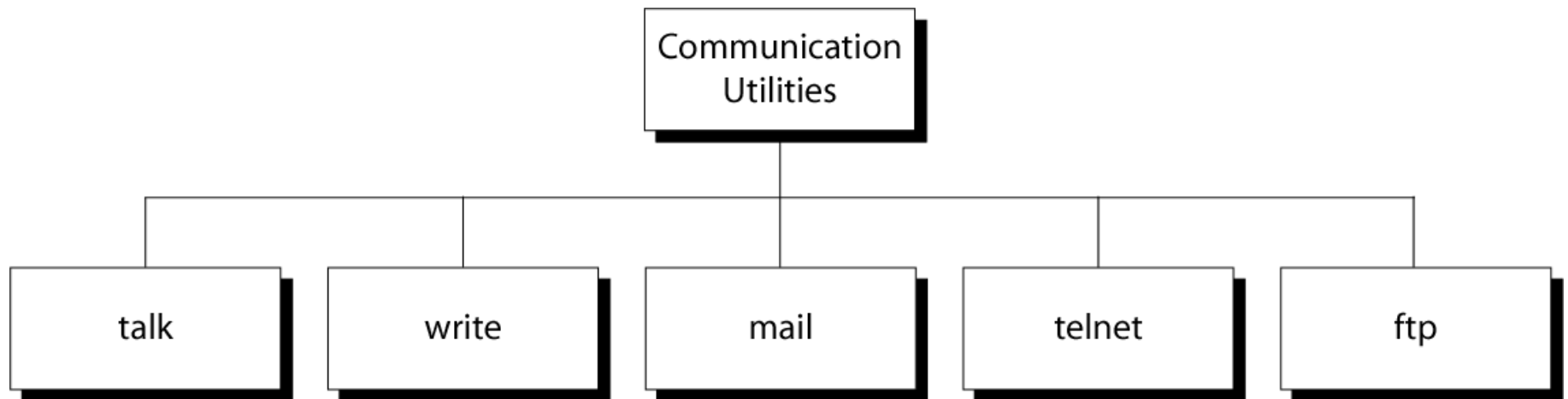
`uniq`

options

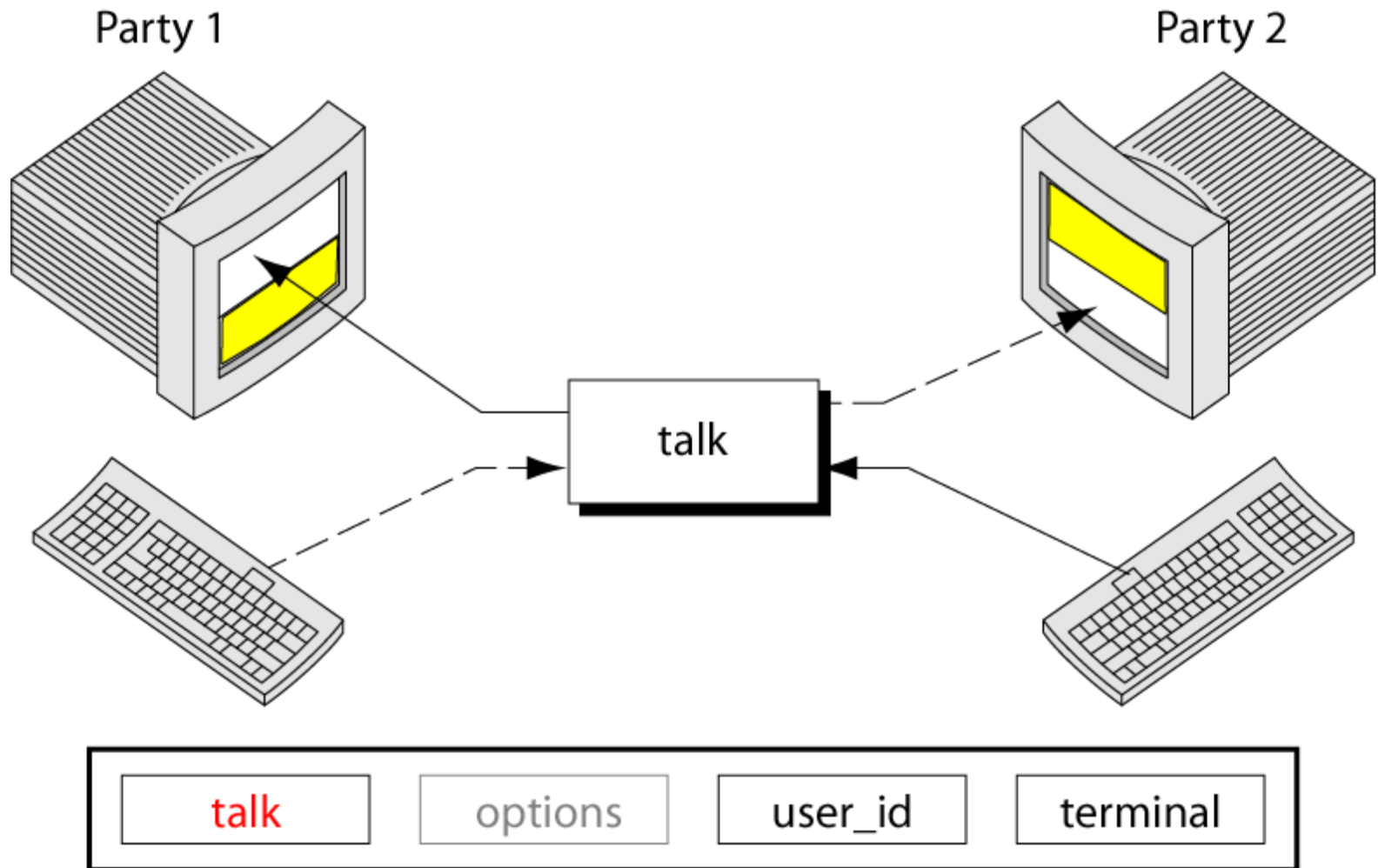
input file

```
-u: only nonrepeated lines output  
or -d: only repeated lines output  
or -c: add count to lines  
-f: field  
-s: character
```

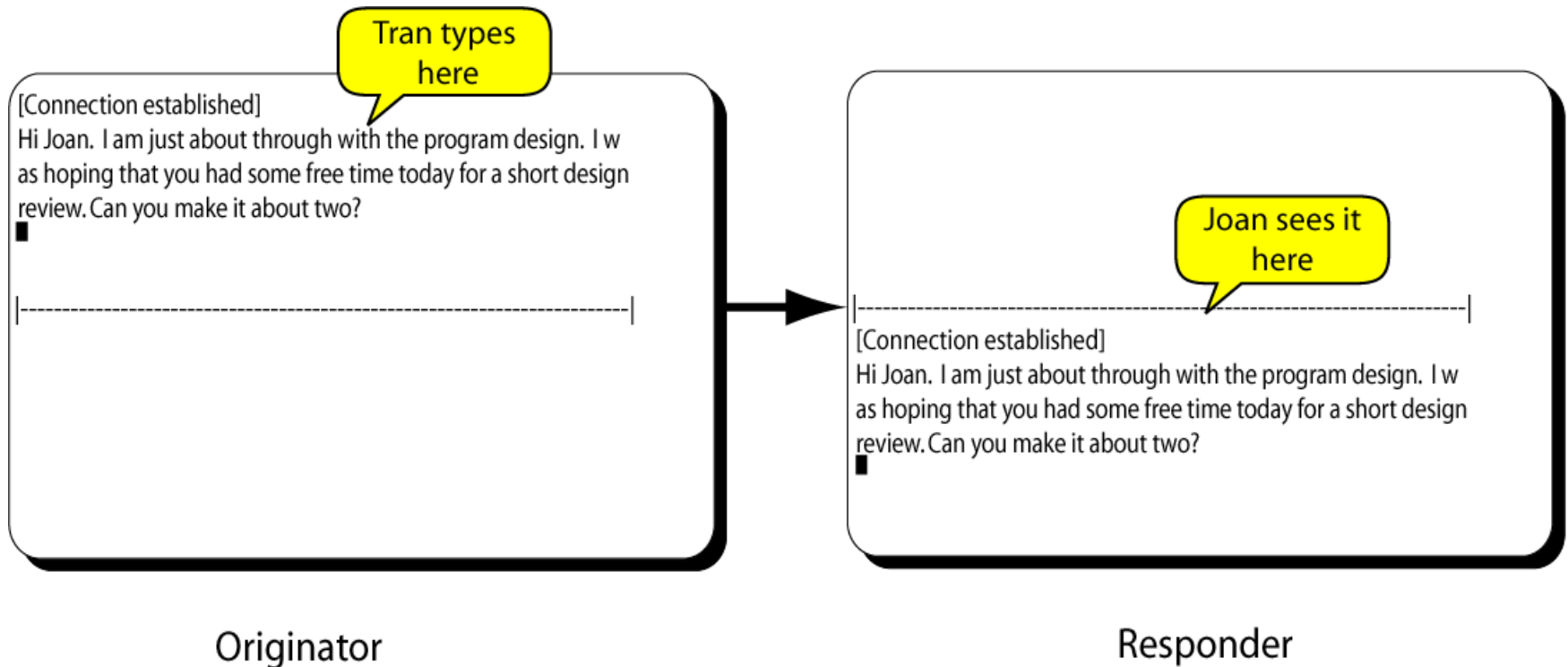
Communication Utilities



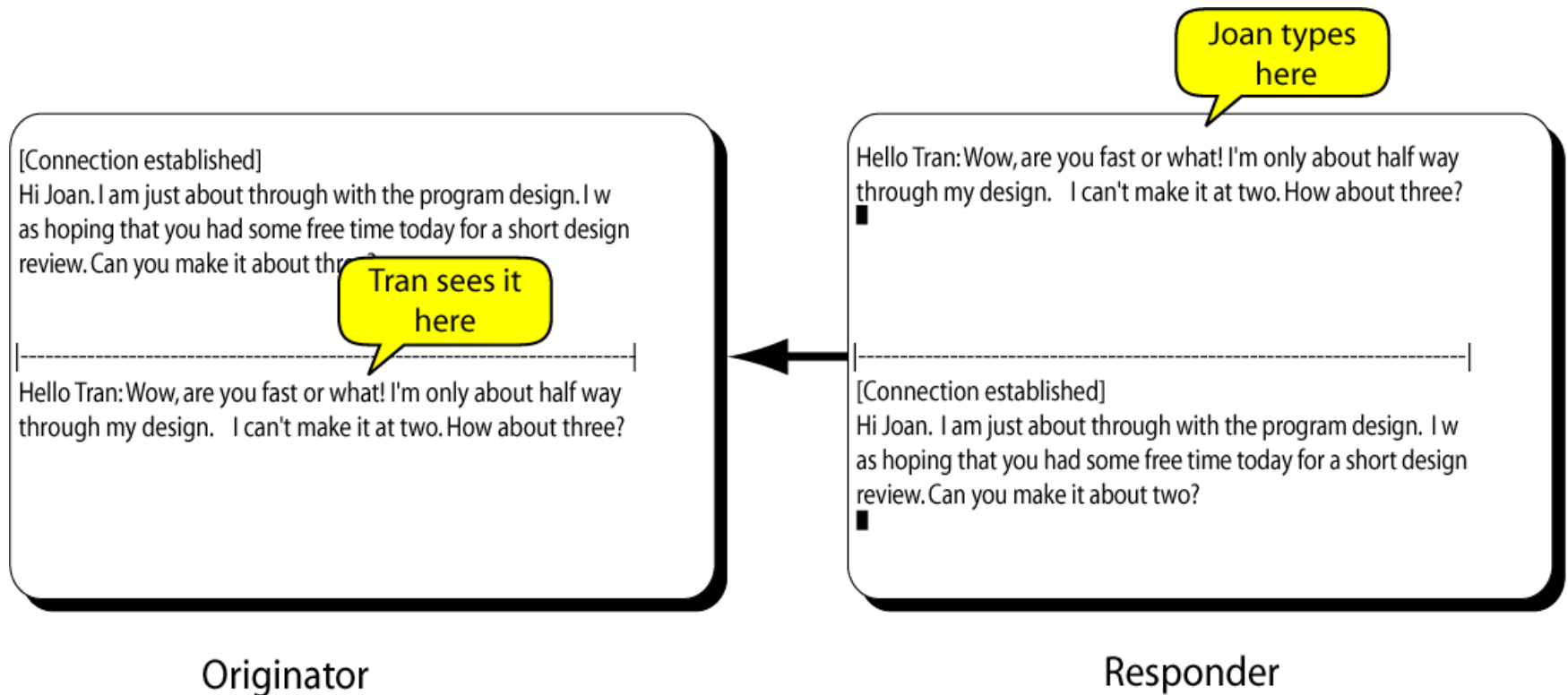
The talk Command



A Complete talk Session (1)



A Complete talk Session (2)



A Complete talk Session (3)

Text wraps
around

and thanks for the support.

■ as hoping that you had some free time today for a short design review. Can you make it about two?

Three is good with me. Let's make it in my office. See you then

Hello Tran: Wow, are you fast or what! I'm only about half way through my design. I can't make it at two. How about three?

Originator

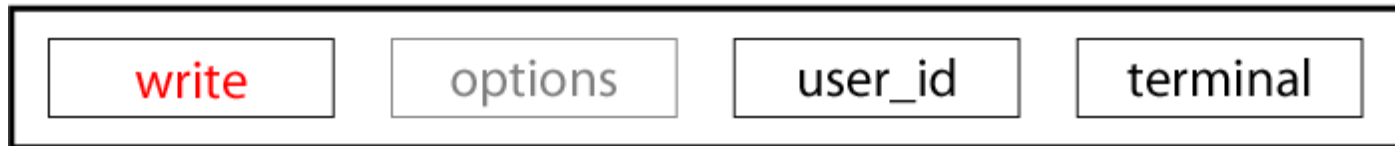
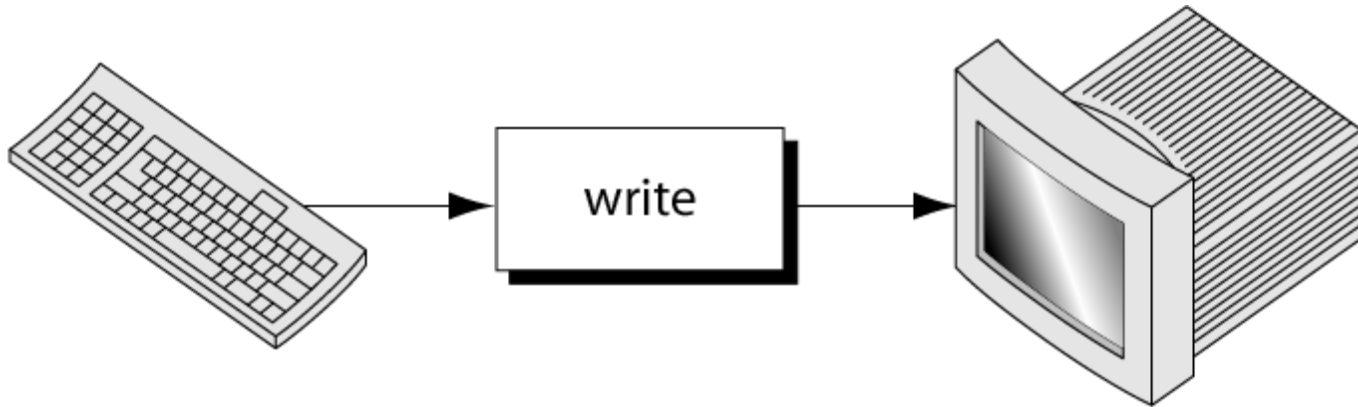
Hello Tran: Wow, are you fast or what! I'm only about half way through my design. I can't make it at two. How about three?

Hi Joan. I am just about through with the program design. I was hoping that you had some free time today for a short design review. Can you make it about two?

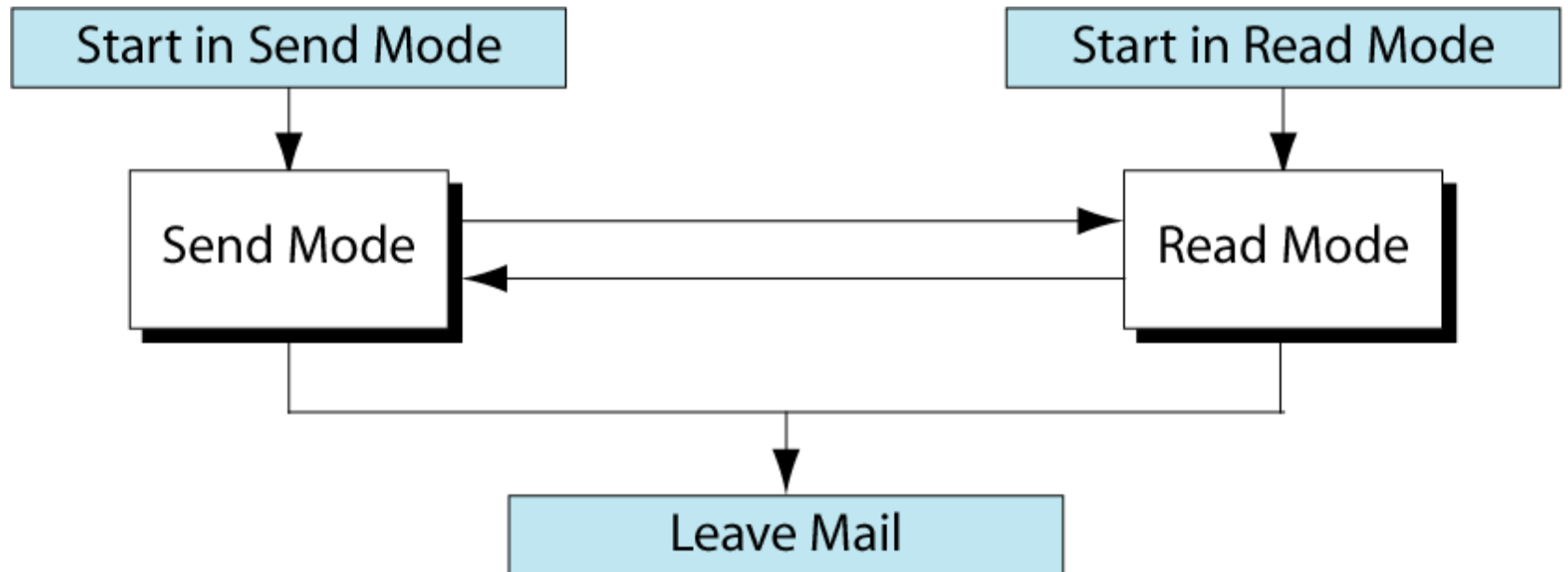
■ Three is good with me. Let's make it in my office. See you then and thanks for the support

Responder

The `write` Command



The mail System



mail Command Example

Typing error

Mail command

\$ mail tra

Subject: Bunch

ran: How about lunch today? I'm in the mood for Chinese.

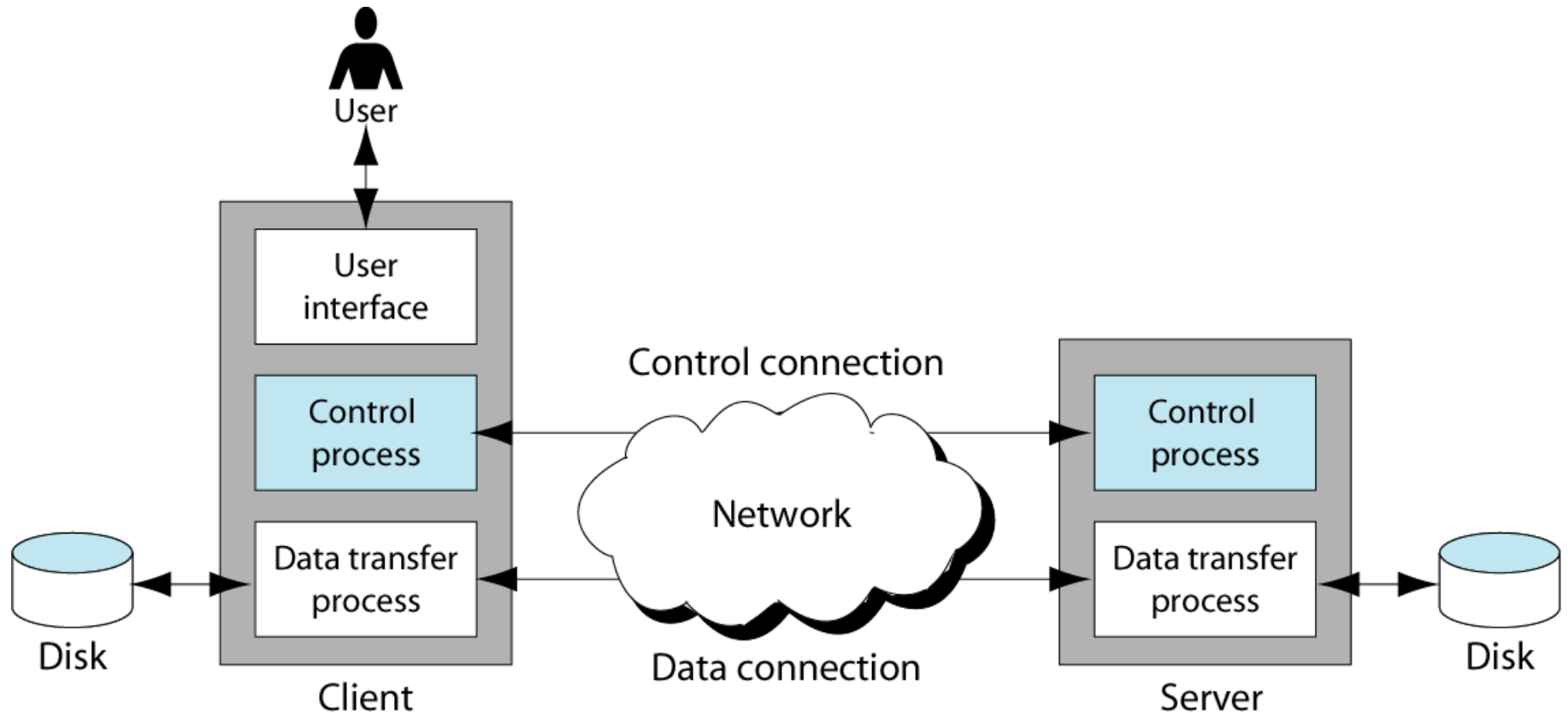
What say we go down to Fung Yu's?

~s Lunch

Joan

^d

File Transfer Protocol

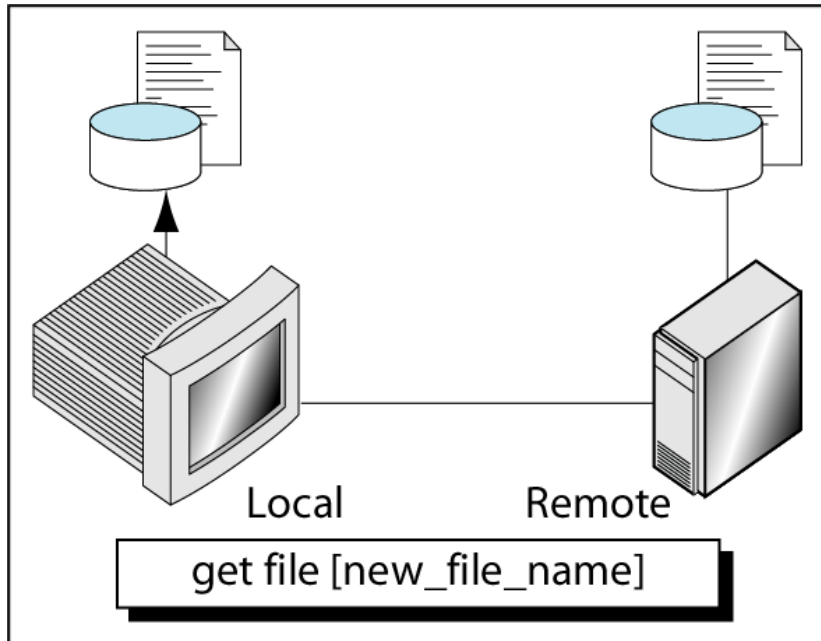




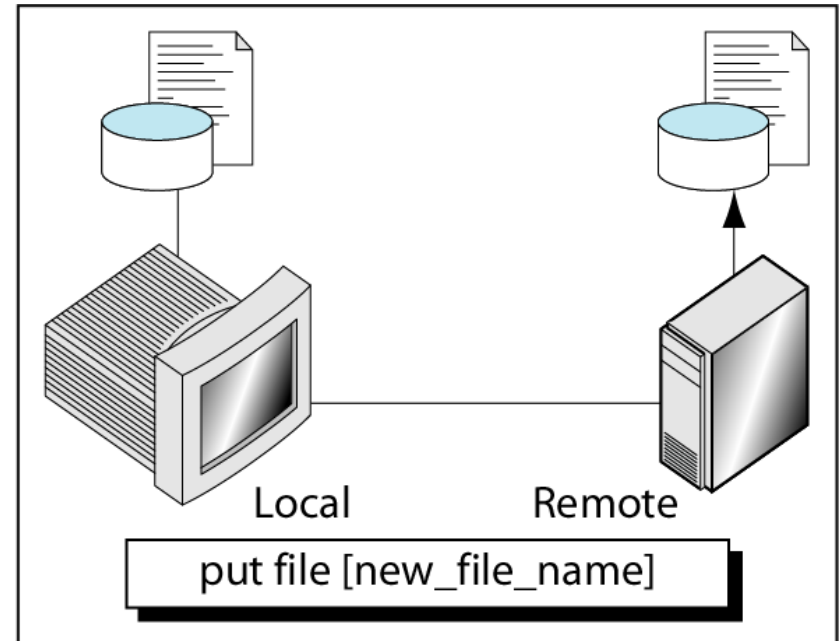
`ftp` - Transfer Files

- `ftp` is a user interface to the standard File Transfer Protocol (FTP)
 - `ftp [options] [remote-system]`
- To establish an FTP connection, you must have access to an account on the remote system
- FTP is not a secure protocol. Use `sftp` for secured `ftp`
 - `sftp>help`

get and put



(a) get File



(b) put File