The 19th International Conference on Web Engineering (ICWE-2019)

June 11 - 14, 2019 - Daejeon, Korea

Powerful Unix-Tools - sort & uniq & comm & join

Andreas Schmidt

Department of Informatics and
Business Information Systems
University of Applied Sciences Karlsruhe
Germany

Institute for Automation and Applied Informatics
Karlsruhe Institute of Technologie
Germany

Karlsruhe Institute of Technology

Hochschule Karlsruhe
Technik und Wirtschaft
UNIVERSITY OF APPLIED SCIENCES

sort

- Sort lines of text files
- Write sorted concatenation of all FILE(s) to standard output.
- With no FILE, or when FILE is -, read standard input.
- sorting alpabetic, numeric, ascending, descending, case (in)sensitive
- column(s)/bytes to be sorted can be specified
- Random sort option (-R)
- Remove of identical lines (-u)
- Examples:
  - sort file city.csv starting with the second column (field delimiter: ,)

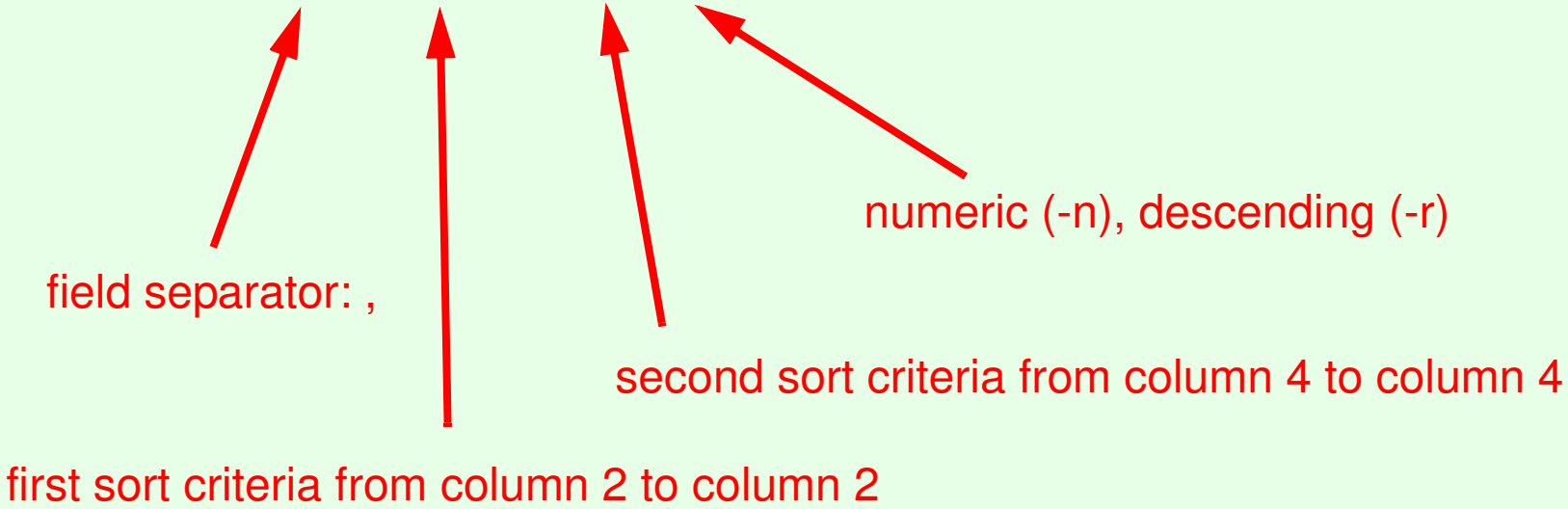
    ```
    sort -k2 -t',' city.csv
    ```
  - merge content of file1.txt and file2.txt and sort the result

    ```
    sort file1.txt file2.txt
    ```

sort - examples

- sort file by country code, and as a second criteria population (numeric, descending)

```
sort -t, -k2,2 -k4,4nr  city.csv
```



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sort - examples

- Sort by the second and third character of the first column

```
sort -t, -k1.2,1.2 city.csv
```

- Generate a line of unique random numbers between 1 and 10

```
seq 1 10| sort -R | tr '\n' ' '
```

- Lottery-forecast (6 from 49) - defective from time to time ;-)

```
seq 1 49 | sort -R | head -n6
```

- Test if a file is sorted

```
seq 1 10| sort -R | sort -c
```

uniq (1)

- report or omit repeated lines
- Filter adjacent matching lines from INPUT
- Range of comparision can be specified (first n chars, skip first m chars)
- options:
  - -c: count number of occurences
  - -d: only print duplicate lines
  - -u: only print unique line
  - -i: ignore case
  - -w<num>: compare not more than <num> characters per line

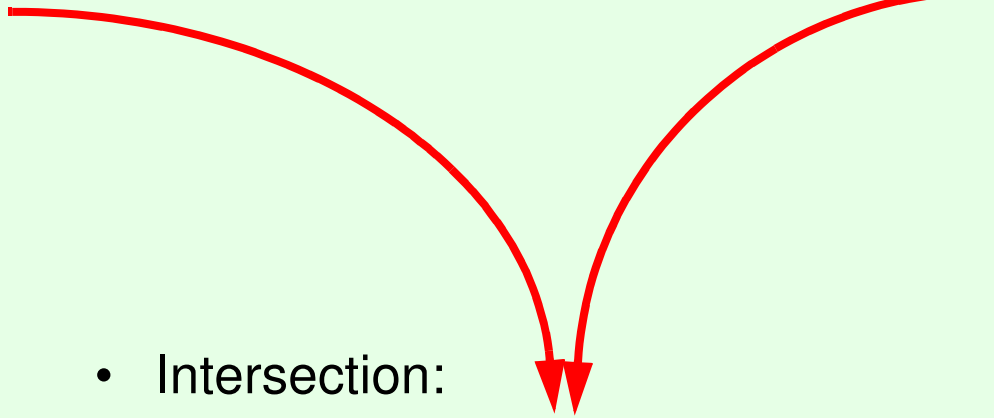
uniq - example

- file1.txt

```
Barcelona
Bern
Chamonix
Karlsruhe
Pisa
Porto
Rio
```

- file2.txt

```
Andorra
Barcelona
Berlin
Pisa
Porto
```



- Intersection:

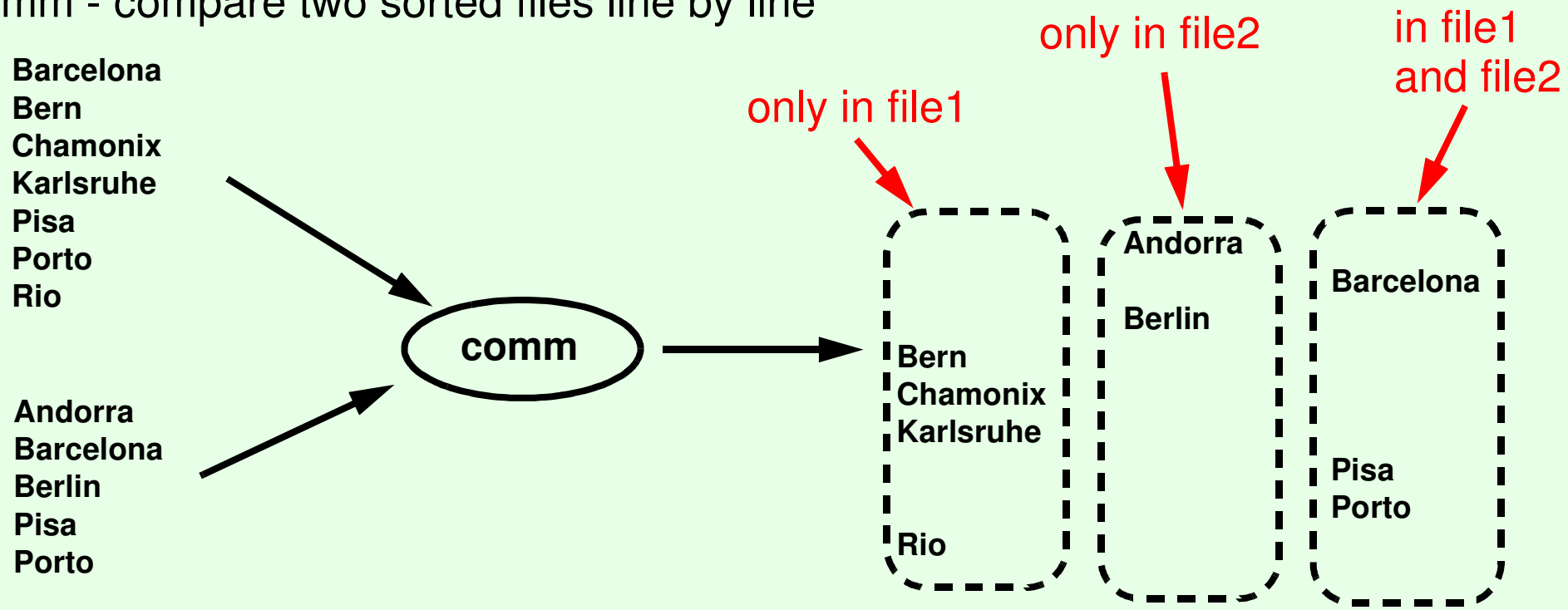
```
$ cat file*.txt | sort | uniq -d
Barcelona
Pisa
Porto
```

- Counting:

```
cat file*.txt | sort | uniq -c
  1 Andorra
  2 Barcelona
  1 Berlin
  1 Bern
  1 Chamonix
  1 Karlsruhe
  2 Pisa
  2 Porto
  1 Rio
```

Compare Operator

- comm - compare two sorted files line by line



- Options:
  - -1: supress column 1
  - -2: supress column 2
  - -3: supress column 3
  - --total: output a summary

set semantic with sorted input !!!

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Join operations

- join - join lines of two files on a common field
- Fields to compare must be sorted (alphabetic, not numeric)
- Output fields can be specified
- Example:

```
sort -k2 -t, city.csv | join -t, -12 -22 - country.csv \
                              -o1.1,2.1,1.3,1.4
```

Join Operation

- city.csv

```
Aachen,D,"Nordrhein Westfalen",247113,NULL,NULL
Aalborg,DK,Denmark,113865,10,57
Aarau,CH,AG,NULL,NULL,NULL
Aarhus,DK,Denmark,194345,10.1,56.1
Aarri,WAN,Nigeria,111000,NULL,NULL
...
```

- country.csv

```
...
Germany,D,Berlin,Berlin,356910,83536115
Djibouti,DJI,Djibouti,Djibouti,22000,42764
Denmark,DK,Copenhagen,Denmark,43070,524963
Algeria,DZ,Algiers,Algeria,2381740,2918303
Spain,E,Madrid,Madrid,504750,39181114
...
```

```
sort -k2 -t, city.csv | join -t, -12 -22 - country.csv \
                        -o1.1,2.1,1.3,1.4
```

```
Aachen,Germany,"Nordrhein Westfalen",247113
Aalborg,Denmark,Denmark,113865
Aarau,Switzerland,AG,NULL
Aarhus,Denmark,Denmark,194345
Aarri,Nigeria,Nigeria,111000
Aba,Nigeria,Nigeria,264000
Abakan,Russia,"Rep. of Khakassiya",161000
```