



## CIS 90 Linux Lab Exercise

### Lab X2: Pathnames - Extra Credit Lab Spring 2012

#### Objectives

This lab will give you additional practice using **relative** and **absolute** pathnames as arguments on various Linux commands.

#### Forum

Browse to: <http://opus.cabrillo.edu/forum/viewforum.php?f=46>

Check the forum for any late breaking news about this lab. The forum is also the place to go if you get stuck, have a question or want to share something you have learned about this lab.

#### Procedure

There is a tarball named *dogs.tar* in the */home/cis90/depot* directory. Copy this file to your home directory and extract the files using:

```
cd  
cp /home/cis90/depot/dogs.tar .  
tar -xvf dogs.tar
```

You should now have a new *dogs* directory. Use the **tree** command to verify you have unpacked the files successfully:

```
/home/cis90/simben $ tree dogs  
dogs  
|-- England  
|   |-- Austen  
|   |   |-- Persuasion  
|   |   |-- Sensibility  
|   |   `-- author  
|   `-- Shakespeare  
|       |-- Caesar  
|       |-- Hamlet  
|       |-- Romeo  
|       `-- author  
|-- France  
|   `-- Verne
```

```
|      |-- Island
|      |-- Moon
|      `-- author
|-- Germany
|   |-- Goethe
|   |  |-- Faust
|   |  |-- Lament
|   |  `-- author
|   `-- Kafka
|       |-- Trial
|       `-- author
|-- Greece
|   |-- Aesop
|   |  |-- Ass
|   |  |-- Fox
|   |  |-- Shadow
|   |  `-- author
|   `-- Plato
|       |-- Apology
|       |-- Phaedo
|       `-- author
|-- Italy
|   `-- Machiavelli
|       |-- War
|       `-- author
|-- Russia
|   `-- Tolstoy
|       |-- Anna
|       |-- Murad
|       `-- author
|-- Spain
|   `-- Cervantes
|       |-- Estramaduran
|       |-- Quixote
|       `-- author
|-- USA
|   |-- Alcott
|   |  |-- Boys
|   |  |-- Rose
|   |  |-- Women
|   |  `-- author
|   |-- Burroughs
|   |  |-- Mars
|   |  |-- Oakdale
|   |  |-- Tarzan
|   |  `-- author
|   |-- Dickinson
|   |  |-- Home
|   |  |-- Sea
|   |  `-- author
|   `-- Twain
|       |-- Italian
|       |-- Race
|       |-- Tale
|       `-- author
|-- Ukraine
|   `-- Chekhov
|       |-- Art
|       |-- Boys
|       |-- Dependents
|       |-- Wife
|       `-- author
|-- readme
```

24 directories, 51 files

This is a collection of literature excerpts that mention dogs in one way or another. Notice that the *dogs* directory contains directories named after countries. Each country directory had directories named after authors. Each author directory has files containing works or excerpts from that author. Each author directory also has a file named *author*, containing the name, birth year, death year, and country for that author.

Create a file named *labx2*. For each step in the lab you will construct a command and record it, one command per line in *labx2*. Preface each command with a tag to indicate the step. The tag should be the step number in parenthesis. Each command should fit on one line and not contain any semi-colons (;'s). Your *labx2* file should have exactly 30 lines and look like the following:

```
(1) your command goes here
(2) your command goes here
(3) your command goes here
(4) your command goes here
(5) your command goes here
(6) your command goes here
(7) your command goes here
(8) your command goes here
(9) your command goes here
(10) your command goes here
(11) your command goes here
(12) your command goes here
(13) your command goes here
(14) your command goes here
(15) your command goes here
(16) your command goes here
(17) your command goes here
(18) your command goes here
(19) your command goes here
(20) your command goes here
(21) your command goes here
(22) your command goes here
(23) your command goes here
(24) your command goes here
(25) your command goes here
(26) your command goes here
(27) your command goes here
(28) your command goes here
(29) your command goes here
(30) your command goes here
```

You can check your commands by comparing the output you get with the output in the appendix.

You may find it helpful to have three Opus sessions running. In the first session display the output from the **tree** command on the *dogs* directory for quick reference. In a second session, use **vi** to record your commands in the *labx2* file, and in the third session test the commands you create.

## Review

- A way is needed to uniquely specify files and directories in the UNIX/Linux file tree. Because there can be more than one file with the same name just specifying the filename on a command would be ambiguous. **Absolute** and **relative** pathnames solve this need.
- The top or “root” of the file tree is the / directory. By typing **ls /** you can view the standard top level directories of the UNIX/Linux file tree.
- An **absolute** pathname specifies the location of a file or directory relative to the top of the Unix file tree. An **absolute** pathname specifies the complete path starting from / (the top or “root” of the file tree) all the way to the file or directory being specified. **Absolute** pathnames always start with a / and contain no spaces.
- A **relative** pathname specifies the location of a file or directory **relative** to the current working directory. The current working directory changes every time you change directories using the **cd** command. A **relative** pathname specifies the complete path starting from the current working directory all the way to the file or directory being specified. **Relative** pathnames never start a / and contain no spaces.
- The **pwd** command will show you where you are in the UNIX/Linux file tree by displaying the current working directory. The current working directory is the starting point for all **relative** pathnames.
- Tip: To verify if a pathname is correct, use it as an argument to the **ls** command. If you are specifying a file the **ls** command will print the name of the target file only if the pathname is correct. Same goes for directories however, the **-d** option must be used so the **ls** command will display the name of the target directory rather than its contents.
- Correct pathnames are required as arguments to commands that work with files such as **mv, cp, ls, cd, head, tail, rm**, etc.
- The . directory means “here”. It is treated as if you typed a complete **absolute** pathname for the current working directory you are in.
- The .. directory refers to the parent of the current working directory. Use .. in **relative** pathnames to work your way up the tree towards the top or “root” of the tree.
- Example: the **absolute** pathname to the *sonnet1* file in Benji’s *Shakespeare* directory is:

```
/home/cis90/simben/poems/Shakespeare/sonnet1
```

Note that this is like giving someone walking instructions from the top of the tree all the way to the specific *sonnet1* file in Benji’s *Shakespeare* directory.

- Example: two **relative** pathnames to the *sonnet1* file in Benji’s *Shakespeare* directory from /home/rsimms are:

```
../cis90/simben/poems/Shakespeare/sonnet1
../../../../boot/grub/../../../../home/cis90/simben/poems/Shakespeare/sonnet1
```

Note that this is like giving someone walking instructions from their current location on the tree all the way to the specific *sonnet1* file in Benji's directory. Note: it doesn't have to be the shortest path just a complete path.

- Example: the **relative** pathname to the *sonnet1* file in Benji's *Shakespeare* directory from his *Shakespeare* directory is:

```
sonnet1
```

- Use Tab completes to verify the pathname you are typing is correct. Press the Tab key once to see if enough characters have been typed to complete the current file name. Press the Tab key twice to show all the current possibilities. If there is no completion or no possibilities you are most likely off in the weeds and not typing a correct pathname.

## Using absolute and relative pathnames

- 1) From your home directory, what **ls** command would show the permissions on the Linux kernel file? On Opus, the Linux kernel is named *vmlinuz-2.6.18-164.el5* and it resides in the */boot* directory. On your **ls** command, specify the Linux kernel using an **absolute** pathname.
- 2) From your home directory, what **ls** command would show the permissions on the *passwd* file where all user accounts are kept? This *passwd* file resides in the */etc* directory. On your **ls** command, specify this *passwd* file using an **absolute** pathname.
- 3) From your home directory, what **ls** command would show the permissions on the */etc* directory itself (and no other directories)? On your **ls** command, specify this particular *etc* directory using an **absolute** pathname and be sure to use the **-d** option.
- 4) From your home directory, what **cd** command would change to the top, "root", directory of the UNIX/Linux file tree? On your **cd** command, use an **absolute** pathname to specify the top directory of the file tree.
- 5) From the top of the file tree, what **ls** command would show the permissions on the *passwd* file where all user accounts are kept? This *passwd* file resides in the */etc* directory. On your **ls** command, specify this *passwd* file using a **relative** pathname.
- 6) From the top of the file tree, what **ls** command would show the permissions on the Linux kernel file? On Opus, the Linux kernel is named *vmlinuz-2.6.18-164.el5* and it resides in the */boot* directory. On your **ls** command, specify the Linux kernel using a **relative** pathname.
- 7) From the top of the file tree, what **cd** command would change to the new *dogs* directory in your home directory? Use an **absolute** pathname to specify your *dogs* directory.
- 8) From your *dogs* directory, what command using **ls** does a long, recursive listing of the *USA* directory? Specify the *USA* directory using a **relative** pathname.
- 9) Again from your *dogs* directory, what **ls** command does a long, recursive listing of the *USA* directory? This time specify the *USA* directory using an **absolute** pathname.

- 10) Still from your *dogs* directory, what **head** command would list the first 2 lines of the Austen's *Persuasion* and Chekhov's *Wife* files? Use **relative** pathnames for both *Persuasion* and *Wife*.
- 11) Again from your *dogs* directory, what **tail** command would list the last 9 lines of Burroughs' *Tarzan* and *Mars* files? Use an **absolute** pathname for the *Tarzan* file and a **relative** pathname for the *Mars* file.
- 12) From your *dogs* directory, what **cd** command would change to the *Plato* directory (in Greece)? Use a **relative** pathname to specify the *Plato* directory.
- 13) From the *Plato* directory, what **chmod** command would change the permissions on the *Ukraine* and *USA* directories to 744? Use a **relative** pathname with the wildcard \* meta-character to specify just the *USA* and *Ukraine* directories. You must also use the -v option (for verbose) which outputs the changes made.
- 14) From the *Plato* directory, what **ls** command would do a long listing on the *passwd* file in the */etc* directory? Use an **absolute** pathname for the *passwd* file.
- 15) From the *Plato* directory, what **ls** command would do a long listing on the *passwd* file in the */etc* directory? Use a **relative** pathname for the *passwd* file.
- 16) From the *Plato* directory, what **cd** command would change to the *France* directory? Use an **absolute** pathname to specify the *France* directory.
- 17) From the *France* directory, what **cp** command would copy Machiavelli's *War* to the *France* directory? Use **relative** pathnames to specify the Machiavelli's *War* and the *France* directory. Use the -v option to show what gets copied.
- 18) From the *France* directory, what **cp** command would copy Kafka's *Trial* to the *Cervantes* directory? Use **relative** pathnames to specify the *Trial* file and the *Cervantes* directory. Use the -v option to show what gets copied.
- 19) From the *France* directory, what **cp** command would copy Verne's *Moon* and Tolstoy's *Murad* to the *Cervantes* directory? Use **relative** pathnames to specify the *Moon* file and the *Cervantes* directory. Use an **absolute** pathname to specify the *Murad* file. Use the -v option to show what gets copied.
- 20) From the *France* directory, what **rm** command would remove the four files copied in steps 17-19 from the *France* and *Cervantes* directories? That is, remove the *War* file from *France* and the *Moon*, *Murad* and *Trial* files from the *Cervantes* directory. Use only **relative** pathnames and the -v option to show what gets removed. Try and use the [] and \* meta-characters to specify all the files in *Cervantes* you want to delete.
- 21) From the *France* directory, what **cat** command would cat the *author* file in the *Verne* directory? Use a **relative** pathname for the *author* file.
- 22) From the *France* directory, what **cat** command would cat the *author* file in the *Verne* directory? Use an **absolute** pathname for the *author* file.
- 23) From the *France* directory, what **cat** command would cat the *author* files in the *USA* *Alcott*, *Burroughs*, *Dickinson* and *Twain* directories? Use a **relative** pathname with the \* wildcard meta-character.

- 24) From the *France* directory, what **cd** command would change back to your home directory? Specify your home directory using a **relative** pathname.
- 25) From your home directory, what **grep** command would find all lines containing the word dog in all the works by the Ukrainian author Chekhov? Use a **relative** pathname with the wildcard \* meta-character to match each of his works.
- 26) From your home directory, what **grep** command would find all lines containing the word dog in all the works of all the American authors? Use a **relative** pathname with the wildcard \* meta-character to match both authors and works.
- 27) From your home directory, what **cat** command would print all the files named *author* in all the directories under the *dogs* directory? Use an **absolute** pathname with the wildcard \* meta-character to match all country directories and author directories
- 28) From your home directory, what **find** command would list all the directories (not regular files) in your *dogs* directory and down? Use a **relative** pathname to your *dogs* directory.
- 29) From your home directory, what **cp** command would copy */etc/passwd* and Burroughs' *Oakdale* file to your home directory? Use **relative** pathnames for your home directory and the *Oakdale* file. Use an **absolute** pathname for the *passwd* file. Use the **-v** option (verbose) to show what gets copied.
- 30) From your home directory, what **rm** command would remove the *passwd* and *Oakdale* files from your home directory? Use **relative** pathnames and the **-v** option (verbose) to show what gets removed.

## To turn in

After verifying the output of your commands with the Appendix below, submit your final version of *labx2* as follows:

```
cp labx2 /home/rsimms/turnin/labx2.$LOGNAME
```

## Grading rubric (30 points maximum)

1 point for each correct command (the output from your command must match exactly or be equivalent to the outputs in the Appendix)

## Appendix

Compare your output with the output below to verify your commands are correct. This output is for your verification purposes only, it is **not** to be included in your submittal. Note, this is Benji's output and his home directory is */home/cis90/simben*. Your output should show your home directory name instead.

```

1) your command here
-rw-r--r-- 1 root root 1855956 Aug 18 2009 /boot/vmlinuz-2.6.18-164.el5
/home/cis90/simben $

2) your command here
-rw-r--r-- 1 root root 10043 Apr 11 14:01 /etc/passwd
/home/cis90/simben $

3) your command here
drwxr-xr-x 104 root root 12288 Apr 17 04:20 /etc
/home/cis90/simben $

4) your command here
/ $

5) your command here
-rw-r--r-- 1 root root 10043 Apr 11 14:01 etc/passwd
/ $

6) your command here
-rw-r--r-- 1 root root 1855956 Aug 18 2009 boot/vmlinuz-2.6.18-164.el5
/ $

7) your command here
/home/cis90/simben/dogs $

8) your command here
USA/:
total 32
drwxr-xr-x 2 simben90 cis90 4096 Nov 20 2010 Alcott
drwxr-xr-x 2 simben90 cis90 4096 Nov 21 2010 Burroughs
drwxr-xr-x 2 simben90 cis90 4096 Nov 21 2010 Dickinson
drwxr-xr-x 2 simben90 cis90 4096 Nov 20 2010 Twain

USA/Alcott:
total 32
-rw-r--r-- 1 simben90 cis90 32 Nov 20 2010 author
-rw-r--r-- 1 simben90 cis90 603 Nov 20 2010 Boys
-rw-r--r-- 1 simben90 cis90 484 Nov 20 2010 Rose
-rw-r--r-- 1 simben90 cis90 929 Nov 20 2010 Women

USA/Burroughs:
total 32
-rw-r--r-- 1 simben90 cis90 35 Nov 21 2010 author
-rw-r--r-- 1 simben90 cis90 911 Nov 21 2010 Mars
-rw-r--r-- 1 simben90 cis90 1180 Nov 21 2010 Oakdale
-rw-r--r-- 1 simben90 cis90 1127 Nov 21 2010 Tarzan

USA/Dickinson:
total 24
-rw-r--r-- 1 simben90 cis90 30 Nov 21 2010 author
-rw-r--r-- 1 simben90 cis90 598 Nov 20 2010 Home
-rw-r--r-- 1 simben90 cis90 693 Nov 20 2010 Sea

USA/Twain:
total 32
-rw-r--r-- 1 simben90 cis90 25 Nov 20 2010 author
-rw-r--r-- 1 simben90 cis90 695 Nov 20 2010 Italian
-rw-r--r-- 1 simben90 cis90 3958 Nov 20 2010 Race
-rw-r--r-- 1 simben90 cis90 3376 Nov 20 2010 Tale
/home/cis90/simben/dogs $

```



9) *your command here*  
/home/cis90/simben/dogs/USA/:  
total 32  
drwxr-xr-x 2 simben90 cis90 4096 Nov 20 2010 Alcott  
drwxr-xr-x 2 simben90 cis90 4096 Nov 21 2010 Burroughs  
drwxr-xr-x 2 simben90 cis90 4096 Nov 21 2010 Dickinson  
drwxr-xr-x 2 simben90 cis90 4096 Nov 20 2010 Twain

/home/cis90/simben/dogs/USA/Alcott:  
total 32  
-rw-r--r-- 1 simben90 cis90 32 Nov 20 2010 author  
-rw-r--r-- 1 simben90 cis90 603 Nov 20 2010 Boys  
-rw-r--r-- 1 simben90 cis90 484 Nov 20 2010 Rose  
-rw-r--r-- 1 simben90 cis90 929 Nov 20 2010 Women

/home/cis90/simben/dogs/USA/Burroughs:  
total 32  
-rw-r--r-- 1 simben90 cis90 35 Nov 21 2010 author  
-rw-r--r-- 1 simben90 cis90 911 Nov 21 2010 Mars  
-rw-r--r-- 1 simben90 cis90 1180 Nov 21 2010 Oakdale  
-rw-r--r-- 1 simben90 cis90 1127 Nov 21 2010 Tarzan

/home/cis90/simben/dogs/USA/Dickinson:  
total 24  
-rw-r--r-- 1 simben90 cis90 30 Nov 21 2010 author  
-rw-r--r-- 1 simben90 cis90 598 Nov 20 2010 Home  
-rw-r--r-- 1 simben90 cis90 693 Nov 20 2010 Sea

/home/cis90/simben/dogs/USA/Twain:  
total 32  
-rw-r--r-- 1 simben90 cis90 25 Nov 20 2010 author  
-rw-r--r-- 1 simben90 cis90 695 Nov 20 2010 Italian  
-rw-r--r-- 1 simben90 cis90 3958 Nov 20 2010 Race  
-rw-r--r-- 1 simben90 cis90 3376 Nov 20 2010 Tale  
/home/cis90/simben/dogs \$

10) *your command here*  
==> England/Austen/Persuasion <==  
The morning hours of the Cottage were always later than those  
of the other house, and on the morrow the difference was so great

==> Ukraine/Chekhov/Wife <==  
We came out into the village street. All the roofs were intact, not one of  
them had been pulled to pieces; so my bailiff had told a lie. A boy was  
/home/cis90/simben/dogs \$

11) *your command here*  
==> /home/cis90/simben/dogs/USA/Burroughs/Tarzan <==  
"I am Akut," replied the other in the same simple, primal tongue which is so  
low in the scale of spoken languages that, as Tarzan had surmised, it was  
identical with that of the tribe in which the first twenty years of his life  
had been spent.

"I am Akut," said the ape. "Molak is dead. I am king. Go away or I shall kill  
you!"

Excerpt from: The Beasts of Tarzan, by Edgar Rice Burroughs

==> USA/Burroughs/Mars <==  
refreshed after the arduous labors of the past few days. Woola had fought  
with me through the battle of the previous day, true to the instincts and  
training of a Martian war dog, great numbers of which are often to be  
found with the savage green hordes of the dead sea bottoms.

Neither of us had come through the conflict unscathed, but the marvelous, healing salves of Barsoom had sufficed, overnight, to make us as good as new.

Excerpt from: The Warlord of Mars, by Edgar Rice Burroughs  
/home/cis90/simben/dogs \$

- 12) *your command here*  
/home/cis90/simben/dogs/Greece/Plato \$
- 13) *your command here*  
mode of `../../Ukraine' changed to 0744 (rwxr--r--)  
mode of `../../USA' changed to 0744 (rwxr--r--)  
/home/cis90/simben/dogs/Greece/Plato \$
- 14) *your command here*  
-rw-r--r-- 1 root root 8751 Mar 27 13:47 /etc/passwd  
/home/cis90/simben/dogs/Greece/Plato \$
- 15) *your command here*  
-rw-r--r-- 1 root root 8751 Mar 27 13:47 ../../../../etc/passwd  
/home/cis90/simben/dogs/Greece/Plato \$
- 16) *your command here*  
/home/cis90/simben/dogs/France \$
- 17) *your command here*  
`../Italy/Machiavelli/War' -> `./War'  
/home/cis90/simben/dogs/France \$
- 18) *your command here*  
`../Germany/Kafka/Trial' -> `../Spain/Cervantes/Trial'  
/home/cis90/simben/dogs/France \$
- 19) *your command here*  
`Verne/Moon' -> `../Spain/Cervantes/Moon'  
`/home/cis90/simben/dogs/Russia/Tolstoy/Murad' -> `../Spain/Cervantes/Murad'  
/home/cis90/simben/dogs/France \$
- 20) *your command here*  
removed `War'  
removed `../Spain/Cervantes/Moon'  
removed `../Spain/Cervantes/Murad'  
removed `../Spain/Cervantes/Trial'  
/home/cis90/simben/dogs/France \$
- 21) *your command here*  
Jules Verne:1828:1905:France  
/home/cis90/simben/dogs/France \$
- 22) *your command here*  
Jules Verne:1828:1905:France  
/home/cis90/simben/dogs/France \$
- 23) *your command here*  
Louisa May Alcott:1832:1888:USA  
Edgar Rice Burroughs:1875:1950:USA  
Emily Dickinson:1830:1886:USA  
Mark Twain:1835:1910:USA  
/home/cis90/simben/dogs/France \$
- 24) *your command here*  
/home/cis90/simben \$

25) *your command here*  
dogs/Ukraine/Chekhov/Art:sheepskin like a mangy dog. In his hands he holds a  
compass made of two  
dogs/Ukraine/Chekhov/Boys:"Bow-wow!" barked the huge black dog, Milord, in a deep  
bass, tapping with his  
dogs/Ukraine/Chekhov/Boys:help Mr. Lentilov off with his things. Mercy on us, do  
turn that dog out! He  
dogs/Ukraine/Chekhov/Dependents:mouth. "It's a dog's life. No tea! And it isn't as  
though I were a simple  
dogs/Ukraine/Chekhov/Dependents:dog Lyska, a big, mangy, decrepit-looking, white  
yard-dog, with black patches,  
dogs/Ukraine/Chekhov/Wife:something, and mechanically took off his hat to me. The  
dogs ran out of the  
dogs/Ukraine/Chekhov/Wife:life, children, sledges, dogs with dishevelled tails.  
Neither the children  
/home/cis90/simben \$

26) *your command here*  
dogs/USA/Alcott/Boys:'Why, there's a dog!' And on the threshold of the door  
appeared a great  
dogs/USA/Alcott/Boys:meet the dog, who reared on his hind legs to look his master  
in the face and  
dogs/USA/Alcott/Rose:led her through a crowded supper room with his most devoted  
air, "Lucky dog!  
dogs/USA/Alcott/Women:objectionable dog barked at them from the other side of the  
river  
dogs/USA/Burroughs/Mars:training of a Martian war dog, great numbers of which are  
often to be  
dogs/USA/Burroughs/Oakdale:and asking for a night's lodging when a savage voiced  
dog shattered the peace  
dogs/USA/Burroughs/Tarzan:much after the manner that you have noted among dogs  
when a strange canine  
dogs/USA/Dickinson/Home:A dog's belated feet  
dogs/USA/Dickinson/Sea:I started early, took my dog,  
dogs/USA/Twain/Italian:"It is a good point. Would a dog do?"  
dogs/USA/Twain/Italian:I said I did not know, but we could try a dog and see.  
dogs/USA/Twain/Italian:So he sent out an aide-de-camp to give the order to add the  
dog.  
dogs/USA/Twain/Race:that. You have heard a dear little girl say to a frowzy and  
disreputable dog:  
dogs/USA/Twain/Race:would that random dog be able to confer the like glory upon  
her with his  
dogs/USA/Twain/Race:for the random dog's honor-conferring attentions. "Even in the  
very worst  
dogs/USA/Twain/Race:"everybody seeing him do it"; and as the child felt when the  
random dog  
dogs/USA/Twain/Tale:for such; she liked to say them, and see other dogs look  
surprised and envious,  
dogs/USA/Twain/Tale:dogmatic gathering in the neighborhood, then she would get it  
off, and surprise  
dogs/USA/Twain/Tale:with admiration that it never occurred to any dog to doubt if  
it was the right  
dogs/USA/Twain/Tale:they find out whether it was right or not? for she was the  
only cultivated dog  
dogs/USA/Twain/Tale:anything; so when he'd hail and ask her to cash in, I (the  
only dog on the  
/home/cis90/simben \$

27) *your command here*  
Jane Austen:1775:1817:England  
William Shakespeare:1564:1616:England  
Jules Verne:1828:1905:France

Johann Wolfgang von Goethe:1749:1832:Germany  
Franz Kafka:1883:1924:Germany  
Aesop:620BC:564BC:Greece  
Plato:427BC:347BC:Greece  
Niccolo Machiavelli:1469:1527:Italy  
Leo Tolstoy:1828:1910:Russia  
Miguel de Cervantes:1547:1616:Spain  
Anton Chekhov:1860:1904:Ukraine  
Louisa May Alcott:1832:1888:USA  
Edgar Rice Burroughs:1875:1950:USA  
Emily Dickinson:1830:1886:USA  
Mark Twain:1835:1910:USA  
/home/cis90/simben \$

28) *your command here*  
dogs/  
dogs/Ukraine  
dogs/Ukraine/Chekhov  
dogs/Italy  
dogs/Italy/Machiavelli  
dogs/England  
dogs/England/Austen  
dogs/England/Shakespeare  
dogs/Russia  
dogs/Russia/Tolstoy  
dogs/USA  
dogs/USA/Alcott  
dogs/USA/Dickinson  
dogs/USA/Burroughs  
dogs/USA/Twain  
dogs/France  
dogs/France/Verne  
dogs/Greece  
dogs/Greece/Plato  
dogs/Greece/Aesop  
dogs/Spain  
dogs/Spain/Cervantes  
dogs/Germany  
dogs/Germany/Goethe  
dogs/Germany/Kafka  
/home/cis90/simben \$

29) *your command here*  
`/etc/passwd' -> `./passwd'  
`dogs/USA/Burroughs/Oakdale' -> `./Oakdale'  
/home/cis90/simben \$

30) *your command here*  
removed `passwd'  
removed `Oakdale'  
/home/cis90/simben \$