

Administrivia

- No class Wednesday.
- Reminder: Project proposals due today. Accepted without penalty through Wednesday at 5pm.
- Summary of grade information mailed earlier today — so you know where you stand.

Slide 1

“Programming” Problems

- Today's class — for a couple of semi-real-world problems, think of as many ways as we can to solve them using tools presented so far.

Slide 2

Mass File Rename

Slide 3

- How many ways can we think of to do a “mass rename” of files? e.g., rename all `.cc` files to `.cpp`?
- (A really good solution will do something reasonable if aren't any `.cc` files, and will work even if file names contain spaces.)
- Linux has a `rename` command — exactly what we want, but not available on all UNIX systems, and — are there other ways?

Mass File Rename, Continued

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- Another way:

```
for file in `ls *.cc`
do
  mv $file `basename $file .cc`.cpp
done
```

(Or could use `sed` to make new file name.)
- A problem — the above fails if filename contains spaces. It also doesn't do the right thing if there aren't any files. How to fix this?

Mass File Rename, Continued

- One way is to use a while loop rather than a for:

```
ls *.cc | while read file
do
  mv "$file" "`basename \"$file\" .cc`.cpp"
done
```

Slide 5

Finding Broken Links

- How many ways can we think of to find “broken” (or “stale”) symbolic links?
- Linux has a `symlinks` command too. Other ways?

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Finding Broken Links, Continued

- Another way would be to combine `find` and `readlink`, e.g.:

```
for link in `find . -type l`
do
  file=`readlink $link`
  if [ ! -e $file ]
  then
    echo broken link $link
  fi
done
```

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- But this only works for links in the current directory — for links in subdirectory, test for link target's existence is wrong. How to fix this?

Finding Broken Links, Continued

- The following seems to work for both Linux and OS X:

```
find . -type l | while read link
do
  dir=`dirname $link`
  name=`basename $link`
  here=`pwd`
  cd $dir
  target=`readlink $name`
  if [ ! -e $target ]
  then
    echo "broken link $dir/$name"
  fi
  cd $here
done
```

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(Well, except that it doesn't deal with names with spaces! but we could fix that

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as we did for the previous problem.)

Slide 10

More Real-World(?) Examples — Locally-Written Scripts

- p
- find-big-files, sorted-disk-usage
- up, atlas, etc.
- logon
- (These are in /usr/local/bin.)

Minute Essay

- None — sign in. (And best wishes for a good holiday!)

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