

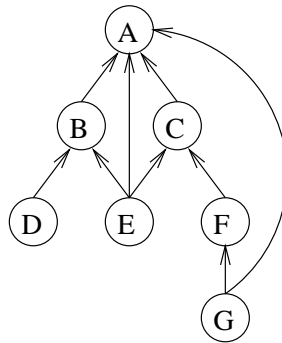
# Unix Lab 4: `make`

CS 245

Nov. 25, 2002

In this lab you will learn how to set up dependencies within a make file.

1. Log into your account on black and create a directory for this lab. `cd` to this directory.
2. Copy the file `~kelliher/pub/cs245/Makefile` into the directory you just created and open it for editing.
3. We want to implement this dependency graph:



- (a) Note that two of the edges are redundant. Which two and why?
- (b) To make a target, we will simply `touch` it. For example, if the target `x` depends upon the files `y` and `z` we need the following entry in the make file:

```
x: y z
    touch x
```

Remember, the command line **must** begin with a Tab character and target specifications must be separated by at least one blank line.

Don't forget that the leaf targets must appear as targets with empty command lists.

- (c) Edit the `Makefile`, adding the required targets.
4. To test your set of dependencies, save your file and run the following from a shell prompt:

```
make all
```

This will create the necessary test files, run a suite of tests, and remove the test files. (Check the make file for the details.)

For easy viewing, you may find it convenient to pipe the output to a pager:

```
make all | less
```

Notice that for each test run, the output will tell you what file was touched before `a` is made. Using this information, as well as the dependency graph, you should be able to determine if the correct files are being re-made and if they're being re-made in the correct order.

5. To verify that you've correctly implemented the dependency graph run the following commands:

```
make all > results
```

```
diff -w ~/kelliher/pub/cs245/makeResults results
```

If `diff` runs without producing any output, you've passed the test. Otherwise, compare your result file with my result file then correct your make file.