

CSCB09 2026 Summer Assignment 1

Due: June 7 noon

In this assignment, you will write an interesting shell script and possibly learn and use some utility programs.

As usual, you should aim for reasonably efficient algorithms and reasonably well-organized, well-factored, comprehensible code.

Dialectic Class Reversal!

I have taught multiple courses over multiple terms. Should I organize my course material directories by terms then courses, or courses then terms? Example:

terms then course	courses then terms
T/2024w/B63	C/B63/2024w
T/2024-5/B09	C/B09/2024-5
T/2024-5/C24	C/B09/2025-s
T/2025-s/B09	C/C24/2024-5
T/2025-s/C24	C/C24/2025-s

Every five years I change my mind and want to convert to the other convention! And in reality I have like 40 directories! Write an sh script to automate this for me.

sh reversal OPTIONS

Options:

- **-s SRCDIR** : Source directory (existing content in current convention), e.g., T in the example above.
- **-t TGTDIR** : Target directory (will receive content in new convention), e.g., C in the example above.

Example: `sh reversal -t C -s T`

Do not modify what's under the source directory; instead, copy its content to under the target directory but with the other convention.

Do not assume any naming convention about courses and terms (except for one assumption below); instead, generally copy every directory of the form SRCDIR/foo/bar to TGT-DIR/bar/foo . (Quiz: Therefore, why is the same script good for both directions of conversion?)

You may not create/write any other file/directory, and you shouldn't need to. Automarking will happen in a docker container under heavy lockdown.

You may assume the following. (For your own sake, you may still like to add some checks about them if not too difficult. Please print any error message to stderr only.)

- Both options are given exactly once. But no promise on the order.
- The source directory exists, and there are really two levels of directories below it. Those directory names don't start with dots. (But there can be dot files further down!)
- The target directory may or may not exist. If it does, it is empty initially. If it doesn't, you need to create it.
- The source directory and the target directory are distinct.

Sample directory trees, one per convention, are packed up in sample.zip, also on Mathlab in /courses/courses/cscb09s26/laialber/104 .

Utilities You Need

You will need the help of `basename` (`basename --help` or [link](#)) and/or `dirname` (`dirname --help` or [link](#)). But here is the gist:

```
$ basename foo/bar/bbq
bbq
$ dirname foo/bar/bbq
foo/bar
```

To compare two directory trees (e.g., expected output from me vs output from your script), `diff -r` can help.

Debugging And Error Messages

If you like to print debugging or error messages for your own sake, please send them to stderr only.