eats, squishes and trees

forking, mergeing and branching in git

David L. Miller (University of Rhode Island)

St Andrews R user group talk

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outline

- git re-cap

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- `git re-cap`
- branches (and how to think about them)

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- merging
- deleting branches
- `stashing`

re-cap

let's start with a fresh `git` repo

```
$ mkdir ex
$ cd ex
$ git init
$ touch README
$ git add README
$ git commit -a -m "frivolous commit"
```

branches

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branches

- think about contexts!
- want to test some code but not screw things up?
- also useful to save results of different models

branch example (1)

Let's make a file called row.max.R:

```
# find the maximum in each row of a matrix -- slowly
row.max <- function(x){

  result <- c()

  for(i in 1:nrow(x)){
    this.min <- max(x[i,])
    result <- c(result, this.min)
  }
  return(result)
}
```

branch example (2)

This does what you expect

```
> source("row.max.R")
> row.max(matrix(1:9,3,3))
[1] 7 8 9
```

Yay! It works!

```
$ git add row.max.R
$ git commit -a -m "this is an amazing function, Brian Ripl
```

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- What if that's better?
- How do I try that out without angering other people on my project?
- `branch`!

branch example (4)

First make a new branch and switch to it:

```
$ git branch apply
$ git checkout apply
Switched to branch 'apply'
```

You can check which branch we're on using:

```
$ git branch
* apply
  master
```

branch example (5)

Change the code:

```
# find the maximum in each row of a matrix
row.max <- function(x){
  return(apply(x,1,max))
}
```

Try it:

```
> source("row.max.R")
> row.max(matrix(1:9,3,3))
[1] 7 8 9
```

Hurrah!

branch example (5)

Now, we can commit our changes to this branch

```
$ git commit -a -m "now we use apply(), this is much better
```

we can switch back and forth between the branches and check
where we are:

```
$ git checkout master
$ git branch
* master
  apply
$ git checkout apply
$ git branch
  master
* apply
```

branching - when is it useful?

- multiple sim results

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- multiple sim results
- want to check different parameter values

merging – easy

say we prefer `apply`, how do we make that our new `master`?

```
git checkout apply
git merge --strategy=ours master
git checkout master
git merge apply
```

what if there were other changes?

deleting branches

To remove a local branch from your machine:

```
git branch -d the_local_branch
```

To remove a remote branch:

```
git push origin :the_remote_branch
```

committing branches back to github

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- then use a "pull request" to merge
- all handled by github

git stash for quick storage