

Day 16: Script Development

Suggested Reading:

The Story of Mel (slide 5)

A good book (not about Perl)

Homework Review

Priorities

Efficiency

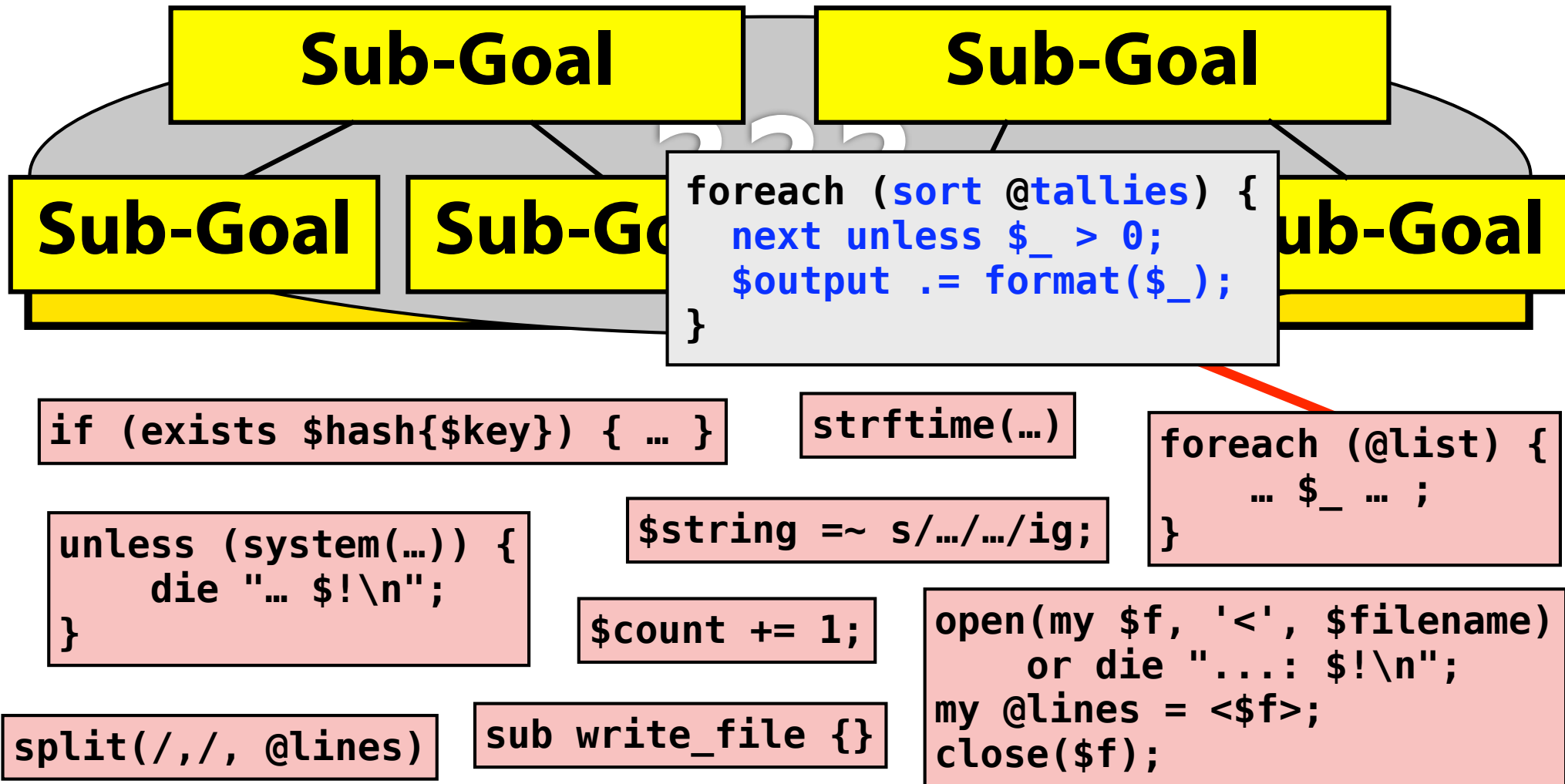
Correctness

Clarity

The Story of Mel

<http://rixstep.com/2/2/20071015,01.shtml>

Script Development



(Design, Code, Test)+

Refactor Mercilessly

Student Challenges

Running R or Matlab; Loops

Thanks, Huihui!

R

1. Ensure that it runs from the command-line

```
% Rscript my_script.R
```

2. Use standard Perl techniques

```
unless (system('Rscript my_script.R')) {  
    die "Failed to run R script: $!\n";  
}
```

```
my $r_out = `Rscript my_other_script.R`;  
unless ($? == 0) {  
    die "Failed to run R script: $!\n";  
}
```

Matlab

1. Ensure that it runs from the command-line

```
% matlab -nojvm -r my_script.m
```

2. Use standard Perl techniques

```
unless (system('matlab -nojvm -r foo.m')) {  
    die "Failed to run Matlab script: $!\n";  
}
```

```
my $matlab_out = `matlab -nojvm -r foo.m`;  
unless ($? == 0) {  
    die "Failed to run Matlab script: $!\n";  
}
```

Nested Loops

- Outer loop (A): 1–4
 - Inner loop (B): 1–100
 - For each case, create arguments to a program:

```
--stuff --foo=A_B A B
```

Proteomics

Thanks, Kelly!

Lab Experiment Results

	Experiment 1	Experiment 2
Rep 1	Arab_*_Exp1_R1_*.tsv	Arab_*_Exp2_R1_*.tsv
Rep 2	Arab_*_Exp1_R2_*.tsv	Arab_*_Exp2_R2_*.tsv
Rep 3	Arab_*_Exp1_R3_*.tsv	Arab_*_Exp2_R3_*.tsv

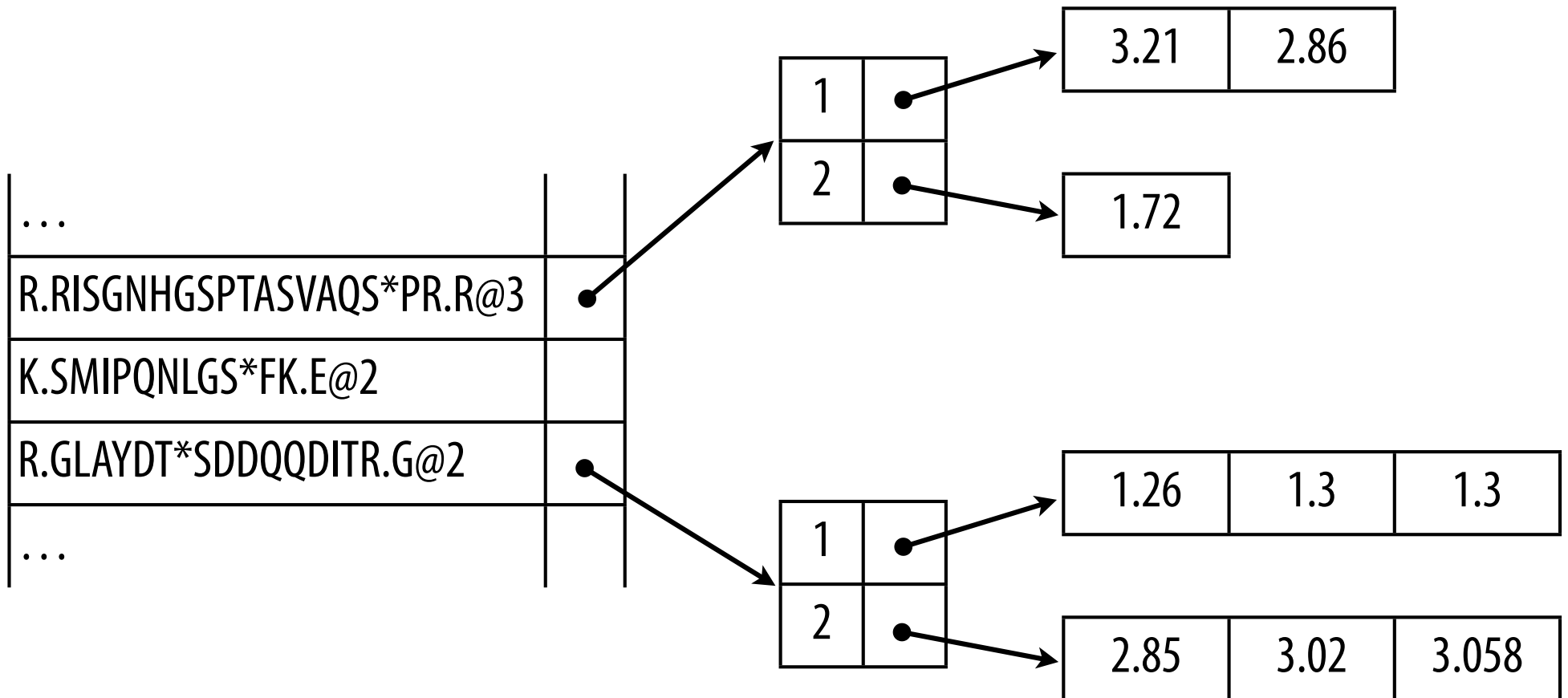
One File

...	Sequence	Charge	aveRatio	...
	R.DALRLDSHSQNQKPEELNG...	4	1.3	
	K.TLETEHQPEPSS*SSPDQKK.W	2	7.45	
	K.EKSDSDS*EYDILDFPEVPNVL...	4	1.59	
	R.RISGNHGSPTASVAQS*PR.R	3	3.21	
	K.SMIPQNLGS*FK.E	2	0.57	
	R.GLAYDT*SDDQQDITR.G	2	1.26	
	R.NVDVGDALISQS*PK.D	2	0.92	
	

Adding Metadata

Exp	Rep	...	Sequence	Charge	aveRatio	...
1	1		R.DALRLDSHSQNQ...	4	1.3	
1	1		K.TLETEHQPEPSS*S...	2	7.45	
1	1		K.EKSDSDS*EYDILD...	4	1.59	
1	1		R.RISGNHGSPTASVA...	3	3.21	
1	1		K.SMIPQNLGS*FK.E	2	0.57	
1	1		R.GLAYDT*SDDQQD...	2	1.26	
1	1		R.NVDVGDALISQS*...	2	0.92	
			

Combining Data

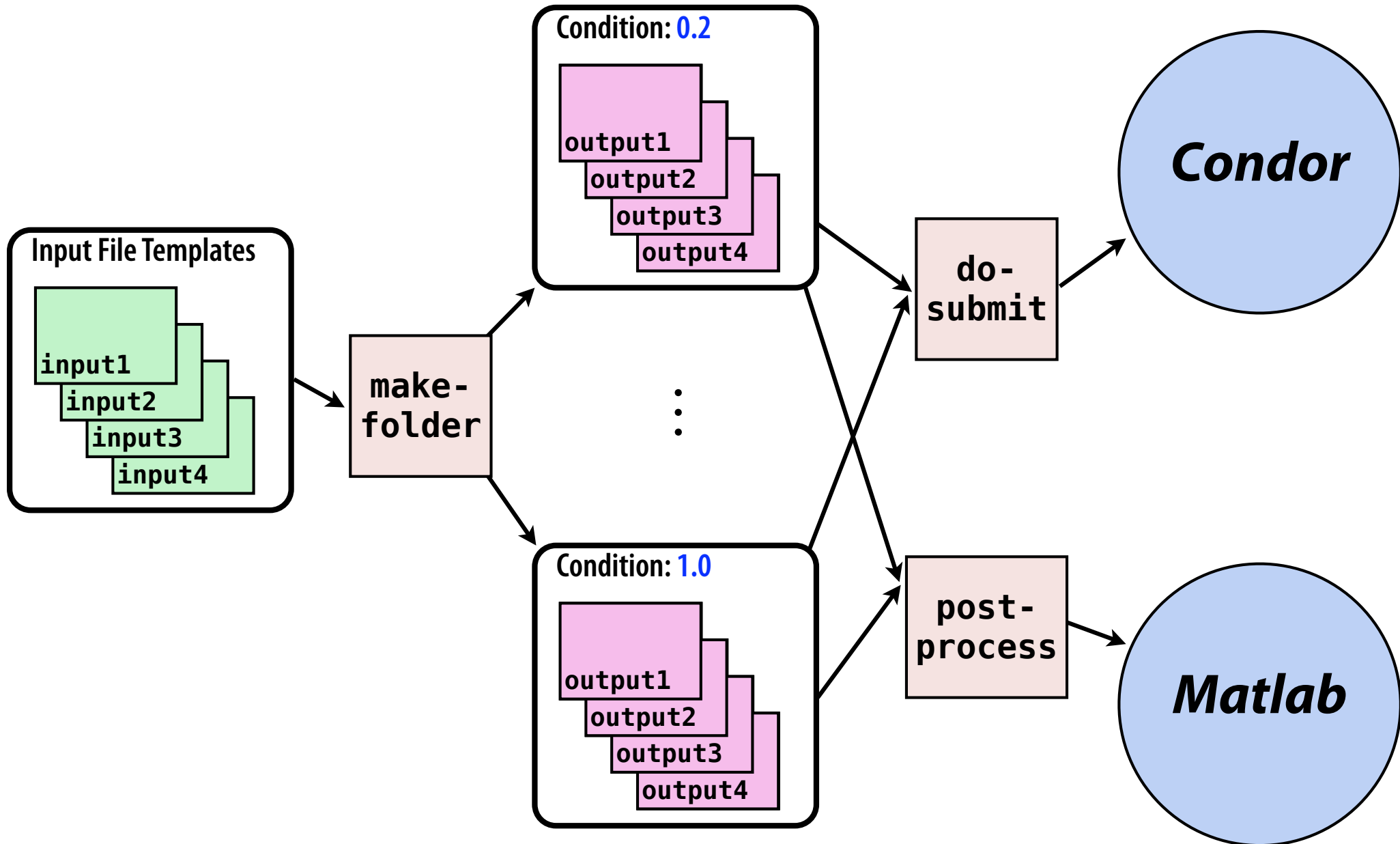


Flowing Complex Fluids

Thanks, Kushal!

PI: M. D. Graham

Workflow



Homework

Grow and Use Superpowers

- Use your new powers, wisely and often
- When you look up one thing, learn one more
- With time and practice, you will have superpowers!
- Let me know how that goes...

Any sufficiently advanced technology is indistinguishable from magic.

— Arthur C. Clarke

Thank You!

Evaluations