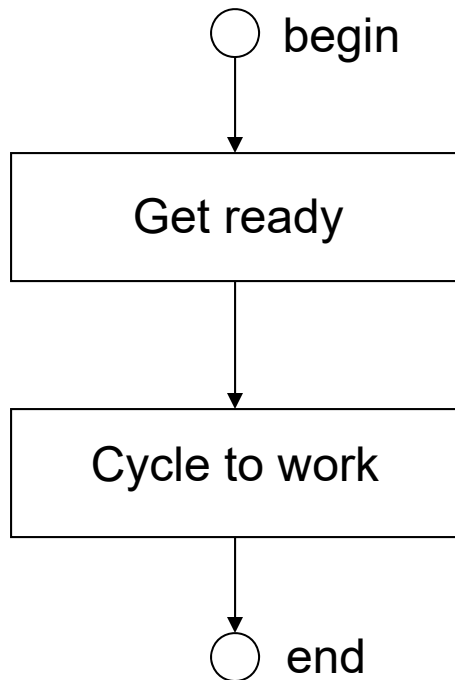


Algorithm

- **Procedure** for solving a problem in terms of **actions** to execute and **order** to execute them
- Algorithms for: data management, models, analysis, visualization ...
- **Code**
- Math used to stand in for code (and still does)

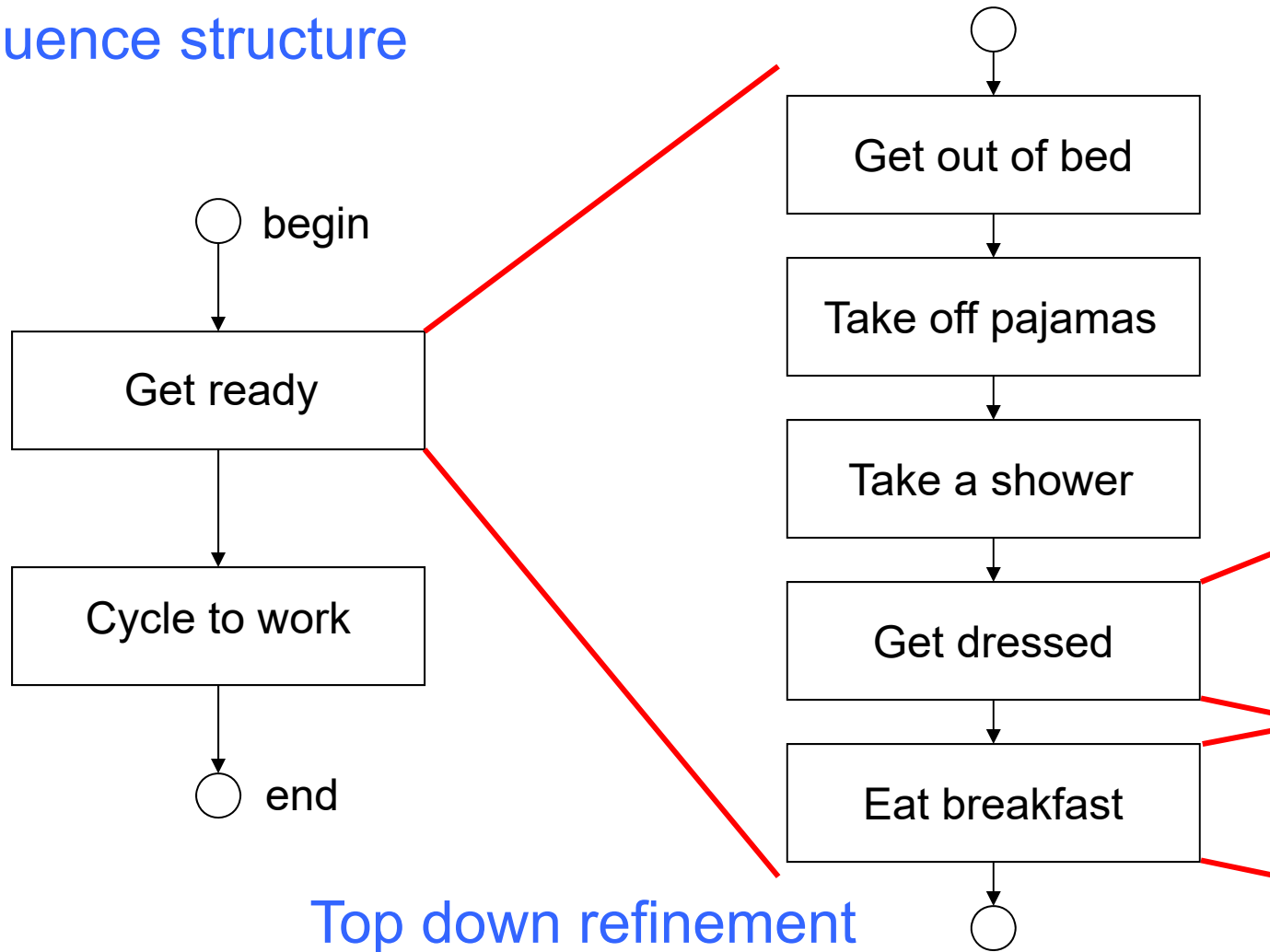
Get to work algorithm

Sequence structure

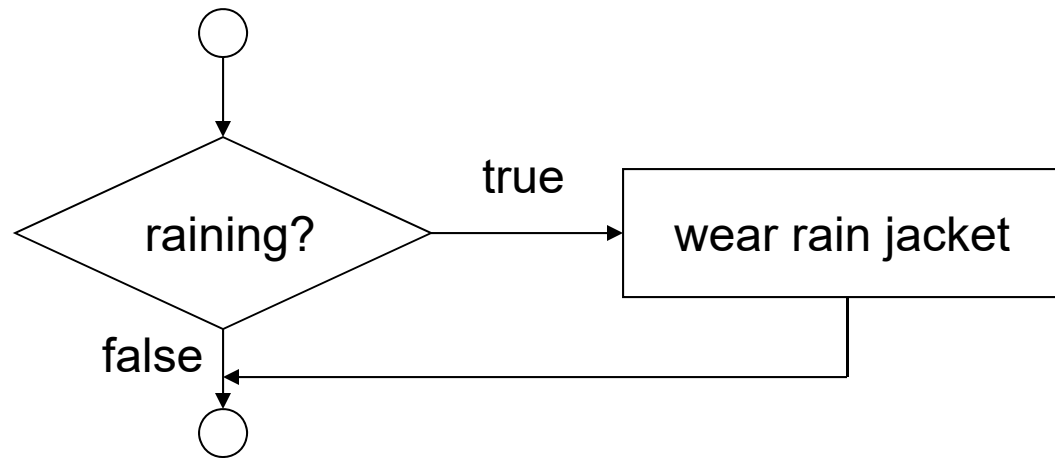


Get to work algorithm

Sequence structure



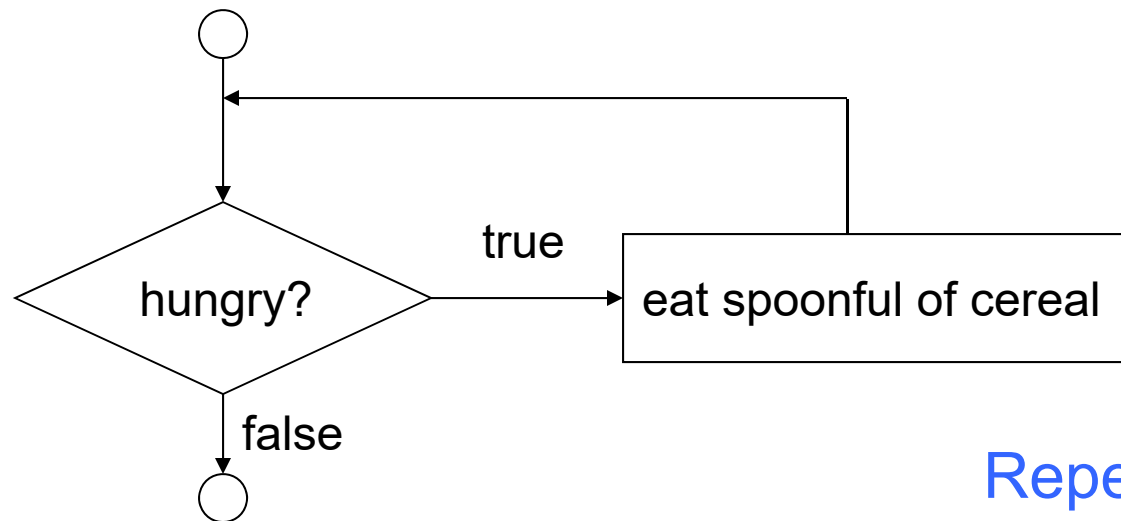
Get dressed algorithm



```
> if ( raining ) {  
>     wear rain jacket  
> }
```

Selection structure
"branch"
"conditional"

Eat breakfast algorithm



Repetition structure
"loop"

```
> while ( hungry ) {  
>   eat spoonful of cereal  
> }
```

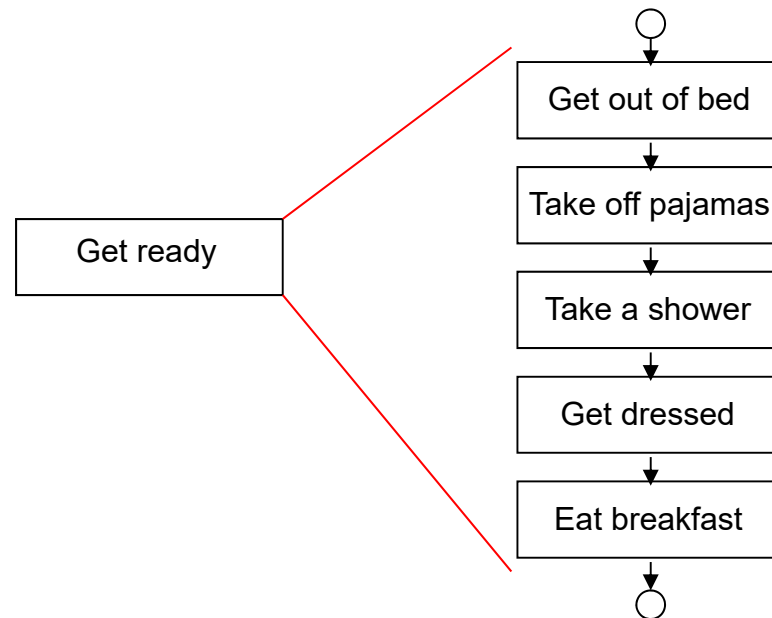
Structured programming

- All problems can be solved by combining the above 3 algorithmic structures
- Very empowering!

Get ready function

```
> get_ready <- function( ) {  
>   get out of bed  
>   take off pajamas  
>   take a shower  
>   get dressed  
>   eat breakfast  
> }
```

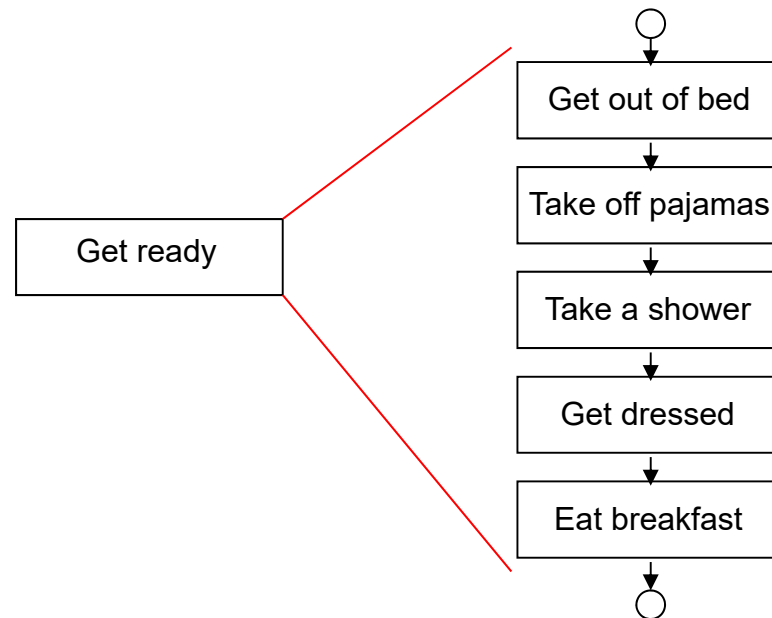
Function structure



Get ready function

```
> get_ready <- function( ) {  
>   get_out_of_bed()  
>   take_off_pajamas()  
>   take_a_shower()  
>   get_dressed()  
>   eat_breakfast()  
> }
```

Calling other functions



R uses functions heavily