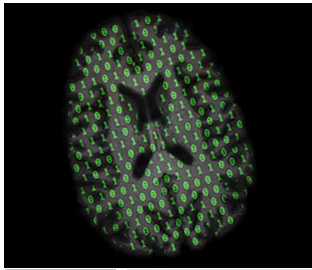
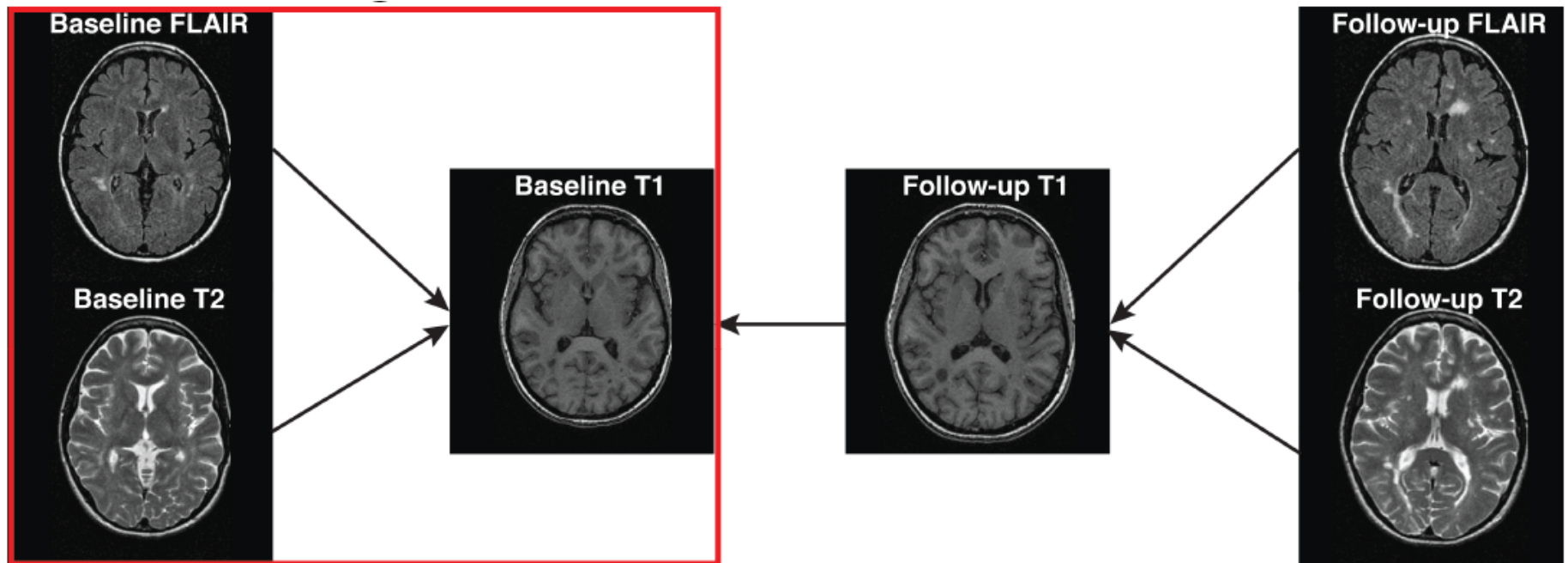


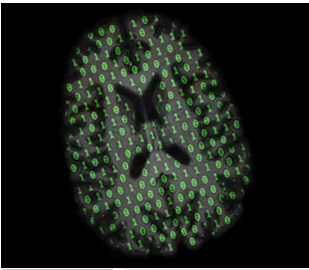
A grayscale brain scan, likely an MRI, is shown on the left side of the slide. Overlaid on the brain's surface is a pattern of green binary code (0s and 1s), reminiscent of the 'Matrix' effect. The text 'THEME 4 / LECTURE 3:' is positioned above 'ANTSR', which is above 'CO-REGISTRATION'.

THEME 4 / LECTURE 3: ANTSR CO-REGISTRATION



ANTsR Co-Registration



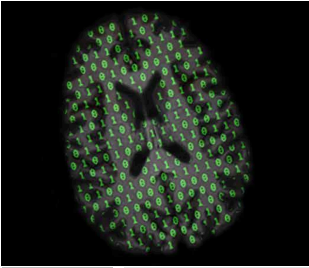


ANTsR: Kirby21 Co-Registration of T2w to T1

- We will use the `extrantsr` function `ants_regwrite` to register the T2 (filename) to the T1 (template.file) using `ANTsR::antsRegistration`
- Skull on registration

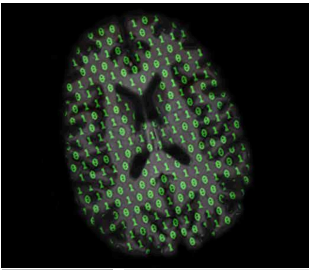
```
T2_file=file.path(mridir, "113-01-T2w.nii.gz")
```

```
reg_t2_img = ants_regwrite(filename = T2_file,  
template.file=T1,typeofTransform="Rigid",verbose= FALSE)
```



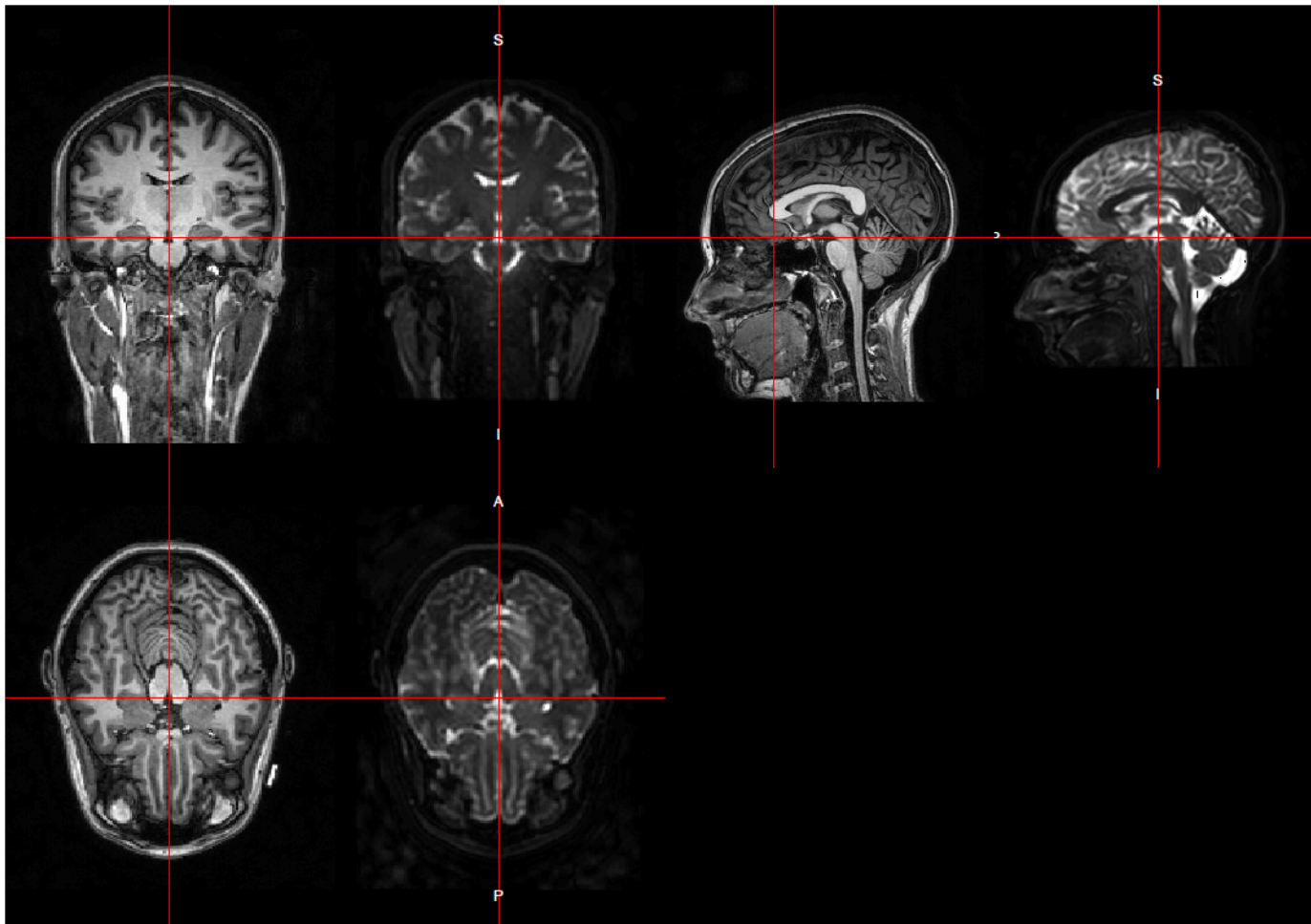
ANTsR: Kirby21 Co-Registration of FLAIR to T1

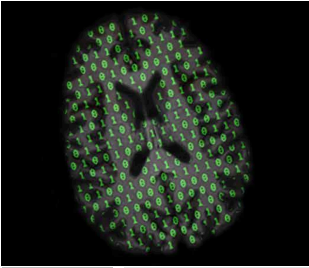
```
flair_file=file.path(mridir, "113-01-FLAIR.nii.gz")  
  
reg_flair_img = ants_regwrite(filename = flair_file,  
template.file=T1,typeofTransform="Rigid",verbose= FALSE)
```



T2 Registration Results: ANTsR

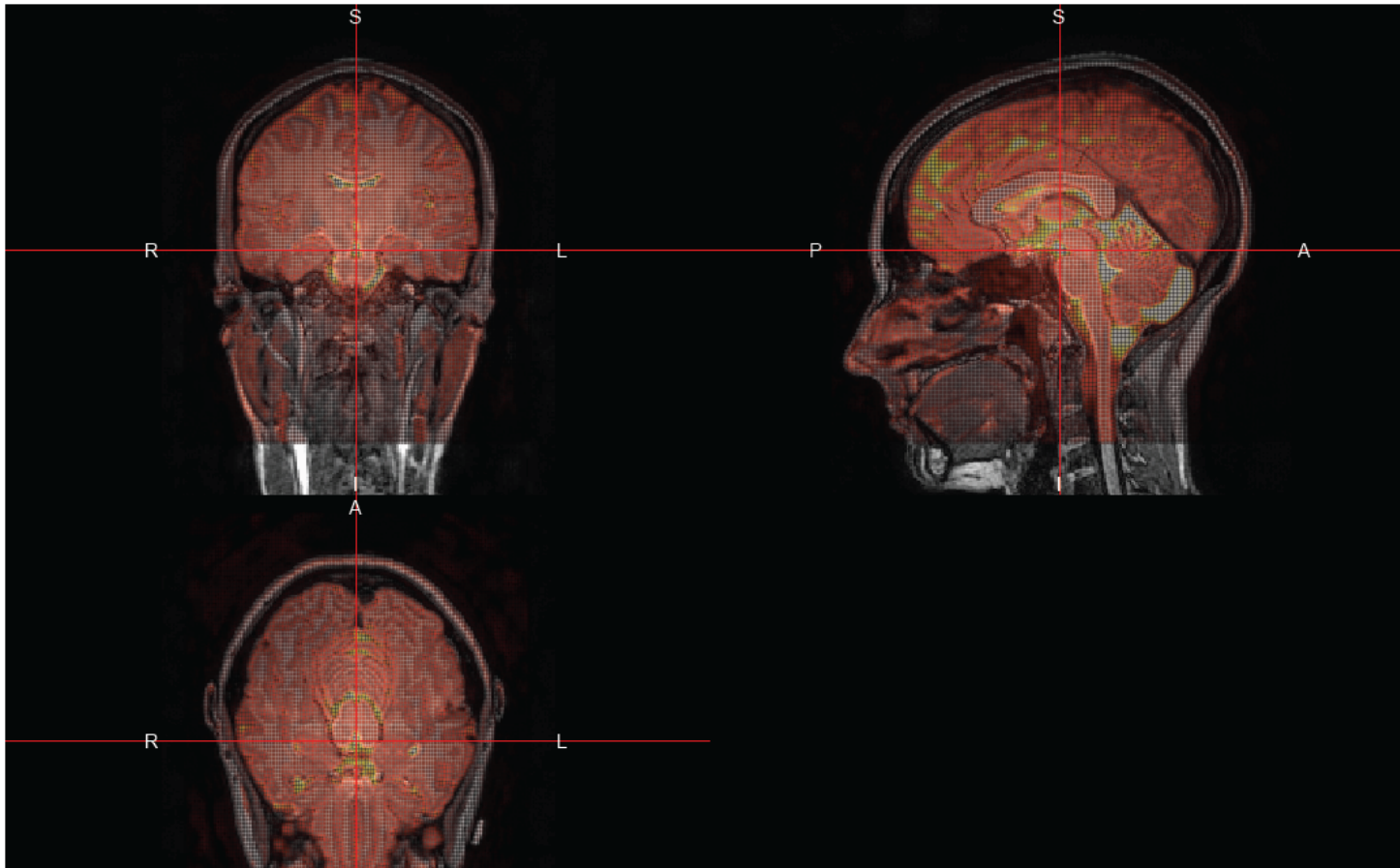
```
double_ortho(T1, reg_t2_img)
```

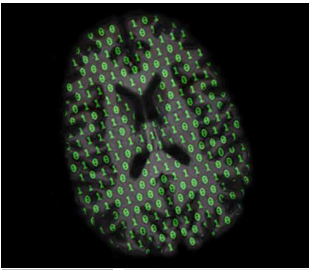




T2 Registration Results: ANTsR, Overlay

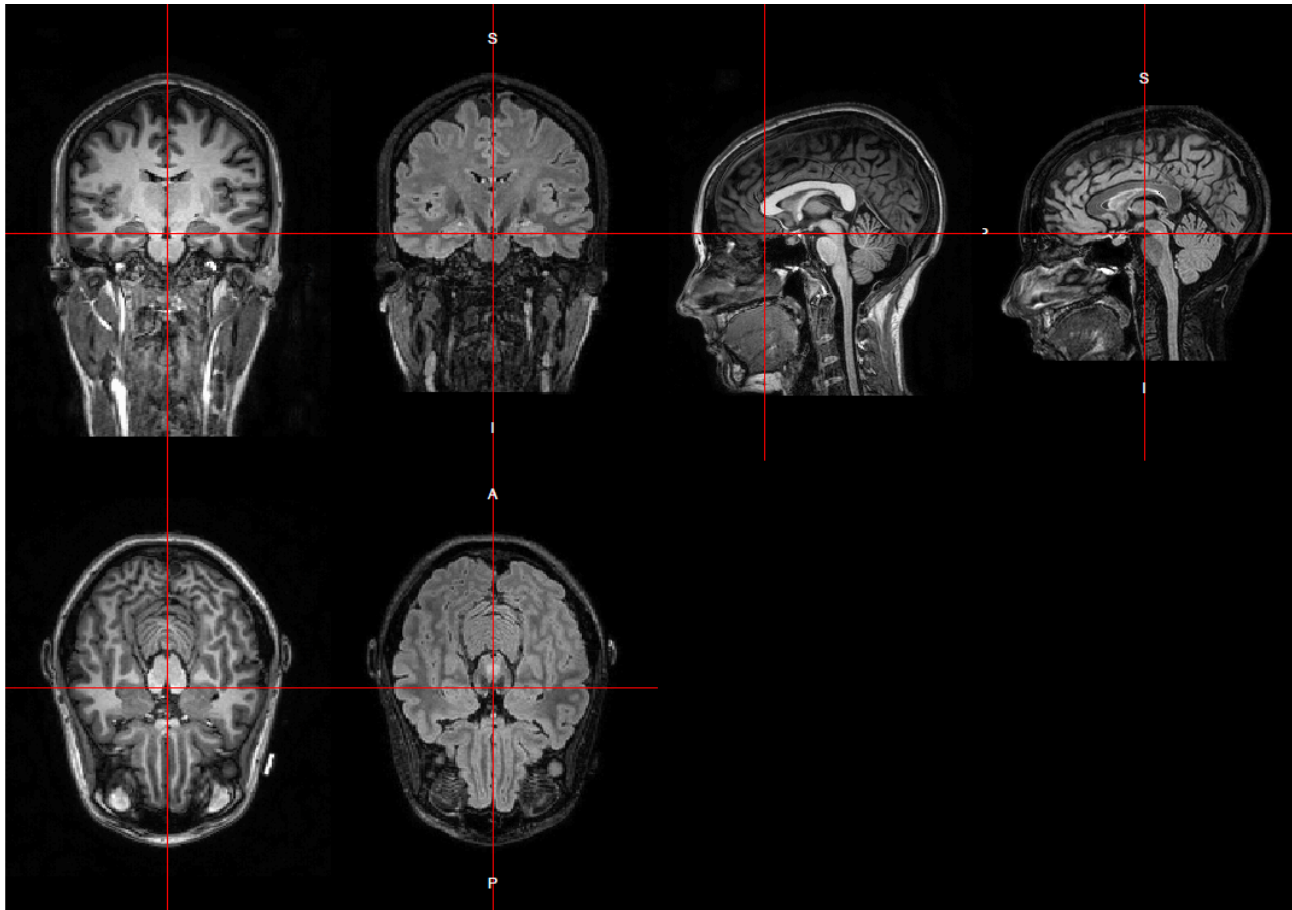
```
library(scales)
ortho2(T1, reg_t2_img, col.y = alpha(hotmetal(), 0.25))
```

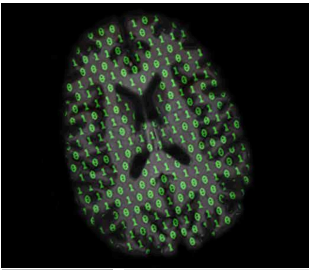




FLAIR Registration Results: ANTsR

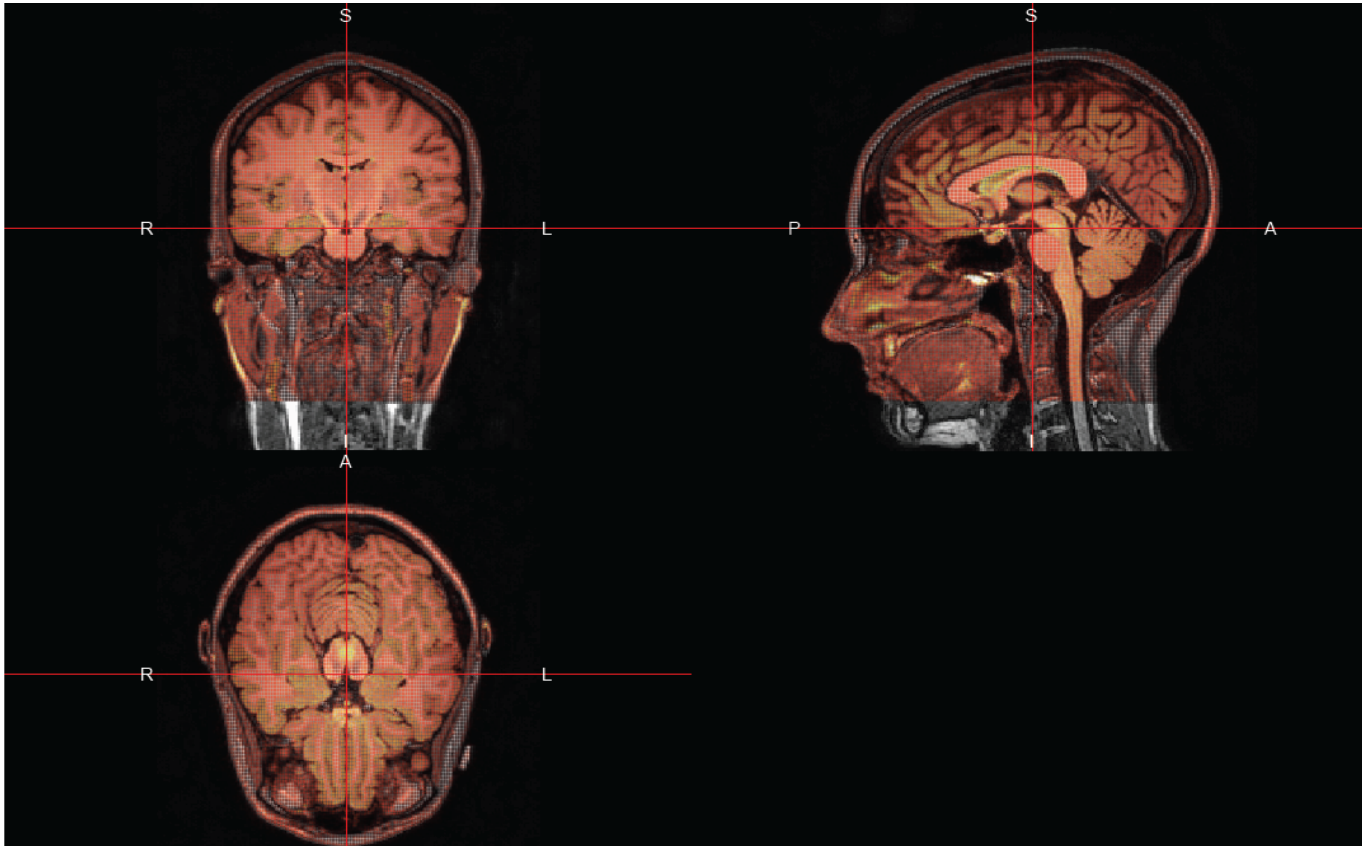
```
double_ortho(T1, reg_flair_img)
```

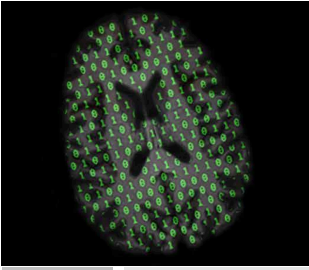




FLAIR Registration Results: ANTsR, Overlay

```
library(scales)
ortho2(T1, reg_flair_img, col.y = alpha(hotmetal(), 0.25))
```





Co-Registration Results

- Overall, there seems to be good overlap after registration with ANTsR
 - Somewhat surprising flirt did not perform well
 - May be due to non-brain tissue

- Registration on the raw data
 - Inhomogeneity correction before registration may be necessary