

# Composite ROI ThickAVG

## This is how we do

### Cortical ROIs

I have a cortical composite ROI and I want to calculate an approximate value of its thick average. This is my ROI:

```
"Executive" => ["caudalmiddlefrontal", "rostralmiddlefrontal",
"superiorfrontal", "lateralorbitofrontal", "medialorbitofrontal",
"parsopercularis", "parstriangularis", "parsorbitalis"]
```

I am going to calculate,

$$T = \frac{\sum_i T_i V_i}{\sum_i V_i}$$

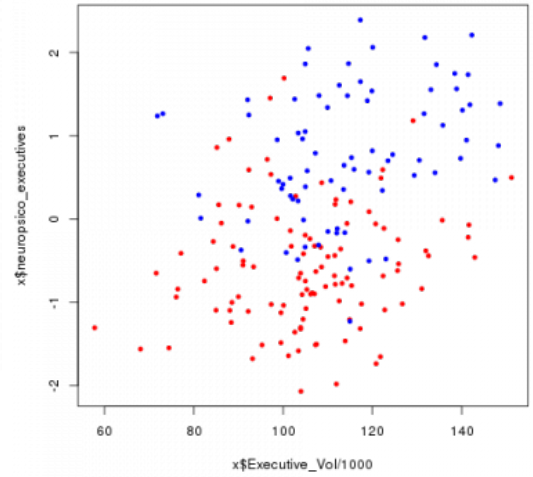
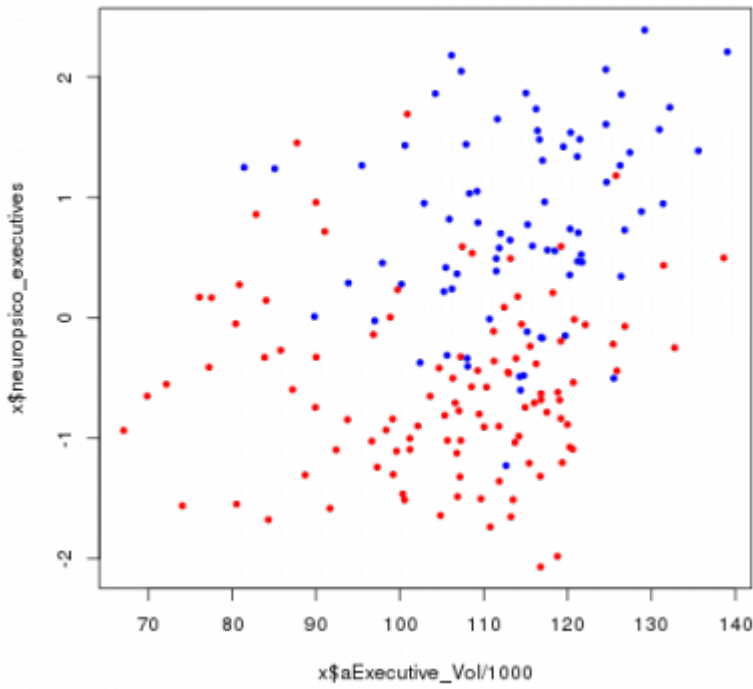
where  $T$  is the whole thickness average and  $T_i$  and  $V_i$  are the thickness average and volume of the  $i$ th ROI respectively.

**But remember you must correct it by ICV later**

```
> a <- lm(x$Executive_ThickAvg~x$"EstimatedTotalIntraCranialVol_eTIV")
> b=a$coefficients[[2]]
> x$aExecutive_ThickAvg = x$Executive_ThickAvg -
b*((x$EstimatedTotalIntraCranialVol_eTIV -
mean(x$EstimatedTotalIntraCranialVol_eTIV, na.rm=TRUE)))
```

Also must do the same in Volume measurements

```
> a <- lm(x$Executive_Vol~x$"EstimatedTotalIntraCranialVol_eTIV")
> b=a$coefficients[[2]]
> x$aExecutive_Vol = x$Executive_Vol -
b*((x$EstimatedTotalIntraCranialVol_eTIV -
mean(x$EstimatedTotalIntraCranialVol_eTIV, na.rm=TRUE)))
```



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