

# Demo Decision Tree. Single model with external regressors

node 0 Set all components to unclassified

node 1  $\rho > \kappa$  yes Unlikely BOLD → Reject

node 2  $nFS_0 > nFT_2$  &  $nFT_2 > 0$  yes Unlikely BOLD → Reject

voxel counts for signif fit of multi-echo data to  $T_2$  or  $S_0$  decay models

node 3 Calculate median(varex) across all components

varex: variance explained by each component

node 4  $\text{dice } FS_0 > \text{dice } FT_2$  &  $\text{varex} > \text{median(varex)}$  yes Unlikely BOLD → Reject

DICE overlap between  $T_2$  or  $S_0$  decay models and ICA component peak clusters

node 5  $0 > \text{signal-noise}$  &  $\text{varex} > \text{median(varex)}$  yes Unlikely BOLD → Reject

$t$  - statistic of  $FT_2$  values in component peak clusters vs peak voxels outside of clusters

node 6 Calculate  $\kappa$  elbow Uses all components

node 7 Calculate  $\rho$  elbow (liberal method) Uses all components and subset of unclassified components

node 8  $\kappa \geq \kappa \text{ elbow}$  yes Provisional accept

Provisional reject

node 9  $\rho > \rho \text{ elbow}$

Provisional reject

node 10  $\kappa \geq \kappa \text{ elbow}$  &  $\kappa > 2\rho$

Accept even if  $\rho < \rho \text{ elbow}$

Provisional accept

node 11 External regressor nuisance model  $p < 0.05$  &  $R^2 > 0.5$

Tag: External Regressors Provisional reject

node 11 if component variance < 0.1 yes Low variance → Accept

Will accept the lowest variance components until 1% of total variance is accepted this way

node 12 Likely BOLD Change provisional accept → Accept

node 13 Unlikely BOLD Change provisional reject → Reject