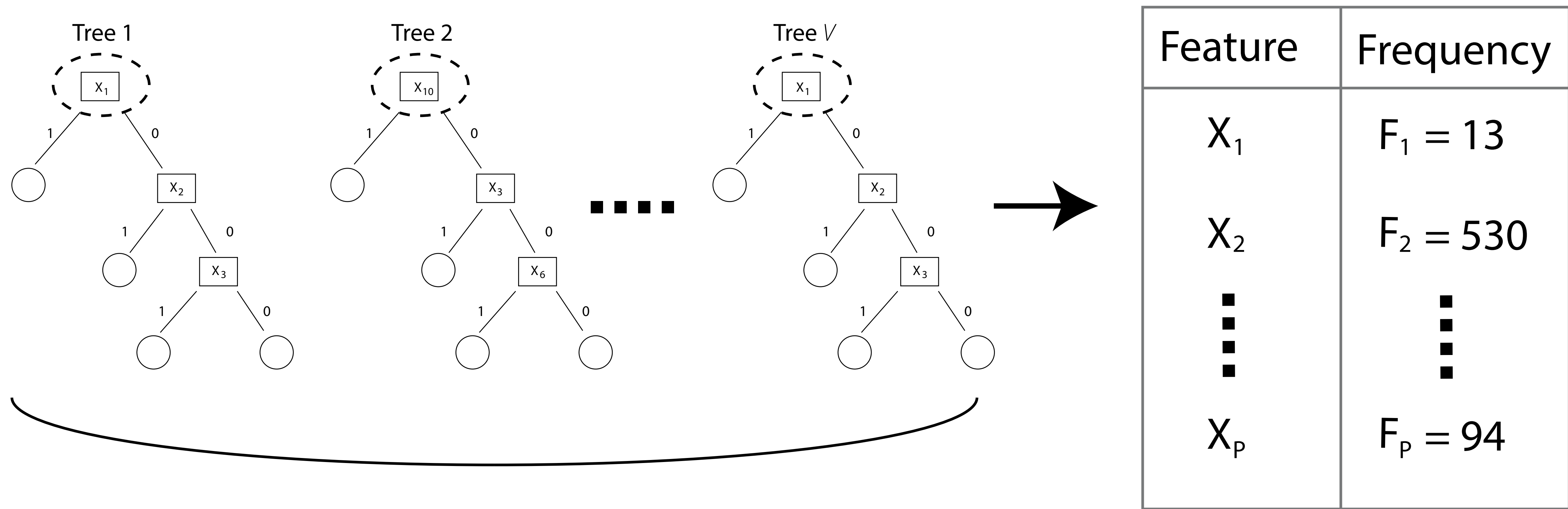


binomialRF Algorithm for Feature Selection

1. Grow Random Forest and Identify Optimal Splitting Variables

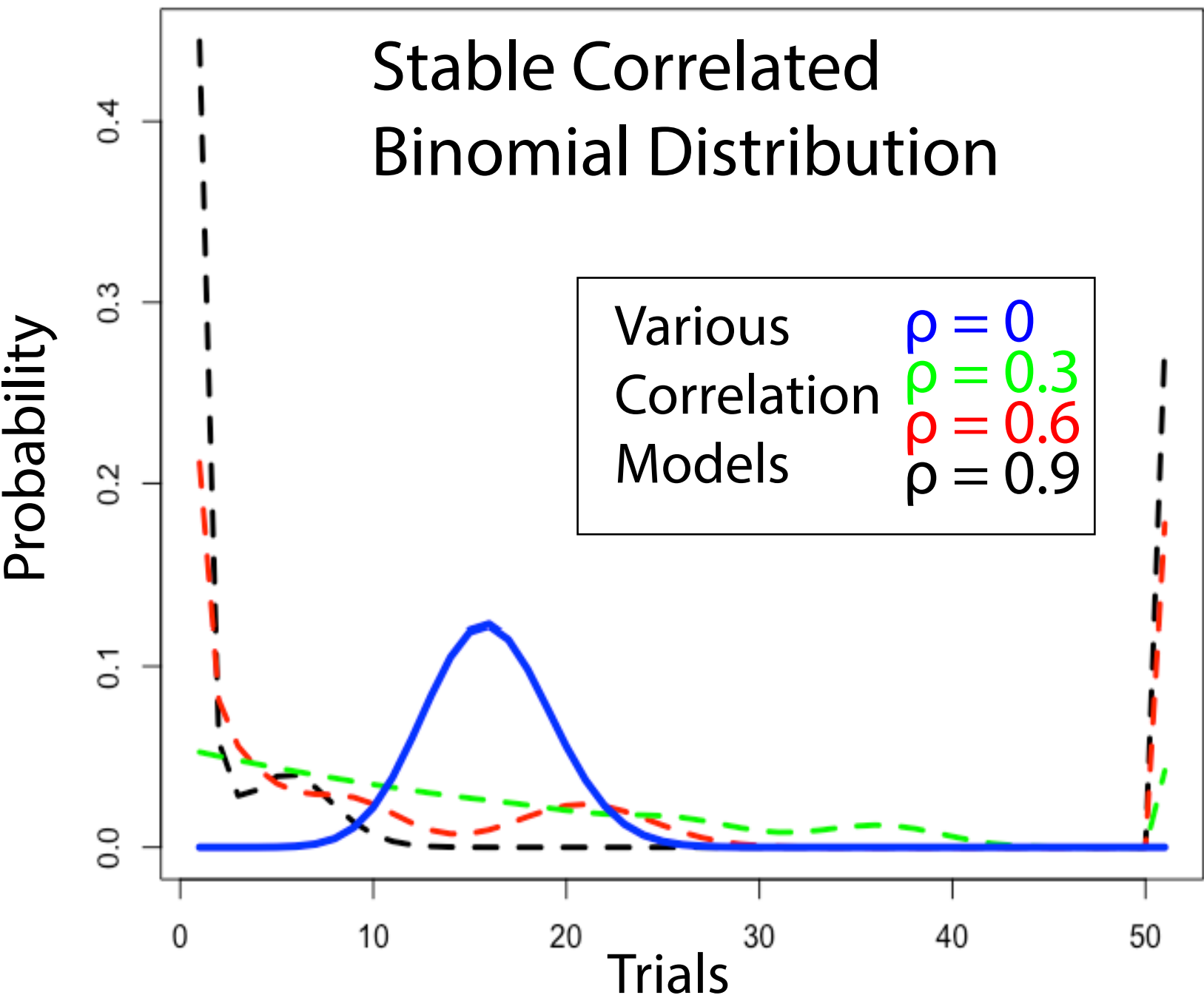


2. Calculate SCB One-sided Test

Calculate probability of randomly selecting X_j

$$p_{root} = Pr(X_{optimal} = X_j) = \frac{1}{m} \left[\prod_{g=1}^m \frac{P - g}{P - (g - 1)} \right]$$
$$\forall j \in \{1, \dots, P\}$$

Conduct stable correlated binomial test for significance



3. FDR-adjust and return feature list

Feature	Freq.	P-val	Adj. P-val
X_1	F_1	$p\text{-val}_1$	$q\text{-val}_1$
X_2	F_2	$p\text{-val}_2$	$q\text{-val}_2$
⋮	⋮	⋮	⋮
X_p	F_p	$p\text{-val}_p$	$q\text{-val}_p$