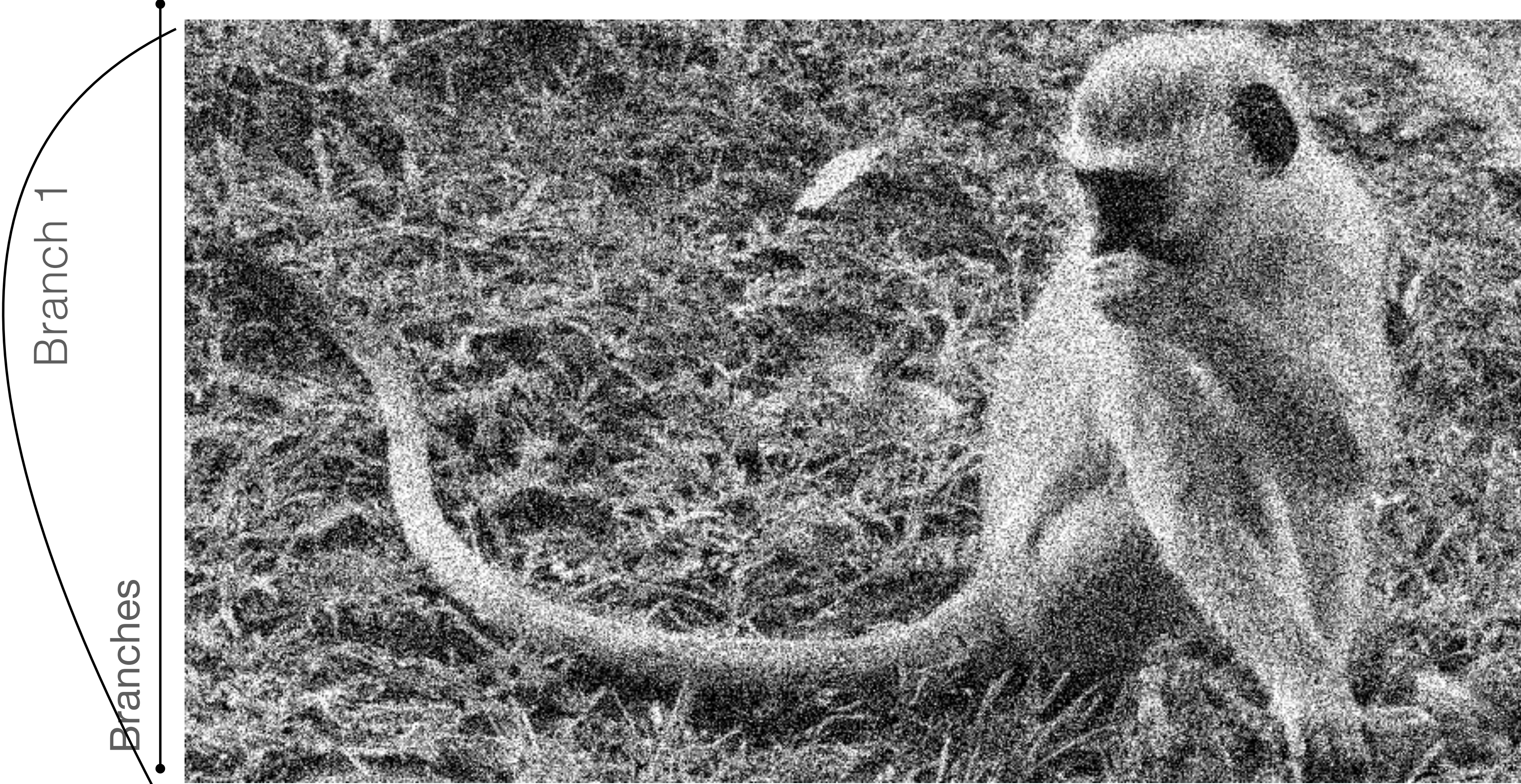


Which branches are under selection?



3-rate fit



For each image **row**, is there a significant proportion of bright pixels, once the column has been reduced to **N** colors only?



[aBSREL]: at a given branch, each site is a draw from an N-bin (dN/dS) distribution, which is inferred from all data for the branch. Test if there is a proportion of sites with $dN/dS > 1$ (LRT). **N** is derived adaptively from the data.

Less Is More: An Adaptive Branch-Site Random Effects Model for Efficient Detection of Episodic Diversifying Selection

Martin D. Smith,¹ Joel O. Wertheim,² Steven Weaver,² Ben Murrell,² Konrad Scheffler,^{2,3} and Sergei L. Kosakovsky Pond^{*2}

Mol. Biol. Evol. 32(5):1342–1353

- Best-in-class power
- Able to detect episodes of selection, not just selection on average at a branch
- Does not make unrealistic assumptions for tractability, improves statistical behavior
- Sample size is ~sites, branch level rate estimates could be imprecise
- Cannot reliably estimate which individual sites are subject to selection
- Exploratory testing of all branches leads to loss of power for large data sets (multiple test correction)