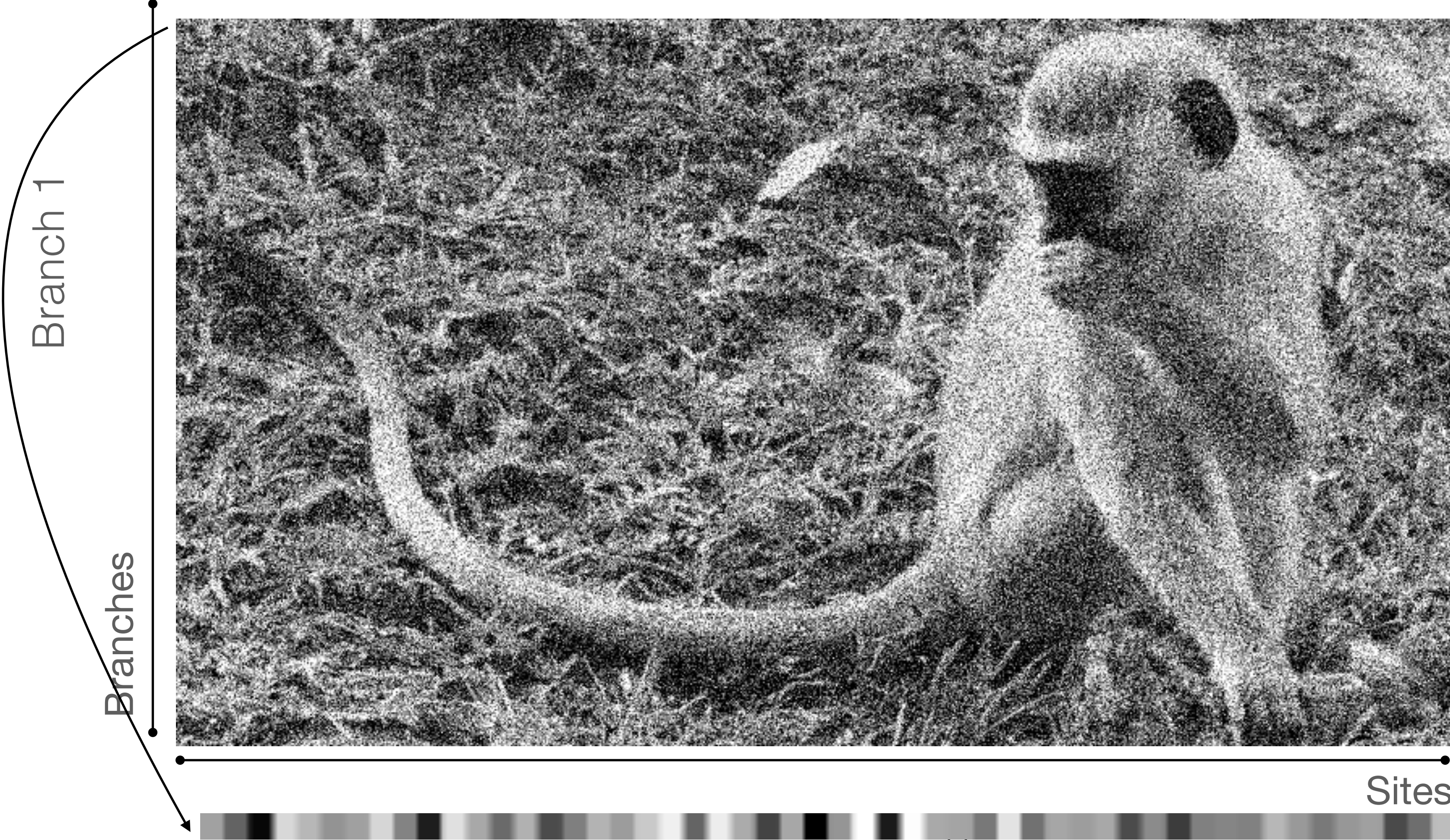# Which branches are under selection?



Branch 1

Branches

Sites

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]

- 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)