Which sites are under selection?

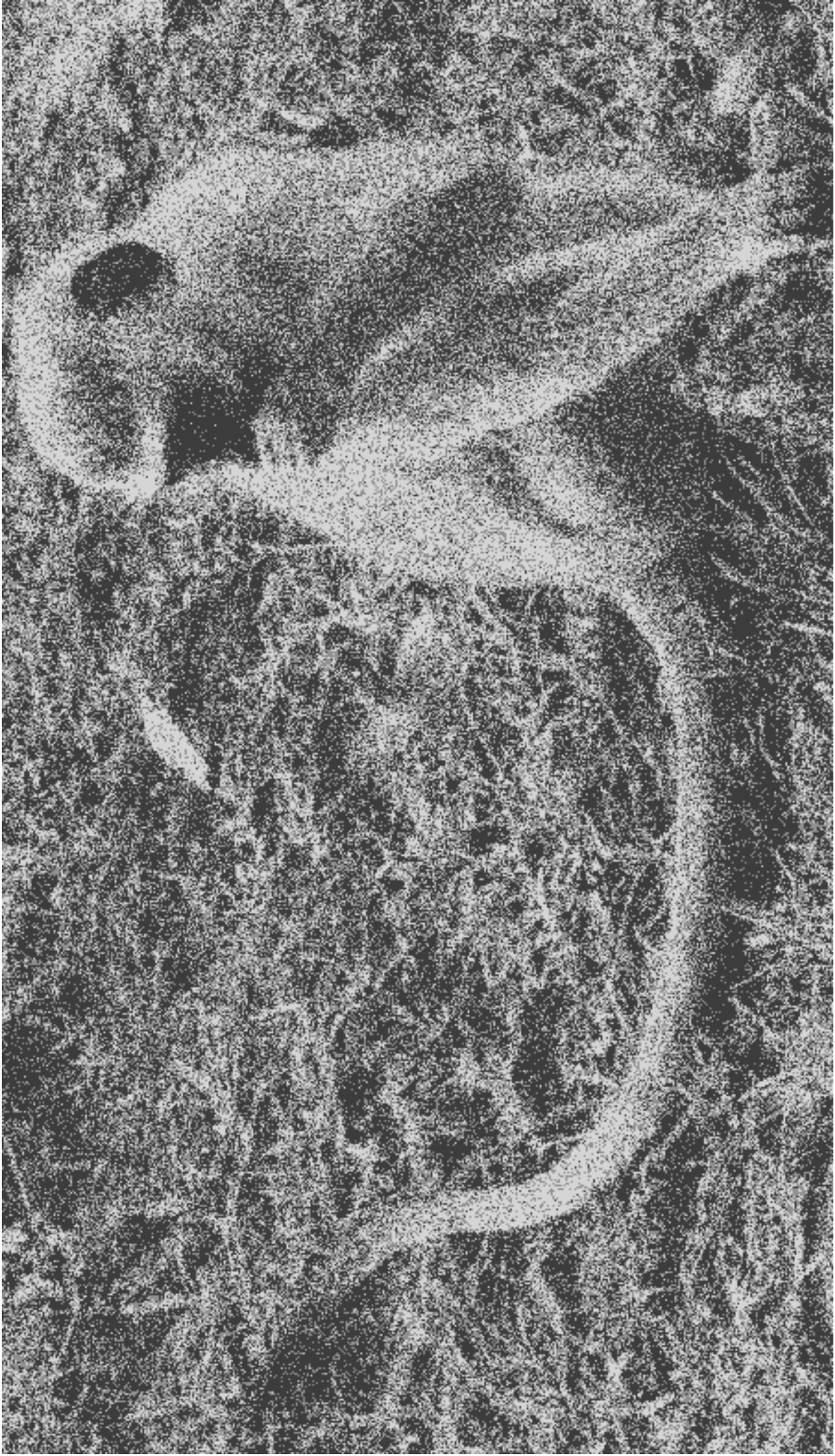

Sites

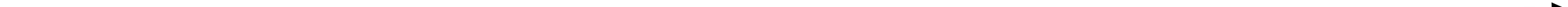
Branches

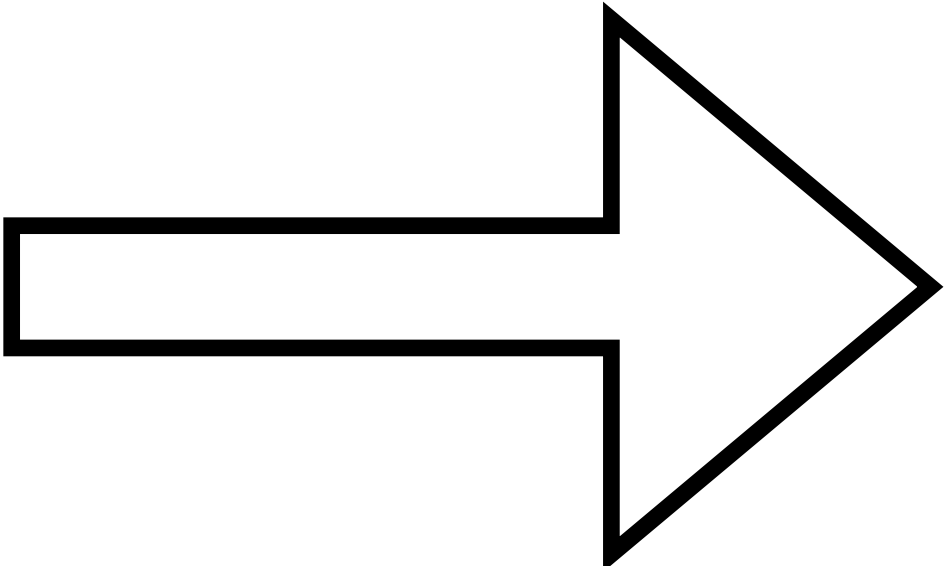
For each image column, is there a significant proportion of bright pixels, once the column has been reduced to 2 colors only?

[MEME]: at a given **site**, each branch is a draw from a 2-bin (dS, dN) distribution, which is inferred from that site only. Test if there is a proportion of branches with dN>dS (LRT)

Murrell et al 2012







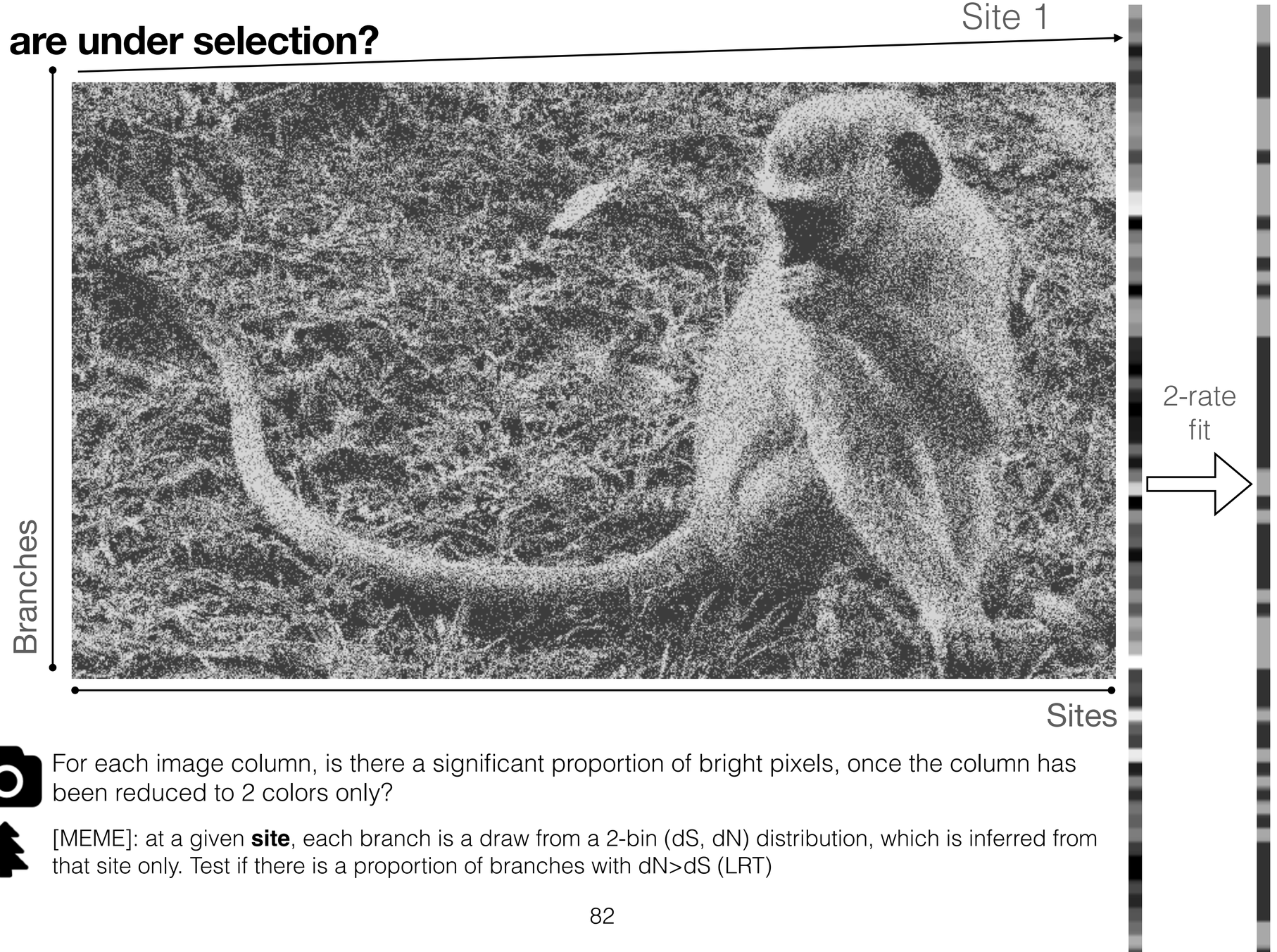

Site 1

2-rate fit

82

Murrell et al 2012

Which sites are under selection?



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Detecting Individual Sites Subject to Episodic Diversifying Selection

Ben Murrell[1,2], Joel O. Wertheim[3], Sasha Moola[2], Thomas Weighill[2], Konrad Scheffler[2,4], Sergei L. Kosakovsky Pond[4]*

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- Best-in-class power
- Able to detect episodes of selection, not just selection on average at a site
- Embarrassingly parallel (farm out each site), so runs reasonably fast

- Sample size is ~sequences, site level rate estimates imprecise
- Cannot estimate which individual branches are subject to selection with any precision
- Does not scale especially well with the number of sequences