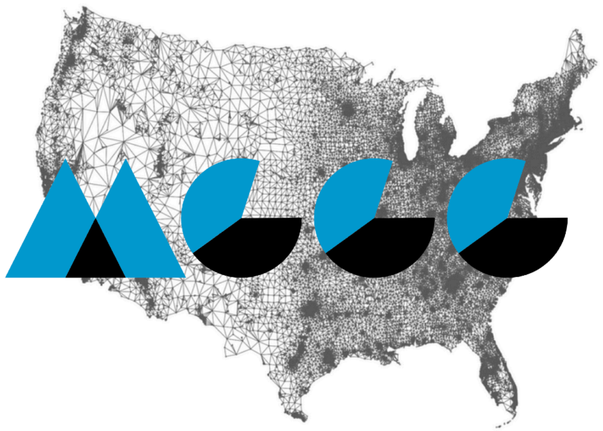
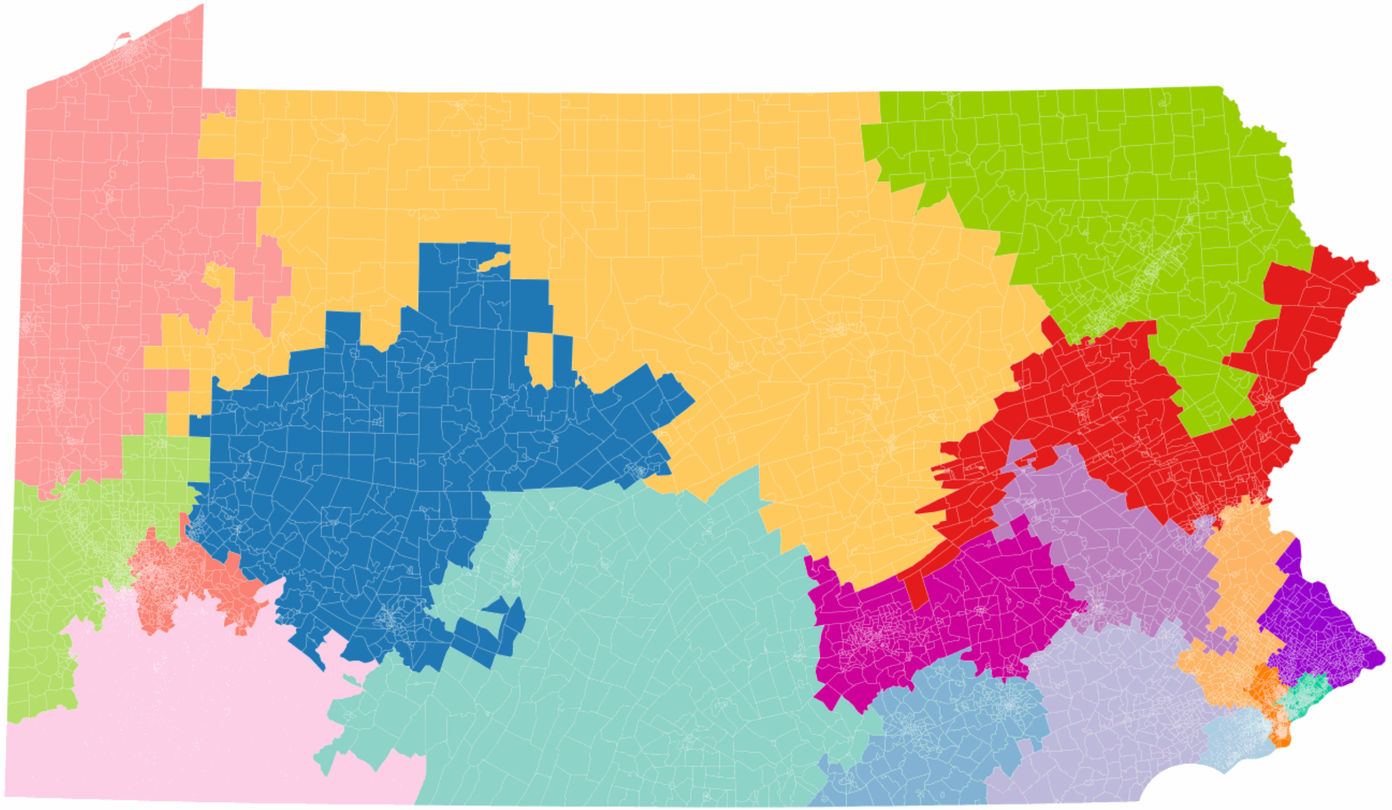
Evaluating districting plans

Presentation for UIRC
with examples from Michigan

Moon Duchin (MGGG Redistricting Lab @ Tufts)
and Tyler Jarvis (BYU)



Building “ensembles” of random plans



Compact, contiguous, population-balanced, with county priority

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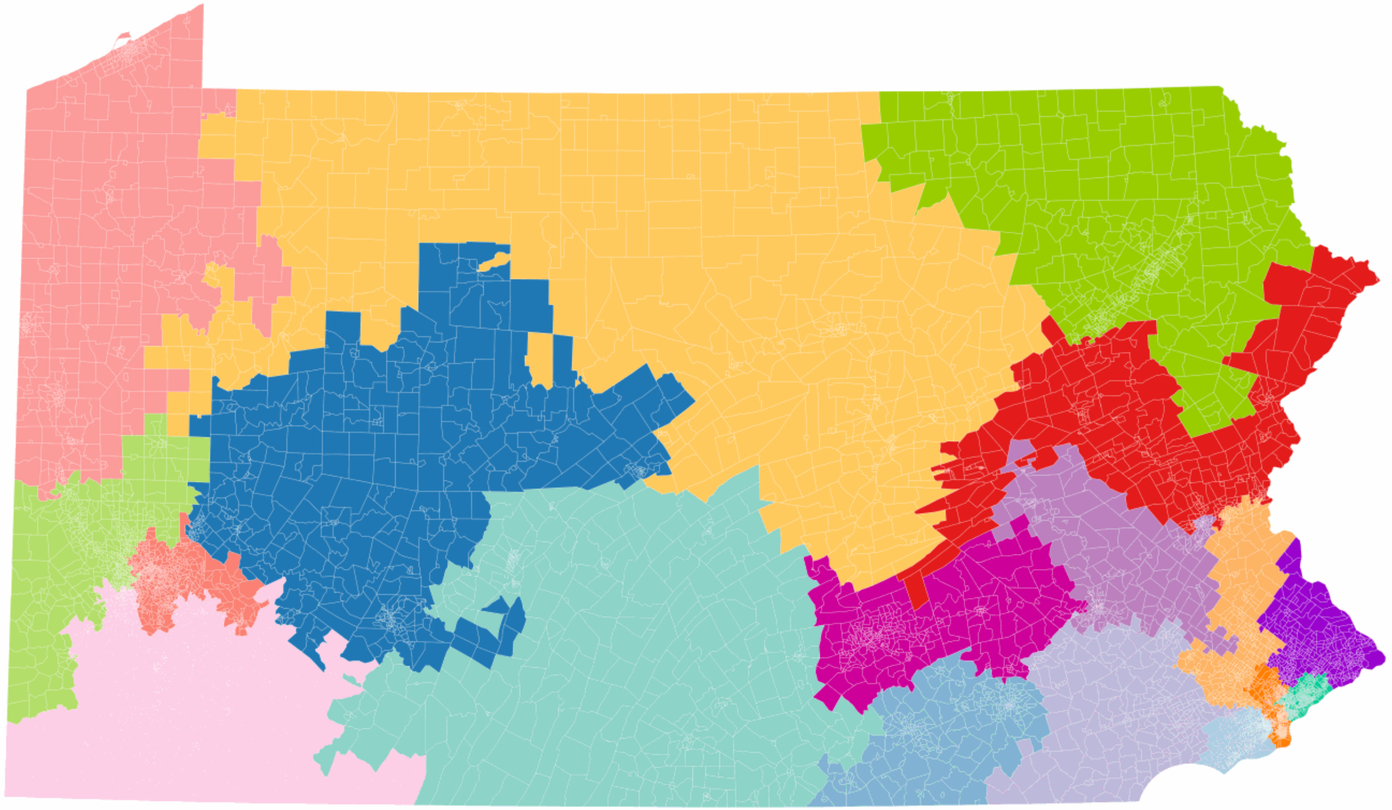

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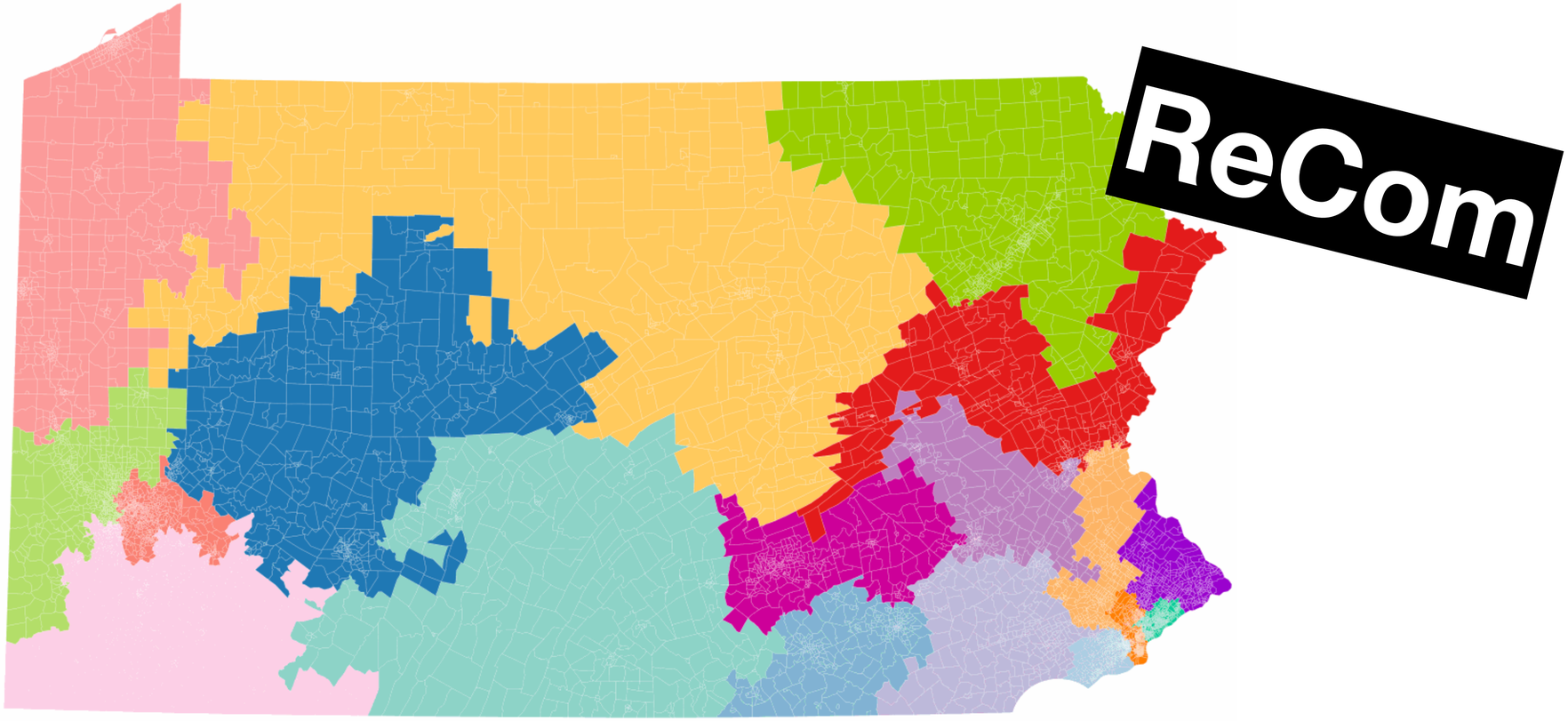
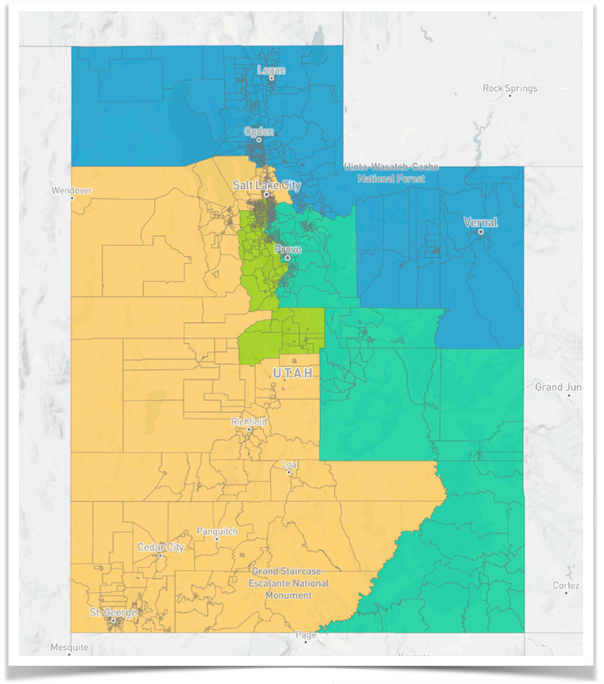


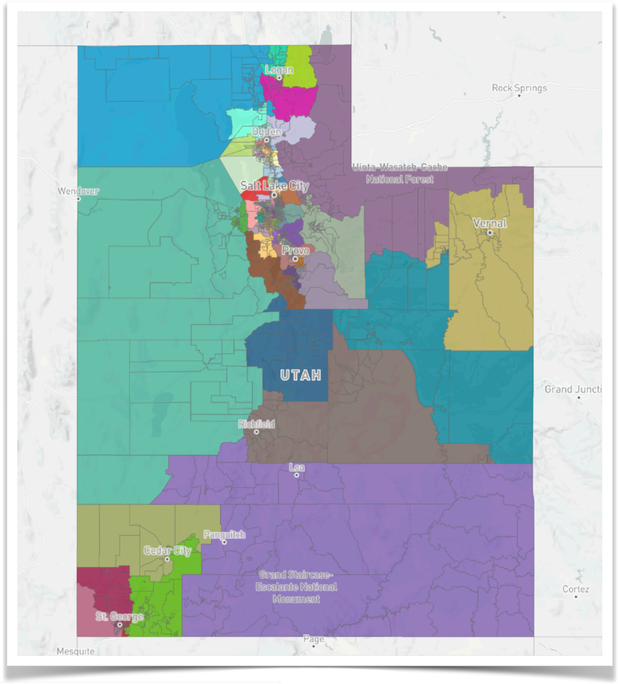
Compact, contiguous, population-balanced, with county priority

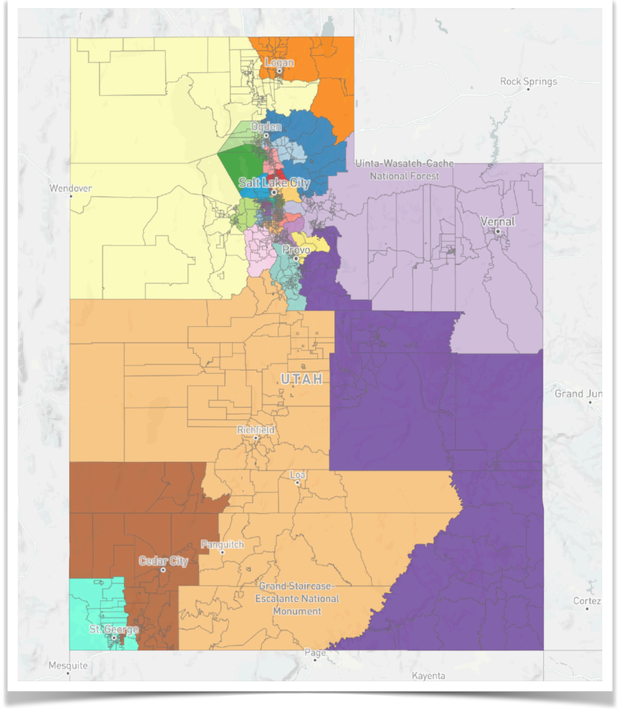
some Utah-specific tailoring

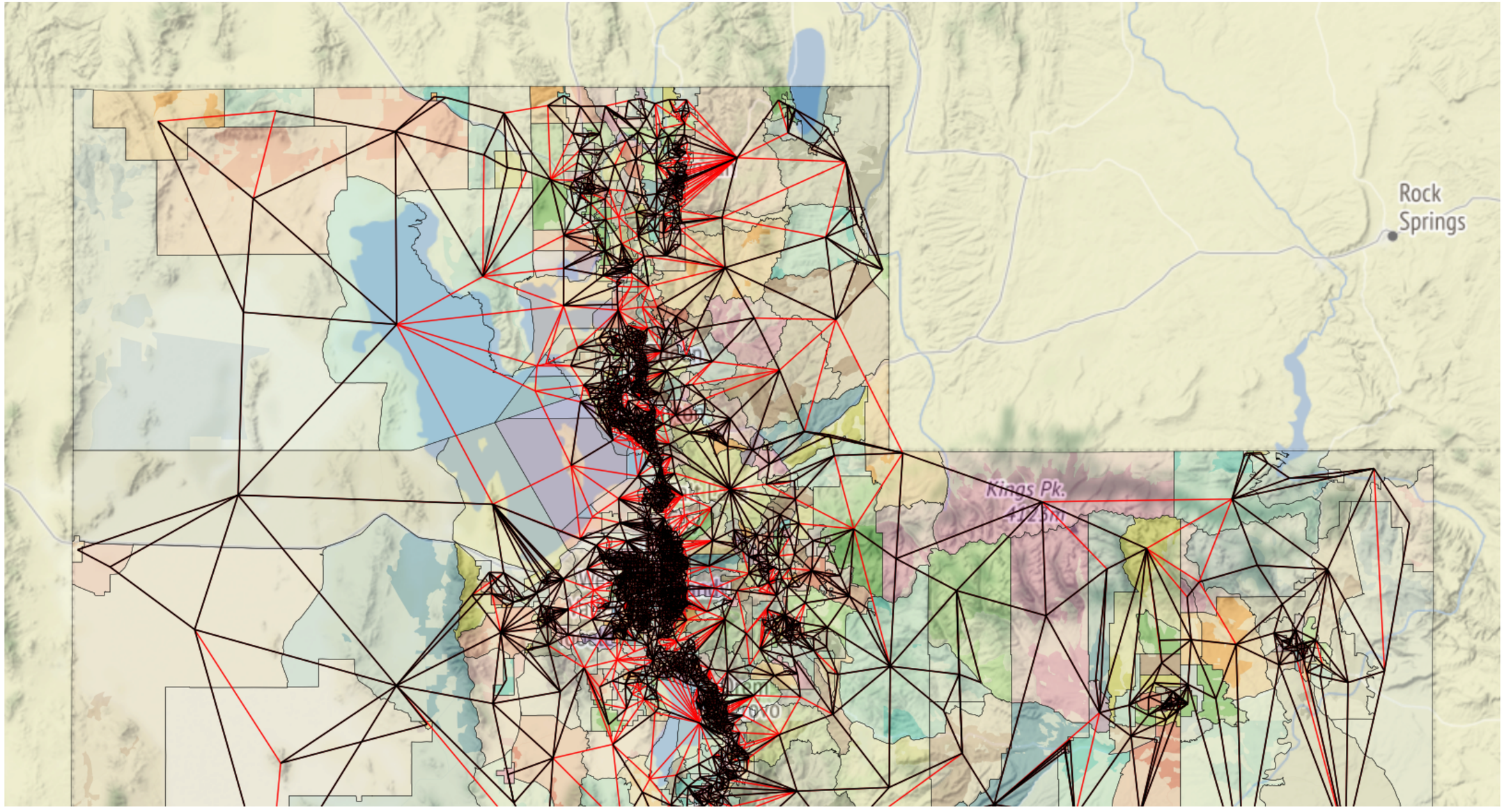
10 elections in our dataset

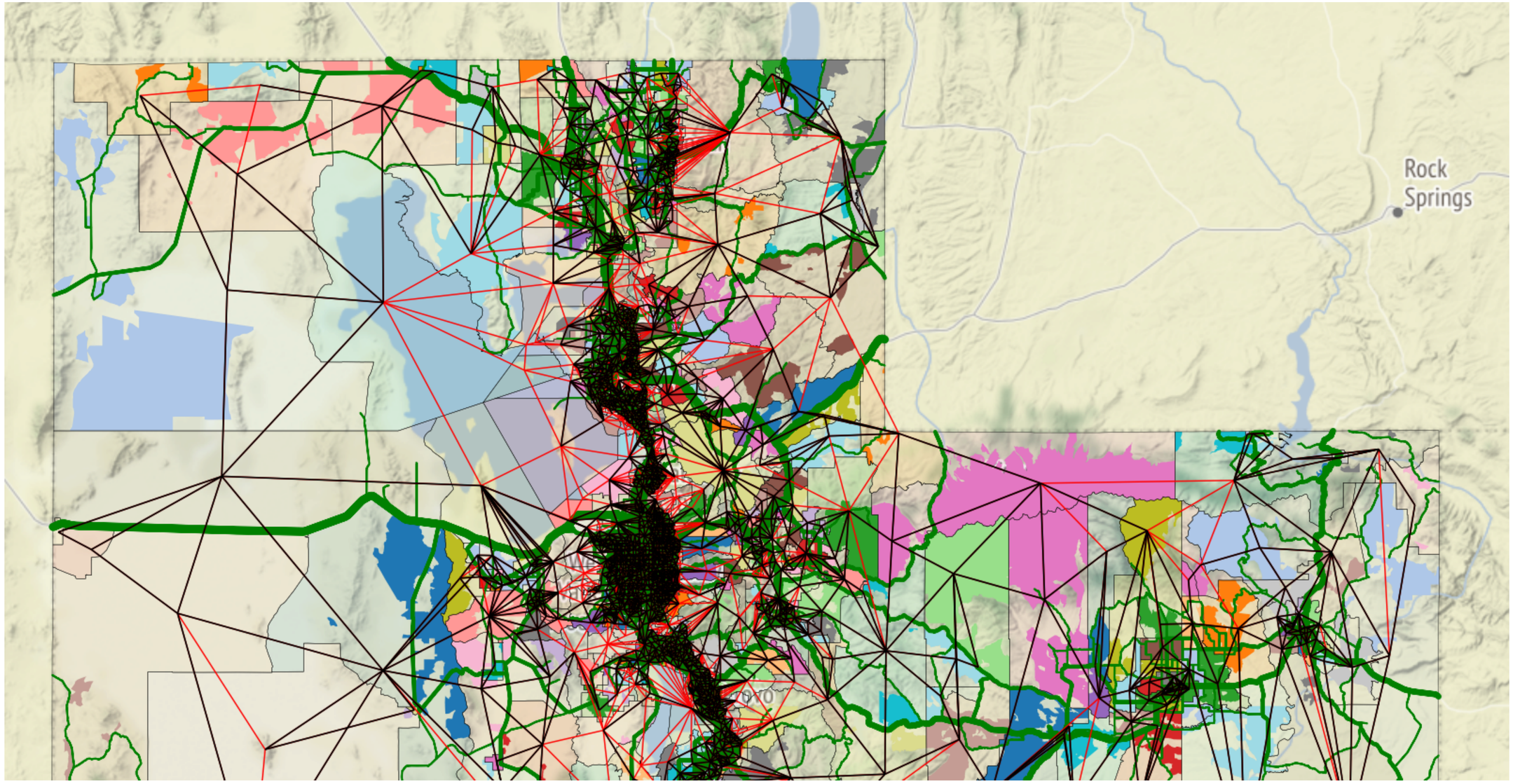
- 2016 Pres, Sen, Gov, AG, Aud, Treas
- 2018 Sen
- 2020 Pres, Gov, AG








Rock
Springs
Kings Pk.

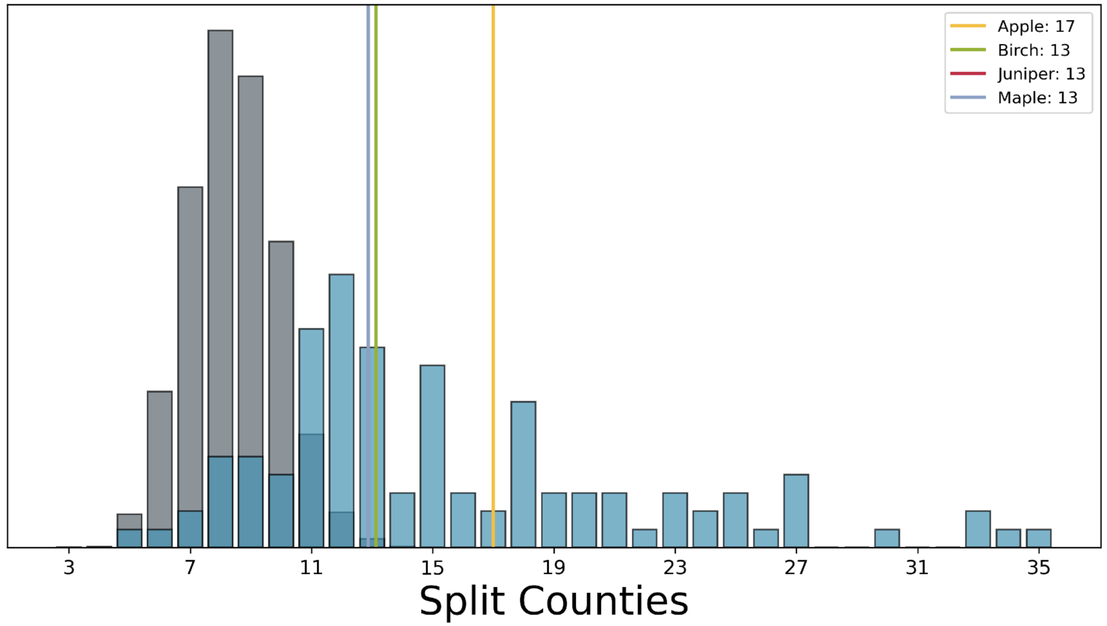

Rock
Springs

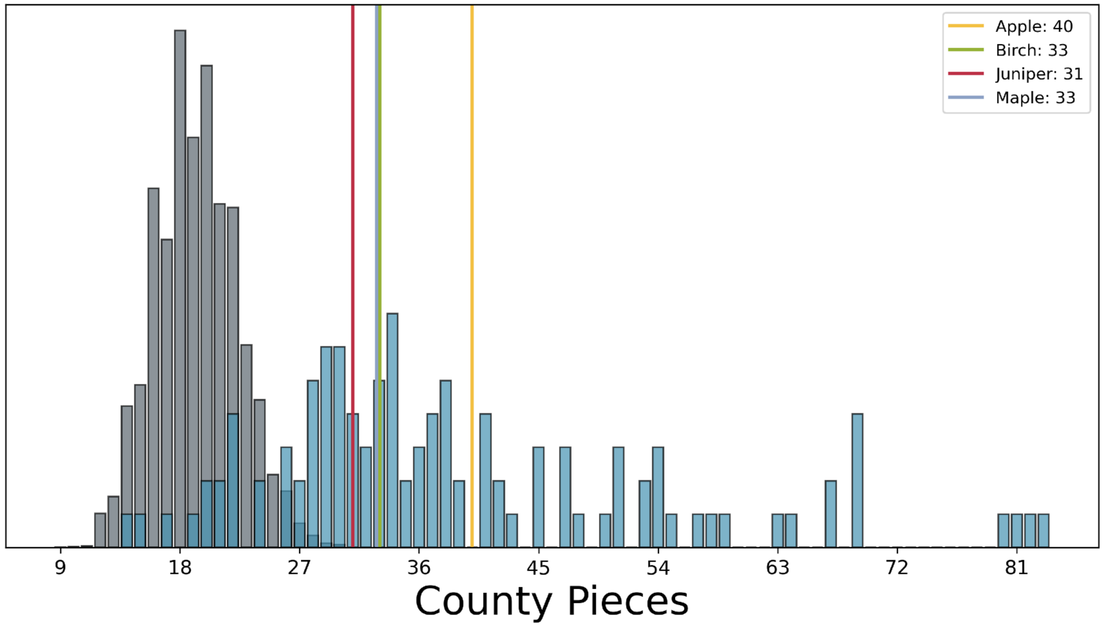
now let’s shift to some evaluation examples from Michigan

Congress

Traditional districting principles – Congress

County splits/county pieces





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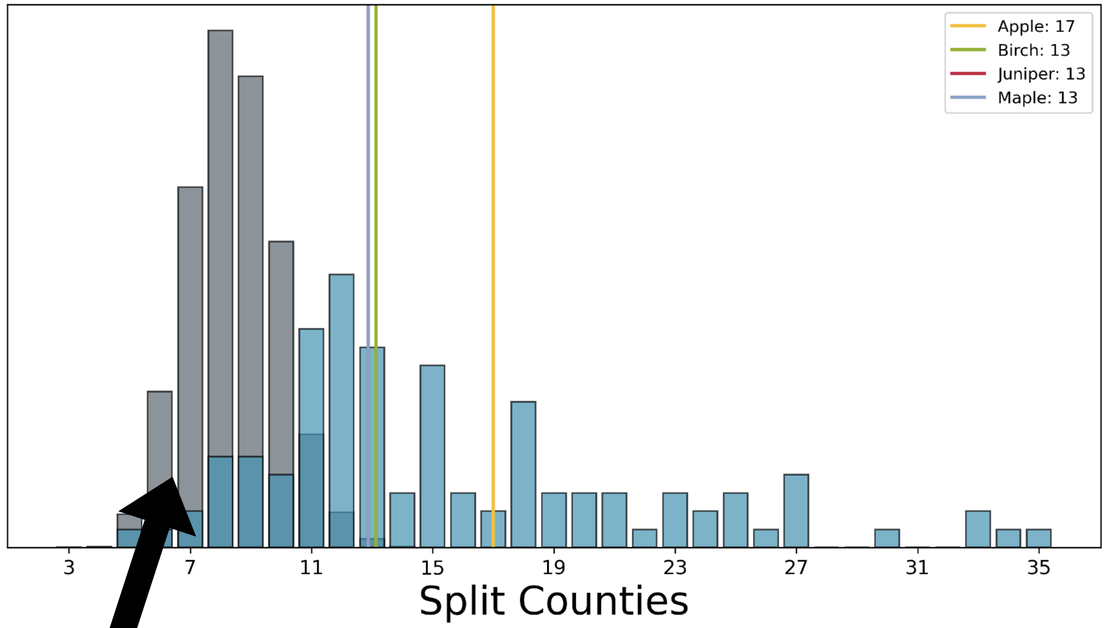

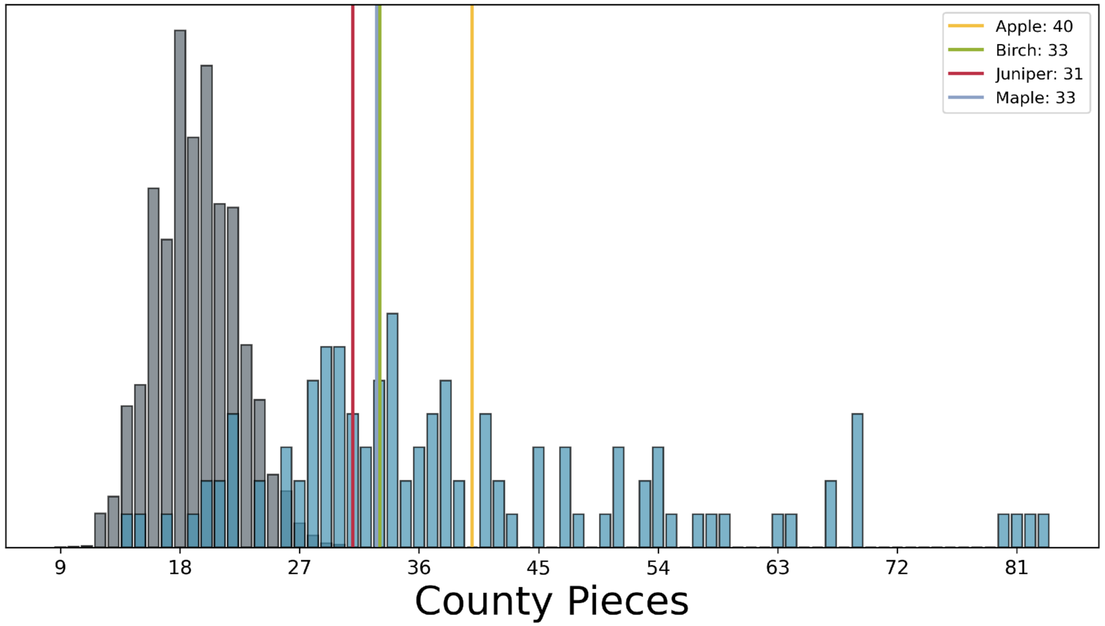

“Computer ensemble” 100,000 computer plans

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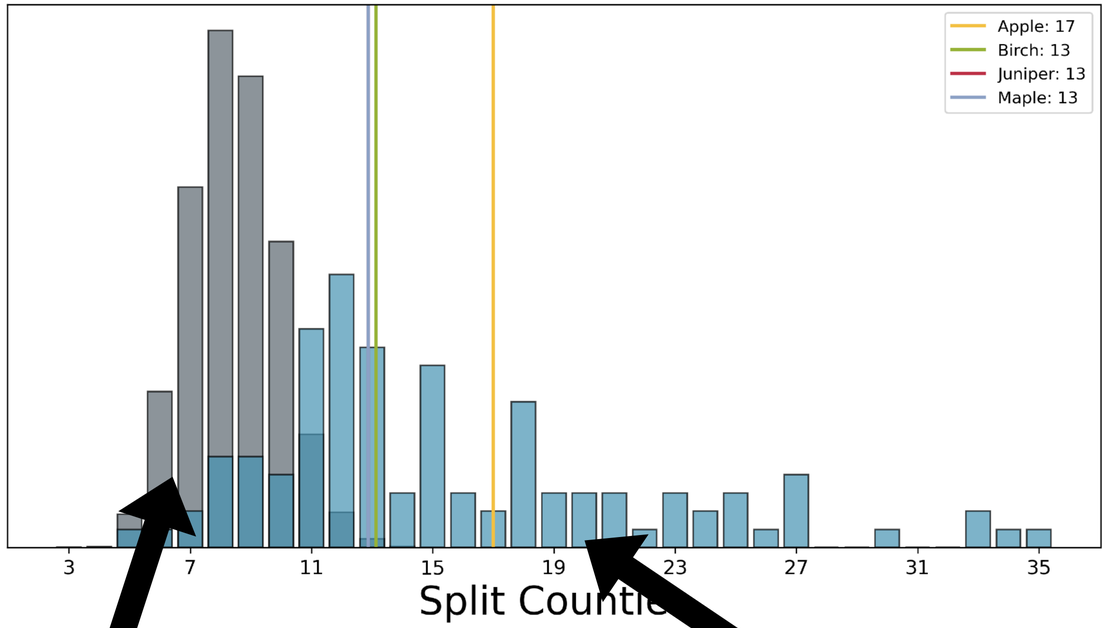
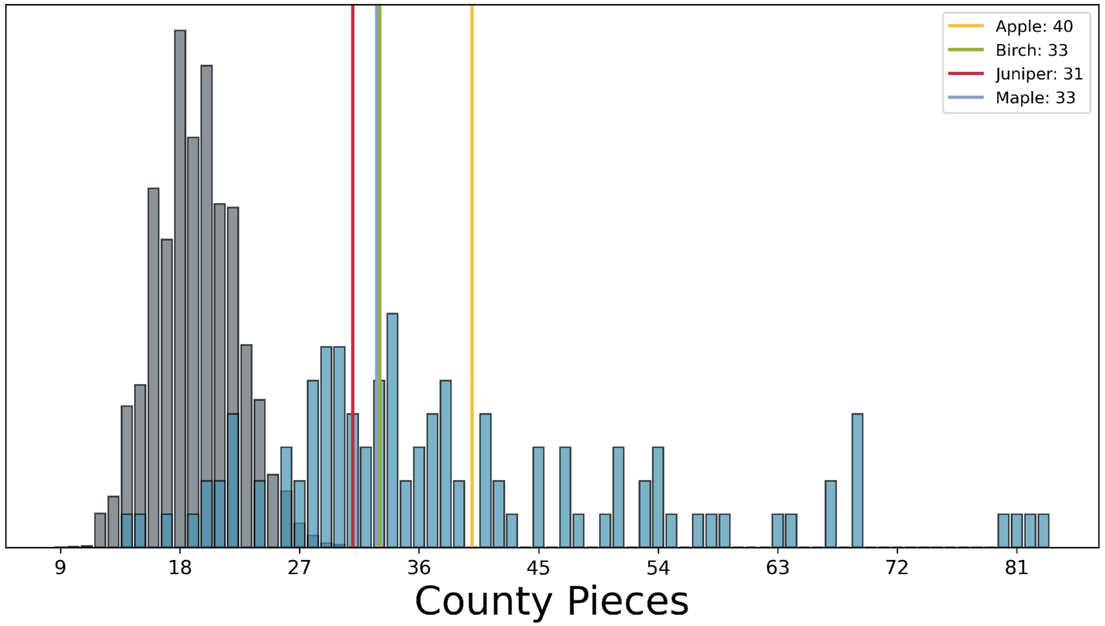


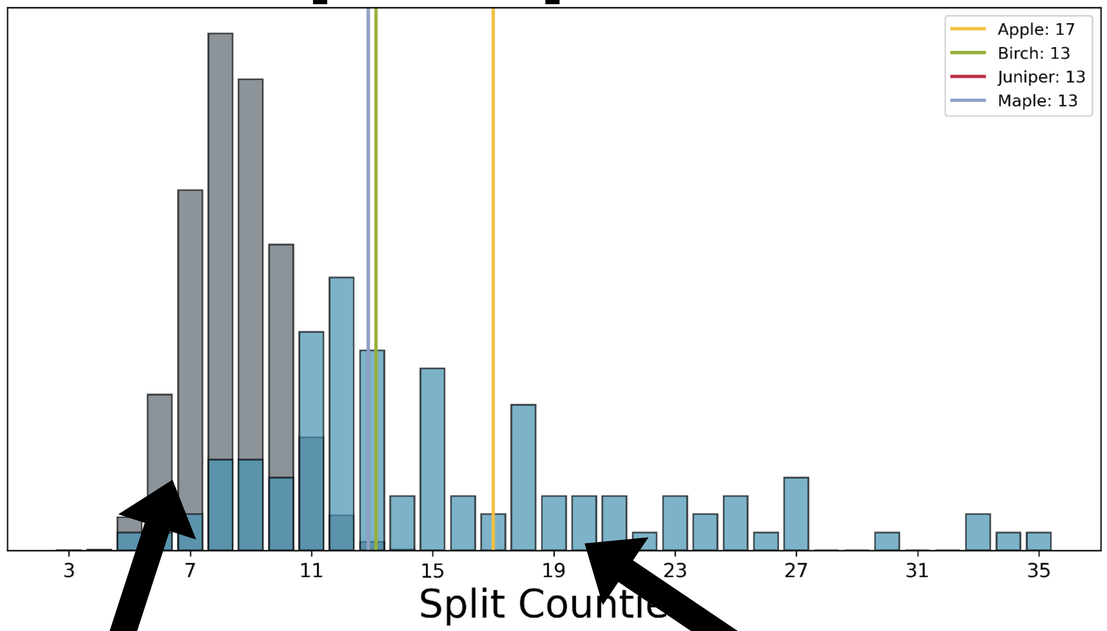


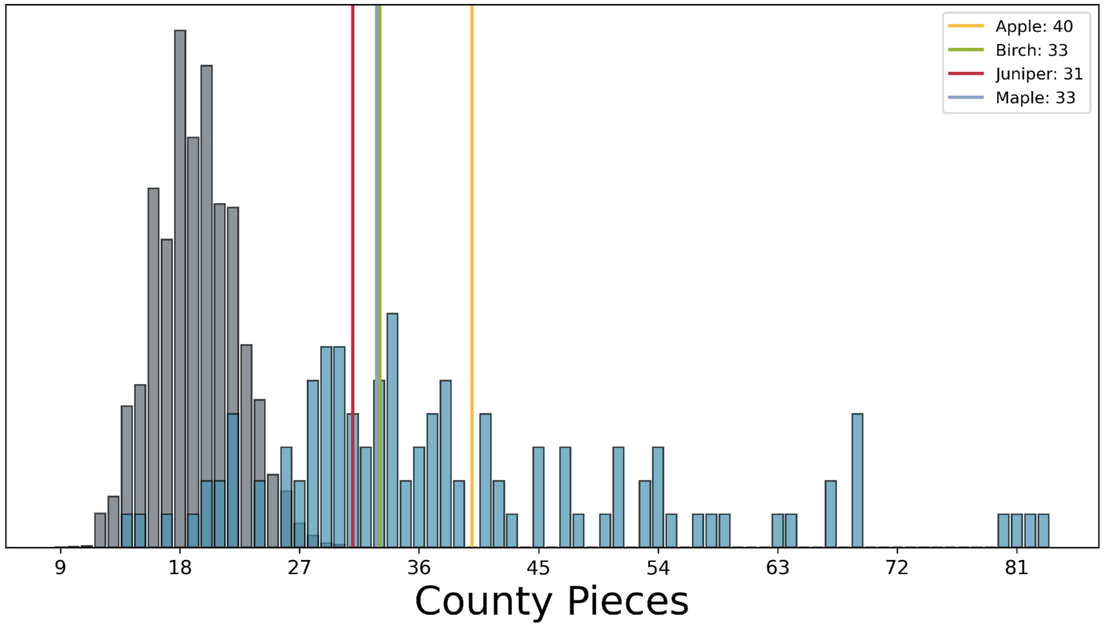
“Computer ensemble” 100,000 computer plans

“Citizen ensemble” 112 plans from the public portal

County splits/county pieces

Commission plans





“Computer ensemble” 100,000 computer plans

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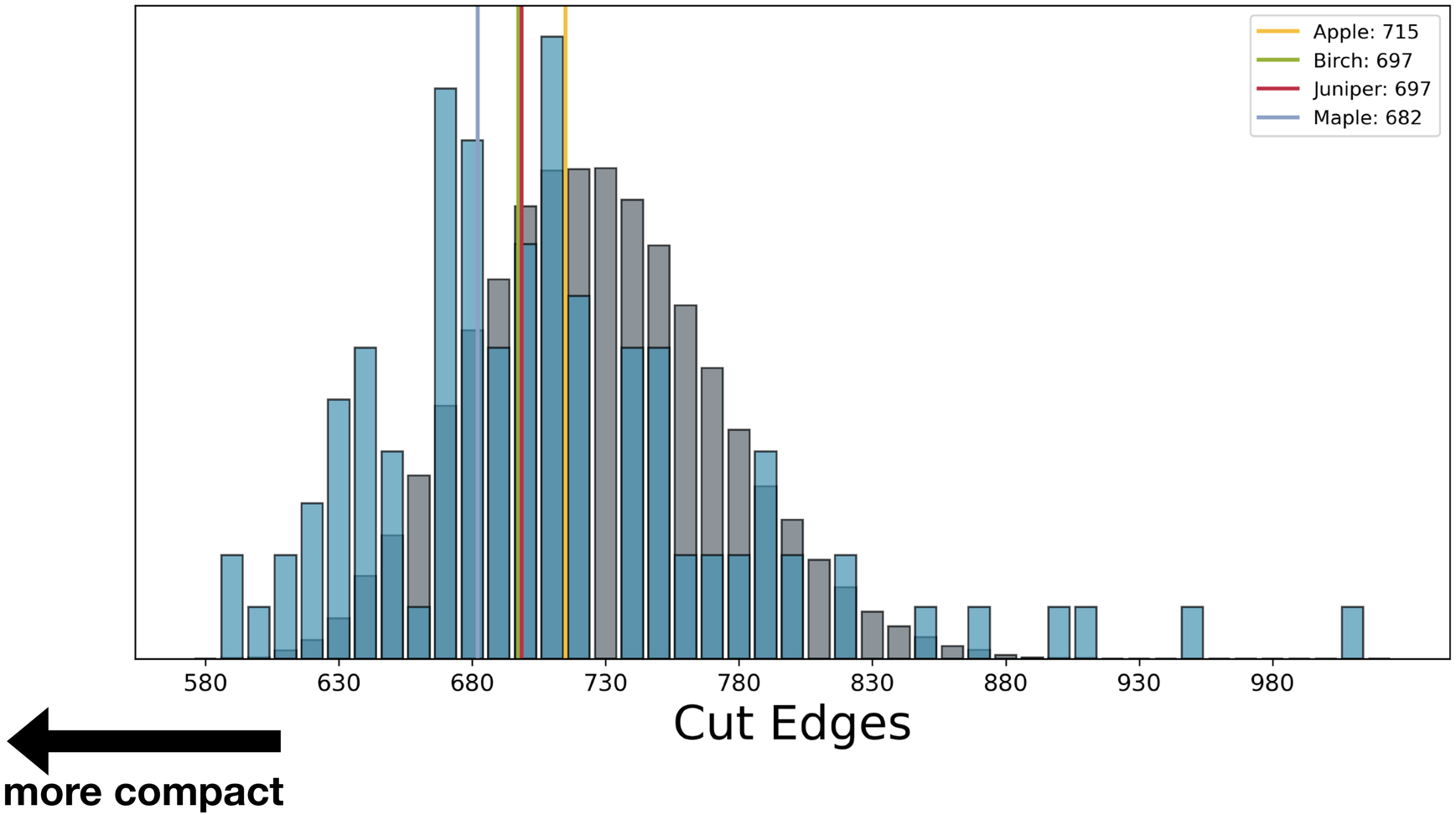
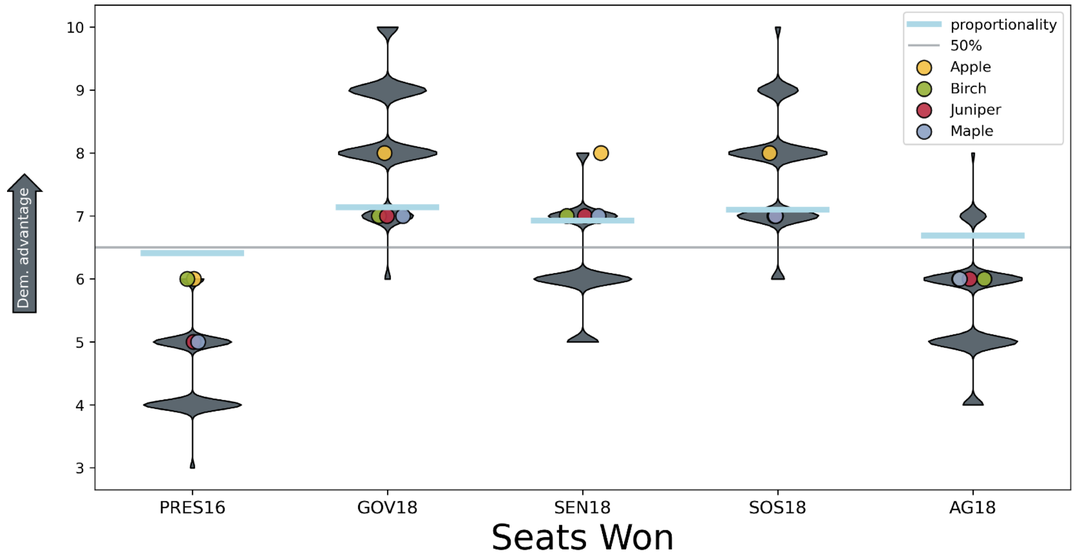
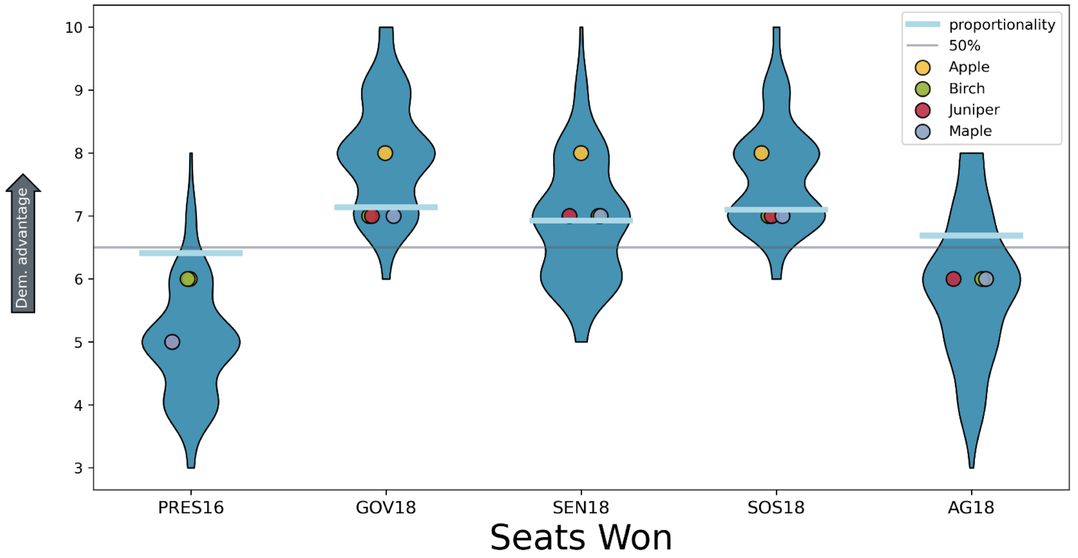
Compactness



Partisan balance – Congress

D seats / proportionality





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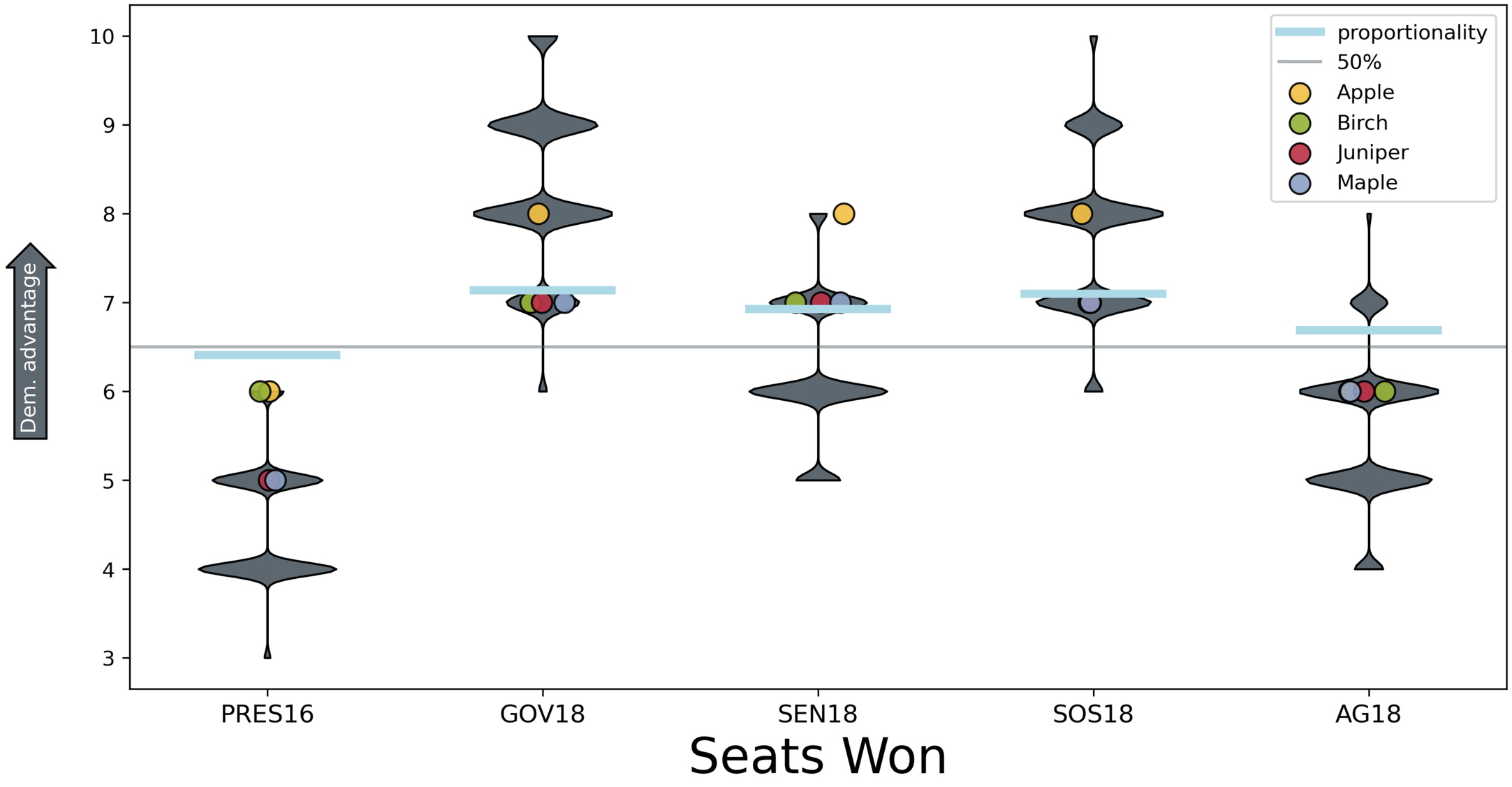
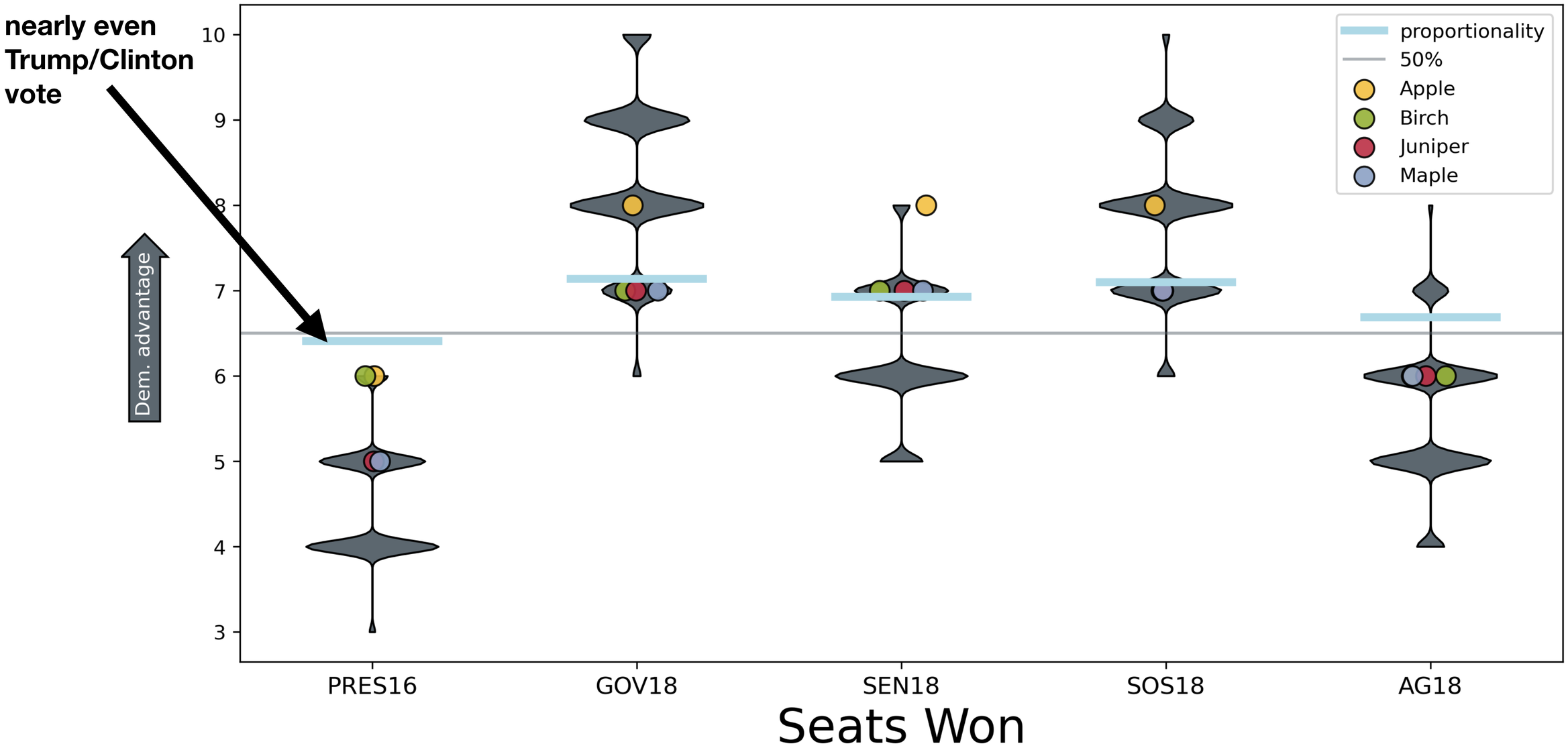

proportionality
50%
Apple
Birch
Juniper
Maple
Dem. advantage
10
9
8
7
6
5
4
3
PRES16
GOV18
SEN18
SOS18
AG18
Seats Won


nearly even Trump/Clinton vote
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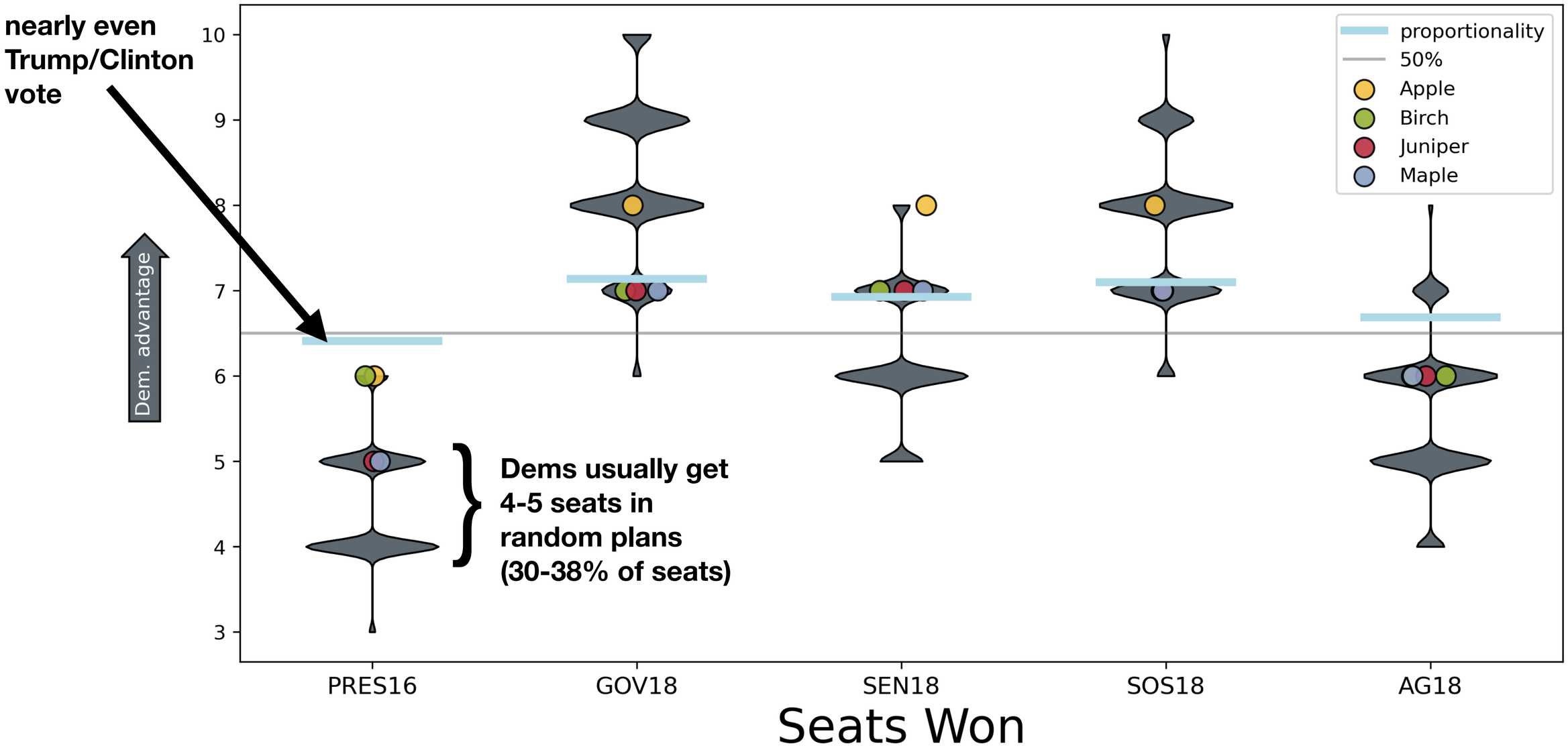
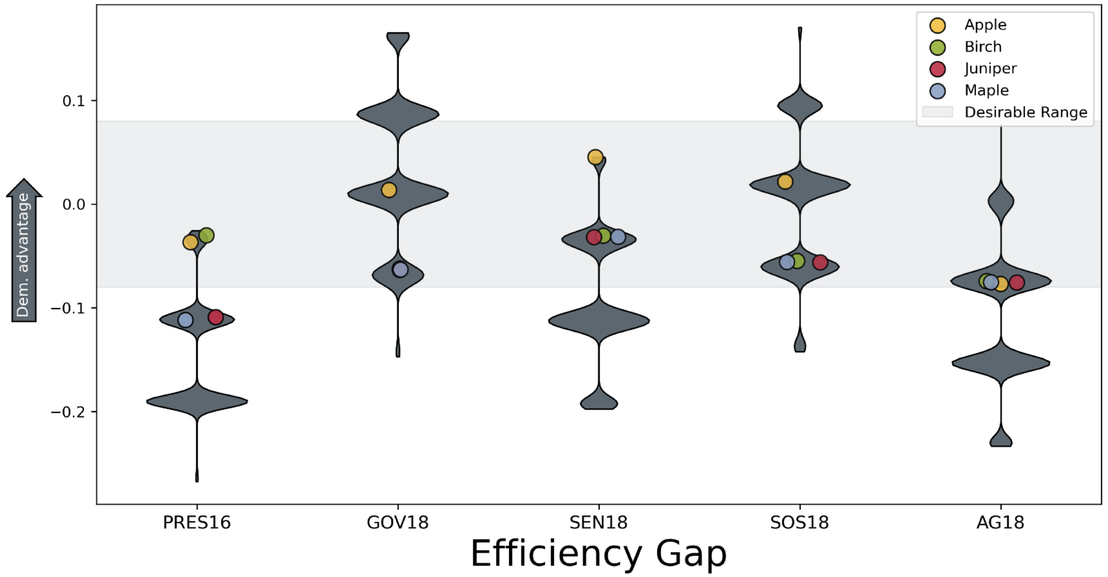
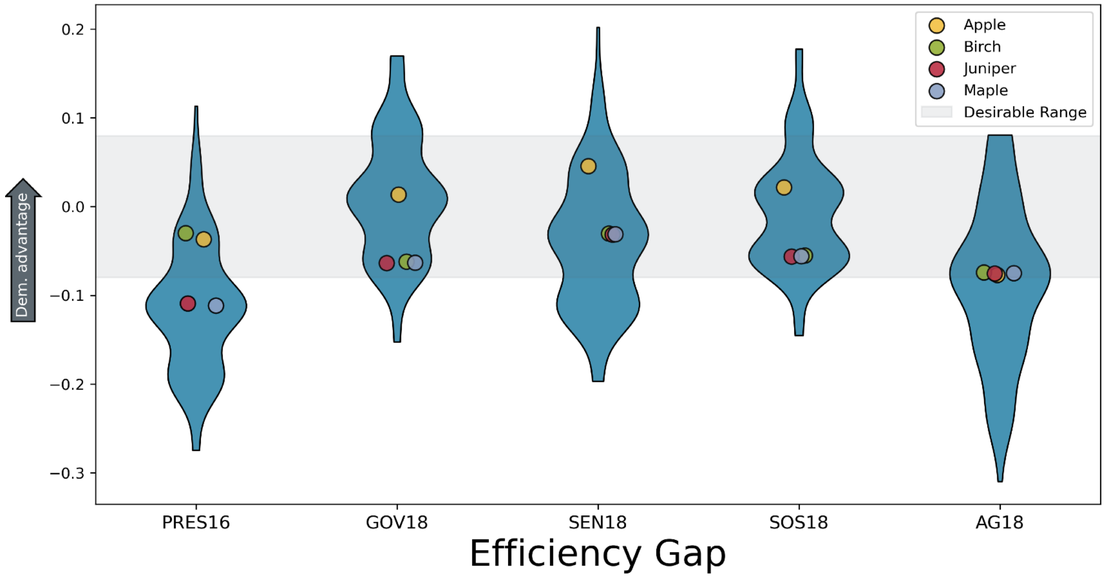
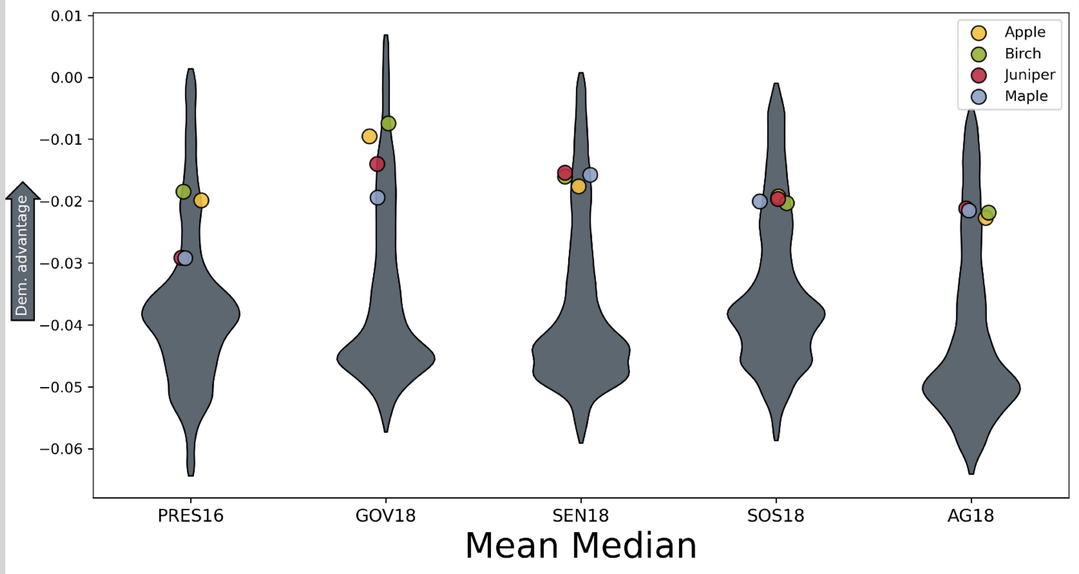

nearly even Trump/Clinton vote
Dem. advantage
10
9
8
7
6
5
4
3
proportionality
50%
Apple
Birch
Juniper
Maple
Dems usually get 4-5 seats in random plans (30-38% of seats)
PRES16
GOV18
SEN18
SOS18
AG18
Seats Won

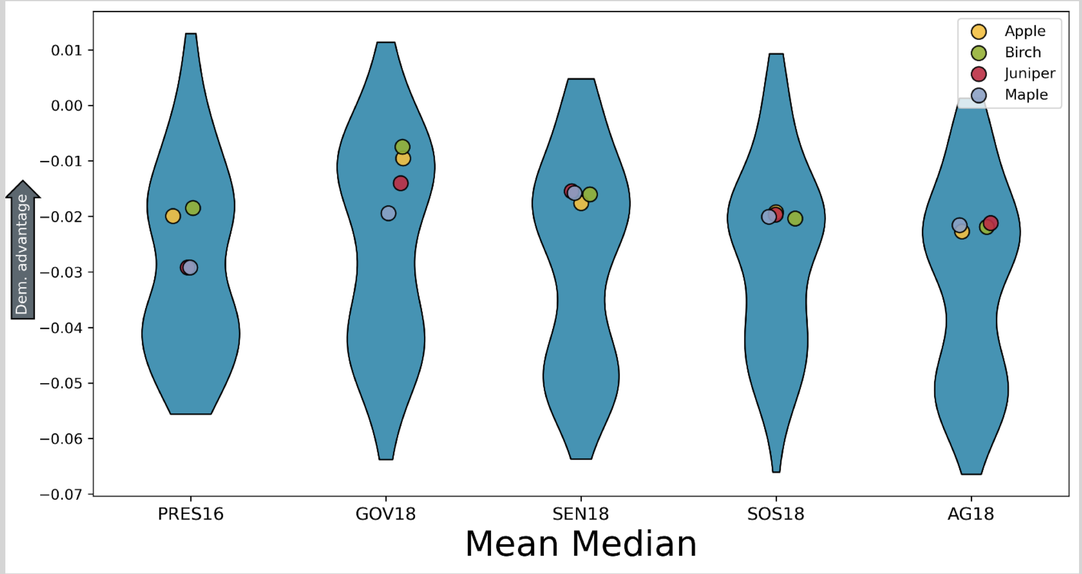
efficiency gap





mean-median gap





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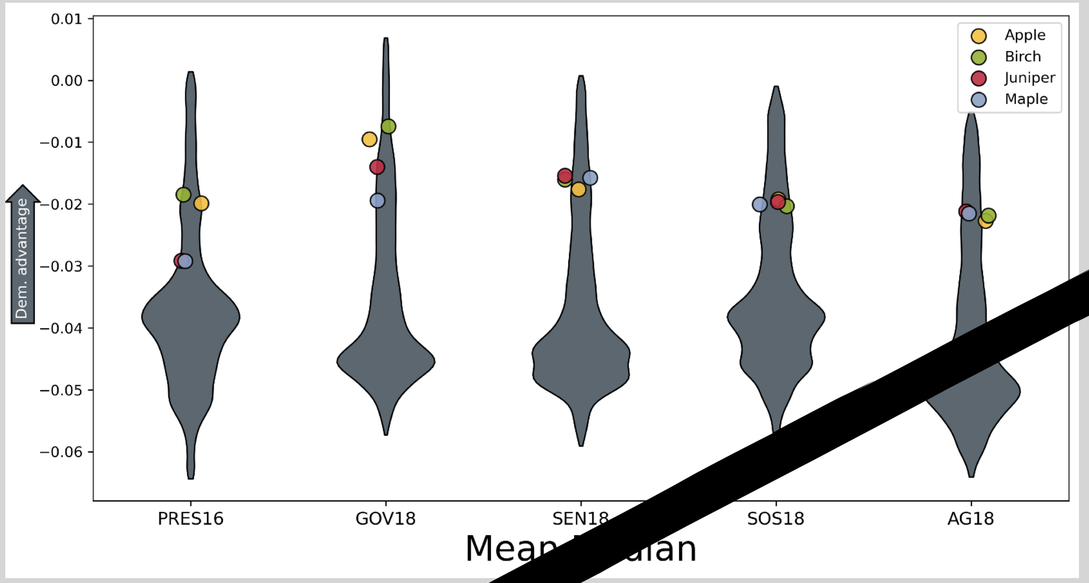
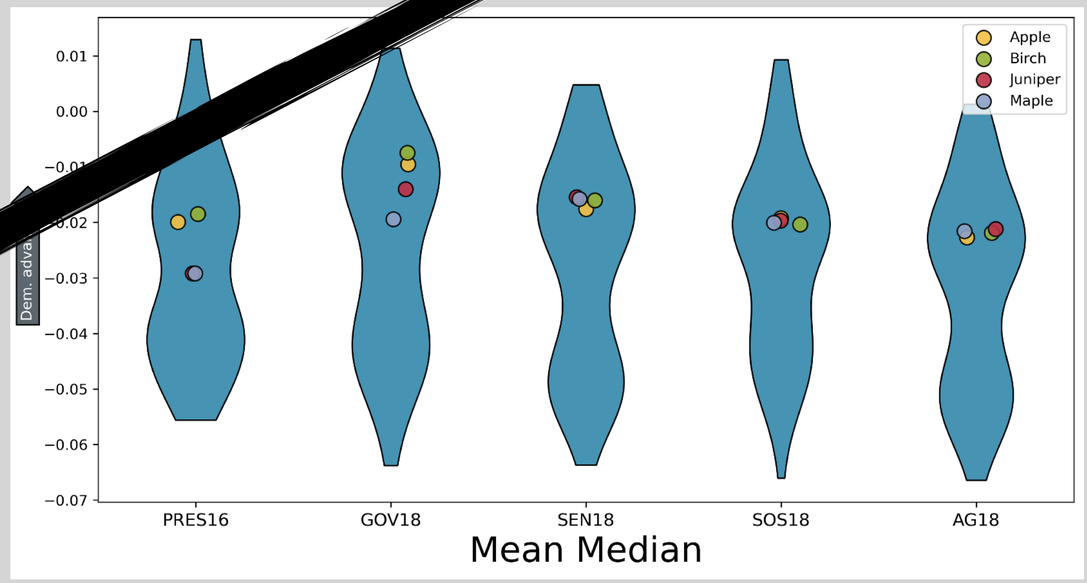
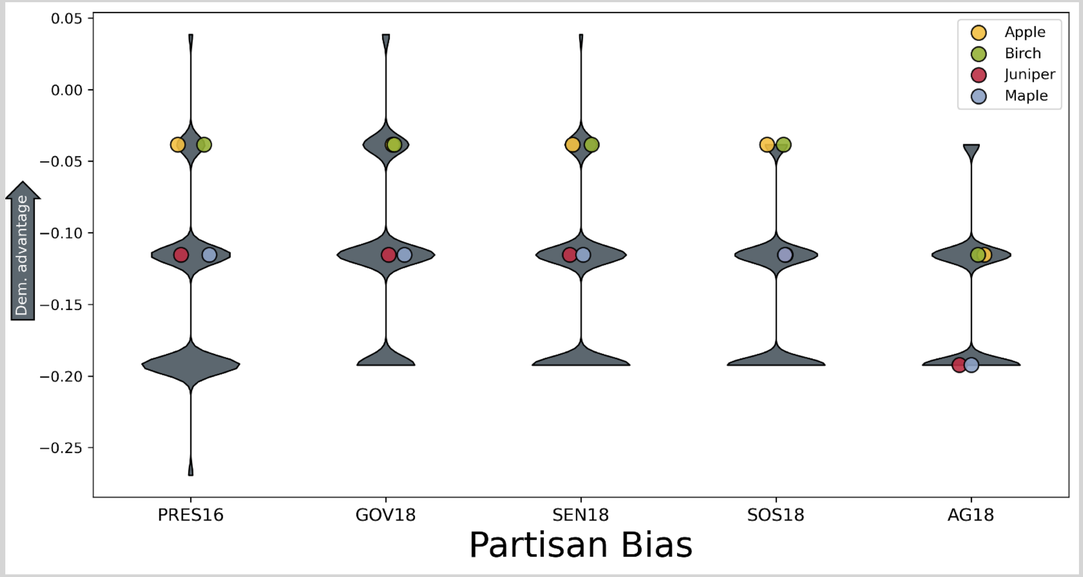
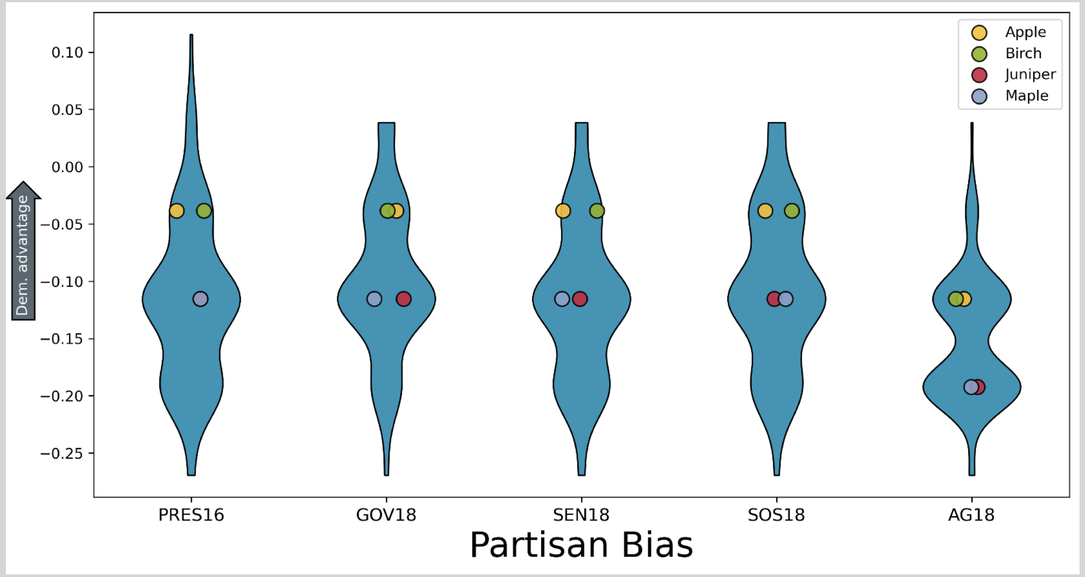




partisan bias





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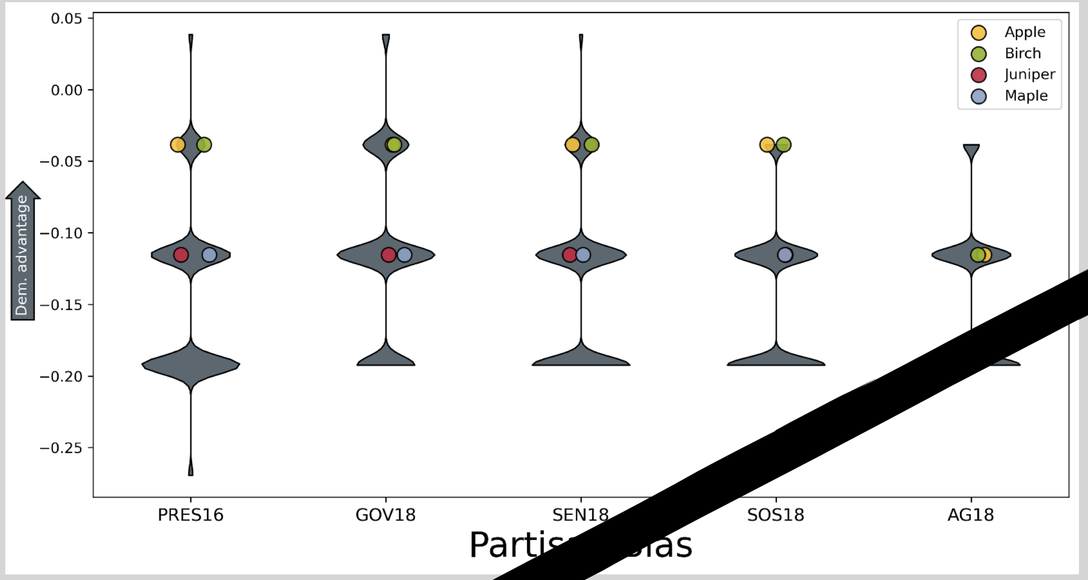
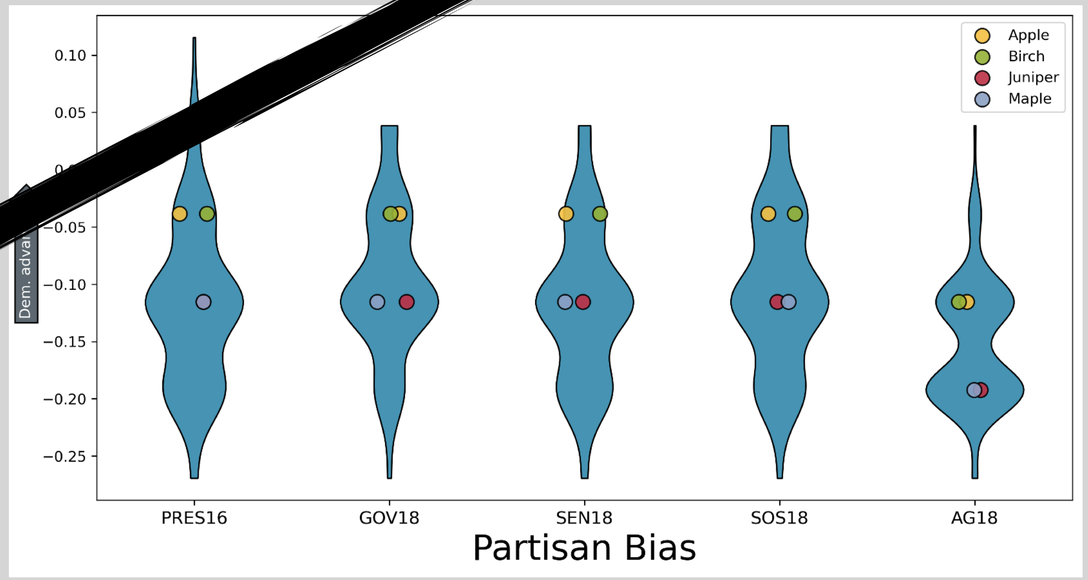
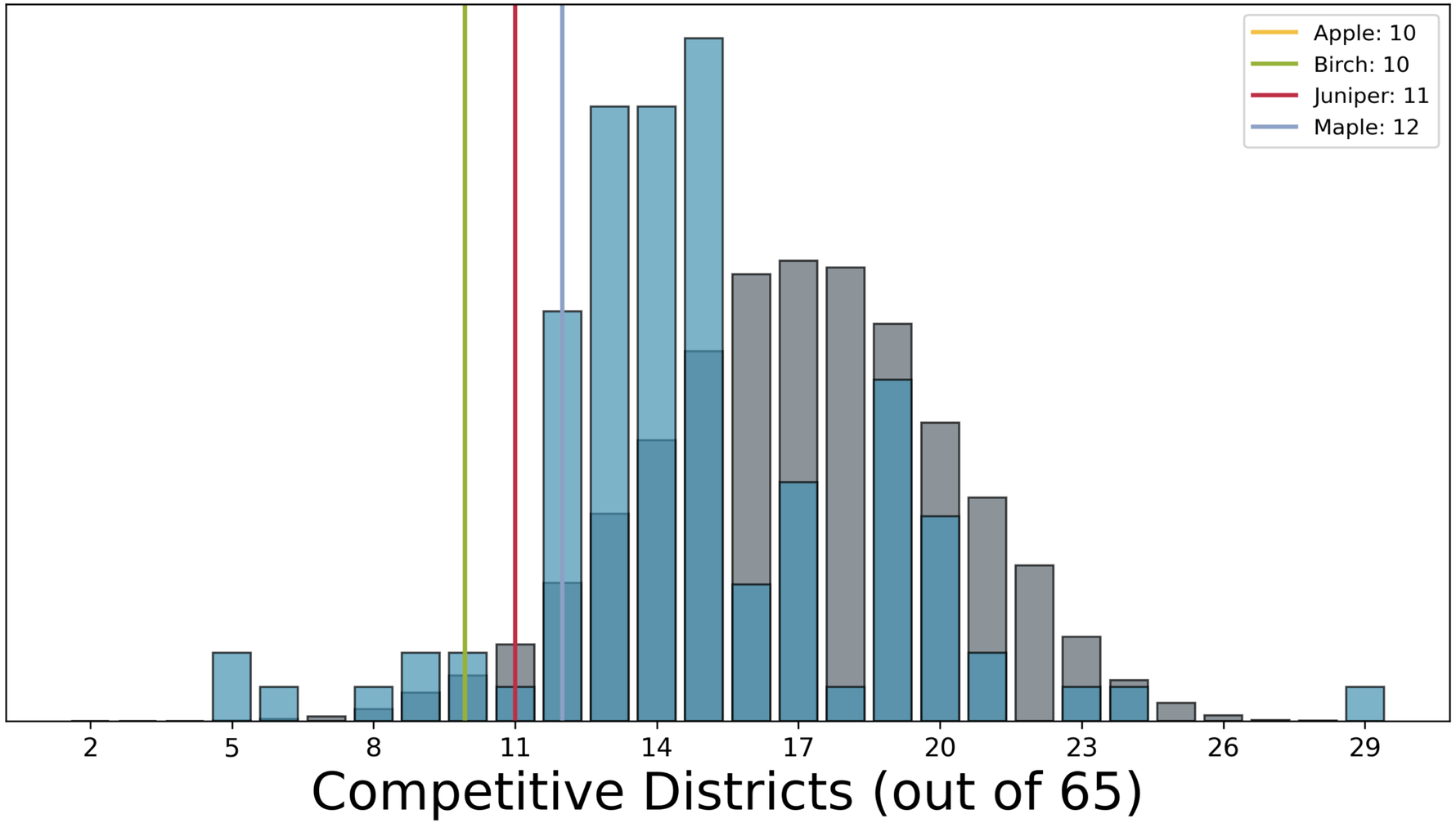


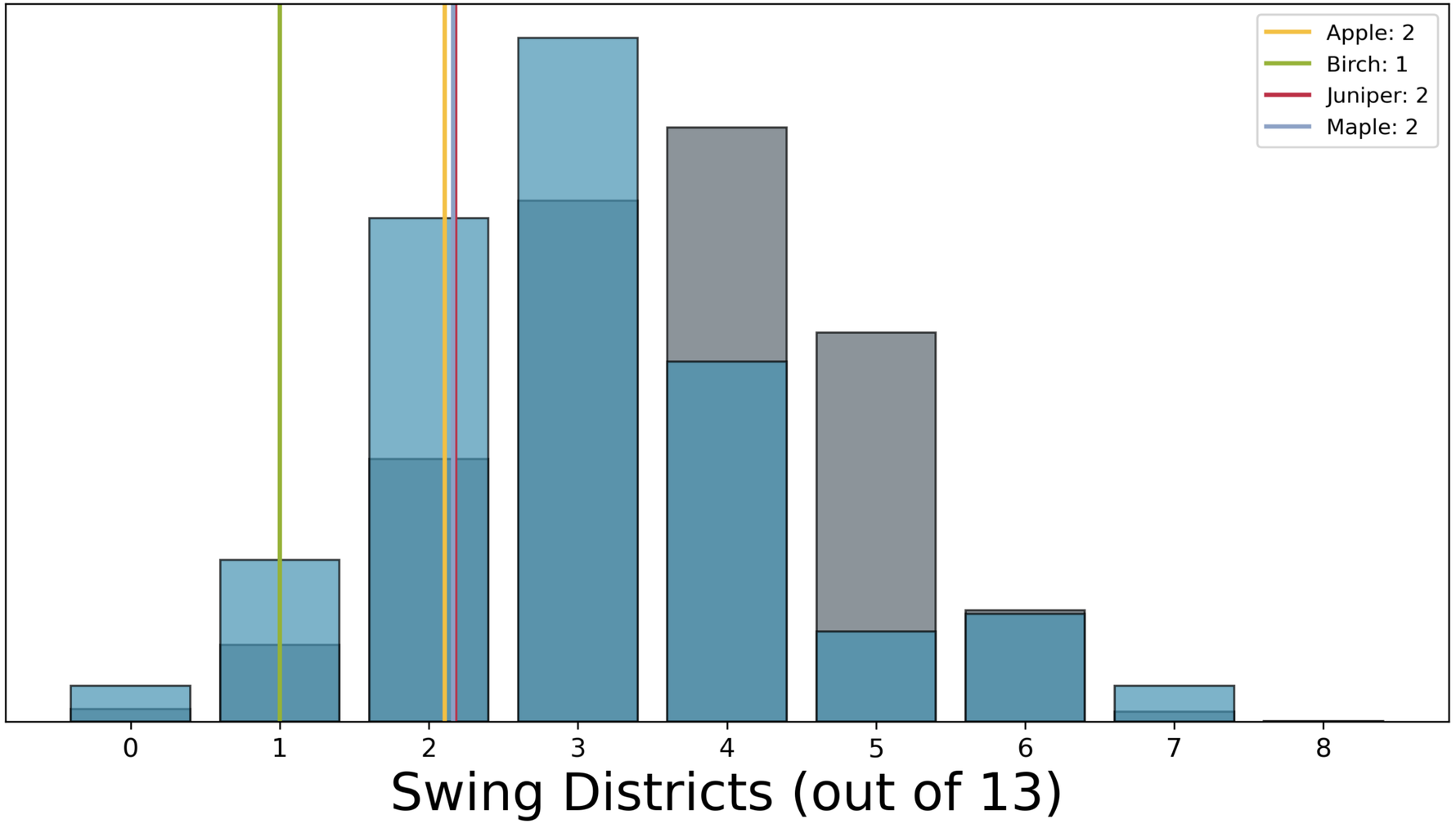


Responsiveness/ competitiveness– Congress

competitive districts (margin <6%)

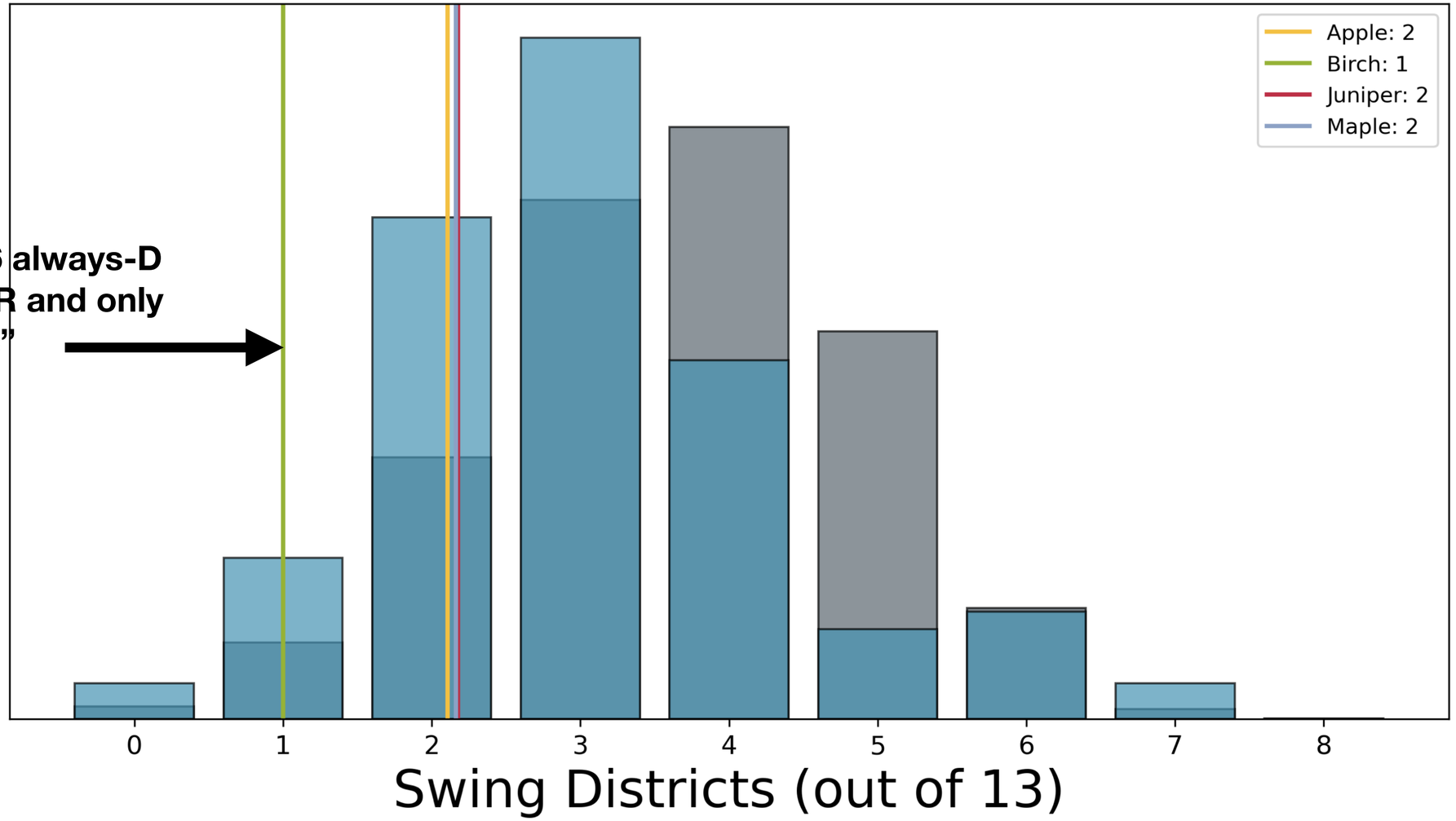


swing districts



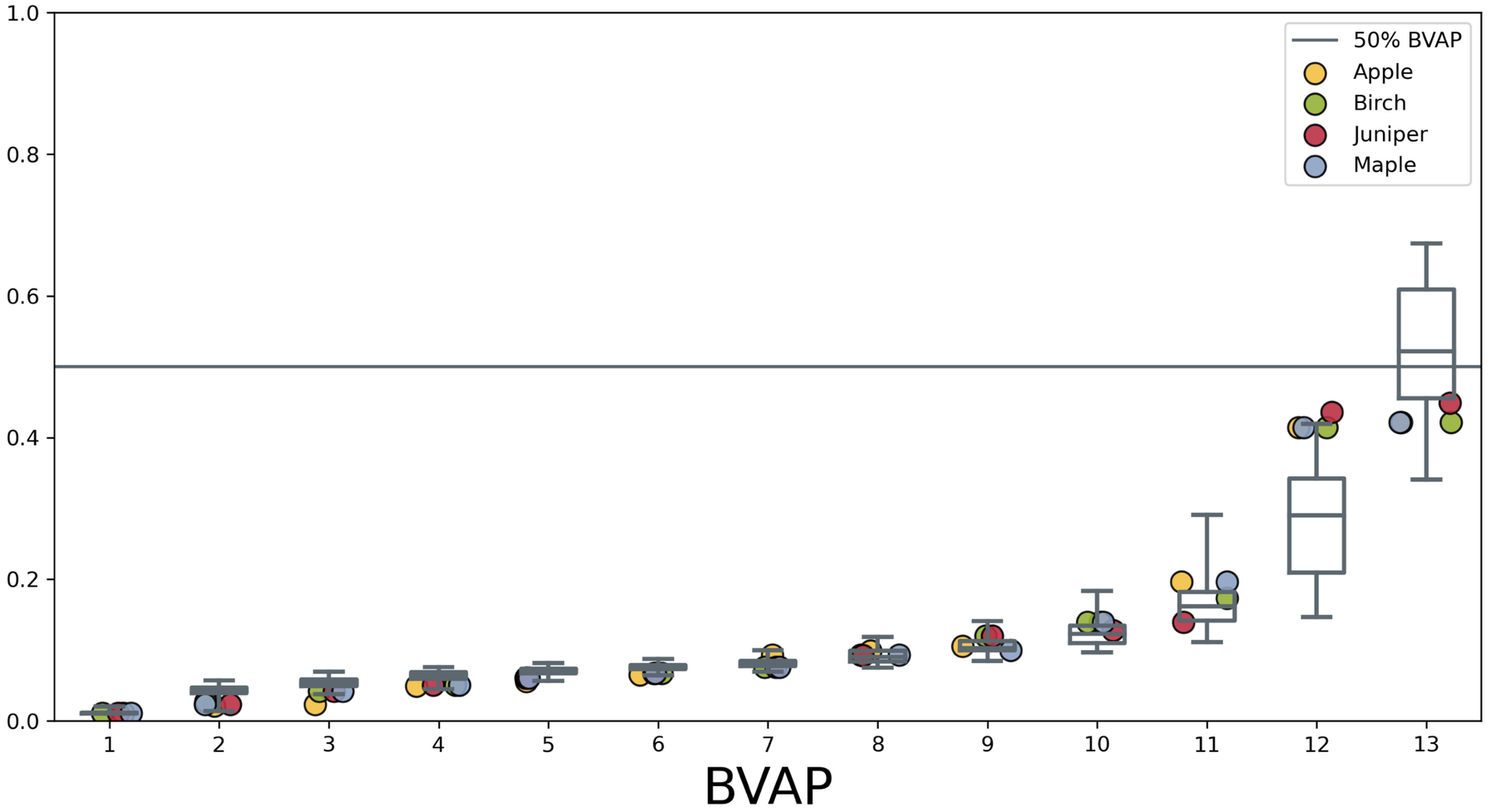
swing districts

this plan has 6 always-D and 6 always-R and only 1 that “swings”



Racial stats – Congress

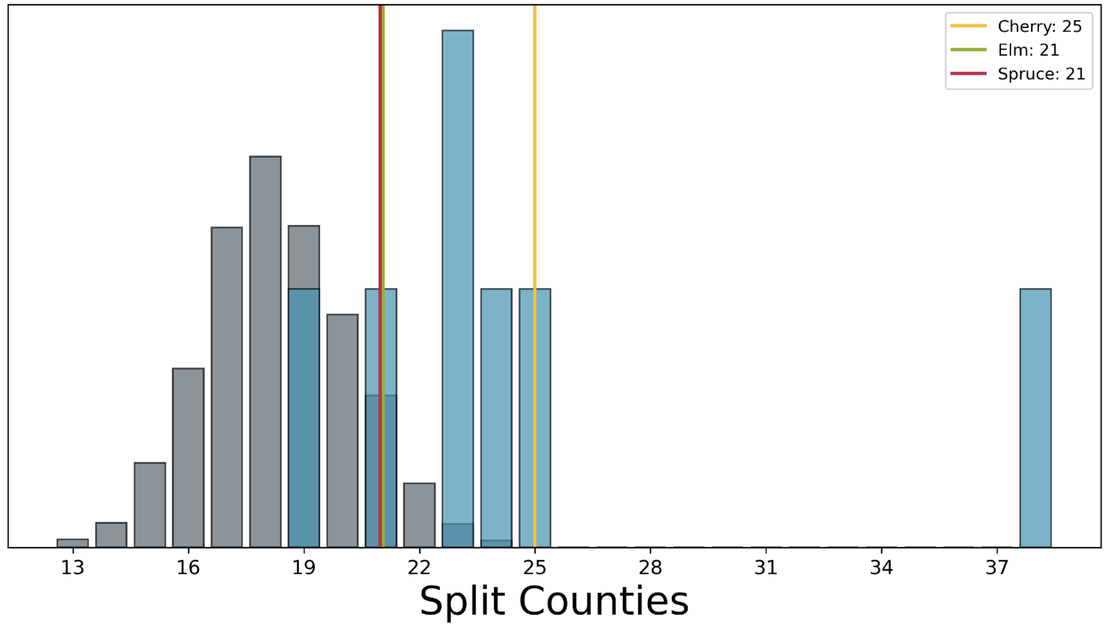
Black Voting Age Population

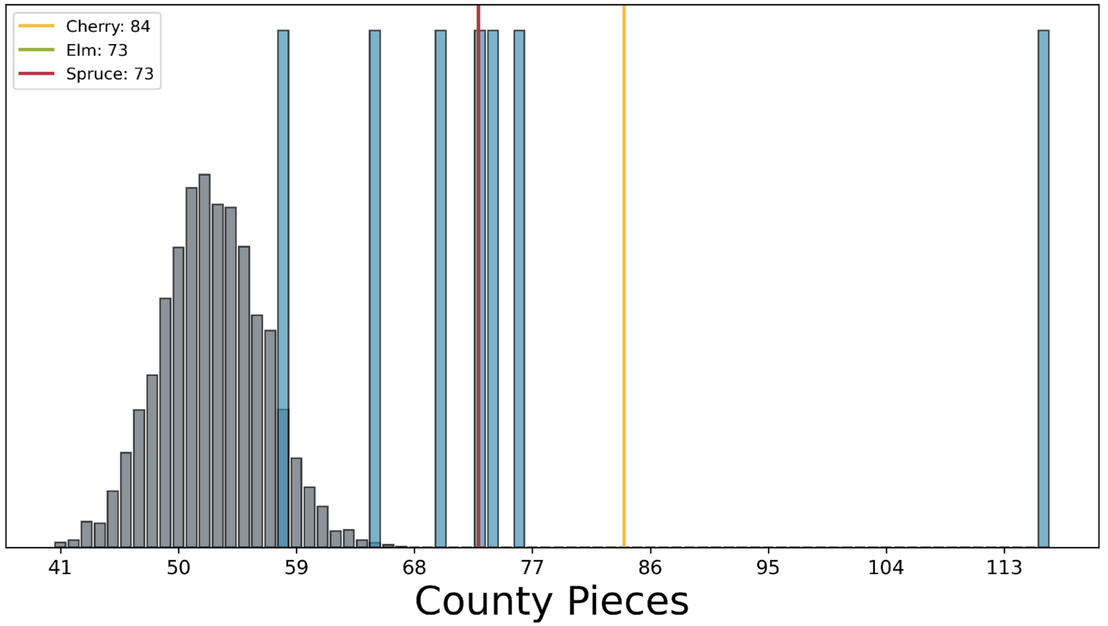


state Senate

Traditional districting principles – Senate

County splits/county pieces





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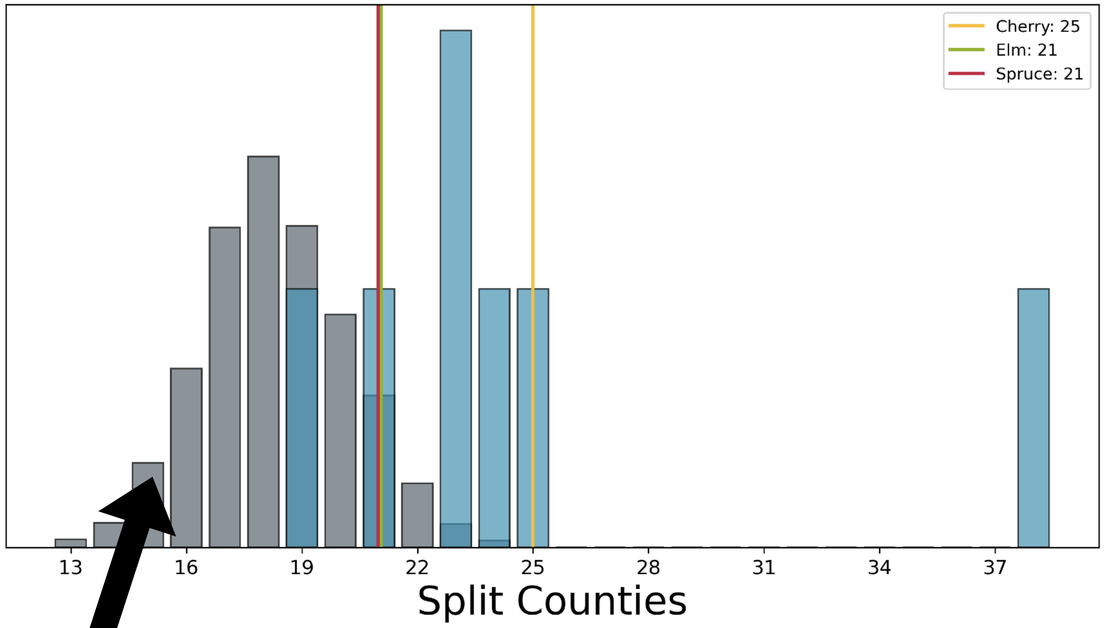
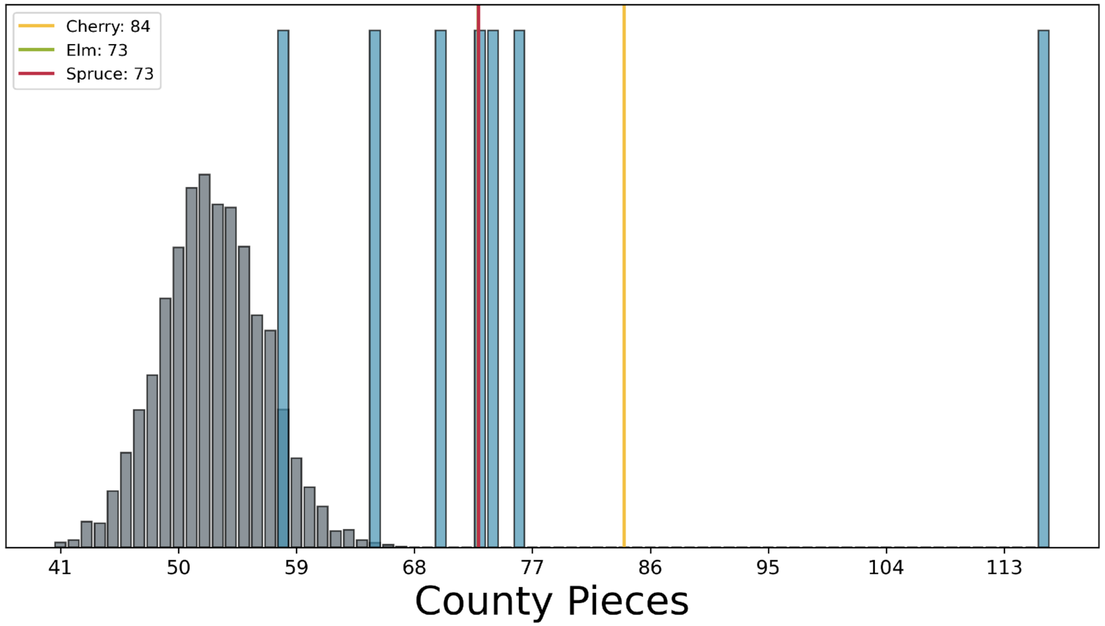
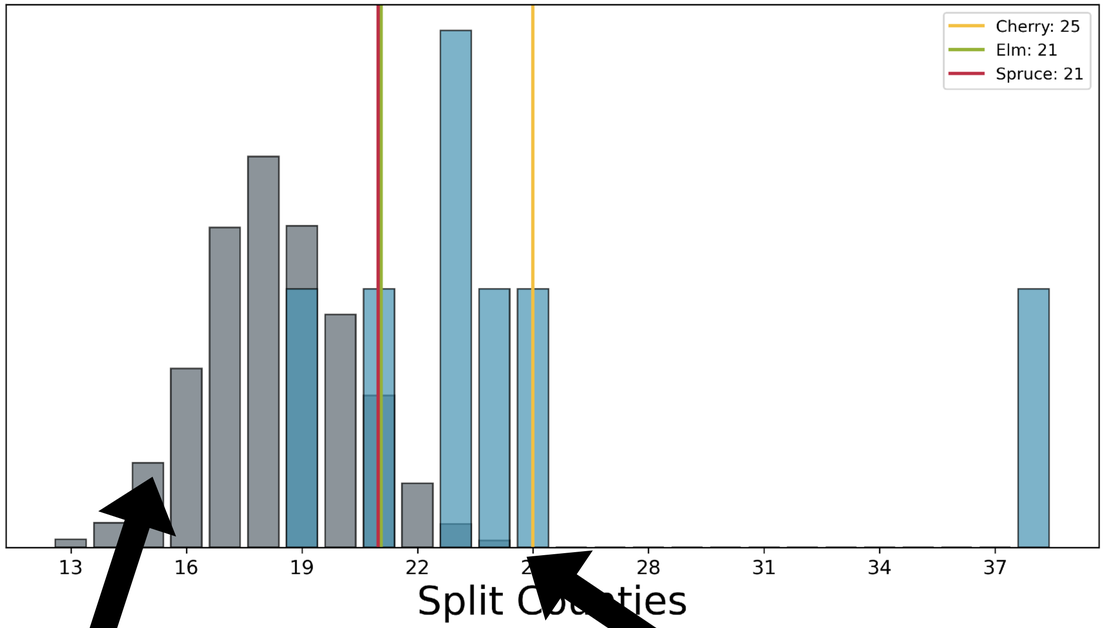
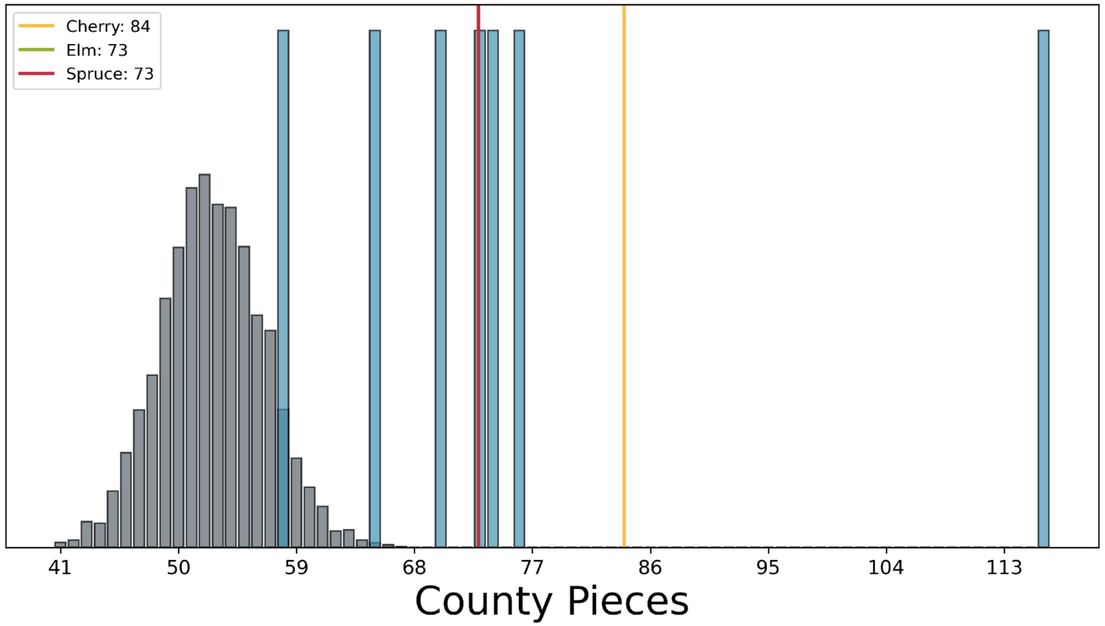




“Computer ensemble” 100,000 computer plans

County splits/county pieces



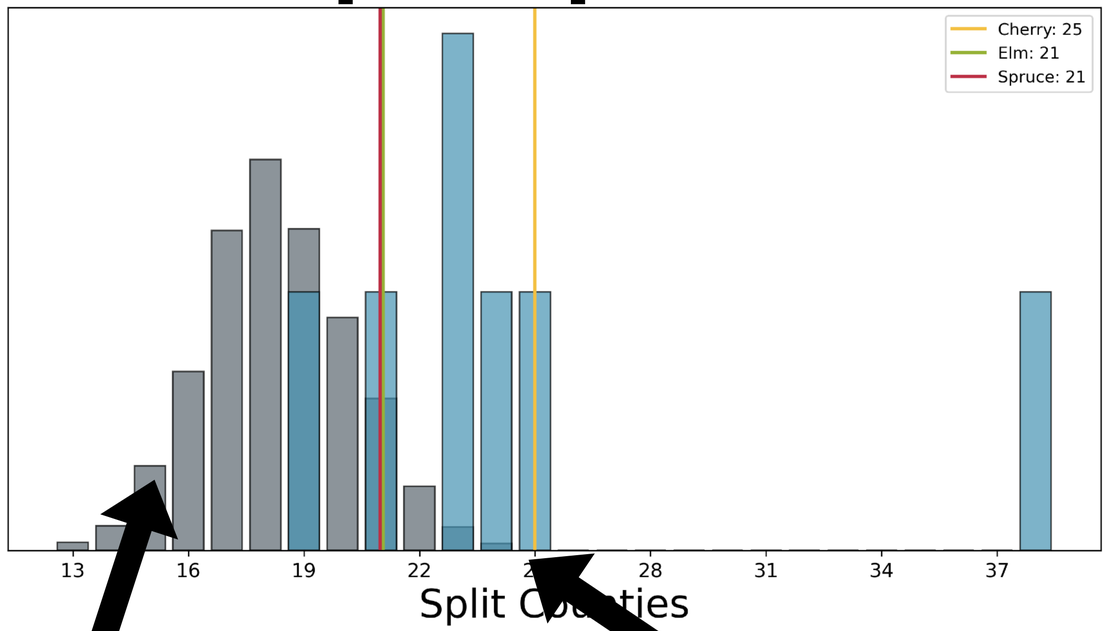


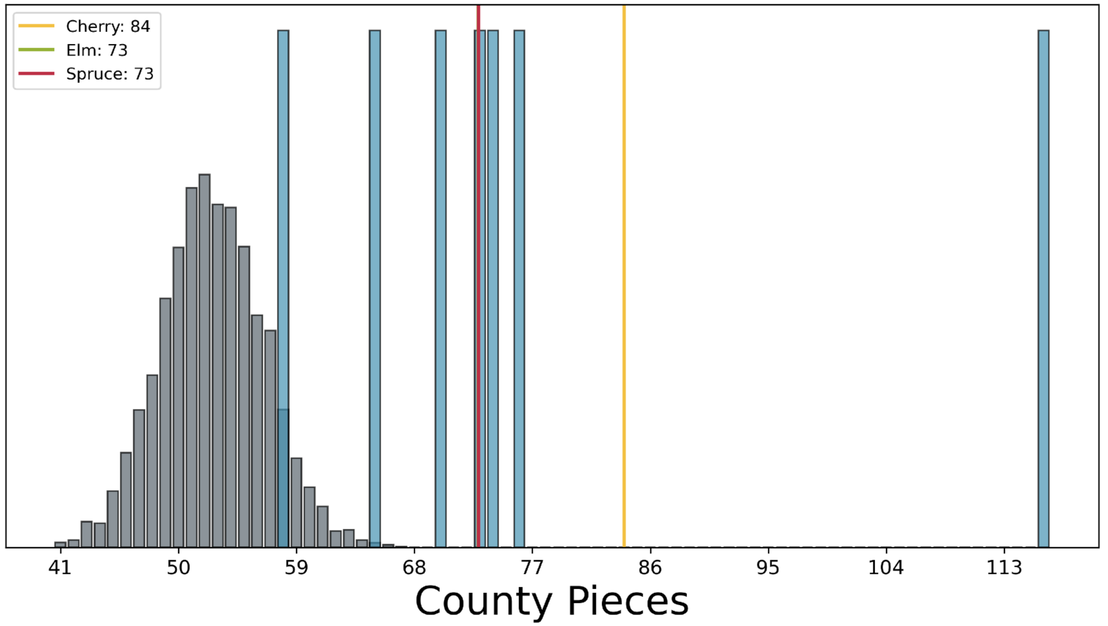
“Computer ensemble”
100,000 computer plans

“Citizen ensemble”
7 plans from the public portal

County splits/county pieces

Commission plans





“Computer ensemble”
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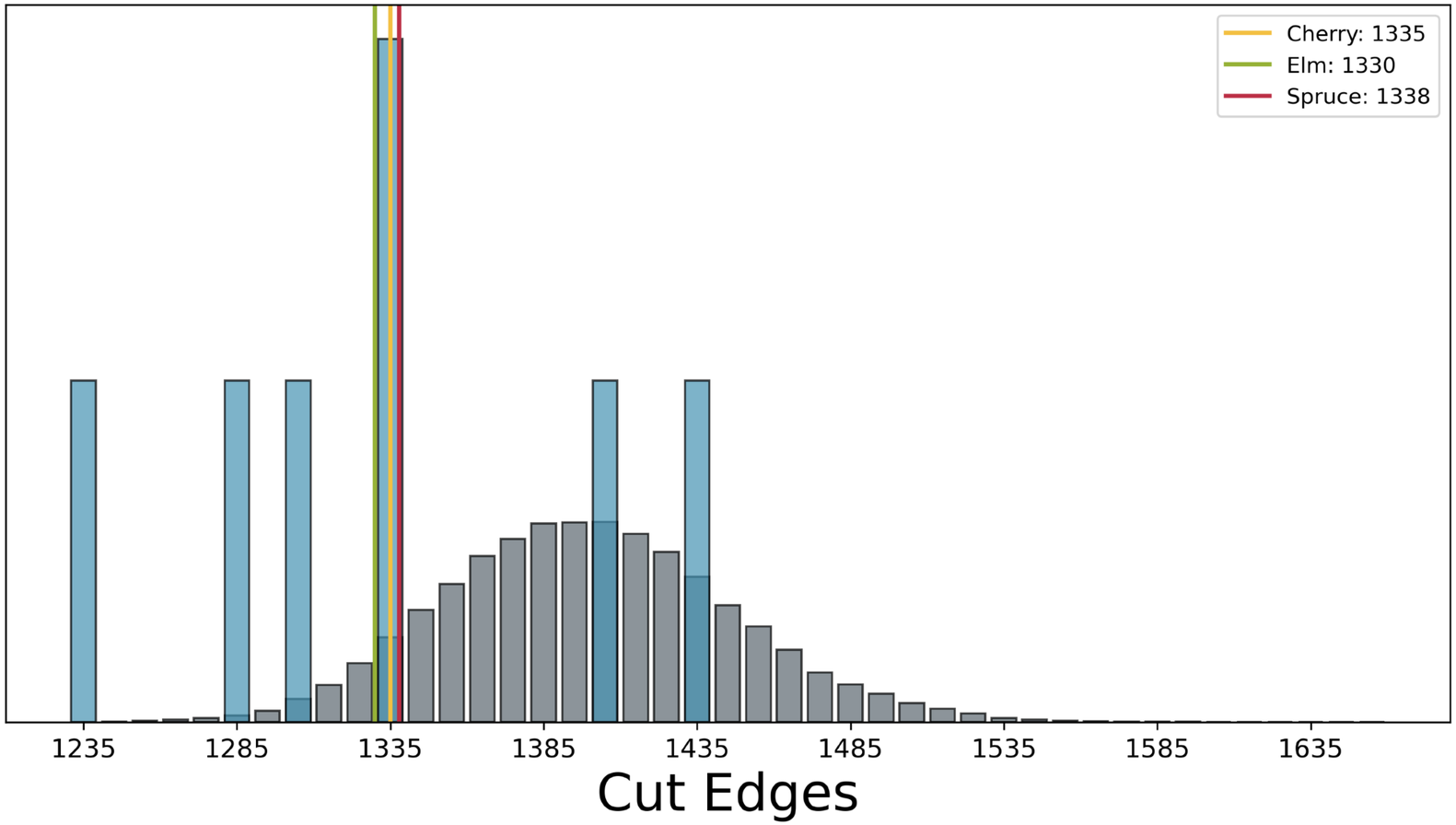
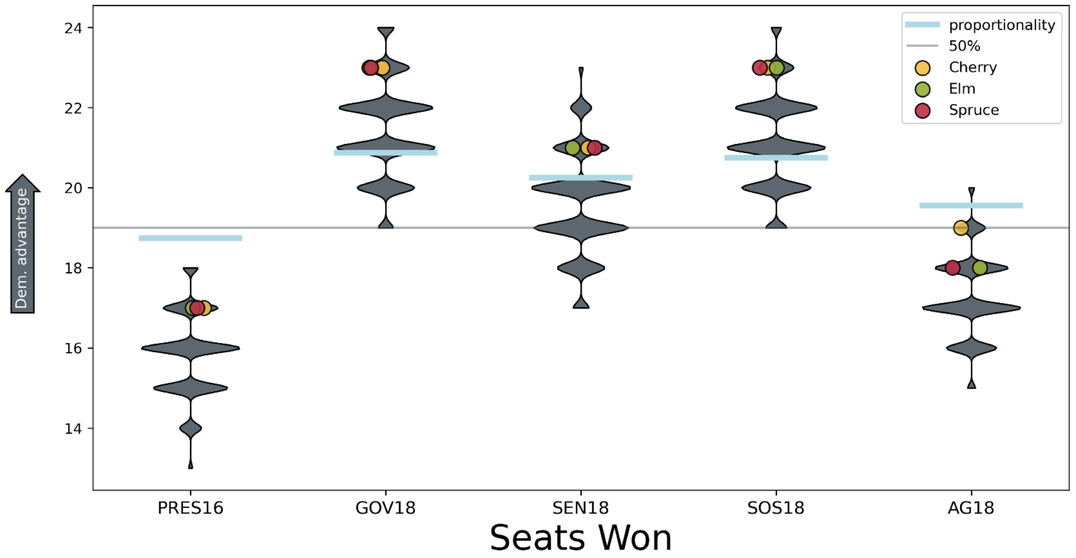
Compactness

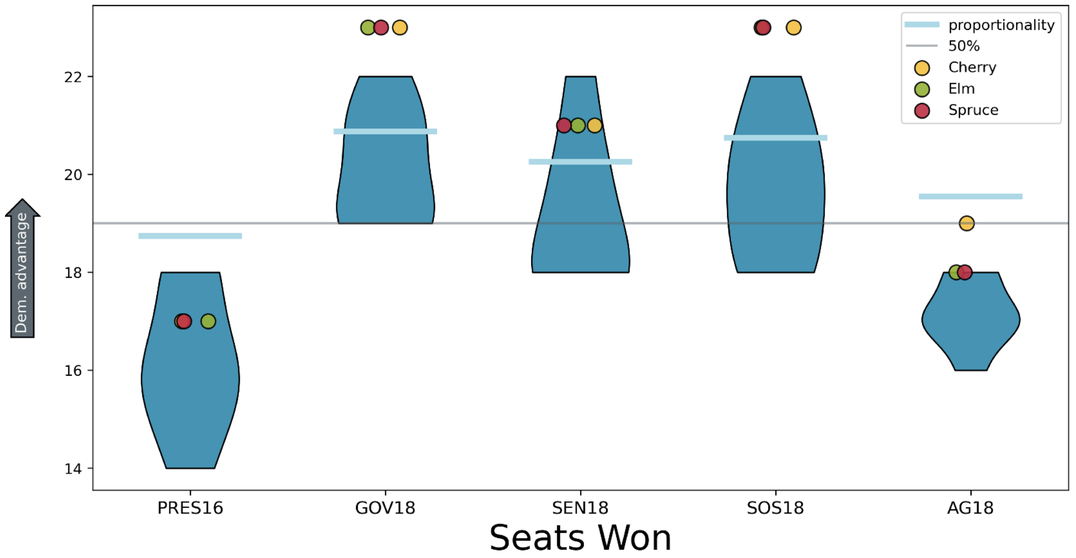


more compact

Partisan balance – Senate

D seats / proportionality





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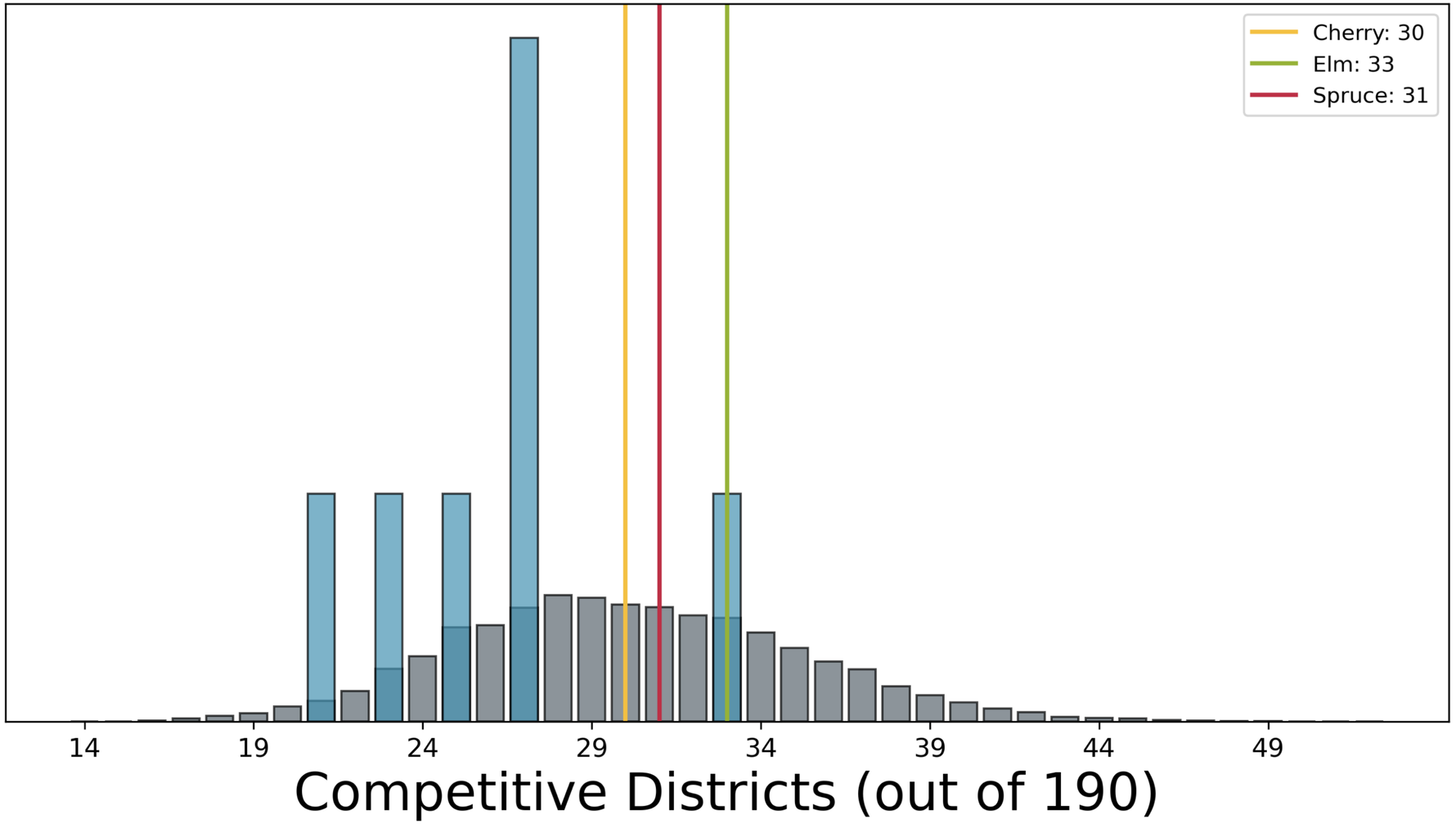
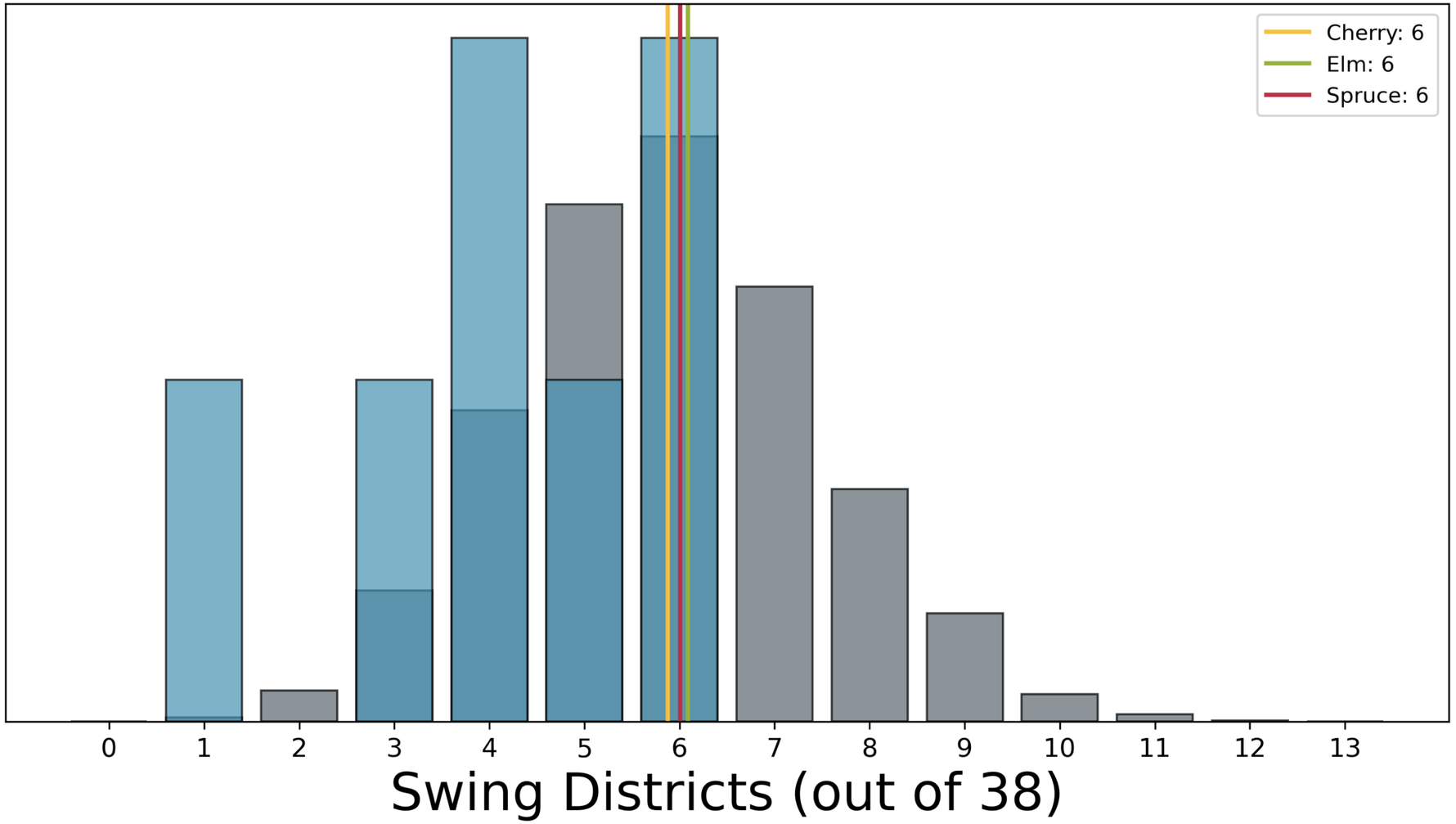
Responsiveness/ competitiveness– Senate

competitive districts (margin <6%)



swing districts



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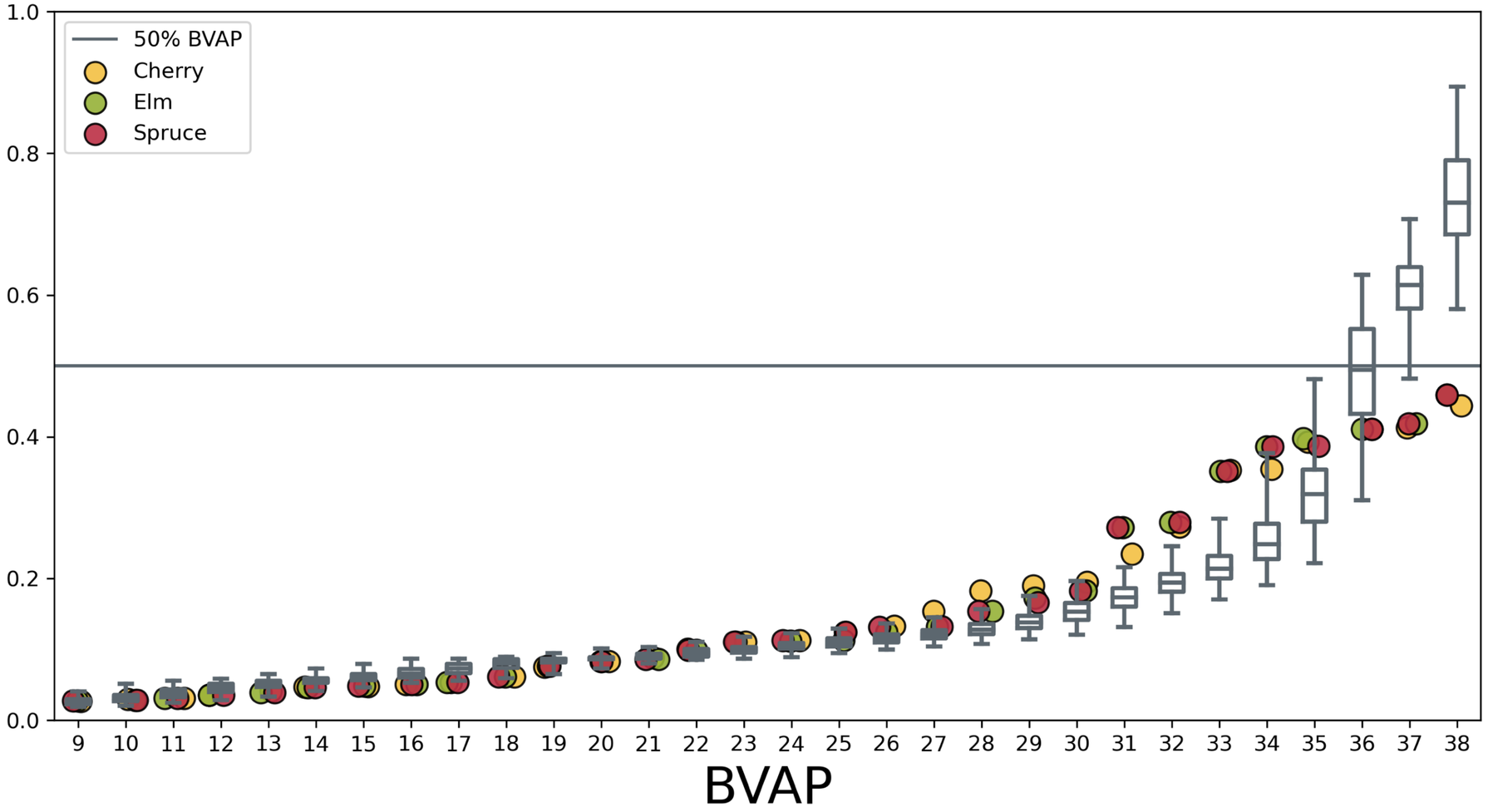
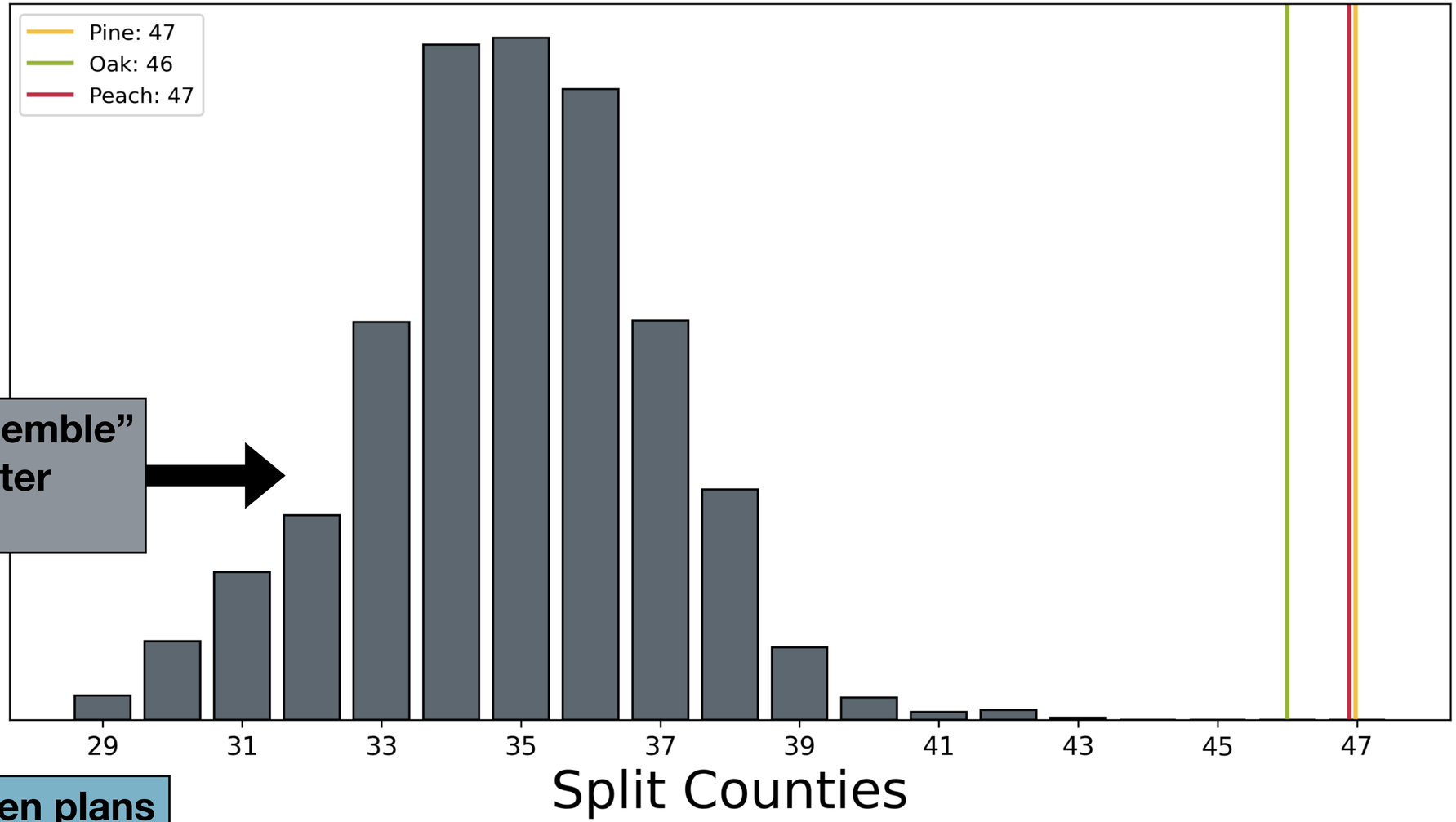


state House

Traditional districting principles – House

County splits/county pieces

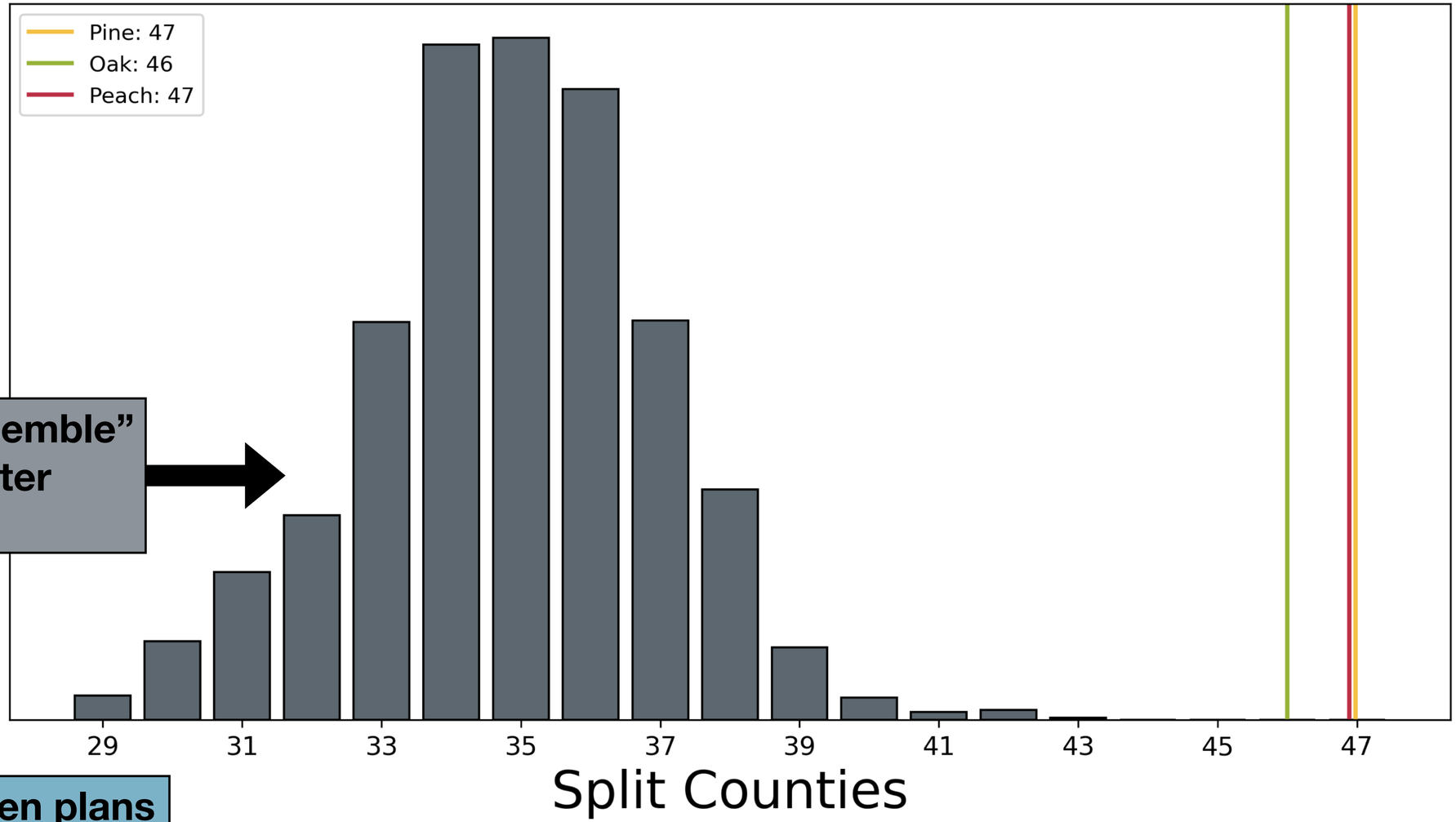


“Computer ensemble” 100,000 computer plans

no viable citizen plans

County splits/county pieces

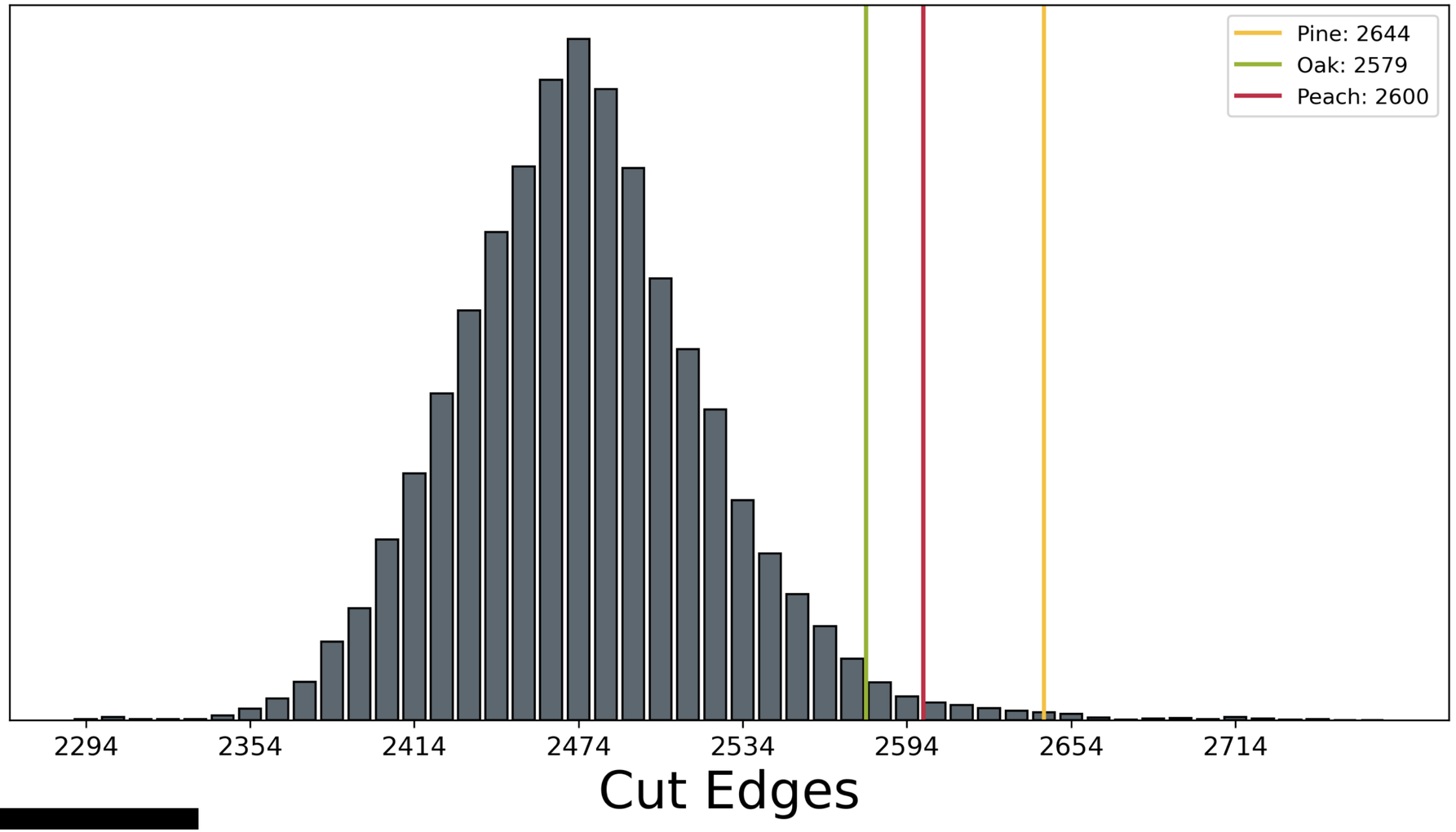
Commission plans



“Computer ensemble” 100,000 computer plans

no viable citizen plans

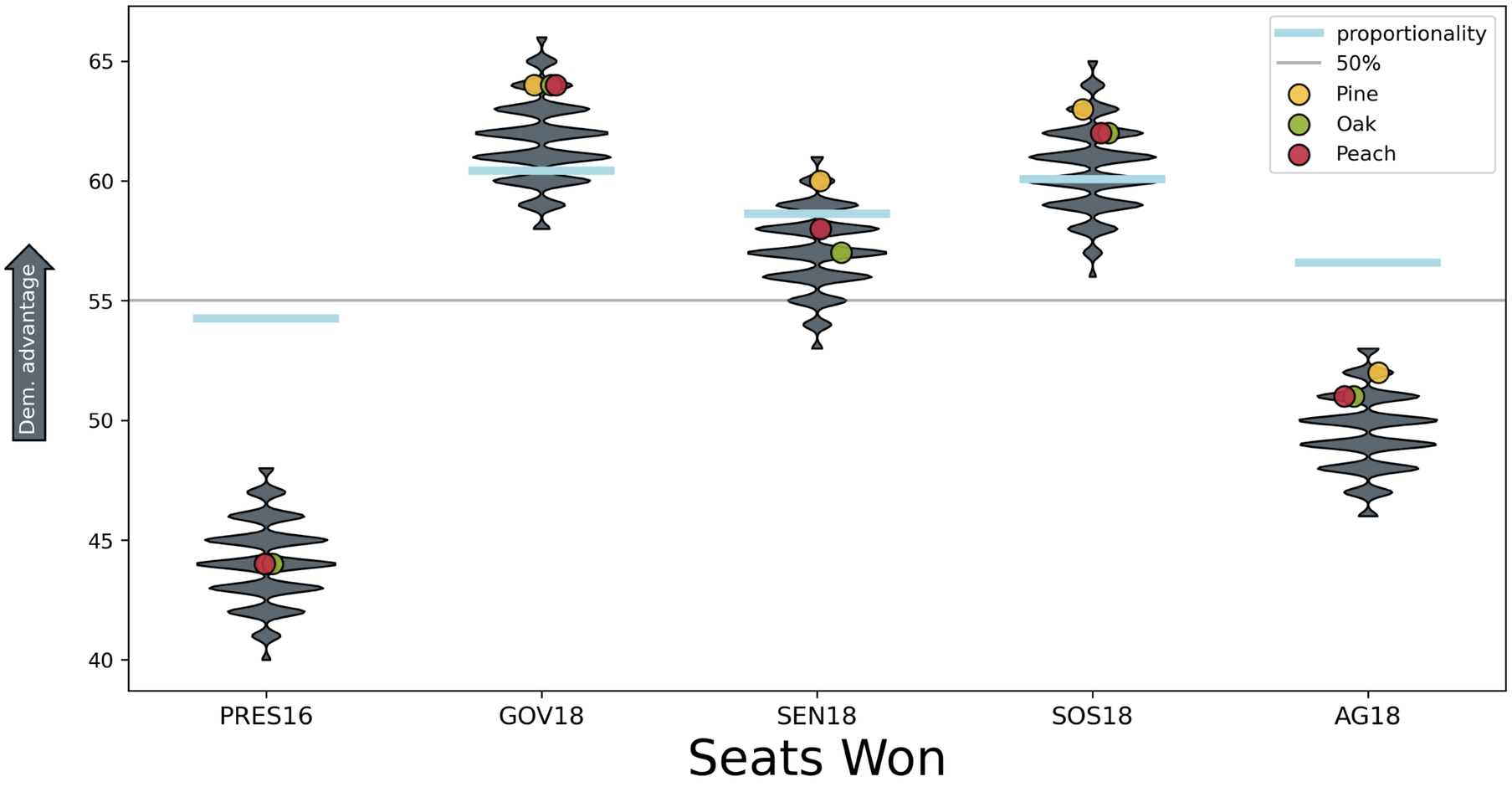
Compactness



more compact

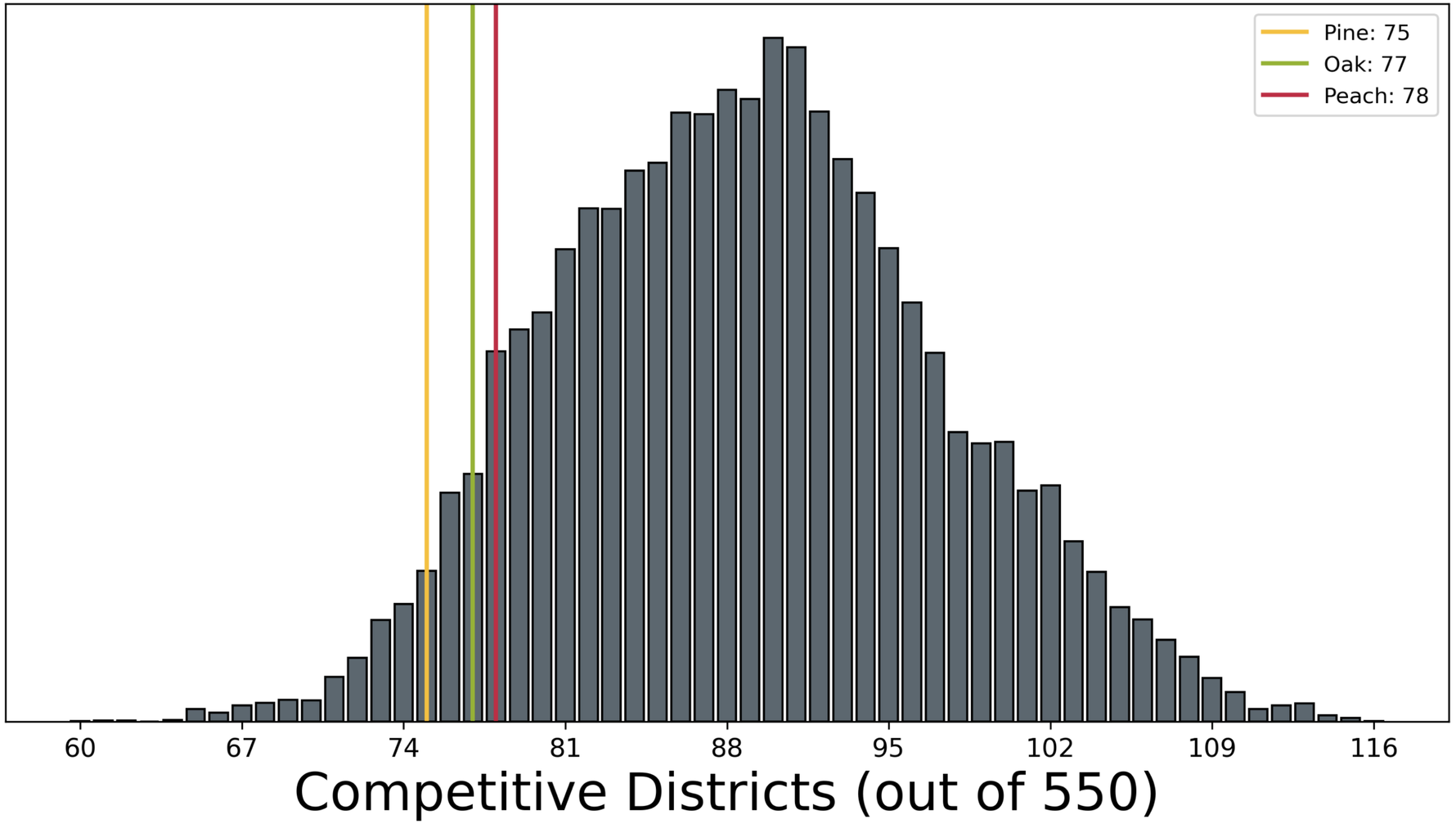
Partisan balance – House

D seats / proportionality

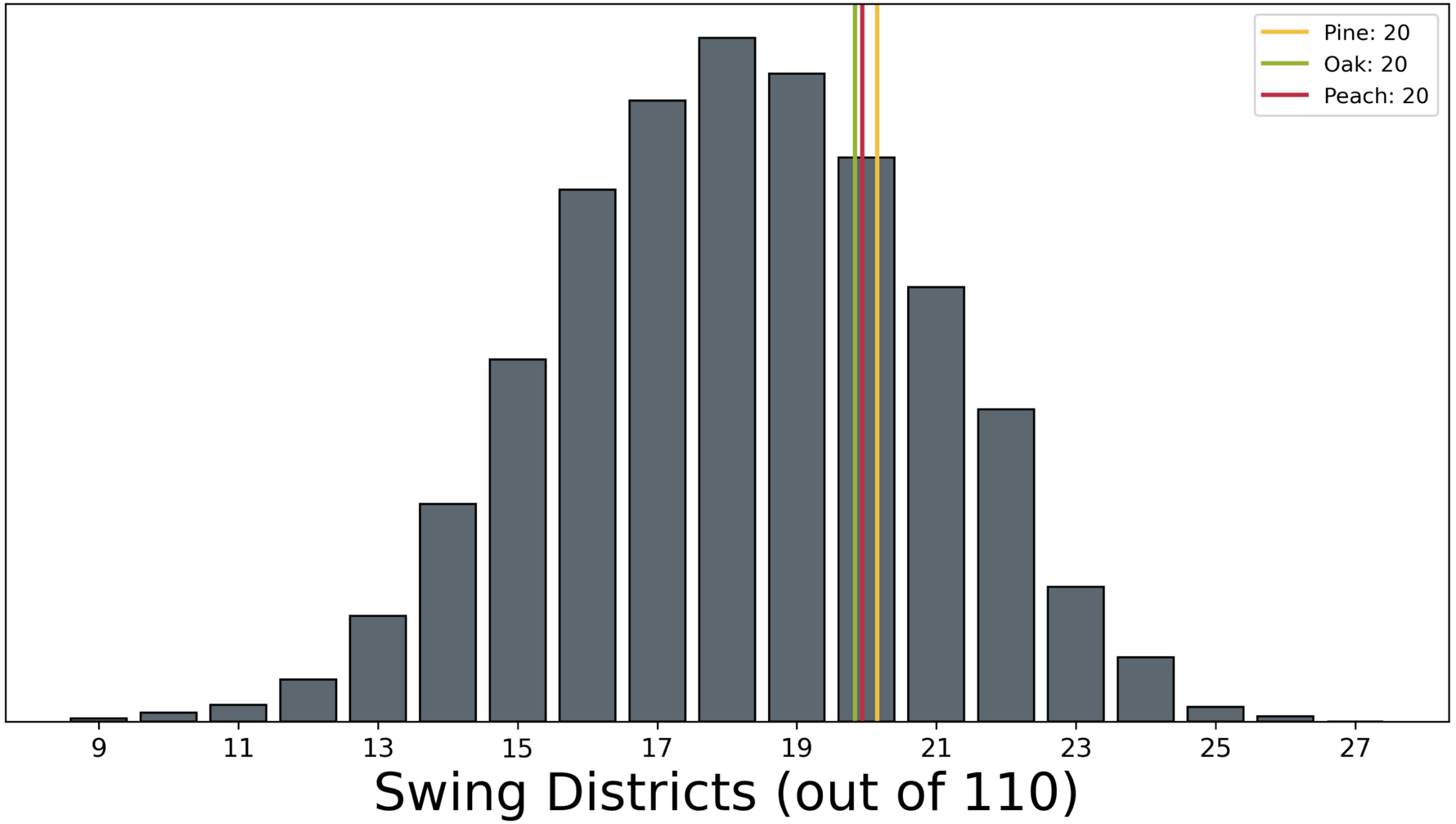


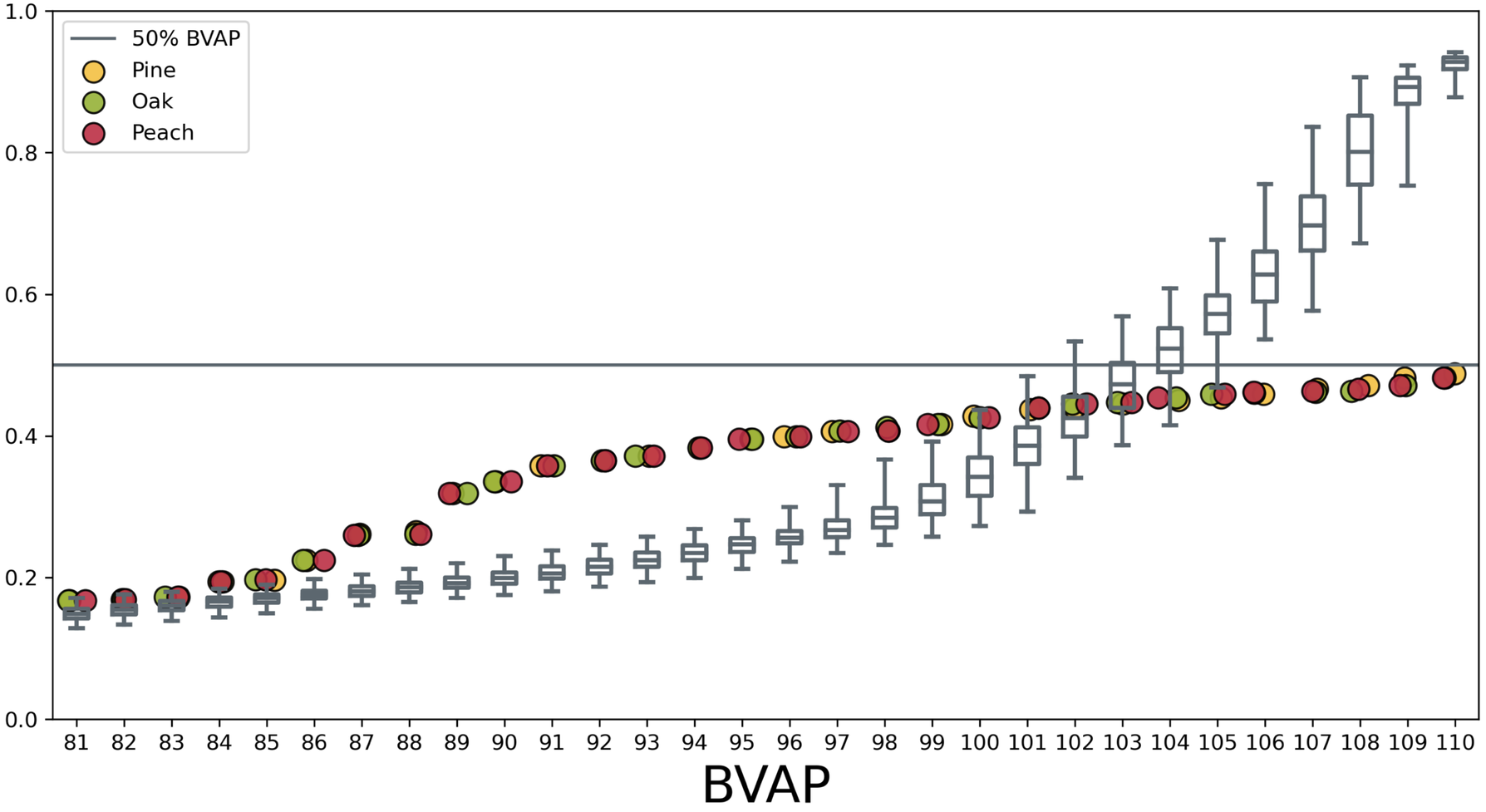
Responsiveness/ competitiveness– House

competitive districts (margin <6%)



swing districts



Racial stats – House

Black Voting Age Population