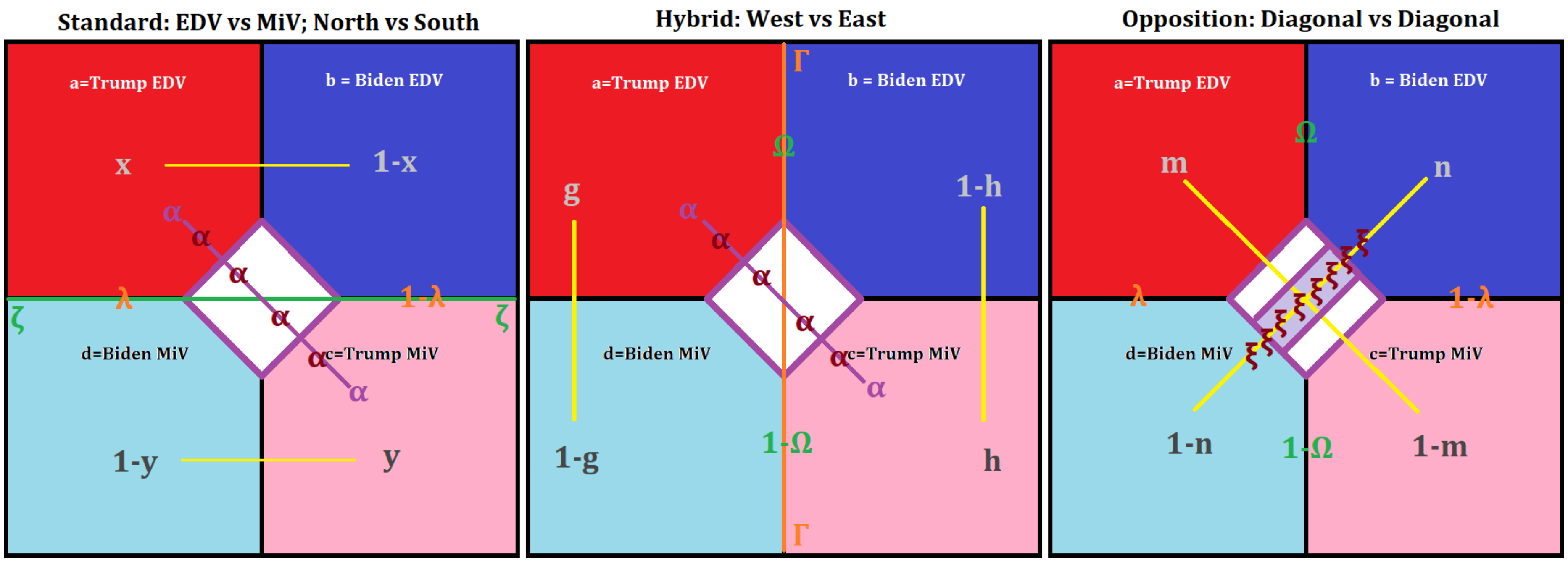
The Twenty Laws and Forty Isometries

Imagine there is a Caucus Event at a local highschool precinct. Trump In Person voters stand in the northwest corner; Biden in-person voters stand in the northeast corner; Trump Absentee ballots are placed in the southeast corner and Biden absentee Ballots are placed in the southwest corner.

We can now analyze this election in three distinct ways, North vs South, which is the election day vs the mail-in vote; diagonal vs diagonal, which is the Republican vs the Democrat vote; or West vs East, which is the comparison of the criss-crossed ballot modes (also known as the Bastard Mode or the Hybrid Percentages).



The integer totals for Trump's and Biden's election day and mail-in totals are geometrically compelled to follow a set of Twenty Laws and Forty Isometries that govern the proportion of elements between four Disjoint Sets.

Let **A**, **B**, **C**, **D** be pairwise disjoint sets, containing a, b, c, d elements respectively.

Let $x = \frac{a}{a+b}$; $y = \frac{c}{c+d}$; $\alpha = \frac{a+c}{(a+c)+(b+d)}$; $\lambda = \frac{a+d}{(a+d)+(c+b)}$; $\Omega = \frac{a+b}{(a+b)+(c+d)}$; $\xi = \frac{b+d}{a+c}$; $\Gamma = \frac{c+b}{a+d}$; $\zeta = \frac{c+d}{a+b}$

Let $g = \frac{a}{a+d}$; $h = \frac{c}{c+b}$; $\alpha = \frac{a+c}{(a+c)+(b+d)}$; $\Omega = \frac{a+b}{(a+b)+(c+d)}$; $\lambda = \frac{a+d}{(a+d)+(c+b)}$; $\xi = \frac{b+d}{a+c}$; $\zeta = \frac{c+d}{a+b}$; $\Gamma = \frac{c+b}{a+d}$

Let $m = \frac{a}{a+c}$; $n = \frac{b}{b+d}$; $\Omega = \frac{a+b}{(a+b)+(c+d)}$; $\lambda = \frac{a+d}{(a+d)+(c+b)}$; $\alpha = \frac{a+c}{(a+c)+(b+d)}$; $\zeta = \frac{c+d}{a+b}$; $\Gamma = \frac{c+b}{a+d}$; $\xi = \frac{b+d}{a+c}$

Let $w = (1-y) = \frac{d}{c+d}$; $p = (1-h) = \frac{b}{c+b}$; $q = (1-n) = \frac{d}{b+d}$

Observe the trivial identities: $\alpha = \frac{1}{\xi+1}$; $\lambda = \frac{1}{\Gamma+1}$; $\Omega = \frac{1}{\zeta+1}$; $\xi = \frac{1-\alpha}{\alpha}$; $\Gamma = \frac{1-\lambda}{\lambda}$; $\zeta = \frac{1-\Omega}{\Omega}$

Each of these laws require that each proportion onthe left-hand side, can only be resolved with knowledge of the three of the remaining four proportions on the left-hand sides (that is, respective to the orientation, North vs South, East vs West, or Diagonal vs Diagonal).

Under no circumstance can one solve any proportion on the left-hand side with only two (or one) of the remaining proportions, since this would violate the laws of geometry. For instance, if one claims that they can solve for α in the first law, knowing only x and y, then they are claiming that they can resolve the proportion of the areas between two combined rectangles **A+C** and **B+D**, knowing only the proportion of the areas between rectangles **A** and **B** and the proportion of theproportion of the areas between the rectangles **C** and **D**, a geometric impossibility.

Law/Iso #	Law (North vs South)	West vs East Isometry	Diagonal vs Diagonal Isometry
1, 21, 41	$x = \alpha + \zeta(\alpha - y)$	$g = \alpha + \Gamma(\alpha - h)$	$m = \Omega + \xi(\Omega - n)$
2, 22, 42	$x = \lambda + \zeta(\lambda - w)$	$g = \Omega + \Gamma(\Omega - p)$	$m = \lambda + \xi(\lambda - q)$
3, 23, 43	$x = \frac{y(\lambda+\alpha)-\alpha}{\lambda+2y-\alpha-1}$	$a = \frac{h(\Omega+\alpha)-\alpha}{\Omega+2h-\alpha-1}$	$m = \frac{n(\lambda+\Omega)-\Omega}{\lambda+2n-\Omega-1}$
4, 24, 44	$x = \frac{(\zeta+1)(\alpha+\lambda)-\zeta}{2}$	$a = \frac{(\Gamma+1)(\alpha+\Omega)-\Gamma}{2}$	$m = \frac{(\xi+1)(\Omega+\lambda)-\xi}{2}$
5, 25, 45	$y = \alpha + \left(\frac{1}{\zeta}\right)(\alpha - x)$	$h = \alpha + \left(\frac{1}{\Gamma}\right)(\alpha - g)$	$n = \Omega + \left(\frac{1}{\xi}\right)(\Omega - m)$
6, 26, 46	$w = \lambda + \left(\frac{1}{\zeta}\right)(\lambda - x)$	$p = \Omega + \left(\frac{1}{\Gamma}\right)(\Omega - g)$	$q = \lambda + \left(\frac{1}{\xi}\right)(\lambda - m)$
7, 27, 47	$v = \frac{x(\lambda-\alpha-1)+\alpha}{\lambda+\alpha-2x}$	$h = \frac{g(\Omega-\alpha-1)+\alpha}{\Omega+\alpha-2g}$	$n = \frac{m(\lambda-\Omega-1)+\Omega}{\lambda+\Omega-2m}$
8, 28, 48	$w = \frac{(\zeta+1)(\lambda-\alpha)+\zeta}{2\zeta}$	$p = \frac{(\Gamma+1)(\lambda-\alpha)+\Gamma}{2\Gamma}$	$a = \frac{(\xi+1)(\lambda-\Omega)+\xi}{2\xi}$
9, 29, 49	$\alpha = \frac{x+\zeta y}{\zeta+1}$	$\alpha = \frac{g+\Gamma h}{\Gamma+1}$	$\Omega = \frac{m+\xi n}{\xi+1}$
10, 30, 50	$\alpha = \frac{2x+\zeta}{\zeta+1} - \lambda$	$\alpha = \frac{2g+\Gamma}{\Gamma+1} - \Omega$	$\Omega = \frac{2m+\xi}{\xi+1} - \lambda$
11, 31, 51	$\alpha = \frac{\zeta(1-2w)}{\zeta+1} + \lambda$	$\alpha = \frac{\Gamma(1-2p)}{\Gamma+1} + \Omega$	$\Omega = \frac{\xi(1-2q)}{\xi+1} + \lambda$
12, 32, 52	$\alpha = \frac{\lambda(y-x)-x(2y-1)}{1-(y+x)}$	$\alpha = \frac{\Omega(h-g)-g(2h-1)}{1-(h+g)}$	$\Omega = \frac{\lambda(n-m)-m(2n-1)}{1-(n+m)}$
13, 33, 53	$\lambda = \frac{x+\zeta w}{\zeta+1}$	$\Omega = \frac{g+\zeta p}{\Gamma+1}$	$\lambda = \frac{m+\xi q}{\xi+1}$
14, 34, 54	$\lambda = \frac{2x+\zeta}{\zeta+1} - \alpha$	$\Omega = \frac{2g+\Gamma}{\Gamma+1} - \alpha$	$\lambda = \frac{2m+\xi}{\xi+1} - \Omega$
15, 35, 55	$\lambda = \frac{\alpha(1-(x+y))+x(2y-1)}{y-x}$	$\Omega = \frac{\alpha(1-(g+h))+g(2h-1)}{h-g}$	$\lambda = \frac{\Omega(1-(m+n))+m(2n-1)}{n-n}$
16, 36, 56	$\lambda = \frac{\zeta(2w+\alpha-1)+\alpha}{\zeta+1}$	$\Omega = \frac{\Gamma(2p+\alpha-1)+\alpha}{\Gamma+1}$	$\lambda = \frac{\xi(2q+\Omega-1)+\Omega}{\xi+1}$
17, 37, 57	$\zeta = \frac{x-\alpha}{\alpha-y}$	$\Gamma = \frac{g-\alpha}{\alpha-h}$	$\xi = \frac{m-\Omega}{\Omega-n}$
18, 38, 58	$\zeta = \frac{2x-(\alpha+\lambda)}{\alpha+\lambda+1}$	$\Gamma = \frac{2g-(\alpha+\Omega)}{\alpha+\Omega+1}$	$\xi = \frac{2m-(\Omega+\lambda)}{\Omega+\lambda+1}$
19, 39, 59	$\zeta = \frac{x-\alpha}{\alpha-w}$	$\Gamma = \frac{g-\alpha}{\alpha-p}$	$\xi = \frac{m-\Omega}{\Omega-q}$
20, 40, 60	$\zeta = \frac{\lambda-\alpha}{2w+\alpha-\lambda-1}$	$\Gamma = \frac{\Omega-\alpha}{2p+\alpha-\Omega-1}$	$\xi = \frac{\lambda-\Omega}{2q+\Omega-\lambda-1}$

On the Subject of Using Precinct Data to Analyze Precinct Data

If the Defense attempts to argue that since we already know the data and the percentages, then we are using data to predict answers to which we already know from the data, then we present the following challenge.

Suppose that someone did indeed invoke a manifold formula of two percentages to produce a third percentage, violating one of the Twenty Laws or Forty Isometries; **then how**, does the Defense suppose that we would prove that such a formula was used without being able to analyze the data certified by the Registrar of Voters and/or the Secretary of State and/or the County Recorder?

On the left you see the original data; on the right you see the data altered by the formula $\alpha = 0.001018 + 0.6301g + 0.368475h$ with $\hat{R}^2 = 0.999$

Alice EDV	Beth EDV	Alice MiV	Beth MiV	s/ (s+v)	u/ (u+t)	(s+u)/ (s+u+t+v)	(s+v)/ (s+u+t+v)	Alice EDV	Beth EDV	Alice MiV	Beth MiV	s/ (s+v)	u/ (u+t)	(s+u)/ (s+u+t+v)	(s+v)/ (s+u+t+v)
S	T	U	V	g	h	alpha	lambda	S	T	U	V	g	h	alpha	lambda
407	107	277	87	82.39%	72.14%	77.90%	56.26%	354	90	232	202	63.67%	72.05%	66.74%	63.33%
270	146	346	133	67.00%	70.33%	68.83%	45.03%	242	99	236	318	43.21%	70.45%	53.41%	62.57%
65	56	25	26	71.43%	30.86%	52.33%	52.91%	47	43	19	63	42.73%	30.65%	38.37%	63.95%
310	221	169	127	70.94%	43.33%	57.92%	52.84%	237	173	132	285	45.40%	43.28%	44.62%	63.12%
357	134	113	43	89.25%	45.75%	72.64%	61.82%	283	130	109	125	69.36%	45.61%	60.59%	63.06%
343	517	106	207	62.36%	17.01%	38.28%	46.89%	229	353	72	519	30.61%	16.94%	25.66%	63.77%
196	136	104	62	75.97%	43.33%	60.24%	51.81%	168	105	80	145	53.67%	43.24%	49.80%	62.85%
127	143	99	85	59.91%	40.91%	49.78%	46.70%	101	98	68	187	35.07%	40.96%	37.22%	63.44%
59	46	29	25	70.24%	38.67%	55.35%	52.83%	45	36	23	55	45.00%	38.98%	42.77%	62.89%
171	130	84	75	69.51%	39.25%	55.43%	53.48%	136	100	64	160	45.95%	39.02%	43.48%	64.35%
447	325	251	207	68.35%	43.58%	56.75%	53.17%	348	256	198	428	44.85%	43.61%	44.39%	63.09%
294	263	156	158	65.04%	37.23%	51.66%	51.89%	213	196	116	346	38.10%	37.18%	37.77%	64.18%
271	134	190	61	81.63%	58.64%	70.27%	50.61%	268	97	138	153	63.66%	58.72%	61.89%	64.18%
591	190	331	105	84.91%	63.53%	75.76%	57.19%	513	160	280	264	66.02%	63.64%	65.16%	63.85%
317	226	225	138	69.67%	49.89%	59.82%	50.22%	272	167	167	300	47.55%	50.00%	48.45%	63.13%
331	427	144	194	63.05%	25.22%	43.34%	47.90%	236	296	100	464	33.71%	25.25%	30.66%	63.87%
278	220	118	89	75.75%	34.91%	56.17%	52.06%	203	168	90	244	45.41%	34.88%	41.56%	63.40%
95	87	31	24	79.83%	26.27%	53.16%	50.21%	77	63	23	74	50.99%	26.74%	42.19%	63.71%
488	421	196	178	73.27%	31.77%	53.31%	51.91%	368	319	149	447	45.15%	31.84%	40.30%	63.52%
397	259	216	145	73.25%	45.47%	60.28%	53.29%	306	204	170	337	47.59%	45.45%	46.80%	63.23%

Note that in this example, the h percentage remains the exact same both before and after the data altered, but the new percentages overall conspire to make λ constant, which dynamically scales the original sum of $(u + v)$ to meet the new requirements of thealtered data, that $(u + v)$ must be scaled to $(1 - \lambda)$ multiplied by the total number of ballots cast, which remains the same in both the original and altered data.

We ask the Defense to derive the formula $\alpha = 0.001018 + 0.6301g + 0.368475h$ without using the precinct data.

Then Dense is **not allowed** to use Γ, λ or Ω, they are only allowed to use g and h to solve for α ; $\Omega = \frac{s+t}{s+t+u+v}$; $\Gamma = \frac{u+t}{s+v} = \frac{1-\lambda}{\lambda}$

If the Defense invokes this argument and is allowed to stand, then anyone can rig an election with a manifold formula, because we are not allowed to use the data certified by the Secretary of State and.or the Registrar of Voters and/or the County Recorder to analyze that data and find the manifold used.

This is like saying that we are allowed to audit the elections, but we're not allowed to have the ballots. So then, how exactly can you audit the ballots without the ballots? How could one perform a canvass of registered voters without the Registration List?

The only entity that could know the equation $\alpha = 0.001018 + 0.6301g + 0.368475h$ across the precincts, without the precinct data, is the entity that wrote the formula **prior** to the election.

Prosecutorial Challenge 1

If the Defense does not agree with the above dissertation, then they are to state in a **Court of Record** which data an analyst may use to determine whether not a manifold formula was or wasn't used to alter an election.

On the Subject of the Demanding an R^2 =1

If the Defense attempts to argue that only an $R^2 =$ suffices to prove that a manifold was used to alter an election, then the Prosecution asserts:

For Manifold Formulas that invoke Cardano's of Ferrari's Closed Form Solution to the Quartic:

Since an R^2 cannot be greater than 1, and since the alleged manifold formula must apply its manifold percentage (which is an irrational number derived from the roots of a cubic or quartic equation) against a finite **integer** number of ballots, and thereforethe entity employing the manifold formula is forced to round up or down to the nearest **integer** when applying such formula, which would take a manifold formula with an $R^2 = 1$ to slightly below $R^2 =$, such as $R^2 = 0.997$, due **integer** resolution (as the County cannot report non-integer vote totals), then what R value would the Defense consider to be impressive, if not an R^2 value ranging from 0.9900 to 0.9999?

One can never get an R^2 value of 1 when the manifoldpercentages have to be applied against the total **integer** number of casted ballots.

Prosecutorial Challenge 2a:

If the Defense disagrees then they must shows how one can divine an $R^2 =$ from a manifold formula that wields the irrational number outputs from Cardano's Closed Form Solution of the Cubic Equation when that irrational number percentage is applied against a set of **finite integer** ballot totals.

For Manifold Formulas that have Rational Number Outputs

Since an R^2 cannot be greater than 1, and since the alleged manifold formula must apply its manifold percentage that can be written as an irreducible fraction $\frac{\mathbf{A}}{\mathbf{B}}$ against a finite **integer** number of ballots, **T**, and it is very unlikely that **B** can divide **T (**since the Euler's Sum of Inverse Squaresinforms us that there is already a $\frac{6}{\pi^2} = 60.7927\%$ chance that any two numbers chosen at random share no common factors, never mind one of them being able to fully divide the other) in each precinct; thus the entity employing the manifold formula is forced to round up or down to the nearest **integer** when applying such formula, which would take a manifold formula with an $R^2 = 1$ to slightly below $R^2 = 1$, such as $R^2 = 0.997$, due **integer** resolution (as the County cannot report non-integer vote totals), then what R^2 value would the Defense consider to be impressive, if not an R^2 value ranging from 0.9900 to 0.9999?

One can never get an R^2 value of 1 when the manifoldpercentages have to be applied against the total **integer** number of casted ballots across hundreds of precincts.

Prosecutorial Challenge 2b:

If the Defense disagrees then they must shows how one can divine an $R^2 =$ from a manifold formula that wields rational number outputs in the form of $\frac{\mathbf{A}}{\mathbf{B}}$ applied against a set of **finite integer** ballot totals, **T**, in each precinct.

The Defense must record **T** in each precinct and the reduced integer fraction $\frac{\mathbf{A}}{\mathbf{B}}$ in each precinct, in each simulation, and each simulation must conform the rapidly convergent expectation concerning the GCD distribution of **B** and **T**, that is:

Let g be the gcd of **B** and **T**, then Euler's Sum of Inverse Squares demands that the percentage of data points (precinct) whose**B** and **T** value have a gcd of g shall rapidly converge on $\left(\frac{6}{\pi^2}\right)\left(\frac{1}{g^2}\right)$.

$$1 \quad \sum_{g=1}^{g=\infty}\left(\frac{6}{\pi^2}\right)\left(\frac{1}{g^2}\right) = \left(\frac{6}{\pi^2}\right)\left(\sum_{g=1}^{g=\infty}\left(\frac{1}{g^2}\right)\right) = \left(\frac{6}{\pi^2}\right)\left(\frac{\pi^2}{6}\right)$$

Q.E.D

On the Subject of the Significance of R^2 and Quantile Simulations

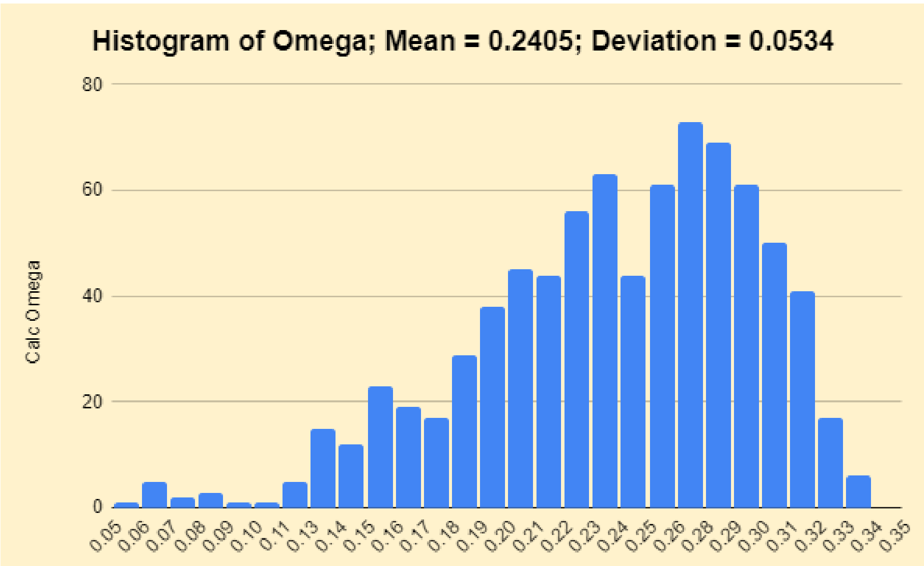
As for the significance of R^2 values, we can indeed simulation elections with similar and/or identical conditions to the election in question, and see if least squares regression of a minimum of 1000 simulations can return the same R^2 values (that is if, whether or not the R^2 value of the actual election iswithin Five Sigma of the similar and identity simulations).

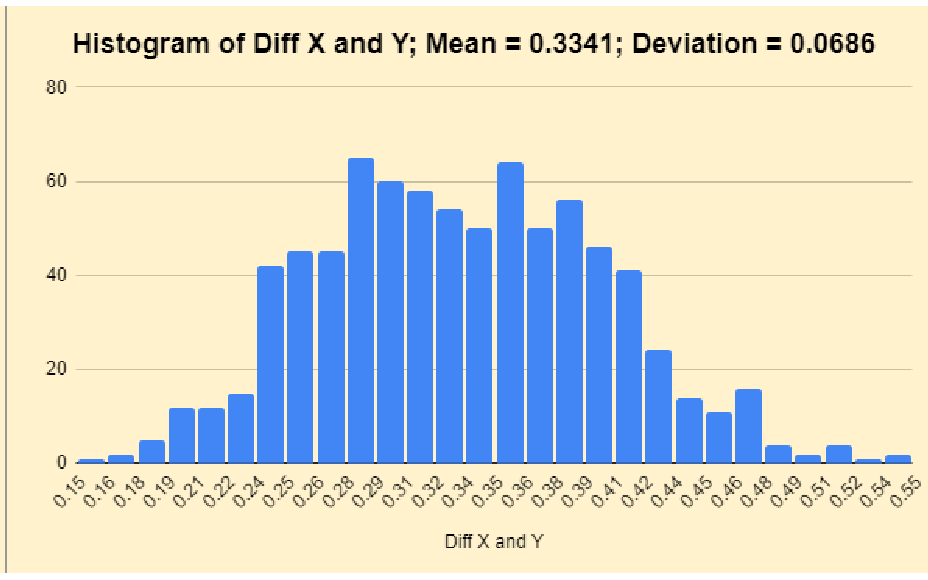
Here is a 10 precinct sample size from 801 precincts that were rigged with following equation: $y = -0.18133 + 1.81652\alpha - 0.63472x$ $x = \frac{s}{s+t}$; $y = \frac{u}{u+t}$; $\alpha = \frac{s+u}{s+u+t+v}$. These 10 precincts also tell us the other 791 precincts, because they all lie upon the same flat plane in 3D space!

Please visit the following spreadsheet XYAlpha Rig
https://docs.google.com/spreadsheets/d/1vEhXun0ypjXSPIJaRUw70FpRKkjBEtoWI_Q_aJ8IySc/edit?usp=sharing

S=Alice EDV	T= Beth EDV	U= Alice MiV	V =Beth MiV	Quantile	Calculate X	Calc Y	Calc Omega	Calc Alpha	Diff X and Y
12	201	486	876	0.00125	0.05633802817	0.3568281938	0.1352380952	0.3161904762	0.3004901657
2	25	48	57	0.0025	0.07407407407	0.4571428571	0.2045454545	0.3787878788	0.3830687831
29	233	586	835	0.00375	0.1106870229	0.4123856439	0.155674391	0.3654188948	0.301698621
23	181	365	380	0.005	0.112745098	0.4899328859	0.2149631191	0.4088514226	0.3771877879
8	53	124	143	0.00625	0.131147541	0.4644194757	0.1859756098	0.4024390244	0.3332719347
36	209	451	426	0.0075	0.1469387755	0.5142531357	0.2183600713	0.4340463458	0.3673143602
10	61	131	127	0.00875	0.1408450704	0.507751938	0.2158054711	0.4285714286	0.3669068676
15	86	213	241	0.01	0.1485148515	0.4691629956	0.181981982	0.4108108108	0.3206481441
14	75	179	192	0.01125	0.1573033708	0.4824797844	0.1934782609	0.4195652174	0.3251764136

We are given the histogram of the precinct Ω values; $\Omega = \frac{s+t}{s+t+u+v}$, which is the percentage of ballots cast that are election day ballots.
We are also given the histogram of the average difference between Alice's Election Day and Mail-in Percentages.
Since in a fair election, $y = \frac{\alpha - \Omega x}{1-\Omega}$, it seems very strange that we can solve for y without Ω, especially given the variance of Ω.





Thus, we first simulate 1000 elections using the exact same value of x; however, we set $y = x + NORMINV(RAND(), \overline{(y-x)}, \sigma_{(y-x)})$, that is we generate y with the same average distance from x with a noise function of the standard deviation of that difference over the 800 precincts. We also generate Ω independently with the same mean and standard deviation reported in the data.

We shall deal with the fact that the difference between y and x, and the values of Ω are not normally distributed in the follow up simulation using Quantile Generation. Our first mission is just to get a "*ballpark figure*" for the expected multilinear regression of y in terms of x and α, after which we shall perform a rigorous simulation that capture the trends of y and Ω over the precincts sorted by x (the Quantile Simulation).

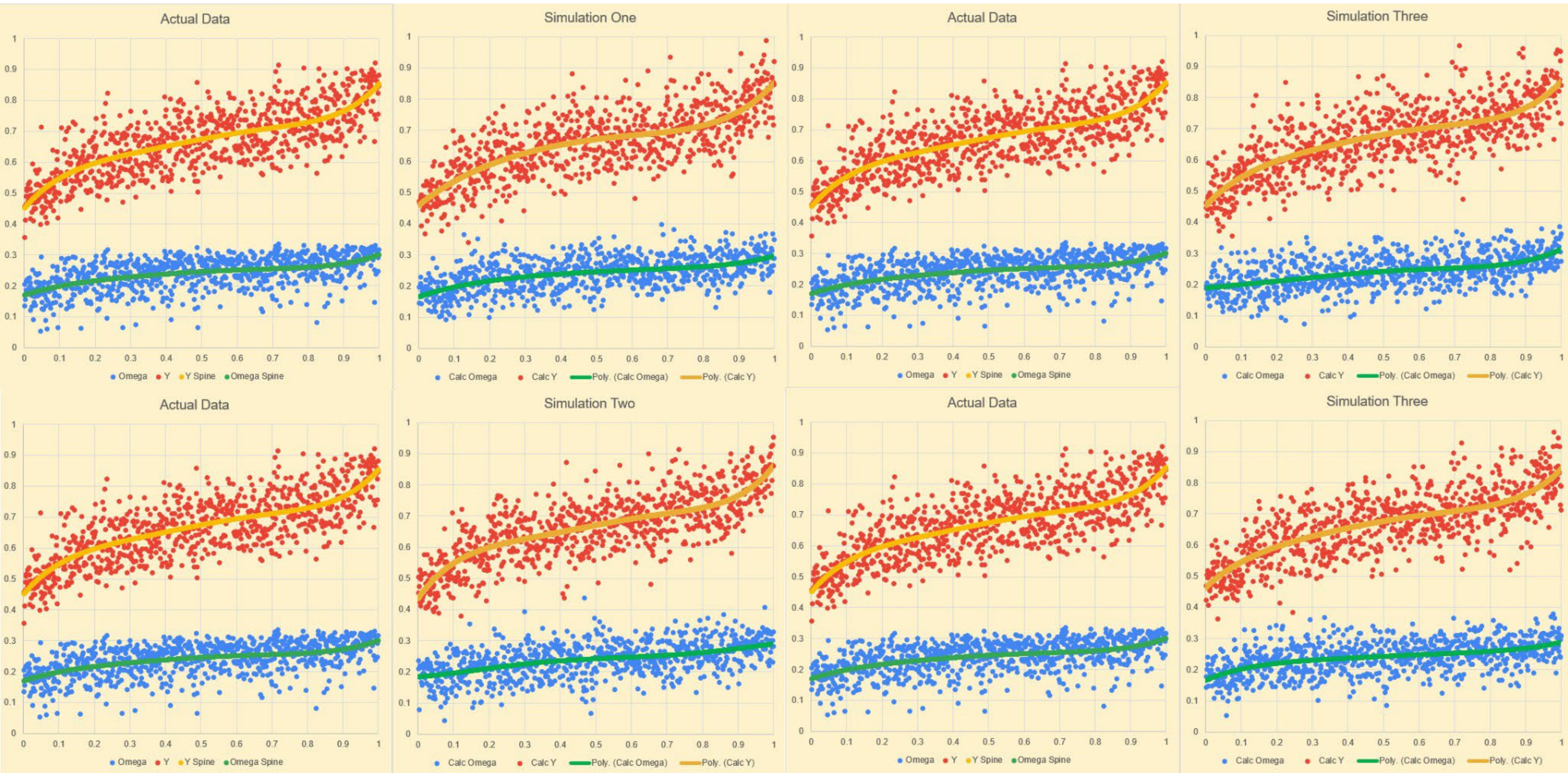
Provided are links to scholarly articles and publicans on Quantile Simulations:
https://projecteuclid.org/journals/statistical-science/volume-19/issue-4/Quantile-Probability-and-Statistical-Data-Modeling/10.1214/088342304000000387.full
https://web.njit.edu/~marvin/papers/qtut-r2.pdf
https://stats.stackexchange.com/questions/499149/monte-carlo-simulation-for-quantile-regression
https://www.jstor.org/stable/1391188
https://www.sciencedirect.com/science/article/pii/S2452306222000065
https://www.wiley.com/en-us/Quantile+Regression:+Estimation+and+Simulation,+Volume+2-p-9781118863596
https://www.degruyter.com/document/doi/10.21078/JSSI-2016-334-09/html?lang=en
https://iopscience.iop.org/article/10.1088/1742-6596/2123/1/012027

See the sheet titled *Ballpark Simulate* in the provided spreadsheet link. The spreadsheet contains a single trial, whose R^2 varies from 0.94 to 0.95 upon each volatile random number generation. This is sufficient cause for us to now run 1000 additional simulations.

After all 1000 simulations run the mean R^2 was 0.952100323, with a standard deviation of 0.003167647, which places the actual Alice vs. Beth election in question. The Alice vs. Beth election has an R^2 above 0.999—which is in excess of 15 standard deviations above the mean.

This then justifies the need to do a precise simulation of the election. We sort the precincts from least to greatest by x, and capture the polynomial spines of y and α in respect to the quantile (precinct number), and calculate the moving mean and standard deviation of the residual noise off of these spines in the immediate sixteen quantiles to both the left and right of each quantile (a total of 33 precincts).

Below are four graphs of the Actual Data beside the first four of 1000 Quantile Simulations. The Red dots are the y values and the Blue dots are the Ω values, the precincts were sorted from least to greatest by x and the original value of x is retained in the simulations.



The multiple linear regression of y in terms of x and α was again rerun for all 1000 trials. The mean R^2 was 0.964708 and the standard deviation was 0.002627596, which puts the actual Alice vs Beth election's R^2 of 0.999 in excess of thirteen standard deviationsabove the mean expectation. It was this exact method of Quantile Simulation that was used to confirm that trivariate cubic manifold of w in terms of Ω, λ, Ψ in the Governor's and Senate's race were also 13 standard deviations above the mean expectation in a fair election under identical conditions.

Prosecutorial Challenge 3:

If the Defense disagrees that an R^2 value in excess of five standard deviations above the mean expectation qualifies as proof that a manifold was used to alter an election, then they must state this in a **Court of Record**.

Prosecutorial Challenge 4:

If the Defense disagrees with the invocation of Quantile Simulations to assess the mean expectation and standard deviation of the R^2 value of the bivariate cubic regression of any one of the percentages listed in the Twenty Laws and Forty Isometries on the left-hand side, in respect to any two percentages listed on the right-hand side of that same Law or Isometry, then the Defense is to state the manner in which they would determine whether or not the R^2 of a manifoldformula was significant to assert that a manifold was used to alter an election in a **Court of Record**.

It is of the opinion of the Prosecution that one may only initiate a Quantile Simulation by sorting the Precincts by Reynolds Election Day Percentage, and then simulating Reynolds Early Percentage and the Percentage of Ballots Cast that are Election Day Ballots; or by sorting the Precincts by Reynold's Early Percentage, and then simulating Reynolds Election Day Percentage and the Percentage of Ballots Cast that are Election Day ballots (Hill's percentages and the percentages of ballots cast that are Early Ballots are conserved totals).

This is because people cast their ballots on election day, or cast their ballots early, hence we simulate elections via the North vs South Arrangement, which is Election Day vs Early, that is we simulate x, y and Ω; we can also simulate m, n, α, which is the Opposition Arrangement, Reynolds vs Hill (Diagonal vs Diagonal), since this would be simulating the preferences of Reynold and Hill voters that cast their ballots on Election Day instead of voting Early; although bizarre, there is also merit in simulating g, h, λ in the West vs East Arrangement since g, h, λ have well understood trajectories in both fair and unfair elections.

We do not simulate or sort the precincts by α or λ in the North vs South Arrangement, nor sort the precincts nor simulate Ω or λ in the Diagonal vs Diagonal Arrangement, nor sort the precincts nor simulate α, Ω in the West vs East Arrangement, since no one to our knowledge has ever voted by aggregate. Ω is the proportion of North vs South, α is the proportion of Diagonal vs Diagonal and λ is the proportion of West vs East, which is why we simulate them in their respective arrangements.

Once $x,\ y$ and Ω are simulated, the value of α and λ are compelled by the Twenty Laws; likewise once $m,\ n,\ \alpha$ are simulated, Ω and λ are also compelled; and for the former case, once $x,\ y,\ \Omega,\ \alpha,\ \lambda$ are known, the $24^{th},\ 44^{th}$ and $28^{th},\ 48^{th}$ Isometries are used to compel $g,\ h,\ m,\ n$, and in the latter case the $4^{th},\ 24^{th}$ and $8^{th},\ 28^{th}$ Isometries are used to compel x, y, g, h.

Prosecutorial Challenge 5:

If the Defense insists that they can run simulations that:

1. Generate α or λ to backsolve for $x,\ y$ or Ω with the Twenty Laws.
2. Generate Ω or λ to backsolve for m, n or α with the second score of the Forty Isometries.
3. Generate α or Ω to backsolve for g, h, or λ with the first score of the Forty Isometries

Then the Defense must state in a **Court of Record** the last known instance in which the Aggregate Percentage of a Candidate was known before all ballots were cast, α for North vs South or West vs East; the last known instance in which the Percentage of Ballots Cast was known before all ballots were cast, Ω, for Diagonal vs Diagonal or West vs East; the last known instance in which the Percentage of Ballots cast for two candidates in opposite modes was known before all ballots were cast, λ, for North vs South or Diagonal vs Diagonal simulations.

Dissertation on the Subject of Invariant **Ω** or **λ** or **α**

Let **P** be a set of disjoint entities, such as precincts, and let β be the number of such entities, and let $p_i \in$ **P**, such that p_i is the i^{th} element of **P** when the entities in **P** are sorted by some common parameters, such as their names (precinct names).

Let **S**, **T**, **U, V** be a set of disjoint entities that are common to **P**, such as Election Day and Mail-in Votes for two different candidates.

Let s_i be the precinct's, p_i, value of s, such as its Election Day Vote for candidate Alice.
Let t_i be the precinct's, p_i, value of t, such as its Election Day Vote for candidate Beth.
Let u_i be the precinct's, p_i, value of u, such as its Mail-in Vote for candidate Alice.
Let v_i be the precinct's, v_i, value of v, such as its Mail-in Vote for candidate Beth.

Let $x_i = \frac{s_i}{s_i + t_i}$ be the percentage that represents a rectangle with area s_i inside a square of side length $\sqrt{s_i + t_i}$, in this example, x_i represents Alice's Election Day Percentage, which is the same percentage that the percentage of area s_i occupies within a square of side length $\sqrt{s_i + t_i}$.

Let $y_i = \frac{u_i}{u_i + v_i}$ be the percentage that represents a rectangle with area u_i inside a square of side length $\sqrt{u_i + v_i}$, in this example, y_i represents Alice's Election Day Percentage, which is the same percentage that the percentage of area u_i occupies within a square of side length $\sqrt{u_i + v_i}$.

Let $\Omega_i = \frac{s_i + t_i}{\left(s_i + t_i\right) + \left(u_i + v_i\right)}$ be the percentage that represents a rectangle with area $s_i + t_i$ inside a square of side length $\sqrt{s_i + t_i + u_i + v_i}$, in this example, Ω_i represents percentage ballots cast that are Election Day Ballots, which is the same percentage that the percentage of area $s_i + t_i$ occupies within a square of side length $\sqrt{s_i + t_i + u_i + v_i}$.

Let $\alpha_i = \frac{s_i + u_i}{\left(s_i + u_i\right) + \left(t_i + v_i\right)}$ be the percentage that represents a rectangle with area $s_i + u_i$ inside a square of side length $\sqrt{s_i + u_i + t_i + v_i}$, in this example, α_i represents percentage of all ballots cast that belong to Alice, which is the same percentage that the percentage of area $s_i + u_i$ occupies within a square of side length $\sqrt{s_i + u_i + t_i + v_i}$.

Let $\lambda_i = \frac{s_i + v_i}{\left(s_i + v_i\right) + \left(u_i + t_i\right)}$ be the percentage that represents a rectangle with area $s_i + v_i$ inside a square of side length $\sqrt{s_i + v_i + u_i + t_i}$, in this example, λ_i represents percentage of all ballots cast that belong to Alice, which is the same percentage that the percentage of area $s_i + v_i$ occupies within a square of side length $\sqrt{s_i + v_i + u_i + t_i}$.

Let $\overline{x}, \overline{y}, \overline{\Omega}, \overline{\alpha}, \overline{\lambda}$ be the mena values of all $x_i, y_i, \Omega_i, \alpha_i, \lambda_i$, respectively, in **P.**
Let $\sigma_x, \sigma_y, \sigma_\Omega, \sigma_\alpha, \sigma_\lambda$ be the standard deviations of all $x_i, y_i, \Omega_i, \alpha_i, \lambda_i$, respectively, in **P**.

In our example, these are the means and standard deviations of Alice's Election Day Percentages, Mail-in Percentages and Percentage of Election Day Ballots Cast across the precincts.

Then, since knowledge of x_i and y_i at a particular precinct, is insufficient to resolve the **exact value** of Ω_i or the **exact value** of α_i, then we expect the precincts, when their x_i, y_i, α_i percentages are plotted in 3D space, to form a Gaussian Cloud of Probability between the two planes (with the cloud centered at $\overline{x}, \overline{y}, \overline{\alpha}$):

$$\alpha_i = \left(\overline{\Omega} - 2\sigma_\Omega\right)x_i + \left(1 - \left(\overline{\Omega} - 2\sigma_\Omega\right.\right. y_i \quad \text{and} \quad \alpha_i = \left(\overline{\Omega} + 2\sigma_\Omega\right)x_i + \left(1 - \left(\overline{\Omega} + 2\sigma_\Omega\right.\right. y_i$$

Since people vote on Election Day, and people vote by Mail, and people have different preferences to vote by either Mail or on Election Day, we do indeed expect this cloud of probability, because no one, to our knowledge, has ever voted by Aggregate.

Depending on the values of the centroid $\bar{x}, \bar{y}, \bar{\alpha}$, and the value of σ_{Ω}, the expected R^2 of a set of precincts can indeed be determined over a minimum of 1000 trials, and preferably 10,000.

The Simple R-Squared Simulator
https://docs.google.com/spreadsheets/d/1u9l2mVobdHOG4fmxde0FwfnUMH9y3-xG4ALoQhccehE/edit?usp=sharing

In the simulator we set $\bar{x}$ to 60%, with a standard deviation of 10%, the average difference between x and y (to maintain a correlation) to -20% with a standard deviation of 8%, and $\bar{\Omega}$ to 50% with a standard deviation of 10%. The number of registered voters is made log normal to base 10, and turnout normally distributed with a mean of 50% and a standard deviation of 10%.

The first trial under these considers returns an R^2 of 0.944 for the regression of expected α to actual α in terms of x and y, and R^2 of 0.9919 on the expected value of $s + u$ to the actual value of $s + u$. In such a regression, the R^2 value represents the variation that alpha may have from its expected trajectory in 3D space in respect to predictors x and y.

In order to know the expectation of the R^2 value, one must run at least 1000 trials, and record the mean and standard deviation of these R^2 under the same conditions.

Operators	Values		Operators	Values
x mu	0.6		Registered sigma	0.25
y delta mu	-0.2		Turnout sigma	0.1
Omega mu	0.5			
			Registered Min	400
x sigma	0.1		Registered Max	4000
y delta sigma	0.08			
Omega sigma	0.1		Number of Precincts	1000
Registered mu	3.15		Alpha R^2 =	0.9447716294
Turnout mu	0.5		Integer R^2 =	0.9919758804

After 1000 trials, under the same conditions, we get a mean value of 0.9615 and 0.9936 for the expected R^2 values of α and the return on $s + u$ when the expected value of α is applied against the total number of ballots cast. The standard deviations are 0.0027114 and 0.0006814 respectively.

If (hypothetically) that we had an election that matched these conditions, and received an R^2 of 0.9900 and 0.9999 for the return on α and the return of the integer sum $s + u$, these would be in excess of nine standarddeviations of above the mean, telling us that the predictors x and y are far too powerful in respect to α, and that the exact resolution of $s + u$ across the precincts allows us to solve the proportion of the area of the combined rectangles **S+U** to the area of the combined rectangles **T+V**, knowing only the proportion of thearea of rectangles **S** to **T** and **U** to **V,** a violation of the Ninth, Tenth, Eleventh and Twelfth Laws that Govern the Proportion of Elements Between Four Disjoint Set.

Integer	Integer		Alpha	Alpha		Hypothetical	Hypothetical
R^2 Mean	Sigma		R^2 Mean	Sigma		Integer R^2	Alpha R^2
0.993621851	0.000681398		0.961553543	0.002711451		0.9999	0.993
						Sigma Result	Sigma Result
						9.213627337	10.49123114

What happens when σ_{Ω} approaches zero, that is, what happens when the proportion of Mail-in to Election Day ballots has no variation, is virtually constant across the precincts. One can immediately infer that no matter the location of the centroid $\bar{x}, \bar{y}, \bar{\alpha}$ or the centroid $\bar{x}, (1 - \bar{y}), \bar{\lambda}$, that the precincts will be flattened into a single plane since (let $w_i = 1 - y_i$)

Boundaries of α

$$\alpha_i = \left(\bar{\Omega} - 2\sigma_{\Omega}\right)x_i + \left(1 - \left(\bar{\Omega} - 2\sigma_{\Omega}\right)\right)y_i \quad \text{and} \quad \alpha_i = \left(\bar{\Omega} + 2\sigma_{\Omega}\right)x_i + \left(1 - \left(\bar{\Omega} + 2\sigma_{\Omega}\right)\right)y_i$$

Boundaries of λ

$$\lambda_i = \left(\bar{\Omega} - 2\sigma_{\Omega}\right)x_i + \left(1 - \left(\bar{\Omega} - 2\sigma_{\Omega}\right)\right)w_i \quad \text{and} \quad \lambda\alpha_i = \left(\bar{\Omega} + 2\sigma_{\Omega}\right)x_i + \left(1 - \left(\bar{\Omega} + 2\sigma_{\Omega}\right)\right)w_i$$

$$\text{That} \lim_{\sigma_{\Omega} \to 0} \alpha = \bar{\Omega}x_i + (1 - \bar{\Omega})y_i; \quad \lim_{\sigma_{\Omega} \to 0} \lambda = \bar{\Omega}x_i + (1 - \bar{\Omega})w_i$$

Thus: Only when the **absurd** happens, a lack of variance in Ω which represent the percentage of ballots cast that are election day ballots, across hundreds of precincts, would we then expect the precinct to land in a flat plane in respect to either x, y, α or x, w, λ.

Likewise, given the percentages $g_i = \frac{s_i}{s_i + v_i}$ and $h_i = \frac{u_i}{u_i + t_i}$, which criss cross Alice's and Beth's counting groups (Election Day and Mail-in), then we get the following isometry (let $w_i = 1 - h_i$),

Boundaries of α

$$\alpha_i = (\overline{\Omega} - 2\sigma_\lambda)g_i + (1 - (\overline{\Omega} - 2\sigma_\lambda \quad h_i \quad \text{and} \quad \alpha_i = (\overline{\Omega} + 2\sigma_\lambda)g_i + (1 - (\overline{\Omega} + 2\sigma_\lambda \quad h_i$$

Boundaries of Ω

$$\Omega_i = (\overline{\Omega} - 2\sigma_\lambda)g_i + (1 - (\overline{\Omega} - 2\sigma_\lambda \quad w_i \quad \text{and} \quad \Omega_i = (\overline{\Omega} + 2\sigma_\lambda)g_i + (1 - (\overline{\Omega} + 2\sigma_\lambda \quad w_i$$

$$\text{That} \lim_{\sigma_\lambda \to 0} \alpha = \overline{\lambda}g_i + (1 - \overline{\lambda})g_i; \quad \lim_{\sigma_\lambda \to 0} \Omega = \overline{\lambda}g_i + (1 - \overline{\lambda})w_i$$

Likewise, given the percentages $m_i = \frac{s_i}{s_i + u_i}$ and $n_i = \frac{t_i}{t_i + v_i}$, which compares Alice's Counting Groups and Beth's Counting Groups separately, we get the following isometry (let $w_i = 1 - n_i$)

Boundaries of Ω

$$\Omega_i = (\overline{\alpha} - 2\sigma_\alpha)m_i + (1 - (\overline{\alpha} - 2\sigma_\alpha \quad n_i \quad \text{and} \quad \alpha_i = (\overline{\Omega} + 2\sigma_\alpha)m_i + (1 - (\overline{\alpha} + 2\sigma_\alpha \quad n_i$$

Boundaries of λ

$$\lambda_i = (\overline{\alpha} - 2\sigma_\alpha)m_i + (1 - (\overline{\alpha} - 2\sigma_\alpha \quad w_i \quad \text{and} \quad \lambda_i = (\overline{\alpha} + 2\sigma_\alpha)m_i + (1 - (\overline{\alpha} + 2\sigma_\alpha \quad w_i$$

$$\text{That} \lim_{\sigma_\alpha \to 0} \Omega = \overline{\alpha}m_i + (1 - \overline{\alpha})n_i; \quad \lim_{\sigma_\alpha \to 0} \lambda = \overline{\alpha}m_i + (1 - \overline{\alpha})w_i$$

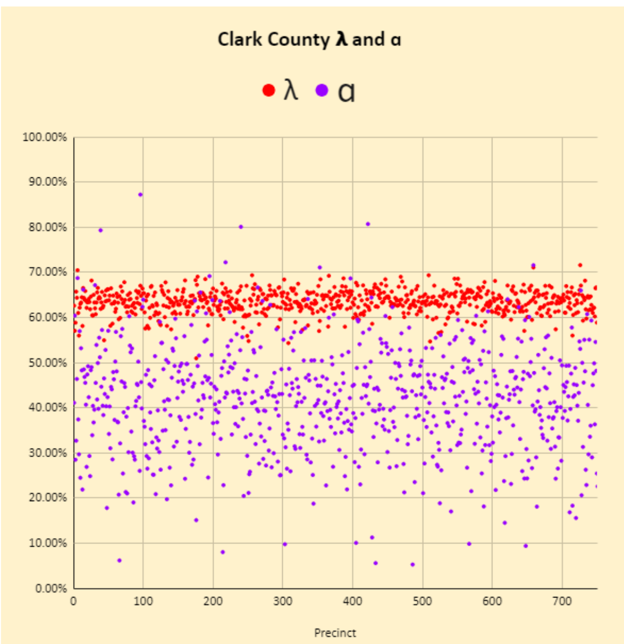
Thus, if one were to run a Quantile Simulation of an election under the **absurd condition** that either σ_Ω, σ_α, or σ_λ was zero, or very close to zero, then, their simulation would result in a very high R^2 value well in excess of 0.990 for the regression appropriate to the limits in the above equations.

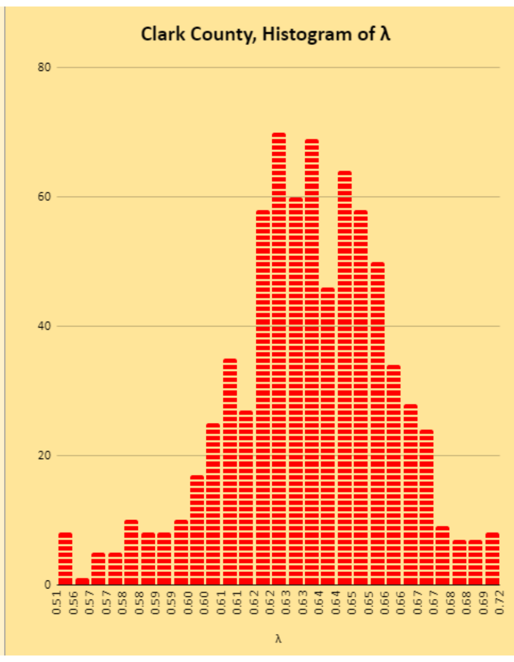
In fact the situation is so absurd, that one can take any number **M** groups of **N** precincts chosen at random, combine the vote totals of the precincts in each group and the value of α, Ω or λ (appropriate to the limits in the above equations) will remain invariant across all **M** groups, and thus the combined totals of each group of **N** precincts will also fall on the same flat plane.

In fact, one could simply take three precincts and use them to predict all of the remaining precincts, because they are all on the same flat plane. Although this may sound ludicrous, as if it's a topic that need not be addressed, this is exactly what happened in Clark and Washoe Counties in the State of Nevada in the 2020 General Election and in the 2022 Primaries.

In the General Election of 2020, the where the variation of λ is equal to 2.5385%. We define the following for Clark and Washoe Counties, Nevada, in the 2020 General Election:

Let: s_i = Trump's Early Vote, t_i = Biden's Early Vote, u_i = Trump's Mail-in Vote, v_i = Biden's Mail-in vote, $\lambda_i = \frac{s_i + v_i}{s_i + v_i + u_i + t_i}$, then, in over a thousand precincts combined, from Clark and Washoe Counties, on opposite sides of the State of Nevada, $\sigma_\lambda = 2.5385\%$.





If one attempts to simulate the conditions of Nevada's 2020 General Election (Trump vs Biden) under the absurd condition that the percentage of ballots cast belonging to Trump in the Early Vote and Biden in the Mail-in Vote to Trump in the Mail-in Vote and Biden in the Early Vote, is to be all but uniform across hundreds of precincts, then they shall indeed get an R^2 value that is extraordinary close to 1. In the graph on the previous page, notice that although Trump's aggregate share of the ballots (his overall performance) varies wildly from 5% to 75%, that proportion of West to East remains invariant at all times!

Prosecutorial Challenge 6a:
This challenge only applies if the Defense disagrees with the above dissertation.

Then the Defense must state in a **Court of Record** that they do not believe that is absurd that the percentage of ballots cast belonging to **Trump in the Early Vote and Biden in the Mail-in Vote** to **Trump in the Mail-in Vote and Biden in the Early Vote** was virtually uniform across over a thousand precincts, regardless of Trump's wildly varying aggregate percentage, in two different counties (Washoe and Clark) on opposite sides of Nevada.

Prosecutorial Challenge 6b:
This challenge only applies if the Defense disagrees with the above dissertation.

That the Defense must state in a **Court of Record** that they do not believe that it is absurd that one can select any number **M** groups of **N** precincts, chosen at random, regardless of Trump's widely varying aggregate performance, and add together the vote totals of all **N** precincts in each of the **M** groups, and that percentage of ballots cast belonging to **Trump in the Early Vote and Biden in the Mail-in Vote amongst all ballots** cast remains virtually invariant across all **M** groups, and that each group of combined **N** precincts falls upon the same flat plane.

Prosecutorial Challenge 6c:
This challenge only applies if the Defense disagrees with the above dissertation.

That the Defense must state in a **Court of Record** that they do not believe that one can select **any three precincts,** chosen at random, regardless of Trump's widely varying aggregate performance, and use them to predict the behavior of the remaining hundreds of precincts.

Prosecutorial Challenge 7a:
This challenge only applies if the Defense disagrees with the above dissertation.

That the Defense must state in a **Court of Record** that they do not believe that is absurd that the percentage of ballots cast, λ, belonging to **Sisolak in the Mail, Lombardo Early, Lombardo in the Mail and Gilbert on election day**, **of all ballots cast for Sisolak, Gilbert and Lombardo, in all three modes of voting**, is also invariant and all but uniform in hundreds precincts in two counties on opposite sides of the State of Nevada, regardless of Sisolak's wildly varying aggregate percentage, in two different counties (Washoe and Clark) on opposite sides of Nevada.

Prosecutorial Challenge 7b:
This challenge only applies if the Defense disagrees with the above dissertation.

That the Defense must state in a **Court of Record** that they do not believe that it is absurd that one can select any number **M** groups of **N** precincts, chosen at random, regardless of Sisolak's widely varying aggregate performance, and add together the vote totals of all **N** precincts in each of the **M** groups, and that percentage of ballots cast, λ, belonging **Sisolak in the Mail, Lombardo Early, Lombardo in the Mail and Gilbert on election day**, **of all ballots castfor Sisolak, Gilbert and Lombardo, in all three modes of voting**, remains virtually invariant across all **M** groups, and that each group of combined **N** precincts falls upon the same flat plane.

Prosecutorial Challenge 6c:
This challenge only applies if the Defense disagrees with the above dissertation.

The Defense must state in a **Court of Record** that they do not believe that one can select **any three precincts,** chosen at random, regardless of Sisolaks's widely varying aggregate performance, and use them to predict the behavior of the remaining hundreds of precincts.

Below is the graph of the Clark and Washoe County precincts sorted by Sisolak's (Democrat) aggregate percentage share of the ballots cast. Even though Gilbert and Lombard were Republican opponents in this primary, there was an unholy union of Democrat and Republican primaries across the precincts that caused λ to be invariant (as defined above).