

ADDRESSING MISUNDERSTANDINGS ABOUT THE REPORT

What the Report's analysis is NOT about.

The word *bias* has different meanings in different contexts. (See "Bias" in OED <www.oed.com>.) A lawyer's use of the term generally denotes prejudice or predisposition. Statisticians use the term in a technical sense, as meaning deviation from the expected outcome. As it makes clear, the Report's analysis is NOT about bias in the lawyer's sense. It is NOT about the disposition, inclination, or leaning of judges in the Ninth Circuit. The Report makes no statements or claims about those issues.

What the Report's analysis IS about.

The Report's analysis is about a specific, statistical question about the judge-assignment process in the Ninth Circuit:

What is the probability that Judge Reinhardt or Judge Berzon appear in X or more of the Y of Relevant Cases under a neutral judge assignment process.

The Report describes three different approaches (or analyses) to answering this single question. None of these approaches suggests or is premised on any wrongdoing on the part of any individual. We recognize that, regardless of how small the probabilities may be, a neutral judge selection process may have generated the assignment outcomes observed in the Relevant Cases. Because of governing law, however, the question for judges within the Circuit is not one of neutrality versus non-neutrality; rather, it is a question about the appearance of non-neutrality. The Report is intended to provide statistical analyses so that Ninth Circuit judges may assess the appearance of non-neutrality, fully informed.

Relevant Cases.

The Petition defines the Relevant Cases as those assigned to a panel and involving the federal constitutional rights of homosexuals qua homosexuals. The time frame is January 1, 2010 through September 30, 2014. A table of the Relevant Cases is found at this link. The Coalition's lawyers compiled that table and, in doing so, used a very inclusive standard: If in doubt about a case, include it. Having a larger pool of Relevant Cases is deferential to the Circuit, that is, it gives the benefit-of-the-doubt to the Court.

In the days since the Report was filed, a number of interested commentators have suggested that the analysis should focus only on the "high profile" cases. That is a term inherently subjective and necessarily a source of debate in its application. Because the Petition's definition of Relevant Cases is more objective and gives a greater benefit of the doubt to the Circuit's practices, it qualifies as best for present purposes.

Analysis I.

The Report's first analysis relies on the judge assignment process described in the section below, "A Summary of Calendaring Practices in the Ninth Circuit." Specifically, we consider the point in the process when case clusters are assigned to panels. For a single calendar in a generic City Z, the probability that a case cluster is assigned to generic Judge A is:

$$\frac{\text{Number of panels with Judge A}}{\text{Total number of panels in the calendar of City Z}}$$

For example, the calendar for Pasadena in March 2011 includes 9 panels. Of those 9 panels, Judges Reinhardt or Berzon appear in 4 panels. Thus, the probability that Judges Reinhardt or Berzon hears a case scheduled in Pasadena in March 2011 is 4/9. The probability that neither judge is assigned a case there and then is 5/9. We perform this type of calculation for every Relevant Case. Let p_i denote the probability a judge is assigned to case i , and let q_i be the probability that neither judge is assigned to case i . Table 1 represents the probabilities calculated for each Relevant Case.

**Table 1. Single Case Probabilities
(Same City and Month)**

Case	Panels w/ Reinhardt or Berzon		p_i	q_i
	Total			
1	0	16	0.00	1.00
2	4	9	0.44	0.56
⋮				
11	5	15	0.33	0.66

In order to calculate the probability that either Judge Reinhardt or Judge Berzon is assigned to X of the Y Relevant Cases, we consider all possible ways in which at least one of the two judges can be assigned to X of the Y Relevant Cases (such that at least one judge is always assigned to the eleventh Relevant Case, that is, the Idaho-Nevada-Hawaii marriage cases (treated as one case)). Using all Relevant Cases, there are 1024 possible outcomes, and a subset are listed in Table 2. A zero indicates that neither judge was assigned to the corresponding case, a one indicates that at least one judge WAS assigned to the corresponding case. Thus, the first row of Table 2 corresponds to the outcome in which Judge Reinhardt or Judge Berzon is assigned to the eleventh case only. The second row corresponds to the outcome of being assigned to the first and eleventh cases. The final and 1024th row (if all had been printed) corresponds to the outcome had at least one of the two judges been assigned all 11 cases.

Table 2. Possible Outcomes

Outcome	Case											Total Appearances
	1	2	3	4	5	6	7	8	9	10	11	
1	0	0	0	0	0	0	0	0	0	0	1	1
2	1	0	0	0	0	0	0	0	0	0	1	2
3	0	1	0	0	0	0	0	0	0	0	1	2
4	0	0	1	0	0	0	0	0	0	0	1	2
⋮												
100	0	0	1	0	1	0	0	1	0	0	1	4
⋮												
1023	0	1	1	1	1	1	1	1	1	1	1	10
1024	1	1	1	1	1	1	1	1	1	1	1	11

1 = Assigned; 0 = Not Assigned

To calculate the probability for each possible outcome, we multiply together the single case probabilities from Table 1 in the following way: If the outcome for case i is 1 we multiply p_i , the probability of assignment. If the outcome for case i is 0, we multiply q_i , the probability of non-assignment. So for the first line, the probability of that particular outcome is

$$q_1 q_2 q_3 \cdots q_{10} p_{11}.$$

For row two, the probability is

$$p_1 q_2 q_3 \cdots q_{10} p_{11}.$$

The outcome specific probability is calculated in this way for all 1024 possible outcomes. The probability that at least one judge is assigned to 2 of 11 cases is the sum of all outcome specific probabilities corresponding to 2 total appearances. As we've sorted Table 2, we would sum the outcome specific probabilities from rows 2 through 11. To calculate the probability of assignment in 3 of 11 cases, we sum all the outcomes specific probabilities corresponding to 3 total appearances, which would be rows 12 through 56. In this way, we calculate the probability of assignment in X of 11 cases, and can summarize the results as in Table 3.

Table 3. Outcome Specific Probabilities Aggregated by Total Appearances for Judge Reinhardt or Judge Berzon

X of 11	Probability	Observed
1	0.00633	
2	0.03712	
⋮		
6	0.01480	← Observed
⋮		
11	0.00000	

A least one of the two judges (Reinhardt and Berzon) appeared in 6 of the 11 Relevant Cases. The question this analysis endeavors to answer is: *What is the probability that Judge Reinhardt or Judge Berzon appears in 6 or more of the 11 of Relevant Cases under a neutral judge assignment process.* The final computation is to sum the probabilities for 6 or more appearances. The results of Analysis I are reported in the Report's Table 2.

Analysis II.

Analysis II is similar to Analysis I with one exception. Rather than considering only a single calendar as the set of possible panels for a case, we also consider the panels from the same city in adjoining months. This analysis in conjunction with the first addresses the possibility that cases are assigned to specific months in a non-neutral way. The calculations follow the same procedures as above except Table 1 is adjusted to include panels from adjoining months. The results of Analysis II are reported in the Report's Table 3.

Analysis III.

We also calculated probabilities using a re-sampling method. In this approach, we assume that the process that generates assignments in the Relevant Cases also generates assignments in all other Ninth Circuit cases. This method allows us to compare the assignments in the Relevant Cases with 100,000 randomly chosen groups of eleven Ninth Circuit cases assigned post-2008 to the present. This collection of 100,000 groups acts as a control group. For each group, we looked to see how many assignments were given to each of the two most-assigned judges, without regard to the identity of those judges. (With the Relevant Cases, the numbers are five for Judge Berzon and four for Judge Reinhardt.) The results are set forth in Table 4 of the official report.

This re-sampling approach has some important properties. Analysis I and Analysis II required assumptions about judge availability as affected by personal calendars, month, and city. In contrast, the re-sampling approach simply assumes that the assignment process is the same for the Relevant Cases and all other Ninth Circuit cases, whatever that process may be. As such, the results described in the Report's Table 4 are more robust to violations of assumptions.