DERIVING IDEAL POINTS (ONE DIMENSION)

Deriving Ideal Points

- How do we use real world data to find the location of ideal points?

A. ADA and ACU scores (first idea)

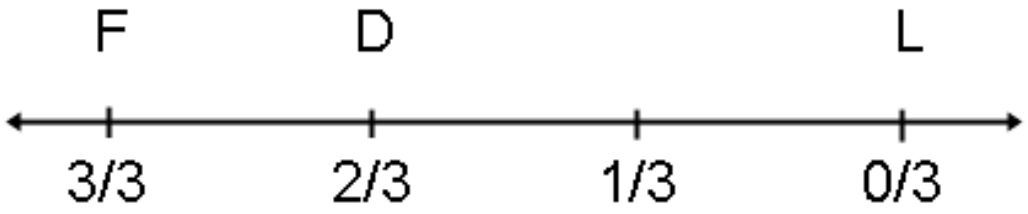
- Americans for Democratic Action.
- American Conservative Union.

1. Count the number of times a Congress person supported the ADA position on a vote divided by the number of votes studied.

Deriving Ideal Points

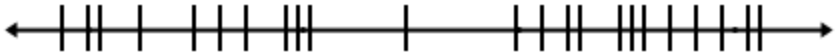
	ADA Position	Lott	Reid	Feingold	. . .
anti-abortion bill	N	Y	N	N	
pro gun control bill	Y	N	N	Y	
welfare reform bill	Y	N	Y	Y	
ADA Score		0	2	3	

2. The ADA score is supposed to measure how liberal a Congress person is on these issues, since the ADA position is always the more liberal.
3. In this case we could put people with a 3 on the left and people with a 0 on the right, and those with other numbers in between.

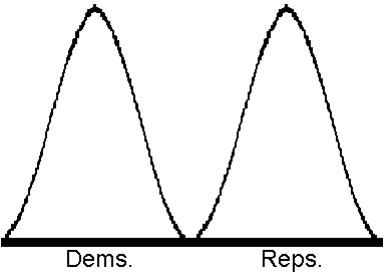


Deriving Ideal Points

4. ACU scores work exactly the same way as the ADA scores, but in the opposite direction.
5. With more votes we get more precision and eventually the thing might look like a line, rather than a disjoint space.



6. Problems
   a. These scores tend to exaggerate the opinions of those in between.
      1) This is because the ADA (and ACU) look for bills they think really accentuate the liberal ideology (conservative ideology).
      2) Such bills are divisive and usually make the Democrats and the Republicans line up on opposite sides.
      3) In fact, representatives usually know which bills are ADA and ACU bills and vote to get a good score.



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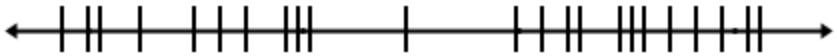

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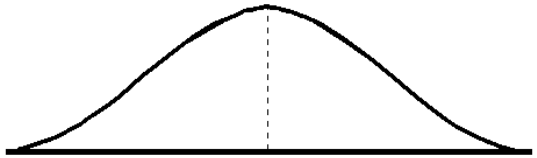
      2) Such bills are divisive and usually make the Democrats and the Republicans line up on opposite sides.
      3) In fact, representatives usually know which bills are ADA and ACU bills and vote to get a good score.
      4) If they looked at less divisive bills, like a bill to fund victims of hurricane Katrina, then they might get greater cross-overs.



Deriving Ideal Points

6. Problems
    b. Can't be done if you don't know the liberal or conservative side of a bill.
        1) i.e. can't be done for many bills.

B. Optimal Classification (second idea)

1. Works in Two Steps.
    a. Find optimal cut point for each vote.
        1) Cut point (defined): a point that separates the yea voters on one side from the nay voters on the other side.
    b. Optimally classify each voter in the intervals created in step 1.
    a. Repeat.

Deriving Ideal Points

B. Optimal Classification

2. Assumptions

a. Voters have single peaked and symmetric preferences.

b. Voting is sincere.

c. For this demonstration, there is one dimension.

Deriving Ideal Points

B. Optimal Classification

3. Four Bills

a. **B-2**: Sept 1989 amendment to a bill that would cut funding for the B-2 bomber.

b. **Cambodia**: July 1989 amendment to a bill that would give the President the power to fund non-communist forces in Cambodia.

c. **Tower**: March 1989 proposal to confirm John Tower as secretary of defense.

d. **MLK**: May 1989 amendment to a bill that would eliminate funding for a commission establishing MLK day.

Deriving Ideal Points

B. Optimal Classification

4. 5 Senators in initial (random) order

	Nunn	Helms	Gore	Kerry	Dole
B-2	N	N	N	Y	N
Cambodia	Y	Y	N	N	Y
Tower	N	Y	N	N	Y
MLK	N	Y	N	N	N

Deriving Ideal Points

B. Optimal Classification

5. Step1: find optimal cut points

	Nunn	Helms	Gore	Kerry	Dole
B-2	**N**	**N**	**N**	**Y**	**N**
Cambodia	Y	Y	N	N	Y
Tower	N	Y	N	N	Y
MLK	N	Y	N	N	N

B-2

Classification Errors

1

Deriving Ideal Points

B. Optimal Classification

5. Step1: find optimal cut points

	Nunn	Helms	Gore	Kerry	Dole	Classification Errors
B-2	N	N	N	Y	N	1
Cambodia	**Y**	**Y**	**N**	**N**	**Y**	1
Tower	N	Y	N	N	Y	
MLK	N	Y	N	N	N	

Cambodia B-2

Deriving Ideal Points

B. Optimal Classification

5. Step1: find optimal cut points

	Nunn	Helms	Gore	Kerry	Dole	Classification Errors
B-2	N	N	N	Y	N	1
Cambodia	Y	Y	N	N	Y	1
Tower	**N**	**Y**	**N**	**N**	**Y**	2
MLK	N	Y	N	N	N	

Deriving Ideal Points

B. Optimal Classification

5. Step1: find optimal cut points

	Nunn	Helms	Gore	Kerry	Dole	Classification Errors
B-2	N	N	N	Y	N	1
Cambodia	Y	Y	N	N	Y	1
Tower	N	Y	N	N	Y	2
MLK	**N**	**Y**	**N**	**N**	**N**	1

Deriving Ideal Points

B. Optimal Classification

5. Step1: find optimal cut points

	Nunn	Helms	Gore	Kerry	Dole	Classification Errors
B-2	N	N	N	Y	N	1
Cambodia	Y	Y	N	N	Y	1
Tower	N	Y	N	N	Y	2
MLK	N	Y	N	N	N	1
						5

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Nunn	Helms	Gore	Kerry	Dole	Classification Errors
B-2	N	N	N	Y	N	1
Cambodia	Y	Y	N	N	Y	1
Tower	N	Y	N	N	Y	2
MLK	N	Y	N	N	N	1
		|	|			**5**
		Cambodia	B-2			
		Tower				
		MLK				

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Nunn	Helms	Gore	Kerry	Dole	Classification Errors
B-2	N	N	N	Y	N	1
		Cambodia	B-2			
		Tower				
		MLK				

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Nunn	Helms	Gore	Dole	Kerry	Classification Errors
B-2	N	N	N	N	Y	0

Cambodia
Tower
MLK

B-2

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Nunn	Helms	Gore	Dole	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	N	Y	N	1

Cambodia Tower MLK

B-2

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Nunn	Helms	Dole	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Camb	Y	Y	Y	N	N	0

Cambodia

Tower

MLK

B-2

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Nunn	Helms	Dole	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	0
Tower	N	Y	Y	N	N	1

Cambodia | B-2

Tower

MLK

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	1
Tower	Y	Y	N	N	N	0

Cambodia
Tower
MLK

B-2

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	1
Tower	Y	Y	N	N	N	0

But notice, by moving Nunn we added a Classification error.

Cambodia	B-2
Tower	
MLK	

Deriving Ideal Points

B. Optimal Classification

6. Step2: move Senators to Reduce Error

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	1
Tower	Y	Y	N	N	N	0
MLK	Y	N	N	N	N	1

Notice: we can't get rid of the MLK error if the cut points are fixed.

Moving Nunn only increases the error.

Cambodia | B-2

Tower

MLK

Deriving Ideal Points

B. Optimal Classification

7. Repeat Step1: find optimal cut points.

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	1
Tower	Y	Y	N	N	N	0
MLK	Y	N	N	N	N	1

Cambodia
Tower
MLK

B-2

Deriving Ideal Points

B. Optimal Classification

7. Repeat Step1: find optimal cut points.

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	1
Tower	Y	Y	N	N	N	0
MLK	Y	N	N	N	N	1

Cambodia

Tower

MLK

B-2

Deriving Ideal Points

B. Optimal Classification

7. Repeat Step1: find optimal cut points.

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	0
Tower	Y	Y	N	N	N	0
MLK	Y	N	N	N	N	1

Deriving Ideal Points

B. Optimal Classification

7. Repeat Step1: find optimal cut points.

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	0
Tower	Y	Y	N	N	N	0
MLK	Y	N	N	N	N	1

Cambodia B-2

Tower

MLK

Deriving Ideal Points

B. Optimal Classification

7. Repeat Step1: find optimal cut points.

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	0
Tower	Y	Y	N	N	N	0
MLK	Y	N	N	N	N	0

MLK Tower Cambodia B-2

Deriving Ideal Points

B. Optimal Classification

7. Repeat Step1: find optimal cut points.

	Helms	Dole	Nunn	Gore	Kerry	Classification Errors
B-2	N	N	N	N	Y	0
Cambodia	Y	Y	Y	N	N	0
Tower	Y	Y	N	N	N	0
MLK	Y	N	N	N	N	0

MLK | Cambodia | B-2 | Tower

In general the process is repeated until there are the least number of errors (which is not always zero).

Deriving Ideal Points

B. Optimal Classification

8. Advantages:
    a. Does not exaggerate opinions of those on the extremes.
    b. Does not require knowing liberal or conservative position on a bill.
9. Weakness:
    a. Produces only an ordering, not cardinal distances.

Deriving Ideal Points

C. NOMINATE (third idea)

1. NOMINATE works similarly but its is uses a maximum likelihood routine (i.e. heavy statistics).
    a. One of its advantages is that it creates a cardinal ranking based on the likelihood of each bill location, not just an order.