Instructional Visualizations of the Work of the United States Supreme Court

2005 SLIS Doctoral Student Research Forum

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Research Questions

1. How can network graphing and information visualization techniques improve the understanding of the work of the United States Supreme Court?

2. What visualizations make the knowledge of experts quickly available to novices?
Research Threads

1. Ideological Landscape of the Justices
2. Visual Explanations of Individual Cases
3. Topic Space of the 2004 Term
4. A Comparison of Lexis and Westlaw Headnotes

Part I: Ideological Landscape of the Justices

Learning Objective: Students will understand the voting associations of the Justices of the Supreme Court and the ideological divide suggested by these associations.

Audience: (1) Law Students, (2) Political Science Students, (3) All Non-Experts of the work of the Supreme Court.
### 9 Justices of the Supreme Court
#### 1993-2004 Terms

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<td>55</td>
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<tr>
<td>Age On Sept. 3, 2005</td>
<td>80</td>
<td>85</td>
<td>75</td>
<td>69</td>
<td>69</td>
<td>65</td>
<td>67</td>
<td>72</td>
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- **1972 = Year Appointed**
- **47 = Age On Start Date**
- **80 = Age On Sept. 3, 2005**
- **Mean Age On Sept. 3, 2005 = 71**

### By Whom Appointed

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<td>Democrat</td>
<td>Republican</td>
<td>Republican</td>
<td>Democrat</td>
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- **1972**
  - Rehnquist
  - Stevens
  - O’Connor
  - Scalia
  - Kennedy
  - Souter
  - Thomas
  - Breyer

- **1975**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **1981**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **1986**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **1988**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **1990**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **1991**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **1993**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **1994**
  - Nixon
  - Ford
  - Reagan
  - Reagan
  - Reagan
  - H.W. Bush
  - H.W. Bush

- **Appointed by a Republican**
- **Appointed by a Democrat**
**Representation of O’Connor as a Swing Vote**

New York Times Representational Device:
- Justices listed in linear fashion along a political spectrum (progressive to conservative)
- Justices in losing voting block are grayed-out.

“Roberts would replace the late Chief Justice William Rehnquist, who had been the court’s conservative anchor for 33 years.”

“The next nominee would seek to succeed retiring Justice Sandra Day O’Connor, who often has been the swing vote on the nine-member court.”


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**Frequency of Voting Blocks in 5-4 Cases**

(1994 -2003 Supreme Court Terms)

Total 5 to 4 Cases = 175

Source: Statistics harvested from the Harvard Law Review
Agreement between pairs of justices by percentage in non-unanimous cases, 1994 to 2003 terms.


http://www.legalaffairs.org/issues/March-April-2005/numbers_marapr05.msp
Fully Connected Graph

Layout with Spring Force Algorithm
Thresholding (Voting Together > 50%) Reveals Ideological Cliques

Thresholding (Voting Together > 49%) Reveals Ideological Cliques
Towards An Interactive Learning Environment

Visualization Tools Applied Towards Pedagogy
Part II: Visual Explanations of Individual Cases

Learning Objective: Students will quickly understand the facts, legal issues, voting, topic assignments, and procedural history for each case.

Audience: (1) Law Students, (2) Political Science Students, (3) All Non-Experts of the work of the Supreme Court.


- Most complex case of the 2004 term
- 5 – 4, 5 – 4 Decision (Two Main Opinions)
- Numerous Dissents
- Need a Map of these Joining Relationships

**Holdings:** The Supreme Court, Justice *Souter*, delivering the opinion of the court in part, held that:
1. Federal sentencing guidelines are subject to jURY trial requirements of the Sixth Amendment; and
2. in an opinion by Justice *Breyer*, delivering the opinion of the Court in part, held further that Sixth Amendment requirement that jury find certain sentencing facts was incommensurate with Federal Sentencing Act, thus minimizing severance of Act’s provisions making guidelines mandatory and setting forth standard of review on appeal;
3. proper standard of appellate review for sentencing decisions was review for reasonableness, and
4. holdings as to Sixth Amendment applicability and accorded interpretation of the Sentencing Act were applicable to all cases on direct review.

 Judgment of the Court of Appeals affirmed and remanded; judgment of the District Court vacated and remanded.

Justice *Souter* dissented in part and filed opinion in which Justice *Kennedy* joined and Justice *Sotomayor* joined in part.

Justice *Sotomayor* dissented in part and filed opinion.

Justice *Thomas* dissented in part and filed opinion.

Justice *Breyer* dissented in part and filed opinion in which Chief Justice *Roberts*, Justice *O’Connor*, and Justice *Kennedy* joined.

*Stevens*, J., delivered the opinion of the Court in part, in which *Scalia*, *Souter*, *Thomas*, and *Ginsburg*, JJ., joined; *Breyer*, J., delivered the opinion of the Court in part, in which *Kennedy*, C.J., and *O’Connor*, *Kennedy*, and *Ginsburg*, JJ., joined; *Stevens*, J., filed an opinion dissenting in part, in which *Souter*, J., joined, and in which *Scalia*, J., joined except for Part III and footnote 17; *Scalia*, J., and *Thomas*, J., filed opinions dissenting in part; *Breyer*, J., filed an opinion dissenting in part, in which *Breyer*, J., and *O’Connor* and *Kennedy*, JJ., joined.
United States v. Booker, Voting Blocks

Opinion: Part 1


Opinion: Part 2

Opinion: Part IV

Stevens

Except Footnote 17, Part IV

Stevens III

Stevens I

Stevens II

Stevens IV

Dissent

Breyer

Dissent

Scalia

Dissent

Breyer

Dissent

Thomas

Dissent

Thomas
Network Graphic Approach to Booker

Part III: Topic Space of the 2004 Term

Learning Objective: Students will understand what topics were considered for any particular term, how those topics relate to each other, and how the current term fits the overall trend in topics covered by the Supreme Court from 1944 to the present.

Audience: (1) Law Students, (2) Political Science Students, (3) All Non-Experts of the work of the Supreme Court.
Part IV: Lexis and Westlaw Headnote Comparison

Learning Objective: Students and practitioners will become aware of the large difference in the amount of headnotes assigned by each publisher and the difference in language deemed worthy of a headnote.

Audience: (1) Law Students, (2) Lawyers

4 Headnotes assigned by West to Brown v. Payton

- Title
- Page
- Lexis
- Page

Brown v. Payton
127 S. Ct. 1999
166 L. Ed. 2d 901
Page 5

Westlaw
Page 2
294 U.S. 458
125 S. Ct. 1616
161 L. Ed. 2d 786

Following that it could not receive defendants' assigning of guilty of producing illegal content under any jurisdiction, including limited information exchange

Author: Justice Scalia

4-5

Lexis

Westlaw

Conclusion:

The proposed purpose of adding language that describes the defense attorney's behavior in the trial as stated in the United States Supreme Court decision in

Author: Justice Breyer

4-5

Lexis

Westlaw
Methodology

1. Database is populated with all Lexis and West Headnotes.
2. Two human coders educated in the law determine the degree of overlap and which Lexis headnote equals which West headnote.
3. All headnotes are machine processed to determine the degree of semantic overlap between any two headnotes (percentage and uniqueness of words in common).
4. Results are compared with that of human coders to determine if some threshold semantic similarity indicates that two headnotes gloss the same legal principle and may be considered equivalent.
5. Comparisons are published as to the co-extensiveness of Lexis and West headnotes.
6. Preliminary findings indicate a surprising lack of overlap and co-extensiveness of the opinion language covered.

Thank You! – L546 Database Development

Hui Zhang  Juliet Hardesty  Prof. Kiduk Yang
Other Acknowledgements:

- Slides Available:
  