NETWORK DERIVED DOMAIN MAPS OF THE WORK OF THE UNITED STATES SUPREME COURT: 50 YEARS OF CO-VOTING DATA AND A CASE STUDY ON ABORTION

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Abstract:

The recent abortion case decided by the United States Supreme Court has once again brought abortion and the importance of the Supreme Court to the forefront of the American public's attention. Domain maps created by network science techniques and other spatial layout mechanisms such as Multi-Dimensional Scaling (MDS) have much to contribute towards teaching the public about the dynamic interaction of case law precedent and the changing membership of the Supreme Court. This work utilizes a 50 year dataset of the network of co-voting relationships among the Justices of the Supreme Court, as well as West Topic assignments, citation interlinkages, and citation counts relevant to abortion cases to illustrate the history of abortion law in the United States Supreme Court.

Keywords--- domain mapping, Supreme Court, voting networks, educational visualizations, and abortion

1. Main Results

Every year since 1957, the Harvard Law Review has published a matrix of the voting patterns of the previous Supreme Court term. This matrix includes how often two justices vote together in cases as well as the total number of possible cases that any two justices could have voted together. From this tabular data it is possible to derive the normalized frequency with which any two Justices vote together. Network derived visualization techniques help to communicate these relationships more clearly. With such visualizations, the ideological alliances of the Court may be rendered as easy to comprehend spatial relationships that serve to quickly convey the ideological landscape of the justices for any particular term of the Court.

It is also interesting to view these ideological landscapes over time. From these images, one can observe changes in the Court's ideological composition—which factions are in the main and which are marginalized. Furthermore, one can observe interesting trends such as the distancing of justices that had once voted together with some regularity. One of the most famous examples is that of Harry Blackmun and Chief Justice Warren Burger. Close personal friends prior to their tenure on the Court, the two were initially dubbed the "Minnesota Twins." However, while on the Court, Blackmun moved ideologically apart from Burger. This distancing is clear from the data and is easily visualized.

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Aggregating the co-voting data over the 50 year span allows for some important insights and benchmarks as to the last half century of the Supreme Court—1956 to 2005 terms. The aggregated, data, and in particular a metric called the aggregate harmony metric, provide a means to contextualize the history of the court's handling of abortion cases.

2. Significance of the Work

The value of this work is pedagogy. There is need for study aids that contextualize the work of the Supreme Court and make it more real to students and the public. The visualizations produced provide a cognitive scaffold on which students can hang a more rich understanding of the Court based on more detailed study of Supreme Court cases such as those related to abortion.

3. Comparison to Past Research

Several recent scholarly articles have appeared that use network science techniques to analyze the citation patterns of the Supreme Court (Chandler 2005; Fowler & Jeon 2005; Smith 2005). While comprehensive and insightful, these studies do not focus on creating visualizations that have the potential to enhance the public's understanding of the work of the Court or to be used in classroom settings to teach law and political science students.

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