Breadth in Judicial Opinions

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Abstract

In their written opinions, courts not only establish legal rules, but also set the scope of these rules. They can choose to set policy narrowly, applying to a restricted set of future cases, or broadly, applying to a bigger set. Most precedent setting courts consist of multiple members, likely with varying preferences over policy and breadth. As a result, an opinion writing judge on a multi-member court faces a potential tradeoff between these two interests. While the opinion author might achieve policy closer to her ideal by writing a narrow opinion, she could still benefit from a broad opinion that sets policy farther away. In this paper, I develop a formal model of opinion writing on a court which allows judges to endogenously determine the scope of the rule. I characterize the conditions for broad or narrow opinions and the types of coalitions that support either. I show that all narrow opinions pass with ideologically connected coalitions, which consist entirely of ideologically adjacent judges. Ideologically disconnected coalitions, however, may only form in support of some broad opinions. Further, narrow opinions only occur if judges place differential weights on areas of the law.

1 Introduction

The judicial branch of the US government influences policy by using individual cases as vehicles to set precedent. These decisions are published in the form of written opinions, detailing the legal justification for the court's disposition. It has long been understood that the establishment of legal rules is informed by the ideological beliefs of judges. Consequently, opinions are often ascribed ideological positions, depending on the policy prescription they contain. However, beyond their policy content, opinions also define the scope of the rule. That is, the court can make a narrow legal argument, which only applies to very factually similar cases. Or it can make a more broad legal argument, applying more expansively. Therefore, in crafting an opinion, judges not only choose a policy but also the breadth of the policy.

The Supreme Court, by virtue of being atop the judicial hierarchy, typically issues relatively broad opinions. But even within this institution, there is a great deal of variation. The Court at times forgoes the chance to establish a sweeping new rule in favor of making a comparatively minor point. For example, in the highly politicized *Masterpiece Cakeshop v. Colorado Civil Rights Commission*, the majority disposition was justified on very narrow grounds. In an opinion authored by Justice Kennedy, the Court ruled in favor of a bakery that denied service to a gay couple requesting a cake. The opinion avoided questions of freedom of religion or LGBT rights, instead arguing that the lower court's decision could not stand because the state commission had shown hostility and contempt for the religious views of the baker, precluding him from a fair trail. This allowed the Court to sidestep contentious issues, and instead rule in a way that applied virtually only to the present case. As a consequence, some judges who voted with the majority in *Obergefell v. Hodges*, which established marriage equality, also voted with the majority in this case, which seemingly undermined it.

This case exemplifies a conflict ubiquitous in decision making on multi-member governing bodies. The opinion writer is constrained by the need to maintain a majority coalition, and therefore may not be able to achieve her most preferred outcome. This constraint induces a tradeoff between ideology and breadth, which she must negotiate when crafting an optimal opinion. In some cases, the opinion writer may be able to pass her ideal rule in a particular set of cases, but be unable to pass it more broadly. Here, she can choose to make some ideological concessions in order to gain in applicability, or author narrow opinions closer to her ideal. There may also be instances in which she chooses to invoke an unpopular status quo in an alternate set of legal cases in order to achieve a more favorable outcome expansively than she could with a narrow opinion. What factors influence how a judge determines how broadly the opinion will apply?

There is a wealth of literature on opinion writing in the US Supreme Court. Many have argued that in setting a precedent, judges decide cases cognizant of how the rule established presently affects rules they can establish later (Parameswaran, 2013; Callander & Clark, 2017; Ainsley, Carrubba, & Vanberg, 2019). The collegial nature of decision making on a multi-member court also affects what rules are made. For example, information and deliberation on a court changes how judges vote, and can reduce the number of "incorrect" rulings (Iaryczower & Shum, 2012; Iaryczower, Shi, & Shum, 2018). However, the need to build a majority might also constrain ideological behavior on the Court, creating tension for an opinion writer seeking to establish her ideal policy while maintaining a majority (Maltzman, Spriggs, & Wahlbeck, 2000; O'Geen & Parker, 2016). The opinion writing process, and the institution surrounding it, can have substantial bearing on the opinion's policy content.

It remains unclear who the opinion writing process advantages, if anyone. Carrubba, Friedman, Martin, and Vanberg (2012) argue that opinions reflect the preferences of the majority median, because the ability to author a separate opinion undermines the majority opinion writer's bargaining power. By contrast, Lax and Rader (2015) find support for author influence models, such as those advanced by Maltzman et al. (2000). Enns and Wohlfarth (2013) find that often the median judge is not the pivotal vote in a case; therefore, in such cases, there would be no reason for the opinion to reflect the ideology of the median justice, as conventional wisdom would suggest.

This paper aims to contribute to this literature by offering a model of decision making on a multi-member court in which the opinion writer can choose how broadly the opinion will apply. This introduces an added tension in each judge's preferences over opinions, and consequently has the potential to alter the content of the opinion. In this framework, the opinion writer ultimately chooses the rule and breadth contained in the opinion; however, pivotality is not reserved for the median, as majority coalitions are not necessarily connected. An ideologically extreme opinion writer may coalesce with a polarized colleague if doing so allows her to achieve a better outcome than coalescing with a more proximate judge. Therefore, the need to build a majority coalition in this model does not always benefit the median judge.

The expectation that variation in scope is a function of strategic calculus on the court is consistent with a considerable body of recent work. For example, Black, Owens, Wedeking, and Wohlfarth (2016) argue that judges alter "readability" to manage their various audiences. They observe that justices write clearer opinions when circuits are scattered or the Court is ideologically distant from the circuits, in order to ensure lower court compliance. Staton and Vanberg (2008) posit that vagueness allows judges to manage uncertainty and obscure lower court noncompliance, and Lambie-Hanson and Parameswaran (2015) argue that judges use vagueness to manage imperfect information. Similarly, Fox and Vanberg (2014) show that judges rule broadly when faced with limited information, and Clark (2016) models a tradeoff between precise, narrow opinions and broad, vague opinions. Each of these models suggest that vagueness and breadth can factor into the opinion writing process, making a precedent more or less applicable.

A key consideration these works leave open is how ideology and breadth can interact and complicate the bargaining over the legal rule in the majority opinion. Intuitively, there could be a tradeoff between these; a judge may have to make certain ideological concessions in order for an opinion to be broadly applicable. To examine such a possibility, I present a spatial model of opinion writing on a multi-member court. An opinion writing judge proposes a rule, and whether that rule should apply broadly. A narrow rule applies only to a set of cases that are factually similar, and a broad rule applies to both factually similar cases and another distinct set of possibly tangential cases. I operationalize the intensity of the judge's preferences by incorporating weights on each of these sets. That is, judges may deferentially value policy in the two sets of cases, rather than weigh them equally. One judge is assigned the task of authoring an opinion, which must be approved by a majority to be established as the opinion of the court.

Allowing judges to endogenously determine the scope of an opinion yields several key insights. First, narrow opinions are always passed with a connected coalition, consisting of judges who are ideologically adjacent to each other. Broad opinions authored by an ideologically extreme judge, however, can be supported by disconnected coalitions. Whether or not a broad opinion has an ideologically connected coalition depends on the ideological position of the opinion writer relative to the court as well as how much the non-writing judges weigh the different areas of the law. Regardless of the opinion writer's ideological position on the court, both narrow and broad opinions can be achieved in equilibrium. The opinion writer's decision between proposing a broad or narrow opinion depends on the non-writing judges' valuation of the status quo as well as the weight the opinion writing judge places on the relevant legal domains. Narrow opinions are only ever proposed by the opinion writer when the judges value areas of the law differently.

In the next section, I develop a formal model of opinion writing. The analysis proceeds in two steps. First, I derive an equilibrium with three possible outcomes when an ideologically extreme judge authors the majority opinion. Next, I compare these potential outcomes to those that can be achieved in equilibrium when the median is the opinion writer. A discussion concludes. All proofs are contained in the appendix.

2 The Model

2.1 Setup

A court consists of three judges who must choose policy in two domains, $A \subseteq \mathbb{R}$, and $B \subseteq \mathbb{R}$. A is the domain in which the case applies directly, B is a separate domain which can be accessed via a broad opinion. Denote the status quo $q = (q_A, q_B)$, where q_A is the status quo in A, and q_B is the status quo in B. The status quos can be distinct across the domains. The legal rule in A can be set at any point in the domain, $x_A \in A$, and this rule can be extended to B or not, $x_B \in \{x_A, q_B\}$. Opinions specify policy in both domains, (x_A, x_B). A broad opinion is one in which policy is set in both domains, (x_A, x_A), while a narrow opinion only sets policy in one (x_A, q_B).

Suppose each judge $i \in \{1, 2, 3\}$ has an ideal point x_i, which is the same in both A and B. Assume ideal points are ordered $x_1 < x_2 < x_3$, and set $x_2 = 0$. Preferences are given by $u_i(x_A, x_B) = -\omega_i|x_i - x_A| - (1 - \omega_i)|x_i - x_B|$. Utility decreases in distance of the opinion from the ideal point in both domains. This differs from standard linear loss by allowing for the possibility of losses in one domain being offset by gains in another.[1]

Consider the case in which one judge is assigned the task of writing the majority opinion. For whichever judge i is assigned opinion authorship, she makes an offer (x_A, x_B) to the Court. If the opinion receives at least 2 votes, (x_A, x_B) is adopted. If not, policy defaults to the status quo, q. In the following analysis, I first focus on the case in which judge 1 is assigned the task of opinion authorship, and then compare this to the case when judge 2 authors the opinion.

[1]The results presented in this paper do not rely on the linearity of these preferences, and hold with quadratic loss as well.

2.2 Comments

Several features of the model merit further explanation. First, the two domains are to be interpreted as different areas of the law. A is the primary domain; the set of cases that are factually similar to the one being decided. B is a secondary domain, which can be invoked or not in the opinion of the court. These are meant to signify different legal issues which can be relevant in one case. Should the opinion writing judge only choose to establish a policy in A, she will leave the status quo in B, and therefore the opinion applies to a more narrow set of cases. Otherwise, she sets precedent in both A and B in a broad opinion. In the *Cakeshop v. Colorado* example, domain A would be the set of cases where the lower court may have exhibited contempt for one party, and domain B would be cases involving LGBT discrimination. Note that which domain can be accessed in a narrow opinion is exogenously determined. An opinion writing judge cannot rule in domain B without also ruling in A.

Second, the judges on the court have differential weights for both domains. Each judge i weighs policy in domain A by ω_i, and domain B by $1 - \omega_i$. These capture the relative importance of the two areas of the law to each judge. The valuation of the two domains can vary across judges, meaning that the members of the court can weigh areas of the law differently. Substantively, this can be personal interest in particular areas of the law, or just the perceived relative importance of the different areas. This has been evidenced empirically, including by Farhang, Kastellec, and Wawro (2015), who show that female judges are more likely to take interest in sexual harassment cases, and author majority opinions in those cases.

Third, in this model the opinion writer is exogenously determined and makes a take-it-or-leave-it offer to the court. In practice, there is technically open competition over the opinion. The most senior member on the majority chooses someone in the majority to write an opinion, and any other person on the court can author a separate opinion. If the separate opinion receives a majority of signatures, it becomes the majority opinion instead. However, it is very rare that a separate opinion achieves enough signatures to replace the assigned opinion as the majority opinion.

Finally, for ease of exposition, I focus on a three member court. This can be directly applied to the US courts of appeals, in which cases are usually heard by a three judge panel. The three representative judges in this model can also be readily interpreted as a special case of a nine judge court, with liberal, moderate and conservative factions; each of these three factions with its own weights over the domains. More generally, the main arguments presented in this analysis can provide insight for larger N member courts.

3 Extreme Opinion Writer

In this section I analyze the case in which judge 1 authors the majority opinion. I establish a subgame perfect Nash equilibrium with weakly dominated strategies eliminated. This first involves determining the voting strategies of the non-writing judges, who accept a proposal if it is weakly preferred to the status quo. Given these strategies, I specify the proposer's best narrow opinion and her best broad opinion for all values of the status quo and each player's weights on the two domains. The opinion writer then chooses the opinion that maximizes her utility.

Under majority rule on a three person court, the opinion writer only needs to obtain the support of one other judge. Given that opinion writing is non-competitive, judges accept an opinion proposal if it makes them at least as well off as the status quo. Therefore, the opinion writer proposes an opinion that at least one other judge weakly prefers to the status quo. In standard agenda setting models, this amounts to ensuring the median is indifferent between the proposal and the status quo. However, with more than one policy domain, this result no longer applies. In particular, I show that majority coalitions in support of broad opinions can be connected or disconnected. Generally, a disconnected coalition is one in which there is a member of the court that does not vote with the majority and whose ideal point is between two judges who do vote with the majority. When judge 1 is the opinion writer, define a connected coalition as one in which judge 2 joins, and a disconnected coalition as one in which he does not.

The proposal made by the opinion writer can be of four types. A narrow opinion, x_N, can be accepted by judges 2 or 3. Similarly, a broad opinion can also be accepted by either 2 or 3. Judge 1 optimizes among these choices. In equilibrium, narrow opinions always pass with connected coalitions, whereas coalitions in support of broad opinions can be either connected or disconnected.

3.1 Optimal Narrow Opinion

If the opinion writer drafts a narrow opinion, then the remaining justices only compare the opinion to the status quo in A. There is no proposed change in the second domain, so the status quo in B and the weights of the two domains are removed from consideration. This reduces to standard agenda setting, and thus the opinion writer always weakly prefers to coalesce with judge 2.

Lemma 1. *Majority coalitions for narrow opinions authored by an extreme opinion writer are always connected.*

Therefore, if 2 prefers x_1 to the status quo in A, judge 1 can pass her ideal in A. Otherwise, 1 proposes an opinion that makes 2 indifferent to the status quo while making herself weakly better off. Her optimal narrow opinion is thus given by:

$$x_N^* = \begin{cases} x_1 & \text{if } |q_A| \geq |x_1| \\ -|q_A| & \text{otherwise.} \end{cases}$$

3.2 Optimal Broad Opinion

Should the opinion writer instead choose to author a broad opinion, her selection of coalition partner is more complicated. Both judges 2 and 3 compare a broad proposal to their utility from the status quo in both domains. Thus, their preferences over broad opinions depends on the intensity of their preferences over each domain. Denote the broad opinion accepted by judge $j \in \{2,3\}$ as x_{Ej}. If the proposed opinion is closer to x_j than the weighted distance between x_j and q, then j accepts:

$$x_{Ej} = \begin{cases} x_1 & \text{if } \omega_j|x_j - q_A| + (1-\omega_j)|x_j - q_B| \geq |x_j - x_1| \\ x_j - \omega_j|x_j - q_A| - (1-\omega_j)|x_j - q_B| & \text{otherwise.} \end{cases}$$

It can be the case, for some values of ω_2 and ω_3, that 3 will accept a broad opinion that 2 will not. In such cases, the majority coalition in support of the broad opinion will be disconnected.

Lemma 2. *There exist $\bar{\omega}_2$ and $\bar{\omega}_3(\omega_2)$ such that the majority coalition in support of a broad opinion authored by judge 1 is disconnected if and only if both of the following conditions hold:*

i. $\bar{\omega_2} > \omega_2$ *if* $|q_A| > |q_B|$, *or* $\bar{\omega_2} < \omega_2$ *if* $|q_A| < |q_B|$,

ii. $\bar{\omega}_3(\omega_2) < \omega_3$ *if* $|x_3 - q_A| > |x_3 - q_B|$, *or* $\bar{\omega}_3(\omega_2) > \omega_3$ *if* $|x_3 - q_A| < |x_3 - q_B|$.

Whether a broad opinion is supported by a connected coalition or a disconnected coalition depends on the weight judge 2 assigns each domain as well as the weight judge 3 places on the domain relative to 2. There are two cases that preclude the possibility of a disconnected coalition. If 2 prefers the status quo in B to the status quo in A, and he values domain A highly enough, then 2 will always accept $x_{E2} = x_1$. Conversely, if 2 prefers the status quo in A to B, then for low enough weights on A, $x_{E2} = x_1$. In either case, 2 accepts judge 1's ideal in both domains, so 1 always proposes her ideal broadly, and it passes with a connected coalition. Therefore, in order to derive an equilibrium in which the majority coalition is disconnected, we must consider cases in which ω_2 does not satisfy these conditions.

While it is necessary that 2 rejects (x_1, x_1) in order to obtain a disconnected majority coalition, it is further necessary that the opinion approved by 3 is strictly preferred by the opinion writer to an opinion approved by 2. Given linear utilities, this simply implies that x_{E3} is closer to x_1 than x_{E2}. This condition being met depends not only on the locations of the status quo in each domain, but also the relative weights each judge places on the domains. In particular, if q_B is preferred to q_A for judge 3, then for large enough ω_3, 1 prefers to coalesce with 3. How large ω_3 must be depends on ω_2 (whether $\bar{\omega_3}$ is increasing or decreasing in ω_2 depends on whether 2 prefers q_A or q_B). That is, if the status quo in B is better for judge 3 than the status quo in A, then if judge 3 weighs domain A highly enough, judge 1 will coalesce with 3, forming a disconnected coalition. Precisely how highly judge 3 must weight A for this to occur depends on judge 2's utility from the status quo. If instead, 3 prefers q_A to q_B, then 1 chooses to coalesce with 3 for small enough ω_3. The opinion writer's optimal broad opinion is given below.

$$x_E^* = \begin{cases} x_{E3} & \text{if i) and ii) from Lemma 2} \\ x_{E2} & \text{otherwise.} \end{cases}$$

3.3 Equilibrium

For a given set of parameters, the opinion writer compares her optimal narrow opinion, x_N^*, and her optimal broad opinion x_E^*. She chooses the opinion that maximizes her utility. Which of these she selects depends directly on the weights she assigns each domain ω_1, and indirectly on the weights the other judges assign the domains, ω_2 and ω_3.

Proposition 1. *If judge 1 is the opinion writer, the equilibrium majority opinion takes one of the following forms:*

(a) a broad opinion with a connected majority coalition,

(b) a broad opinion with a disconnected majority coalition, or

(c) a narrow opinion with a connected majority coalition.

Each (a), (b), and (c) occur for an open set of parameters (ω_1, ω_2, ω_3, q_A, q_B).

As stated in part (a) of the proposition, for a given range of parameters, 1 chooses to author a broad opinion and coalesce with 2. This requires that 1 prefer the broad opinion accepted by 2 to the broad opinion accepted by 3, as well as the narrow opinion accepted by 2. Part (b) holds that for a range of the parameter space, in equilibrium the majority coalition will be disconnected. This occurs when judge 3 accepts a broad opinion that is closer to the opinion writer's ideal than that accepted by 2, which occurs under the conditions outlined in Lemma 2.

Figure 1 illustrates a situation in which judge 1 chooses to form a disconnected coalition. Judges 2 and 3 accept any proposals that constitute weak improvements from the status quo. Their indifference curves relative to the status quo are depicted in the figure, thus each non-writing judge accepts any proposal in the upper contour set.[2] Judge 1's ideal point is interior to judge 3's indifference curve, so 3 will accept x_1 in both domains. Therefore, since judge 1 can pass her ideal broadly by coalescing with 3, and such an opinion would be rejected by judge 2, the majority coalition will be disconnected. The slopes of the indifference contours depend on the weights each judge assigns the two domains. Higher interest in domain A corresponds with a steeper vertical slope. Whether or not the majority coalition is disconnected depends on the relative value of these weights.

Finally, for some realizations of the parameters, it is the case that the opinion writer chooses to propose a narrow opinion. As discussed previously, such opinions will always be passed by a connected majority. Judge 1's choice of opinion breadth depends on the value of ω_1. The location of the optimal broad opinion depends on ω_2, and ω_3 relative to ω_2. Therefore, which of these three possible outcomes is realized in equilibrium depends on how each judge weighs the two domains.

Figure 2 illustrates an example in which judge 1 prefers to write a narrow opinion. Because a broad opinion is fixed in both domains, such opinions must be on the 45° line. Therefore, the best possible broad proposal for judge 1 that will be accepted by judge 2

[2]Note that these indifference "curves" are polygons due to the linear utility specifications, similar graphs can be obtained for quadratic utilities as well.

Disconnected Optimal Coalition Example

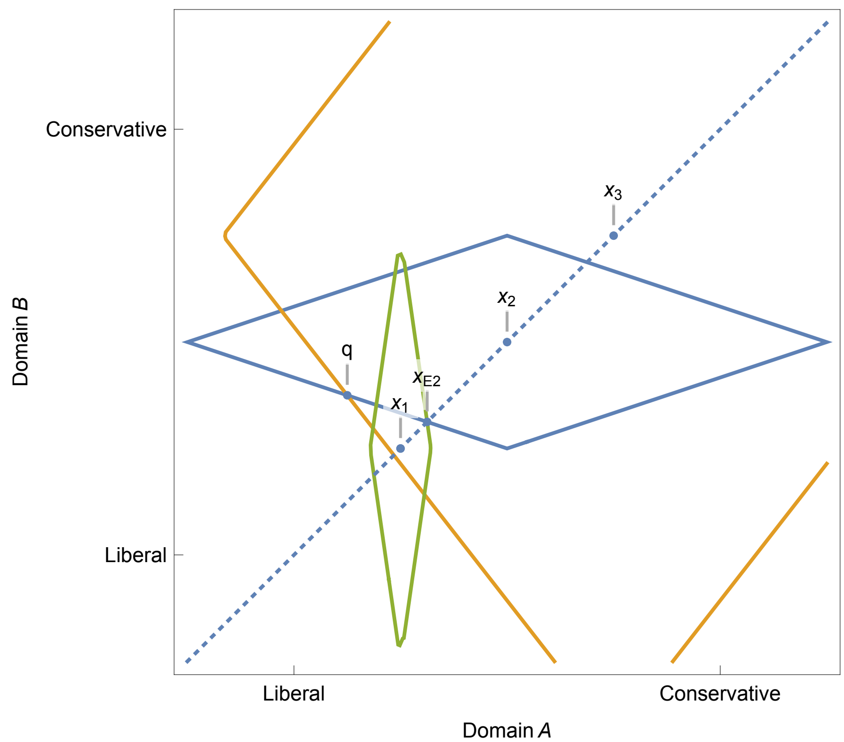

Figure 1: In this example if judge 1 is the opinion writer, she will coalesce with judge 3 and form a disconnected coalition. In blue is judge 2's indifference curve to the status quo q, and in orange is judge 3's (these indifference "curves" are polygons because of the linear utility specification). Because a broad opinion is the same in both domains, all broad proposals must be on the 45°line. Thus, the best possible broad opinion for judge 1 that judge 2 will accept is given by x_{E2}. However, x_1 is interior to judge 3's indifference curve, meaning that it renders 3 strictly better off than the status quo. As a result, judge 1 proposes (x_1, x_1) and judge 3 accepts. Since this point makes 2 worse off than q, he rejects and the majority coalition is disconnected.

is given by x_{E2}. Judge 1's indifference curve for this broad opinion is depicted in orange. However, should she choose instead to write a narrow opinion, she is no longer constrained to the 45°line, and instead can propose an opinion anywhere on the horizontal line through q_B. For judge 2, (x_1, q_B) constitutes an improvement from (q_A, q_B), and therefore he will accept this proposal. This point is also makes judge 1 strictly better off than her optimal broad proposal, so she chooses to write a narrow opinion.

Corollary 1. *If both judges 1 and 2 weigh domains A and B equally, there is never a narrow opinion in equilibrium.*

Narrow Optimal Opinion Example

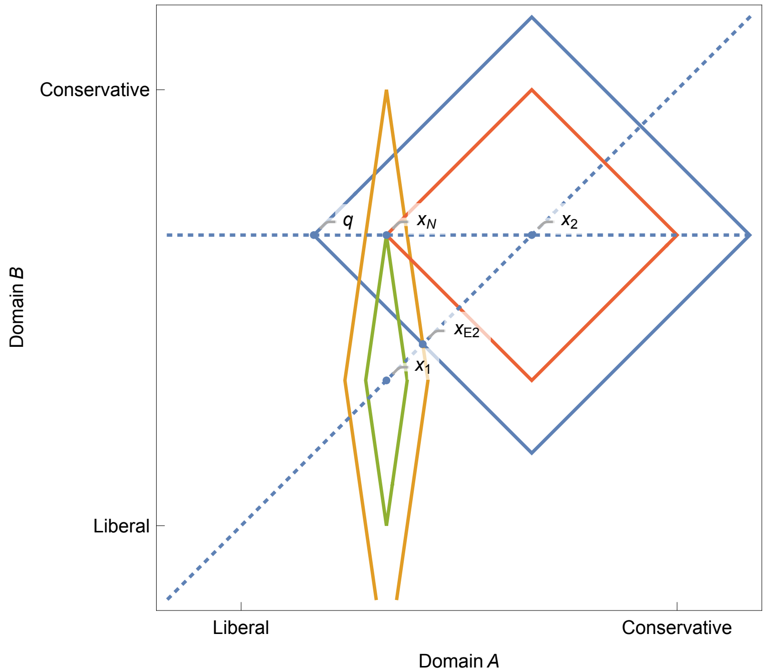

Figure 2: This example illustrates a case when judge 1 authors a narrow opinion. Broad opinions can be anywhere on the diagonal, whereas narrow opinions maintain the status quo in B, and therefore can be located anywhere on the horizontal line passing through the status quo, q. Judge 2's indifference curve at q is given in blue, and the broad opinion he accepts is x_{E2}. However, should judge 1 choose to write a narrow opinion, she can pass her ideal point in domain A, and judge 2 will accept $(x_1,\ q_B)$. Therefore, judge 1 is strictly better off proposing a narrow opinion than a broad one.

Notably, the existence of narrow opinions requires differential weighting across the domains. In order to arrive at narrow decisions, the opinion writing judge must weigh domain A highly if she prefers x_N^* to q_B, or weigh it less if she prefers q_B to x_N^*. In cases in which these judges weigh the domains equally, $\omega_1 = \omega_2 = 1/2$, they will always be better off publishing a broad opinion that changes the status quo in both domains. This means that the existence of narrow opinions implies differential weighting for distinct areas of the law.

4 Median Opinion Writer

Suppose instead that judge 2 is the assigned opinion writer. The solution concept is again a subgame perfect Nash equilibrium in undominated strategies. Allowing the median on a three judge court to propose the majority opinion changes the previous results in two ways. First, as in a standard agenda setting framework, the median judge can always pass his ideal policy in one domain. For any possible status quo in A, he is able to find a coalition partner who prefers x_2 to q_A. When q_A is negative, he coalesces with judge 3, when it is positive, he coalesces with judge 1. In either case, judge 2's optimal narrow proposal is always at his ideal point, and the majority coalition is connected.

However, judge 2's choice over an expansive proposal is less straightforward. He chooses to coalesce with whichever judge accepts a proposal closest to his ideal opinion. This depends not only on the non-writing judges' valuations of the status quo, but also on their relative weighting of the two domains. Whichever judge the opinion writer chooses to coalesce with, the majority coalition will still be connected, by definition. This precludes the possibility that an expansive opinion can be supported by a disconnected majority, contrasting with the case in which judge 1 is the opinion writer.

Proposition 2. *If judge 2 is the opinion writer, an equilibrium majority opinion can take one of the following forms:*

(a) a broad opinion with a connected coalition, or

(b) a narrow opinion with a connected coalition.

Although in this case there no longer are disconnected majorities, the opinion writer still proposes both narrow and broad opinions in equilibrium. For a given realization of the status quo in each domain, and the weighting of the domains by the non-writing judges, the proposer determines the scope of the opinion. If the parameters are such that at least one other judge will accept x_2 in both domains, judge 2 proposes a broad opinion at his ideal point. In all other cases, his choice of whether to propose a broad or narrow opinion depends on his weights over the domains. In such cases, for high enough values of ω_2, he chooses to limit the scope of the proposed rule by publishing a narrow opinion at his ideal point. For lower ω_2, the opinion writer puts greater weight on domain B, and he is willing to compromise on policy in order to establish the opinion broadly.

5 Conclusion

This paper offers a theory of opinion writing on multi-member courts that allows judges to strategically vary the scope of an opinion. I show that under certain conditions, the Court may issue an opinion that is narrow in scope. While on the surface this may be the Court curtailing its own influence, in fact it is the opinion writer making concessions in breadth in order to make gains in policy. Instrumental in this tradeoff are the judges' differential levels of interest across areas of the law. It is because of these preferences that sometimes the opinion writer prefers to exert more influence over the legal rule in one domain instead of less influence in two. Consequently, what might appear to be judicial minimalism could actually be the opinion writer's attempt to make strategic ideological advances.

Further, I provide an explanation for disconnected majority coalition formation. The justices on the US Supreme Court do not always vote in a way consistent with their perceived ideological dispositions. In this paper, I show that this behavior might be the result of weighing areas of the law differently. In particular, an ideologically extreme opinion writing judge will choose to coalesce with whichever of her colleagues allows her to publish an opinion closest to her ideal. This need not always be the median justice. Therefore, when the median's valuation of the status quo in the different areas of the law makes coalescing with him less attractive than coalescing with a more ideologically distant justice, the opinion writer chooses the more extreme justice as a coalition partner. This leads to a majority that does not consist of justices who are all ideologically adjacent.

This theoretical framework suggests several observable implications. First, in equilibrium, narrow opinions are always passed with a connected coalition. A disconnected majority coalition can only ever be achieved via a broad opinion written by an ideologically extreme judge. Given that such coalitions are frequently observed on the Supreme Court, this theory would predict that, all else equal, disconnected coalitions should be associated with more broad opinions. Disconnected coalitions should also occur more frequently when the opinion writer is extreme. Another implication involves the weighting of the two domains. If the judges on the court weigh the domains equally, we should never observe a narrow opinion. Therefore, when the judges are equally interested in the relevant legal issues, the opinions published by the court should always be broad. Future research could use citation data as a measure of opinion applicability to examine these implications empirically.

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6 Appendix

The opinion author selects and opinion (x_A, x_B) that maximizes her utility and is approved by at least one other judge. Utilities are given by $u_i(x_A, x_B) = -\omega_i|x_i - x_A| - (1-\omega_i)|x_1 - x_B|$.

Extreme Opinion Writer

When 1 is the opinion writer she solves the following optimization problems (for each $j \in \{2, 3\}$)

1. $\max_{x_N} -\omega_1|x_1 - x_N| - (1-\omega_1)|x_1 - q_B|$
   s.t. $0 \geq \omega_j|x_j - x_N| - \omega_j|x_j - q_A|$
2. $\max_{x_E} -|x_1 - x_E|$
   s.t. $0 \geq |x_j - x_E| - \omega_j|x_j - q_A| - (1-\omega_j)|x_j - q_B|$

The optimal narrow and broad opinions are given by:

$$x_{Nj} = \begin{cases} x_1 & \text{if } |x_j - q_A| \geq |x_j - x_1| \\ x_j - |x_j - q_A| & \text{otherwise} \end{cases} \tag{1}$$

$$x_{Ej} = \begin{cases} x_1 & \text{if } \omega_j|x_j - q_A| + (1-\omega_j)|x_j - q_B| \geq |x_j - x_1| \\ x_j - \omega_j|x_j - q_A| - (1-\omega_j)|x_j - q_B| & \text{otherwise} \end{cases} \tag{2}$$

for $j \in \{2, 3\}$. Where x_{Nj} is the optimal opinion that applies only in one domain that is approved by j, and x_{Ej} is the optimal opinion that applies in two domains that is approved by j. For the remainder of the analysis, suppose $x_1 < x_2 < x_3$ and normalize $x_2 = 0$.

Lemma 1. *Majority coalitions for narrow opinions are always connected.*

Proof. Suppose towards a contradiction that the majority coalition in support of a narrow opinion is disconnected. That is, that judge 1 coalesces with judge 3, but not judge 2. This occurs when 1's utility from a narrow opinion approved by 3 is strictly greater than her utility from a narrow opinion approved by 2,

$$u_1(x_{N3}, q_B) > u_1(x_{N2}, q_B).$$

Substituting in the utility function,

$$-\omega_1|x_1 - x_{N3}| - (1-\omega_1)|x_1 - q_B| > -\omega_1|x_1 - x_{N2}| - (1-\omega_1)|x_1 - q_B|.$$

Rearranging,

$$-\omega_1|x_1 - x_{N3}| > -\omega_1|x_1 - x_{N2}|.$$

Which reduces to

$$|x_1 - x_{N3}| < |x_1 - x_{N2}|.$$

Since we know both $x_{Nj} \geq x_1$ and $x_1 < 0$, then we have $x_1 - x_{Nj} < 0$, so

$$x_{N3} - x_1 < x_{N2} - x_1.$$

Which reduces to

$$x_{N3} < x_{N2}. \tag{3}$$

Judge 1 coalesces with 3 and not 2 if the opinion agreed upon by 3, x_{N3}, is strictly lower than that agreed upon by 2, x_{N2}. I consider the two possible cases corresponding with different values of x_{N2}, given in equation (1). First, when $|x_2 - q_A| \geq |x_2 - x_1|$, then $x_{N2} = x_1$, so condition (1) is never met. Therefore, in this case, there is never a disconnected majority coalition. Second, consider the case when $|x_2 - q_A| < |x_2 - x_1|$, so $x_{N2} = x_2 - |x_2 - q_A|$. Since we have fixed $x_2 = 0$, we can rewrite this case as when $|q_A| < |x_1|$, then $x_{N2} = -|q_A|$. Substituting into (1), the majority coalition is disconnected if

$$x_{N3} < -|q_A|. \tag{4}$$

Recall that the narrow opinion accepted by 3, x_{N3}, is x_1 if $|x_3 - q_A| \geq |x_3 - x_1|$, and is $x_3 - |x_3 - q_A|$ otherwise. Given that we are in the case where $|q_A| < |x_1|$, and we know that $x_1 < 0$, it must be that $q_A > x_1$. Therefore, since $x_3 > 0$, we have that $|x_3 - q_A| < |x_3 - x_1|$. So we can determine that in this case $x_{N3} = x_3 - |x_3 - q_A|$. Substituting this in to (2),

$$x_3 - |x_3 - q_A| < -|q_A|.$$

Rearranging,

$$x_3 + |q_A| < |x_3 - q_A|. \tag{5}$$

If $q_A \leq 0$, then $x_3 + |q_A| = |x_3 - q_A|$. If $q_A > 0$, then $x_3 + |q_A| > |x_3 - q_A|$. Thus, condition (3) never holds. It is never the case that judge 1 prefers to coalesce with judge 3 than judge 2. So 1 weakly prefers to coalesce with 2 over 3 on a narrow opinion, and the majority coalition for narrow opinions is always continuous. Therefore, 1's optimal narrow opinion is given by:

$$x_N^* = \begin{cases} x_1 & \text{if } |q_A| \geq |x_1| \\ -|q_A| & \text{otherwise.} \end{cases}$$

■

Lemma 2. *There exist $\bar{\omega}_2$ and $\bar{\omega}_3(\omega_2)$ such that the majority coalition in support of a broad opinion is disconnected if and only if both of the following conditions hold:*

i. $\bar{\omega}_2 > \omega_2$ *if* $|q_A| > |q_B|$, *or* $\bar{\omega}_2 < \omega_2$ *if* $|q_A| < |q_B|$,

ii. $\bar{\omega}_3(\omega_2) < \omega_3$ *if* $|x_3 - q_A| > |x_3 - q_B|$, *or* $\bar{\omega}_3(\omega_2) > \omega_3$ *if* $|x_3 - q_A| < |x_3 - q_B|$.

Proof. The proof of this result proceeds in two parts. First, I show that conditions i and ii are necessary for a disconnected majority coalition. In three cases, I derive the conditions under which the majority coalition is disconnected, and argue that when either i or ii is not met, the majority coalition is connected. Second, I show i and ii jointly imply a disconnected coalition.

PART A: If an expansive coalition is supported by a disconnected coalition, then both i) and ii) must hold.
I prove the necessity of these conditions in order to form a disconnected coalition in two steps. In step 1, I show i is necessary by considering the case when judge 2 accepts (x_1, x_1). In this case, I show that if i does not hold, then the majority coalition is always connected. In step 2, I show that ii is necessary for a disconnected coalition by considering cases in which judge 3 accepts (x_1, x_1) and 2 rejects, or both 2 and 3 reject (x_1, x_1). In both cases, I show that if the majority coalition is disconnected, ii must hold.

Step 1 Define $\bar{\omega}_2 = \frac{|x_1|-|q_B|}{|q_A|-|q_B|}$. The majority coalition can be disconnected only if either of the following hold:

$$\omega_2 < \bar{\omega}_2 \text{ if } |q_A| > |q_B| \text{ or} \tag{6}$$
$$\omega_2 > \bar{\omega}_2 \text{ if } |q_A| < |q_B|. \tag{7}$$

Case 1
Suppose 2 accepts (x_1, x_1). She does so when $\omega_2|x_2 - q_A| + (1 - \omega_2)|x_2 - q_B| \geq |x_2 - x_1|$. Substituting $x_2 = 0$ this yields the condition

$$\omega_2|q_A| + (1 - \omega_2)|q_B| \geq |x_1|.$$

Rearranging,

$$\omega_2(|q_A| - |q_B|) \geq |x_1| - |q_B|.$$

Solving for ω_2 we obtain

$$\omega_2 \geq \frac{|x_1| - |q_B|}{|q_A| - |q_B|} \text{ if } |q_A| > |q_B| \text{ or} \tag{8}$$
$$\omega_2 \leq \frac{|x_1| - |q_B|}{|q_A| - |q_B|} \text{ if } |q_A| < |q_B|. \tag{9}$$

When condition (8) or (9) are met, 2 accepts (x_1, x_1). Since this is 1's ideal point, she achieves her maximal utility by authoring a broad opinion and coalescing with 2. Therefore, in this case, the majority coalition is always connected.

Step 2 Define $\bar{\omega}_3(\omega_2) = \frac{x_3+\omega_2|q_A|+(1-\omega_2)|q_B|-|x_3-q_B|}{|x_3-q_A|-|x_3-q_B|}$. When 2 rejects (x_1, x_1), the majority coalition in support of a broad opinion is disconnected only if either of the following hold:

$$\bar{\omega}_3(\omega_2) < \omega_3 \text{ if } |x_3 - q_A| > |x_3 - q_B| \text{ or} \tag{10}$$
$$\bar{\omega}_3(\omega_2) > \omega_3 \text{ if } |x_3 - q_A| < |x_3 - q_B|. \tag{11}$$

Case 2
Suppose 2 does not accept (x_1, x_1), but 3 does. By equation (2), this occurs when the following conditions are met:

$$\omega_3|x_3 - q_A| + (1 - \omega_3)|x_3 - q_B| \geq |x_3 - x_1| \text{ and} \tag{12}$$
$$\omega_2|q_A| + (1 - \omega_2)|q_B| < |x_1|. \tag{13}$$

Since $x_3 > 0 > x_1$, we know $x_3 - x_1 > 0$,

$$\omega_3|x_3 - q_A| + (1 - \omega_3)|x_3 - q_B| \geq x_3 - x_1.$$

Rearranging and using that $-x_1 = |x_1|$,

$$-x_3 + \omega_3|x_3 - q_A| + (1 - \omega_3)|x_3 - q_B| \geq |x_1|$$

By condition (13) this implies

$$-x_3 + \omega_3|x_3 - q_A| + (1 - \omega_3)|x_3 - q_B| > \omega_2|q_A| + (1 - \omega_2)|q_B|. \tag{14}$$

Rearranging,

$$\omega_3(|x_3 - q_A| - |x_3 - q_B|) > x_3 + \omega_2|q_A| + (1 - \omega_2)|q_B| - |x_3 - q_B|. \tag{15}$$

Solving for ω_3 yields the following two conditions:

$$\omega_3 > \frac{x_3 + \omega_2|q_A| + (1 - \omega_2)|q_B| - |x_3 - q_B|}{|x_3 - q_A| - |x_3 - q_B|} \text{ if } |x_3 - q_A| > |x_3 - q_B| \text{ or} \tag{16}$$
$$\omega_3 < \frac{x_3 + \omega_2|q_A| + (1 - \omega_2)|q_B| - |x_3 - q_B|}{|x_3 - q_A| - |x_3 - q_B|} \text{ if } |x_3 - q_A| < |x_3 - q_B|. \tag{17}$$

Only if either condition (16) or (17) are met in this case, 1 will prefer to coalesce with 3 over 2 in a broad opinion, and the majority coalition will be disconnected.

Case 3
Suppose neither 2 or 3 accepts (x_1, x_1). This occurs when the following conditions are met:

$$\omega_3|x_3 - q_A| + (1 - \omega_3)|x_3 - q_B| < |x_3 - x_1| \text{ and}$$
$$\omega_2|q_A| + (1 - \omega_2)|q_B| < |x_1|.$$

Here, 2 accepts the broad opinion $x_{E2} = -\omega_2|q_A| - (1 - \omega_2)|q_B|$ and 3 accepts the broad opinion $x_{E3} = x_3 - \omega_3|x_3 - q_A| - (1 - \omega_3)|x_3 - q_B|$. The majority coalition will be disconnected if 1's utility from coalescing with 3 is greater than her utility from coalescing with 2,

$$u_1(x_{E3}, x_{E3}) > u_1(x_{E2}, x_{E2}).$$

Substituting the utility function,

$$-|x_1 - x_{E3}| > -|x_1 - x_{E2}|.$$

Since $x_1 < x_{Ej}$ and $x_1 < 0$,

$$x_1 - x_{E3} > x_1 - x_{E2}.$$

Rearranging,

$$-x_{E3} > -x_{E2}.$$

Therefore, that the majority coalition is disconnected if $x_{E3} < x_{E2}$. Substituting the values of x_{E3} and x_{E2} in this case, is left to verify

$$-x_3 + \omega_3|x_3 - q_A| + (1 - \omega_3)|x_3 - q_B| > \omega_2|q_A| + (1 - \omega_2)|q_B|.$$

This inequality is equivalent to equation (14) derived in case 2. Thus, the conditions on ω_3 under which the majority coalition is disconnected are the same in both cases.

In order for the majority coalition in support of a broad opinion to be disconnected, 2 must reject (x_1, x_1). Step 1 gives the range of ω_2 for which this occurs. Further, the majority coalition will be disconnected if 3 accepts an offer that is closer to (x_1, x_1) than 2 accepts. The conditions in which this occurs are given in Step 2. Taken together, these provide conditions on ω_2 and ω_3 necessary for a disconnected majority in support of a broad opinion.

PART B: If i) and ii) hold, then an expansive opinion is supported by a disconnected coalition.
It remains to show that i) and ii) are sufficient for a disconnected coalition. Suppose both i) and ii) hold. By equation (2) and i) we have,

$$x_{E2} = -\omega_2|q_A| - (1 - \omega_2)|_B|.$$

Since ii) holds,

$$\omega_3(|x_3 - q_A| - |x_3 - q_B|) > x_3 + \omega_2|q_A| + (1 - \omega_2)|q_B| - |x_3 - q_B|.$$

Rearranging,

$$-\omega_2|q_A| - (1 - \omega_2)|q_B| > x_3 - |x_3 - q_B| - \omega_3(|x_3 - q_A| - |x_3 - q_B|).$$

Substituting x_{E2},

$$x_{E2} > x_3 - |x_3 - q_B| - \omega_3|x_3 - q_A| - (1 - \omega_3)|x_3 - q_B|.$$

The broad opinion accepted by 3 is either $x_{E3} = x_3 - |x_3 - q_B| - \omega_3|x_3 - q_A| - (1 - \omega_3)|x_3 - q_B|$ or $x_{E3} = x_1$, by equation (2). Since $x_{E2} > x_1$, then for either value of x_{E3}

$$x_{E2} > x_{E3}. \tag{18}$$

Since $x_{Ej} \geq x_1$, equation (18) implies that 1 strictly prefers x_{E3} to x_{E2}. Therefore, she will coalesce with 3 instead of 2 and the majority coalition will be disconnected.

I have shown that the majority coalition for a broad opinion is disconnected if and only if conditions i) and ii) hold. Thus the opinion writer's optimal broad opinion is given by:

$$x_E^* = \begin{cases} x_1 & \text{if } \omega_j|x_j - q_A| + (1-\omega_j)|x_j - q_B| \geq |x_j - x_1| \\ & \text{ for j=2,3} \\ x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B| & \text{if } \bar{\omega_2} > \omega_2 \text{ and } |q_A| > |q_B|, \text{ or } \bar{\omega_2} < \omega_2 \text{ and } |q_A| < |q_B| \\ & \bar{\omega}_3(\omega_2) < \omega_3 \text{ and } |x_3 - q_A| > |x_3 - q_B|, \text{ or} \\ & \bar{\omega}_3(\omega_2) > \omega_3 \text{ if } |x_3 - q_A| < |x_3 - q_B| \\ -\omega_2|q_A| - (1-\omega_2)|q_B| & \text{otherwise.} \end{cases}$$

■

Proposition 1. *In equilibrium, the majority opinion takes one of the following forms:*

(a) a broad opinion with a connected majority coalition,

(b) a broad opinion with a disconnected majority coalition, or

(c) a narrow opinion with a connected majority coalition

for an open set of parameters (ω_1, ω_2, ω_3, q_A, q_B).

Proof. Consider the following conditions:

i. $-\omega_2|q_A| - (1-\omega_2)|q_B| \leq x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B|$,

ii. $-\omega_2|q_A| - (1-\omega_2)|q_B| \leq x_1 + \omega_1|x_1 - x_N^*| + (1-\omega_1)|x_1 - q_B|$, and

iii. $x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B| \leq x_1 + \omega_1|x_1 - x_N^*| + (1-\omega_1)|x_1 - q_B|$.

In order to prove part (a), I will consider the cases in which i) and ii) or iii) hold. To prove (b), I consider cases in which i) does not hold, but ii) or iii) does. Finally, to prove (c), I consider cases in which neither ii) nor iii) holds.

Proof of (a)

Suppose conditions i) and ii) are met. By lemma 2 and i), we have $x_E^* = x_{E2}$.
If $\omega_2|q_A| + (1-\omega_2)|q_B| \geq |x_1|$, then $x_{E2} = x_1$, by equation (2), and the opinion writer's utility from a broad opinion is given by $u_1(x_E^*, x_E^*) = -|x_1 - x_1| = 0$. Therefore, she achieves her maximal possible utility by writing a broad opinion and coalescing with 2. Note that $\omega_2|q_A| + (1-\omega_2)|q_B| \geq |x_1|$ implies $-\omega_2|q_A| - (1-\omega_2)|q_B| \leq x_1$ (since $x_1 < 0$), and thus ii) holds for any value of ω_1.
If instead $\omega_2|q_A| + (1-\omega_2)|q_B| < |x_1|$, then by equation (2) $x_{E2} = -\omega_2|q_A| - (1-\omega_2)|q_B|$, and the opinion writer's utility of a broad opinion is given by,

$$\begin{aligned}
u_1(x_E^*, x_E^*) &= -|x_1 + \omega_2|q_A| + (1-\omega_2)|q_B|| \\
&= -x_1 - \omega_2|q_A| - (1-\omega_2)|q_B|, && \text{since } x_1 < 0 \text{ and } -|x_1| + \omega_2|q_A| + (1-\omega_2)|q_B| < 0 \\
&\geq -\omega_1|x_1 - x_N^*| - (1-\omega_1)|x_1 - q_B|, && \text{by ii)} \\
&= u_1(x_N^*, q_B).
\end{aligned}$$

Therefore, when conditions i) and ii) are met, the opinion writer chooses to write a broad opinion and coalesce with 2.

Suppose conditions i) and iii) hold. Together, they imply ii), and by the logic above these are sufficient for a broad opinion with a connected coalition.

Proof of (b)
Suppose i) does not hold. That is, $-\omega_2|q_A| - (1-\omega_2)|q_B| > x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B|$. By lemma 2, we have $x_E^* = x_{E3}$. Further suppose iii) does hold.
If $\omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B| \geq |x_3 - x_1|$, then $x_{E3} = x_1$, by equation (2). So the opinion writer's utility of coalescing with 3 is given by $u_1(x_E^*, x_E^*) = -|x_1 - x_1| = 0$. Therefore, she achieves her maximal possible utility by coalescing with 3 on a broad opinion, forming a disconnected coalition. Note that in this case, since $\omega_1|x_1 - x_N^*| + (1-\omega_1)|x_1 - q_B| > 0$, condition iii) always holds.
If $\omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B| < |x_3 - x_1|$, then $x_{E3} = x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B|$ by equation (2). This condition is equivalent to,

$$\omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B| < x_3 - x_1 \qquad since x_3 > 0 > x_1 \tag{19}$$
$$x_1 - x_3 + \omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B| < 0 \qquad rearranging. \tag{20}$$

The opinion writer's utility from a broad opinion in this case is given by

$$\begin{aligned}
u_1(x_E^*, x_E^*) &= -|x_1 - x_3 + \omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B|| \\
&= x_1 - x_3 + \omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B| && \text{by (20)} \\
&\geq -\omega_1|x_1 - x_N^*| - (1-\omega_1)|x_1 - q_B|, && \text{by ii)} \\
&= u_1(x_N^*, q_B).
\end{aligned}$$

Therefore, when conditions i) and iii) are met, the opinion writer chooses to write a broad opinion with a disconnected coalition.

Suppose i) does not hold but ii) does. It follows that condition iii) will hold, and by the above logic, judge 1 will write and broad opinion coalescing with 3.

Proof of (c)
Suppose neither ii) nor iii) hold. Then since ii) is not met,

$$\begin{aligned} -\omega_2|q_A| - (1-\omega_2)|q_B| &> x_1 + \omega_1|x_1 - x_N^*| + (1-\omega_1)|x_1 - q_B| \\ -x_1 - \omega_2|q_A| - (1-\omega_2)|q_B| &> \omega_1|x_1 - x_N^*| + (1-\omega_1)|x_1 - q_B| \\ x_1 + \omega_2|q_A| + (1-\omega_2)|q_B| &< -\omega_1|x_1 - x_N^*| - (1-\omega_1)|x_1 - q_B|. \end{aligned}$$

Note that this condition is never met when $|x_1| \leq \omega_2|q_A| + (1-\omega_2)|q_B|$. So, by equation (2) it must be that $x_{E2} = -\omega_2|q_A| - (1-\omega_2)|q_B|$,

$$\begin{aligned} -|x_1 - x_{E2}| &< -\omega_1|x_1 - x_N^*| - (1-\omega_1)|x_1 - q_B| \\ u_1(x_{E2}, x_{E2}) &< u_1(x_N^*, q_B). \end{aligned}$$

Following a similar logic, since iii) does not hold,

$$\begin{aligned} x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B| &> x_1 + \omega_1|x_1 - x_N^*| + (1-\omega_1)|x_1 - q_B| \\ x_1 - x_3 + \omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B| &< -\omega_1|x_1 - x_N^*| - (1-\omega_1)|x_1 - q_B|. \end{aligned}$$

Noting that this never holds when $|x_1 - x_3| < \omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B|$, by equation (2) we have $x_{E3} = x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B|$. So we can rewrite the condition above,

$$\begin{aligned} -|x_1 - x_{E3}| &< -\omega_1|x_1 - x_N^*| - (1-\omega_1)|x_1 - q_B| \\ u_1(x_{E3}, x_{E3}) &< u_1(x_N^*, q_B). \end{aligned}$$

Therefore, any broad opinion leaves judge 1 strictly worse off than her optimal narrow opinion when conditions ii) and iii) hold. ■

Corollary 1. *If both judges 1 and 2 weigh domains A and B equally, there is never a narrow opinion in equilibrium.*

Proof. Assume judges 1 and 2 weigh the two domains equally, $\omega_1 = \omega_2 = 1/2$. By proposition 1, we know that if either ii) or iii) hold, then the opinion will be broad. Therefore, in order to establish a narrow opinion, neither ii) nor iii) can hold. In particular, it must be that

$$-\omega_2|q_A| - (1-\omega_2)|q_B| > x_1 + \omega_1|x_1 - x_N^*| + (1-\omega_1)|x_1 - q_B|.$$

Substituting ω_1, ω_2, and multiplying by 2,

$$-|q_A| - |q_B| > 2x_1 + |x_1 - x_N^*| + |x_1 - q_B|.$$

Rearranging,

$$-2x_1 - |q_A| - |q_B| > |x_1 - x_N^*| + |x_1 - q_B|.$$

Using $x_1 < 0$ and rearranging,

$$|x_1| - |q_B| - |x_1 - q_B| > |x_1 - x_N^*| + |q_A| - |x_1|. \tag{21}$$

If $|q_a| \geq |x_1|$, then $x_N^* = x_1$, so (21) reduces to

$$|x_1| - |q_B| - |x_1 - q_B| > |q_A| - |x_1|.$$

By triangle inequality, $|x_1| - |q_B| - |x_1 - q_B| < 0$. Therefore, this condition is never met. If $|q_a| < |x_1|$, then $x_N^* = -|q_A|$, and (21) can be written,

$$|x_1| - |q_B| - |x_1 - q_B| > |x_1 + |q_A|| + |q_A| - |x_1|.$$

Since $x_1 = -|x_1|$,

$$|x_1| - |q_B| - |x_1 - q_B| > ||q_A| - |x_1|| + |q_A| - |x_1|.$$

This is a contradiction by triangle inequality. Therefore, it is never the case that 1 will choose to write a narrow opinion when she and judge 2 weigh both domains equally. ■

Median Opinion Writer

When 2 is the opinion writer she solves the following optimization problems (for each $j \in \{1, 3\}$):

1. $\max_{x_N} -\omega_2|x_N| - (1-\omega_2)|q_B|$
   s.t. $0 \geq |x_j - x_N| - |x_j - q_A|$

2. $\max_{x_E} -|x_E|$
   s.t. $0 \geq |x_j - x_E| - \omega_j|x_j - q_A| - (1-\omega_j)|x_j - q_B|$

Judge 2's optimal narrow proposal accepted by judges 1 and 3 are given, respectively, by:

$$x_{N1} = \begin{cases} x_2 & \text{if } |x_1 - q_A| \geq |x_1 - x_2| \\ x_1 + |x_1 - q_A| & \text{otherwise} \end{cases} \tag{22}$$

and

$$x_{N3} = \begin{cases} x_2 & \text{if } |x_3 - q_A| \geq |x_3 - x_2| \\ x_3 - |x_3 - q_A| & \text{otherwise.} \end{cases} \tag{23}$$

The optimal expansive opinion accepted by judge 1 is

$$x_{E1} = \begin{cases} x_2 & \text{if } \omega_1|x_1 - q_A| + (1-\omega_1)|x_1 - q_B| \geq |x_1 - x_2| \\ x_1 + \omega_1|x_1 - q_A| + (1-\omega_1)|x_1 - q_B| & \text{otherwise.} \end{cases} \tag{24}$$

The optimal expansive opinion accepted by judge 3 is

$$x_{E3} = \begin{cases} x_2 & \text{if } \omega_3|x_3 - q_A| + (1-\omega_3)|x_3 - q_B| \geq |x_3 - x_2| \\ x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B| & \text{otherwise.} \end{cases} \tag{25}$$

Judge 2 evaluates his utility from each of these four proposals and chooses that which maximizes it.

Lemma 3. *When judge 2 is the opinion writer, he is always able to pass a narrow opinion at his ideal point.*

Proof. I prove this statement in two cases. First, suppose $q_A \geq 0$. Then $|x_1 - q_A| \geq |x_1 - x_2|$, and by equation (22), the opinion writer can pass his ideal point by coalescing with 1. If instead $q_A < 0$, then $|x_3 - q_A| > |x_3 - x_2|$. So by equation (23), the opinion writer can pass his ideal point by coalescing with 3. Thus, for any q_A, the judge 1 can pass his ideal policy in a narrow opinion. Denote his optimal narrow opinion $x_N^* = x_2$. ■

Proposition 2. *If judge 2 is the opinion writer, an equilibrium majority opinion can take one of the following forms:*

(a) a broad opinion with a connected coalition, or

(b) a narrow opinion with a connected coalition.

Proof. First, note that when judge 2 is the opinion writer on a three judge court, there can never be a disconnected majority. Whether 2 coalesces with 1 or 3 (or both), the majority coalition will be connected.

I show that in equilibrium either a narrow or broad opinion can be proposed by judge 2 in two numerical examples.

Example 1
Suppose $x_1 = -1$, $x_2 = 0$, $q_A = 1$, and $q_B = 1.5$. Judge 1 accepts (x_2, x_2) because

$$\begin{aligned} u_1(x_2, x_2) &= -|-1-0| \\ &= -1 \\ u_1(q_A, q_B) &= -\omega_1|-1-1| - (1-\omega_1)|-1-1.5| \\ &= -2\omega_1 - 2.5 + 2.5\omega_1 \\ &= -2.5 + .5\omega_1. \end{aligned}$$

Therefore, for any value of $\omega_1 \in [0,1]$, judge 1 prefers x_2 in two domains to the status quo, so she accepts. Since judge 2's utility is maximized at his ideal point, he proposes x_2. Thus, the equilibrium majority opinion is broad and passes with a connected coalition.

Example 2
Suppose instead that $x_1 = -1$, $x_2 = 0$, $x_3 = 1$ $q_A = 1$, and $q_B = -1$. Judge 1 rejects (x_2, x_2)

if

$$\begin{aligned} u_1(x_2, x_2) &< u_1(q_A, q_B) \\ -|-1-0| &< -\omega_1|-1-1| - (1-\omega_1)|-1+1| \\ -1 &< -2\omega_1 \\ 1/2 &> \omega_1. \end{aligned}$$

Judge 3 rejects (x_2, x_2) if

$$\begin{aligned} u_3(x_2, x_2) &< u_3(q_A, q_B) \\ -|1-0| &< -\omega_3|1-1| - (1-\omega_3)|1+1| \\ -1 &< -2(1-\omega_3) \\ 1 &< 2\omega_3 \\ 1/2 &< \omega_3 \end{aligned}$$

If $\omega_1 > 1/2$ and $\omega_3 < 1/2$, then both judges reject (x_2, x_2). Judge 2's optimal expansive opinion is then the lesser of $|x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B||$ and $|x_1 + \omega_1|x_1 - q_A| + (1-\omega_1)|x_1 - q_B|$.

$$\begin{aligned} x_{E3} &= |x_3 - \omega_3|x_3 - q_A| - (1-\omega_3)|x_3 - q_B|| \\ &= |1 - \omega_3|1-1| - (1-\omega_3)|1+1|| \\ &= |1 - 2(1-\omega_3)| \\ &= |-1 + 2\omega_3| \\ x_{E1} &= |x_1 + \omega_1|x_1 - q_A| + (1-\omega_1)|x_1 - q_B| \\ &= |-1 + \omega_1|-1-1| + (1-\omega_1)|-1+1|| \\ &= |-1 + 2\omega_1| \end{aligned}$$

Since $\omega_3 < 1/2 < \omega_1$, it follows that $x_{E3} < x_{E1}$ and therefore judge 2 prefers to coalesce with 3. Since $\omega_3 < 1/2$, the optimal expansive opinion is $x_E^* = 1 - 2\omega_3$.
Therefore, judge 2's utility for an expansive opinion is given by

$$\begin{aligned} u_2(x_E^*, x_E^*) &= -|x_2 - x_E^*| \\ &= 2\omega_3 - 1. \end{aligned}$$

Judge 2's utility for the optimal narrow opinion, found in Lemma 3, is

$$\begin{aligned} u_2(x_N^*, q_B) &= -\omega_2|x_2 - x_2| - (1-\omega_2)|x_2 - q_B| \\ &= -(1-\omega_2)|q_B| \\ &= \omega_2 - 1. \end{aligned}$$

The opinion writer prefers to a narrow opinion if

$$\omega_2 - 1 > 2\omega_3 - 1$$
$$\omega_2 > 2\omega_3.$$

For all $\omega_3 < 1/2$, there are some ω_2 for which this inequality holds. For example, if $\omega_3 = 1/4$, then judge 2 prefers a narrow opinion if $\omega_2 > 1/2$. Therefore, it is possible for the median to propose a narrow opinion in equilibrium, and this opinion passes with a connected coalition. ■