studies of natural scientists. The criterion is: good models deliver a substantial normative kick. They deal with matters we care about. For instance, Mancur Olson's (1965) "logic of collective action" is an arresting model because it implies that democracies often will not reflect even the deeply felt interests of citizens. Models of congressional turnover received enormous attention in the 1980s because low levels of turnover seem to violate standard conceptions of democratic accountability and control (Cain, Ferejohn, and Fiorina 1987). Good models need not confirm our normative biases, perhaps just the opposite. But they often speak to our values.

These are very, very tough criteria. They demand theory that operates at a high intellectual level. More than that, they demand models that are rooted in observable phenomena, that take data and empirical findings seriously, and that deal with matters we care about.

4

Models of Veto Bargaining

This chapter develops three models of veto bargaining. I begin with the second face of power, introduced in the first chapter, and develop it into a model of the veto as a presidential capacity. This model, the famous Romer-Rosenthal model of take-it-or-leave-it bargaining, supplies the theme on which all the subsequent models in this book are variations. The first variation examines the politics of veto overrides. The second explores full-blown sequential veto bargaining.

Each model in this chapter tells a story, the story of a causal mechanism. The mechanism in the first model is the *power of anticipated response*. The model explores how the president's veto power affects the balance of power in a separation-of-powers system. The mechanism in the second model is *uncertainty*. The model shows how uncertainty tempers congressional action, allows actual vetoes to take place, and shifts the balance of power somewhat toward the president. However, this model misses an important part of the politics of the veto for it cannot explain how vetoes wrest policy concessions from Congress. The mechanism in the third model is *strategic reputation building*, the deliberate manipulation of beliefs through vetoes. This model addresses the veto and congressional policy concessions.

Why do I present three midlevel models of veto bargaining rather than one grand model encompassing everything? To tell its story, each model isolates one or two elements of veto bargaining and then examines them extremely carefully. I could yoke several of these stories together into a kind of megamodel, much as a writer might do in a novel. But whether in literature or social science, this is worthwhile only if the juxtaposition creates a whole that is greater than the sum of the parts – for instance, if the different causal mechanisms interact in a substantively interesting way. Otherwise, forcing the different parts together creates pointless, confusing interactions that disrupt the flow of the separate stories. In such a case, the writer should let the separate parts remain as crystalline short stories; the theorist should build a few models, each with a clear point, rather than a single one with so many that none can be understood.

Throughout this chapter I try to keep the exposition simple, without becoming simplistic. Nonetheless, the models draw on over forty years of continuous work by political theorists and even conscientious readers may find parts heavy going. To ease the burden, I rely heavily on figures and numerical examples to convey intuition about the results. Additional details can be found in the appendix to this chapter.

THE BASIC MODEL: THE SECOND FACE OF POWER REVISITED

The Logic of Anticipation

In Chapter 1 I introduced the "second face of power." The insight was that power can work through anticipation, so a power relationship may exist even absent visible compulsion. This idea is inherently game theoretic, so it seems natural to express it in a simple game, as shown in Figure 4.1. Though the situation is generic, I tell the story in terms of vetoes.

As shown in Figure 4.1, Congress moves first and has two choices: pass version 1 of a bill or pass a modified version, version 2. (The restriction to two choices is just to keep the example simple; in a few paragraphs I introduce a more flexible way to represent the content of bills.) The president has the next move regardless of which bill is passed. He can either veto the bill or accept it. In this tinker-toy version of veto politics, neither overriding nor repassing is possible, so the game ends after the president's action. Payoffs for each player under the four possible outcomes are shown by the ordered pairs at the tips of the game tree. The first number indicates Congress's payoff, the second the president's. Because a veto enforces the status quo, I scale the payoffs so that both players value the status quo at zero. Also, to keep things interesting, assume the president and Congress potentially could agree on a bill both prefer to the status quo. However, they disagree over the best alternative. In fact, to sharpen the possible disagreement, assume the president prefers the status quo to Congress's most preferred policy. Let us say version 1 of the bill reflects Congress's preferred policy while version 2 better reflects the president's. In accord with this underlying story, then, $0 < c < a$ and $b < 0 < d$.

Will the players see an obvious way to play this game? One argument, based on the solution concept known as "subgame perfection," suggests they should. This solution concept requires each player to maximize his

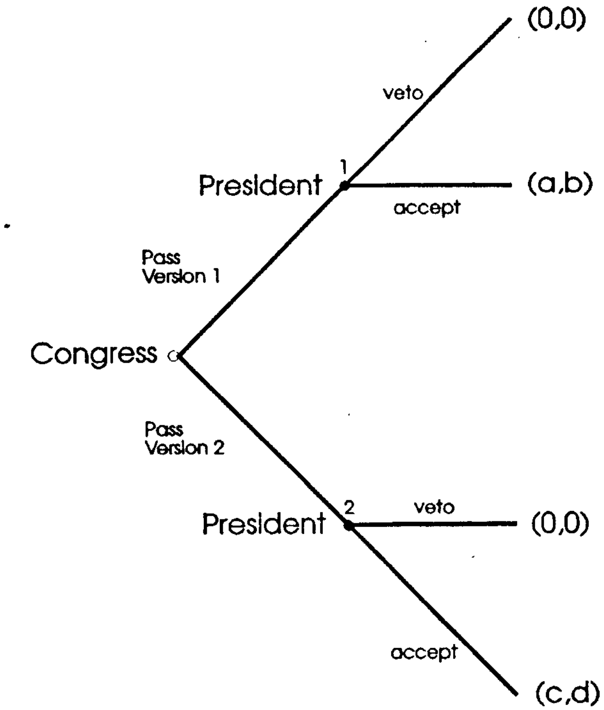


Figure 4.1. The "Second Face of Power" Game

or her expected payoff. It requires the president to take his best possible action for *any* bill passed by Congress. And it assumes Congress can correctly anticipate the president's actions regardless of which bill is passed.

Suppose the president finds himself at the node labeled "1." His choice at that point is either to veto version 1 of the bill, yielding a payoff of 0, or accept it, yielding the inferior payoff b. Hence, he will veto. Conversely, suppose he finds himself at the node labeled "2." Since $d > 0$ he will accept version 2 of the bill. *If Congress understands what the president will do*, then it knows that its real choice is between passing version 1 and receiving a payoff of 0, and passing version 2 and receiving a payoff of c. Hence, it will pass version 2. The president need not make an explicit veto threat nor even take any action; the truly interesting action is taking place purely through congressional anticipation of presidential actions. Consequently, all we will see is Congress passing bills acceptable to the president and the president signing them. We might mistakenly interpret this placid scene as presidential acquiescence to congressional activism! But in fact the implicit threat of a veto at node 1 compels Congress's choice of bill. This very simple model suggests how *the veto* (a capability) can shape the content of legislation even if *vetoes* (uses of the capability) are rare.

Simple as it is, the model incorporates three of the four building blocks needed to model veto bargaining: actors, sequence, and information. The actors are the president and Congress. Both are actually complex organizations – even the "president" is really an amalgam of the individual and his subordinates. However, the argument from structural incentives, sketched in the previous chapter, justifies their inclusion as single actors. The sequence of play is shown in Figure 4.1: Congress selects a bill, the president vetoes. (I examine much more complicated sequences shortly.) The model's information structure is extremely simple: both players know everything in the game that is worth knowing. The ability of Congress to forecast the president's actions is critical for the proposed solution to the game.

A fourth element is missing from the model, however: *policy*. Policy is central to veto bargaining. To address it, the model needs a device for representing policies. An extraordinarily useful device is the policy space.

Policy and Policy Preferences

Policy spaces are a hallmark of rational choice institutionalism. They are routinely used in models of Congress, the courts, and bureaucracy. Their use is one of the features that distinguish models of political settings from those of economic ones.

The concept of a policy space originated with Columbia economist Harold Hotelling who introduced it in the 1930s to study spatial competition among firms. However, the version used in institutionalist models might better be attributed to Melvin Hinich and his collaborators, particularly James Enelow and Peter Ordeshook, who together pioneered the modern spatial theory of voting, beginning in the late 1960s (Enelow and Hinich 1984).

The basic idea is extremely simple and is best introduced through an example. Consider the unit interval, that is, a line whose origin is zero and whose terminus is one. Points in this unidimensional policy space could correspond to, for example, tax or tariff rates ranging from 0 to 100 percent. More generally, points on a line can represent quantities such as expenditures. In fact, points on a line can even represent more qualitative matters, such as "degree of restrictions on abortion" or "support for human rights."

Occasionally there are bills that deal only with a single ratelike quantity, for example, a routine adjustment to the minimum wage or a simple

authorization. But most bills make many changes simultaneously. For example H.R. 12384, a military construction bill passed in 1976 by the 94th Congress, authorized $3.3 billion for military construction. Economy-minded President Ford vetoed the bill, but not because of the bill's authorization level. Rather, the bill contained a provision requiring advance notification of base closings. It was this provision, quite distinct from the dollar levels, that the president found objectionable. (Congress repassed the bill, maintaining the dollar level but modifying the base-closing provision along the lines indicated by the president.) A literal representation of the characteristics of this bill would require several dimensions, one for each qualitatively distinct facet. Literal representations of extremely complex legislation, by no means uncommon on Capitol Hill, would require hundreds or perhaps even thousands of dimensions.

Most models of interbranch bargaining employ only one dimension; none employs thousands. Is this justifiable? On empirical grounds, yes. Abundant empirical evidence indicates that a single dimension acounts for around 85% or so of the variance in roll call voting. This dimension corresponds pretty clearly to "liberalism-conservatism." In other words, most roll call voting in the House and Senate looks almost as if individual bills or amendments came labeled with a liberalism-conservatism index, and that is sufficent information for congressmen casting a yea and a nay.[1]

Why this should be is not entirely clear. Some evidence suggests the public sees political issues in low-dimensional terms. This in turn creates an incentive for politicians to portray policies this way, since doing so helps them maintain simple, clear policy reputations of value in elections. Perhaps, then, the link between the way the public understands issues and the way politicians and experts discuss them is self-reinforcing. However, whatever the mechanism by which inherently multidimensional bills are tagged with one-dimensional labels, I shall assume this structure.[2]

[1] For a clear expression of this viewpoint, see Poole and Rosenthal 1994; in addition, see Smith 1989. The viewpoint is slightly controversial but not terribly so. For an opposing viewpoint see Koford 1994.

[2] There is an extremely interesting puzzle here that has yet to be resolved satisfactorily. But some contributions are Snyder 1992a, Dougan and Munger 1989, Hinich and Munger 1994, and Zaller 1992. A nonstarter appears to be Congress's own internal organization. See Snyder 1992b (Congress's committee structure could create unidimensionality if committees used their gate-keeping powers aggressively) and Poole and Rosenthal's rejoinder (1991). At any rate, models of interbranch bargaining that study signaling or screening invariably assume unidimensional policy spaces, for in this setting these phenomena are tractable using advanced but standard modeling techniques. With the addition of more dimensions, standard techniques are no longer good enough; new technique is required. This is a tall order. In this book I

I still need to define the policy preferences of the president and Congress. Again following the logic of structural incentives, I assume they have the sort of preferences conceived in decision theory. Specifically, I assume their preferences are well represented by "single-peaked" utility functions (see Figure 4.2). Experience has shown this to be a sensible modeling choice in political settings. Actors with single-peaked utility functions have most-preferred policies, with the attractiveness of other policies declining as they diverge more and more from the most-preferred policy. For example, you may have a preferred level of expenditures on defense policy; both underspending and overspending are less attractive.[3] Figure 4.2 illustrates a policy space and associated preferences. The horizontal line X is the unidimensional policy space. The vertical dimension represents "utility," the happiness (as it were) of the players. The utility of any point in the policy space to either the president or Congress can be read from their utility functions. For example, the utility to Congress of a policy located at 0 is just 0, while that of one located at 1 is -1. For any two points a and b on the line, the utility function indicates whether the actor prefers a to b or is indifferent between them.

The utility functions shown in the figure are examples of "tent" utility functions, so-called for the obvious reason. These functions are easy to understand and simple to work with so I employ them consistently throughout this book. However, many of the results given here hold qualitatively for more general utility functions, provided they are single-peaked.[4]

The equation describing Congress's utility function in Figure 4.2 is extremely simple:

$$U(x) = -|x| \tag{4.1}$$

The absolute value function generates the characteristic tent shape. If we let c denote Congress's ideal point (its most preferred policy) then $c = 0$. In Figure 4.2, the utility function of the president has the same general form as that of Congress, except that the indicated ideal point, p, equals 1.

concentrate on developing state-of-the-art models of interbranch bargaining using the best available technology, and then testing them. Inventing new modeling technique is beyond the scope of the book.

[3] Detailed exegesis of single-peaked utility functions can be found in Ordeshook 1986 and Enelow and Hinich 1984.

[4] In some cases, additional technical requirements are necessary. For example, the veto threats model in Chapter 7 requires the utility functions to display certain properties (e.g., a kind of single-crossing property), which are carefully spelled out in Matthews 1989. The SVB model uses tent utility functions to generate closed form solutions in the form of differential equations, whose iterative solution yields the empirical hypotheses. So the hypotheses in that model are closely tied to these utility functions.

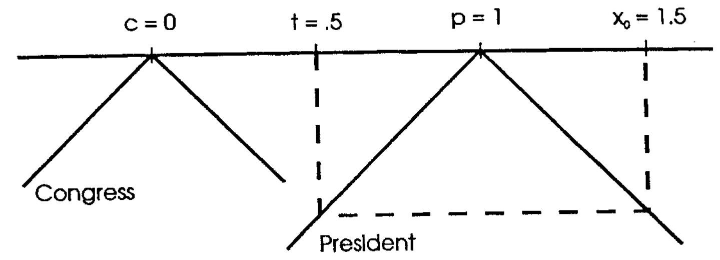


Figure 4.2. Preferences in a Spatial Setting

Also shown in Figure 4.2 is a special point, x_0, the *status quo*. The status quo represents the current policy, which will continue unless the players enact a new one. Not surprisingly, the location of the status quo often has a profound effect on the nature of veto bargaining.

An important feature of single-peaked utility functions is that for any point x, there is another point x' that is *utility equivalent* to x. Of particular interest is the point utility equivalent to the status quo x_0, especially for the president. Consider the president's utility function in Figure 4.2. The point x_0 is located at 1.5. Since $U(x_0) = U(\frac{1}{2}) = -\frac{1}{2}$, the points x_0 and .5 are utility equivalent for the president.

It proves extremely helpful to rescale the president's utility function in terms of the utility equivalent points (just why will become clear in a few pages), an innovation of the economist Steven Matthews. So long as the rescaled function does not alter the preference relationship between different points on the line, the rescaled function represents the president's preferences just as well as the original one.[5] The rescaling works as follows. Without altering its shape, slide the entire function straight upward until one end of the "tent" is anchored at x_0, the status quo (see Figure 4.3).

To avoid confusion with Congress's utility I denote the president's rescaled utility function as $V(x)$. More specifically,

$$V(x;x_0,t) = \frac{|x_0 - t| - |t + x_0 - 2x|}{2} \tag{4.2}$$

where $t = 2p - x_0$. This appears somewhat complicated but yields the simple form shown in Figure 4.3. This utility function is constructed so the point that is utility equivalent to the status quo is always given by

[5] Matthews 1989 provides a set of sufficient conditions on general utility functions so that this normalization retains the preference ordering of the original function. Tent utility is just a special case, as it satisfies these sufficient conditions.

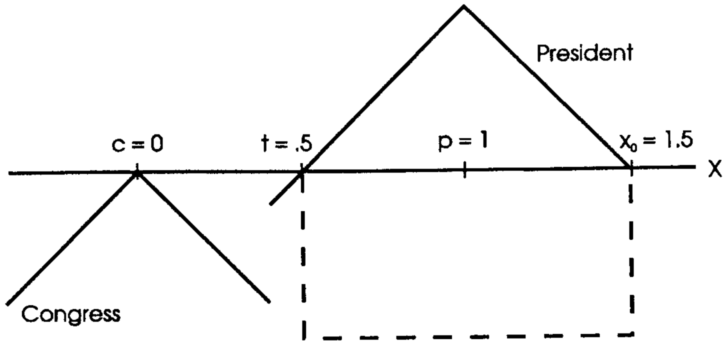


Figure 4.3. Rescaled Utility Function

the point t. Note that $V(t) = V(x_0) = 0$. I assume this utility function for the president throughout the book.

In all the models I consider in this chapter, I normalize Congress's ideal point c to 0 and assume the status quo $x_0 > 0$. This is without any loss of generality since the cases with the status quo to the left of Congress's ideal point are just mirror images of cases I do consider. Focusing on just one set of cases keeps the exposition simple.

The Basic Model

I can now extend the game in Figure 4.1 into a real model of the veto. The sequence of play remains the same: Congress makes a single and final take-it-or-leave-it offer of a bill with a particular ideological tenor (i.e., a given spatial location in X). The president then accepts it or vetoes it. The game ends and the players receive payoffs as specified in equations 4.1 and 4.2. In this extremely simple model, vetoes really are bullets and are purely reactive.

The graphical device in Figure 4.4 is extremely helpful for conveying some intuition about veto bargaining in this setting. Consider all the policies the president considers as good or better than the status quo, that is, all the policies as close or closer to his ideal point than x_0. This set of policies is the president's *preferred set*, $\wp_p$. As shown in Figure 4.4, it is an interval of the line, namely $[t, x_0]$ (this notation is read: the line segment from t to x_0, inclusive). Since this is a one-shot game, the president should accept any offer in this interval, assuming all he cares about is attaining the best possible final policy, that is, if he wants the best payoff according to equation 4.2. The preferred set of Congress,

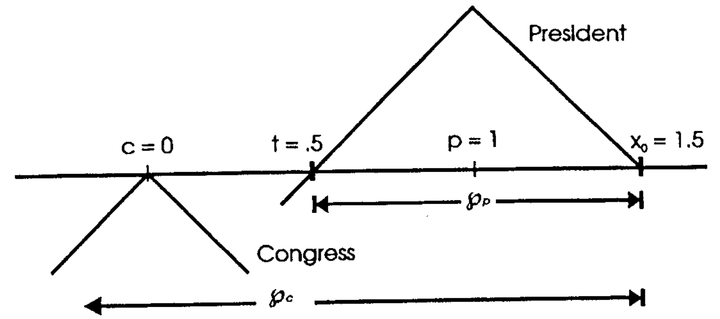


Figure 4.4. Preferred Sets in the Basic Model

$\wp_c$, is defined similarly and is thus $[-x_0,x_0]$. The *intersection* of the two preferred sets, that is, $\wp_c \cap \wp_p$, is just the overlapping portions of the two preferred sets. In the figure, this is the line segment $[t,x_0]$. This set contains all the points *both* players prefer to the status quo. In voting games the intersection of the relevant preferred sets is often called the *win set*. At least under complete and perfect information (as assumed in the basic model), it seems natural to seek the outcome of veto bargaining in the win set since Congress has no incentive to make an offer it prefers less than the status quo and the president has no incentive to accept an offer he likes less than the status quo (excluding veto overrides for the moment). All such points are found in the win set. Moreover, since Congress gets to select the bill while the president can do nothing except accept or veto, a reasonable conjecture is that Congress will pick from the win set the best possible bill from its perspective. Given the specified game and assuming equation 4.1 really does summarize the relevant payoffs for Congress, it is not hard to deduce which bill this will be. However, I will be fairly methodical in working through this deduction.

First, we need to specify *strategies* for the players. A strategy specifies a plan for a player under every conceivable contingency that might arise in a game.[6] Given the information structure and sequence of play in the basic game, a strategy for Congress is simply a point x from the line X. A strategy for the president is a probability distribution over his two actions, accept or veto, *given Congress's offer* (and, of course, the status quo and his own preferences). That is, for any given bill, the president's strategy indicates the probability of a veto. Denote this function as $r(x)$

[6] More formally, a strategy is a mapping from information sets into actions. Additional details can be found in standard game theory texts, for example, Myerson 1991 or Osbourne and Rubenstein 1994.

(this can be read, "r of x" or "the reply to x").[7] We also need to specify a *solution concept*. As in the second face of power game, subgame perfect Nash equilibrium captures the notion of anticipation or foresight.

There are three cases which are neatly characterized by the location of t. The location of t can be thought of as the president's *type*.[8] The president's type t may take any value on a continuum, depending on the location of the status quo and the president's ideal point. But each type falls into one of three classes. The first is shown in the top panel of Figure 4.5. The critical feature of this case is that $t \leq c$ so Congress's ideal point lies in the president's preferred set. (Note that the president's ideal point p may be greater or less than c; it makes no difference so long as $t < c$). Accordingly, presidents of this type are willing to accept a bill located at Congress's ideal policy. In Matthews's evocative terminology, such presidents are *accommodating*. Since Congress can do no better than to offer its ideal policy, which accommodators surely accept, the solution concept specifies $x = c$ as the prediction when $t < c$.

The second case is shown in the middle panel of Figure 4.5. The defining feature of this case is that $c < t \leq x_0$. Congress's ideal point c no longer lies within the win set, here the interval $[t, x_0]$. Offering a bill at c would be futile since the president would veto it, leaving Congress with the undesirable status quo. From Congress's perspective, the best feasible policy is t, which the president would accept.[9] Thus, the solution concept specifies $x = t$. Since presidents of the type $c < t \leq x_0$ are not accommodating but will accept some proposals, Matthews refers to them as *compromising*.

The final case occurs when $c < x_0 < t$, as shown in the bottom panel of the figure. In this case, the win set is composed of a single element,

[7] Just to be quite formal, define the set A = {accept, veto} and let $\Delta(\cdot)$ be the set of all probability distributions over an arbitrary set. Then the president's strategy is a function $r{:}X \rightarrow \Delta(A)$.

[8] The word "type" has a technical meaning in games of incomplete information: an actor's private information is summarized in his or her "type." Since there is no incomplete information in this game, I slightly abuse the terminology. But what I call the actor's type will be exactly the subject of incomplete information in models 2 and 3.

[9] If a proposal lay exactly at the edge of the president's preferred set, he would be indifferent between accepting and rejecting the bill. But suppose his strategy called for him to reject such a bill. Then Congress would not offer it; it would "shade" the proposal a little toward the president's ideal point so he would accept. But when Congress's pure strategy space is a continuum, "shading" is not well defined (e.g., for any "shade" other than zero, there is a smaller one that is better for Congress). So there cannot be a well-defined equilibrium in this configuration in which the president rejects proposals at the edge of his preferred set with positive probability. In fact, the specified strategies constitute the unique pair of best responses in this configuration.

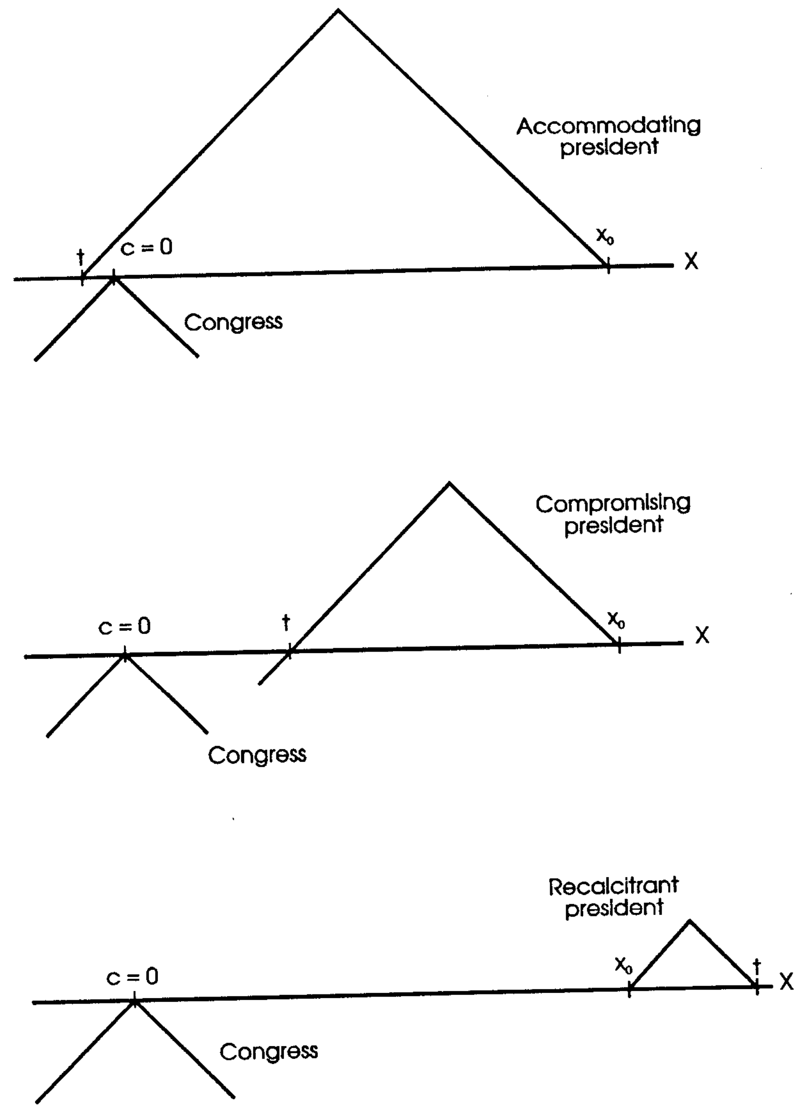


Figure 4.5. Three Cases in the Basic Model

the status quo x_0. It matters naught what Congress offers; policy is deadlocked.

The following proposition summarizes the analysis:

Proposition 1 (Romer-Rosenthal Theorem): A subgame perfect equilibrium to the one-shot veto bargaining game under complete and perfect information is

$$x^* = \begin{cases} c \text{ if } t \le c \\ t \text{ if } c < t \le x_0 \\ x_0 \text{ if } c < x_0 < t \end{cases}$$

$$r^*(x) = \begin{cases} \text{accept if } x \in \wp_p \\ \text{veto otherwise.} \end{cases}$$

The asterisks denote optimum or equilibrium strategies. The expression "$x \in \wp_p$" is read, "x is an element of the president's preferred set."

The implications for outcomes are shown in Figure 4.6. Outcomes are shown on the vertical axis; the horizontal axis shows the location of t. When the president is accommodating, the outcome is c. When he is compromising, the outcome is t. When he is recalcitrant, the outcome must be the status quo, x_0.

In the figure, the vertical distance between an outcome and c indicates the impact of the second face of power. The model specifies quite precisely when the second face of power will manifest itself (cases 2 and 3, compromisers and recalcitrants), and when it won't (case 1, accommodators). As the figure indicates, the maximum possible impact of the second face of power depends on the distance between Congress's ideal point and the status quo – not a surprising result but a graphic reminder of the importance of the status quo in politics. More generally, when the second face of power appears, its magnitude depends on the distance between the Congress's ideal point c and the minimum of the status quo and the president's utility equivalent point t – hardly an intuitive result but readily understandable once the model is in hand.

Veto Overrides in the Basic Model

It is extremely easy to expand the model to include the possibility of veto overrides. Simply add a third player to the game, the veto override player (the "v-player").[10] This player occupies a particular place within Congress: precisely two-thirds of the members have ideal points to her left (remember that I consistently assume $c = 0$ and $x_0 > 0$). Consequently, if the veto override player is exactly indifferent between a bill and the status quo, two-thirds of Congress prefers the bill and one-third prefers the status quo. As a result, veto override attempts succeed or fail according to the vote of the veto override player. If ⅓ + 1 of congressmen lie to the right of the status quo, so does the veto override player. In this configuration, Congress cannot pass a veto-proof bill that it prefers to the status quo. But otherwise it can.

[10] The results in the next few paragraphs are due to Ferejohn and Shipan 1990. I present them with a notation consistent with the rest of the chapter.

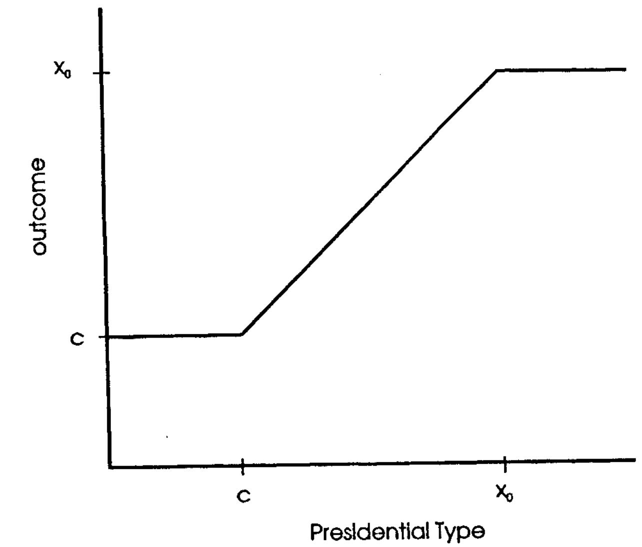


Figure 4.6. How Outcomes in the Basic Model Depend on the President's Type

Adding the veto override player to the model is straightforward. First scale the v-player's utility function just like the president's. However, denote the point that is utility equivalent to the status quo for the override player by τ (tau) rather than t (to keep the two points distinct). The veto override player's "type" is thus given by the location of tau. Given this scaling, we can employ exactly the same analysis as in the basic game.

To see the difference imposed by a qualified rather than absolute veto, consider the following scenario: the president is compromising but just barely. But the override player is much more compromising. Imagine, for instance, Truman confronting the Republican 80th Congress over the formation of labor policy. The status quo had been set during the New Deal, establishing a policy strongly supportive of labor unions. The president was a proponent of this policy, though he was willing to put some restrictions on unions' ability to strike. But the Republican Congress, responding to a wave of strikes, was determined to clip the wings of the high-flying labor movement. Figure 4.7 represents this situation, using the basic model with veto overrides.

How much power would the two sides exercise over the outcome? The president's willingness to veto the legislation prevents the hostile Congress from passing its most preferred bill. So $x = c$ is not feasible. Instead, Congress must craft a veto-proof bill if it is to accomplish anything. Thus, the location of the veto override player is critical. Historically, the veto override player in the 80th Congress was often a moderate Democrat. According to the model, then, the Republican leadership and the bill's floor managers will try to pass a bill that makes this member indifferent between the bill and the existing policy. Therefore, they will try to place the bill exactly at τ. If the bill is located at this strategic position, the model predicts, it will be enacted into law even over the president's veto. And, given the definition of the veto override player, the vote for passage should be about 2:1 in at least one of the chambers. (In Chapter 8 I relate what in fact happened.)

This example shows how the qualified veto can shift the balance of power toward Congress, relative to an absolute veto. For if Figure 4.7 fairly represents the situation and the president had an absolute veto, he could block any move from the status quo toward Congress that went farther than t. But the qualified veto would still restrict Congress to a bill at τ rather than c.

The qualified veto does not *necessarily* reduce the power of the president, relative to an absolute veto. For example, consider Figure 4.8, which may reasonably represent the confrontation between President Clinton and the Republican 104th Congress over welfare reform and similar issues. The veto override player was, plausibly, a liberal Democrat, while the president was a more moderate Democrat. Thus, tau (the key location for an override attempt) may have been to the right of t (the key location for presidential approval). If so, Congress could craft a veto-proof bill (if $\tau \le x_0$) but could do better by finding a bill the president would (grudgingly) sign. The model predicts the outcome here to be identical to that under an absolute veto.

The following theorem summarizes the impact of a qualified veto:

Proposition 2 (Ferejohn-Shipan Theorem): A subgame perfect equilibrium to the basic game with overrides is

$$x^* = \begin{cases} c \text{ if } \min(t, \tau) \le c \\ \min(t, \tau) \text{ if } c < \min(t, \tau) \le x_0 \\ x_0 \text{ if } c < x_0 < \min(t, \tau) \end{cases}$$

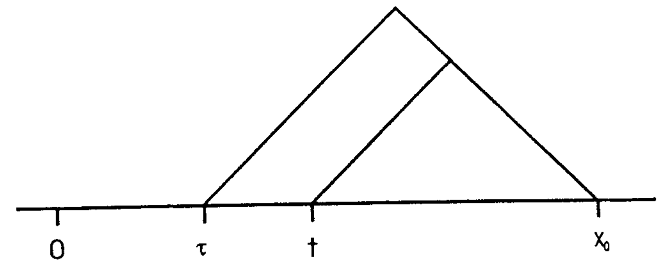


Figure 4.7. Truman Confronts the 80th Congress over Labor Legislation

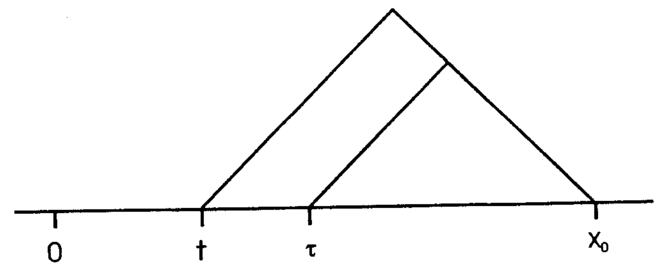


Figure 4.8. The Veto Override Player May Be Irrelevant

$$r^*(x) = \begin{cases} \text{accept if } x \in \wp_p \cup \wp_v \\ \text{veto otherwise} \end{cases}$$

$$w^*(x) = \begin{cases} \text{override if } x \in \wp_v \\ \text{sustain otherwise} \end{cases}$$

In the proposition, "$\wp_p \cup \wp_v$" denotes the union of the president's and veto player's preferred sets. The president "accepts" if the bill lies within either of the two preferred sets but "vetoes" otherwise. The veto override player's strategy is denoted by the function $w^*(x)$. And "$\min(t, \tau)$" connotes the minimum of the two values.

Evaluating the Basic Model

The basic model is much more capacious than the elementary second face of power game. Unlike that game, it indicates the policy content of bills during veto bargaining. It identifies conditions when veto power will emerge and conditions when it won't. It specifies the factors that determine the magnitude of veto power, when it does emerge. It extends easily to study the impact of a qualified rather than an absolute veto.

Most important, its elaboration of the logic of the veto seems persuasive, at least so far as it goes.

Empirically, however, there is reason for skepticism. First of all, do people really behave this way? More astutely: when people find themselves in a situation like that envisioned in the model, how does their actual behavior diverge from the model's predictions, and what causes the divergence? Economists have studied many ultimatum games in carefully controlled laboratory experiments, which provide arguably the best way to investigate this question. These experiments uncover two situations that lead to systematic departures from the predictions of the models. First, when the proposer fears future retribution from the chooser, she tends to make more generous offers than the model predicts (the action in the model is, after all, strictly one-shot). Second, when the proposer fears the chooser will reject the offer in outrage at its niggardliness – in other words, when the proposer believes the chooser might not obey the logic of the preferred set – she also makes a more generous offer than the really "hardball" offer the model predicts. However, when games are carefully constructed to eliminate those fears, the model's predictions stand up fairly well.[11]

Do these situations frequently arise in veto bargaining? For example, did fear of future retaliation cause Representative Joseph Martin and Senator Robert Taft, the Republican leaders in the 80th Congress, to accommodate Truman's preferences on labor policy? The history of the Taft-Hartley Act, enacted over Truman's veto, suggests otherwise. Did it check the partisan fervor of Speaker Jim Wright, when with a solid Democratic majority in the 100th Congress he tried to face down Ronald Reagan on tariff policy? Did it stay the hand of Newt Gingrich and make him shrink from confrontation with President Clinton as the triumphant majority leader tried to harvest the fruits of the Republican victory of 1994? Very doubtful. At least in periods of divided government, interbranch bargaining is often bare-knuckle politics.[12] Both sides tend to push for maximum advantage. Hardball offers are expected. It would seem, then, that the model might afford a reasonable starting place for thinking about veto bargaining. It certainly seems a useful benchmark for investigating the balance of legislative power in a separation-of-powers system.

Nonetheless, we can reject the basic model *as a model of veto bargaining* without any elaborate statistical tests at all. The problem is, the model predicts we should see no vetoes. But, of course, we do.

[11] Roth 1995 provides an extensive discussion.

[12] Though not always. Sam Rayburn and Lyndon Johnson apparently tried to avoid brutal confrontations with Eisenhower in 1955–56, though interbranch politics took a tougher turn prior to the 1960 presidential election.

This problem has long been recognized. In labor economics, for example, it goes under the rubric of the "Hicks paradox." Early models of strikes assumed complete and perfect information, as does the basic model. But if there is really complete and perfect information, then all the players know perfectly well how a strike will ultimately be resolved. And if the strike is at all costly for the players, they should be able to reach an equivalent agreement without bothering with the strike, thus avoiding the costs. The same argument applies to many other phenomena, including wars and vetoes.

The way to resolve this "paradox" is to abandon the assumption of complete and perfect information. I pursue this idea in the next section.

THE OVERRIDE GAME

The move from the basic model – a model of the veto as a *capability* – to a model of active *veto bargaining* requires two new elements: incomplete information, to resolve the Hicks paradox; and repeated play, for, as the data in Chapter 2 show so clearly, vetoes are dynamic phenomena.

Incomplete Information

The model introduced in this section, the override model, incorporates incomplete information by making the president and Congress somewhat uncertain about the location of the veto override player. The source of this uncertainty is the unpredictable identity of the veto override player. Although the party whips work hard to "count noses" and get their members to the floor, it is never entirely certain who will be present, and a few members may unexpectedly change their votes from what was anticipated. The ability of the president to sway undecided voters may not be clear in advance, even to himself. As a result, there can be some uncertainty about just who the critical override player will be. And consequently, there may be some doubt whether a bill is actually veto-proof.

Uncertainty about overrides can produce high drama. In some cases an attempt will hang by a hair. The vice-president may assume his chair in the Senate to cast the tie-breaking vote, if needed. Senators or representatives may arise from a sickbed to make a dramatic, unexpected entrance. No one may be sure of the outcome until the last vote is cast.[13]

[13] As interesting and occasionally important as this type of uncertainty is, I see it as somewhat peripheral to the main themes of sequential veto bargaining, which involve uncertainty about what the president will accept. Nonetheless, uncertainty about overrides provides a relatively simple yet nonetheless significant setting in which to begin studying incomplete information and veto bargaining.

A feasible method for adding incomplete information to models of strategic interaction long eluded game theorists. In the late 1960s, however, the mathematician and philosopher John Harsanyi conquered the technical difficulties. Harsanyi was subsequently awarded the Nobel Prize in Economic Science for his accomplishment, and the key idea is sometimes called the "Harsanyi maneuver" in his honor. The basic idea is to convert a game of radically incomplete information into a much more tractable game of imperfect information.

In the override model the Harsanyi maneuver works like this. In the previous section I introduced the notion of the veto player's "type," indicated by the location of tau, the point she finds utility equivalent to the status quo. Suppose, given the situation, there are several representatives – say, a dozen – who could be the override player, depending on who is actually present. Denote the lowest utility equivalent point among these representatives as $\underline{\tau}$ and the highest as $\overline{\tau}$. There is some probability that each of the twelve representatives with τ's between $\underline{\tau}$ and $\overline{\tau}$ could turn out to be the veto override player, but the probability that a representative with higher or lower τ could be the key player is effectively zero. For a particular potential v-player, call the probability that he is the actual override player $f(\tau)$. The probabilities across the twelve possible "v-players" sum to one. The Harsanyi maneuver involves the addition of a new player, "Nature," who begins the game by drawing one of the possible veto players using these probabilities. The identity of the key player will not be revealed until the critical moment, but if the other players know the drawing probabilities – and it is assumed they do – the players can factor them into their calculations.

To avoid assuming an arbitrary number of override players, I approximate the players' uncertainty with a continuous probability distribution $f(\tau)$ defined over the interval $[\underline{\tau}, \overline{\tau}]$. Nature draws the override player from this interval using this probability distribution. The probability that the v-player's utility equivalent point is lower than τ is denoted $F(\tau)$ (where the capitol "F" indicates the cumulative probability distribution) and the probability that it is higher is $1 - F(\tau)$. To keep things simple, I assume the distribution is uniform over the interval: each possible type has the same probability of being drawn.[14] In this case, $F(\tau) = \dfrac{\tau - \underline{\tau}}{\overline{\tau} - \underline{\tau}}$ and $1 - F(\tau) = \dfrac{\overline{\tau} - \tau}{\overline{\tau} - \underline{\tau}}$.

Even without solving the model, we can now see how an actual veto could occur. Suppose the configuration resembles the one I discussed

[14] Any given continuous distribution on [0,1] could be approximated with an appropriate beta distribution and the points in this section would go through. But the simplest beta distribution, the uniform, allows the same points to be made.

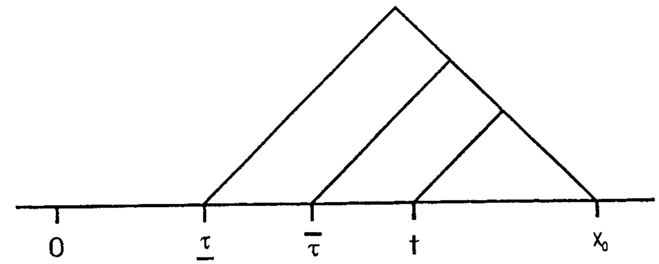


Figure 4.9. Incomplete Information about the Veto Override Player

between Truman and the 80th Congress but with a range of possible override players. This configuration is illustrated in Figure 4.9. If Congress makes a hardball offer, it would pass a bill in the interval $[\underline{\tau}, \overline{\tau}]$, since a lower offer would be futile and a higher offer needlessly accommodating. Because this interval lies outside the president's preferred set he might be inclined to veto the bill, especially since the veto player may sustain the veto (unless the offer is located at $\overline{\tau}$).

Uncertainty about τ does not necessarily imply an override attempt. In some configurations override attempts would definitely not occur. For example, if in Figure 4.9 the president's utility equivalent point t lay to the left of that of the lowest override players (i.e., if $t < \underline{\tau}$), then Congress would not need to pass a veto-proof bill. It could find a better bill (from its perspective) that the president would accept. The logic of theorem 1 would apply. Since I am interested in using the model to study overrides, I assume the configuration in Figure 4.9 in the remainder of this section.[15]

Dynamics

I introduce repeated play in the simplest possible way: an episode of veto bargaining can go through two iterations or rounds. Congress begins by passing a bill; the president can veto it or accept it; then the veto player can override or sustain the veto. The data in Chapter 2 demonstrate that bargaining may break down at this point. I incorporate this possibility by allowing "Nature" to terminate the bargaining, with probability q. Then, if bargaining does not break down, Congress repasses the vetoed bill, altering its content if it wishes. The president may reveto it if he

[15] The analysis is not restricted to this case however. Suppose $\underline{\tau} < t < \overline{t}$. Then the effective type space for the override player is $[\underline{\tau}, t]$. Moreover, if the distribution on $[\underline{\tau}, \overline{t}]$ is uniform so will be that on $[\underline{\tau}, t]$. So the analysis below goes through unchanged.

chooses; and the override player again opts to sustain or override. The game terminates with the players receiving payoffs according to the policy in place at the end of the game. This sequence could be extended to any number of rounds, but two is sufficient to illustrate the impact of uncertainty on the dynamics of bargaining. Figure 4.10 shows the sequence of play, taking into account the Harsanyi maneuver.

This players' reward structure requires justification. The model tries to capture the idea of electorally oriented politicians who strive to build a record for the next election. In building the record, it doesn't matter too much whether an accomplishment occurs early in a Congress or presidential term, or late: the important thing is whether it occurs at all (Mayhew 1974). In contrast, economists argue that money earlier is better than money later (since you can invest it and earn interest), and this is surely true of hikes in farm subsidies or Social Security checks. So perhaps hiking benefits early in the electoral cycle brings politicians greater rewards then hiking them later.[16] Or perhaps not: voters seem to have short-term memories for favors (Popkin et al. 1976). In that case, hiking benefits later might actually be better. These notions could be developed into competing models of optimal legislative timing but that would be a distraction from the story of veto overrides. I treat politicians as rather straightforward record builders.

As indicated in Figure 4.10, the two-period game implies two veto override players, one in the first round and one in the second. These two need not, and probably would not, be the same person. Moreover, the first veto player wouldn't know any more about the identity of the second veto player than anyone else. She must factor this uncertainty into her override decision. Should she sustain a veto in round 1 in the hope of getting a better bill in round 2? Perhaps the new override player will sustain a veto of that better bill! She will have to calculate carefully.

Equilibrium Offers

What bills will Congress pass in the two-round game? Given the evidence in Chapter 2, one might suspect that Congress will begin with a "tough" offer. Then, if the first bill is vetoed and the veto is sustained, Congress might make a concession. However, in the override model this intuition is incorrect.

In working out a solution to the game I again need to specify a solution concept. In this game, the actors have beliefs about the probable location of the next or's. A sensible solution concept requires the players

[16] David Baron builds this logic into a dynamic model of entitlement programs (1996).

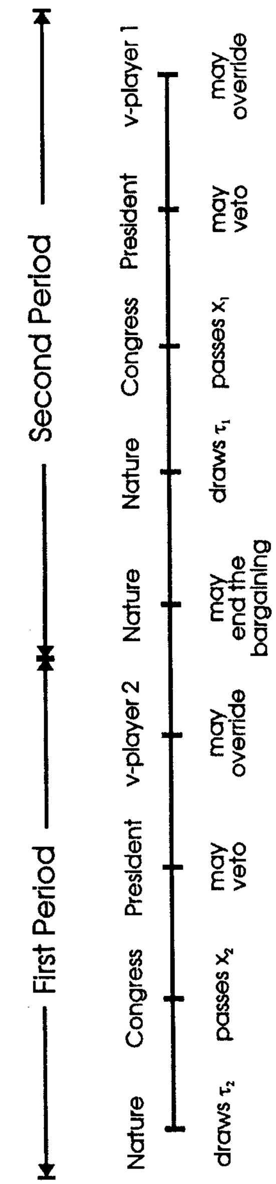


Figure 4.10. Sequence of Play in the Override Game

always to act in accord with their current beliefs. But where do the beliefs come from? A special feature of this game is that players do not learn anything about the location of the second v-player from what they observe in the first round. This follows from the fact that the two override attempts are really separate events (technically, Nature's draws are independent of one another). So beliefs about the current τ always come straight from the distribution of v-player types.[17]

It is easiest to see what will happen in the second round (if we assume bargaining gets that far), so I begin there. Since the second bill is a take-it-or-leave-it offer, both the second veto override player and the president will act in accord with their preferred sets: the v-player will override only if the second bill is as good or better for her than the status quo, and the president will accept the bill only if it is as good or better for him than the status quo. Given the configuration in Figure 4.9, Congress need never offer a second bill greater than $\bar{\tau}$, since this bill is assuredly veto-proof. Nor will it ever make an offer lower than $\underline{\tau}$, since, if it did, the president would veto and all possible override players would sustain the president's veto. Such a low offer, though attractive to Congress, would surely fail. It is possible to calculate exactly the offer a utility-maximizing Congress would make, though I leave the details to the appendix to this chapter. But, taking into account the uncertainty about the location of the second veto override player, Congress's second offer will be:

$$x = \begin{cases} \dfrac{\underline{\tau} + x_0}{2} \text{ if } \dfrac{\underline{\tau} + x_0}{2} \leq \bar{\tau} \\ \bar{\tau} \text{ otherwise} \end{cases} \tag{4.3}$$

In other words, it will "split the difference" between the lowest possible type and the status quo, unless the status quo is quite far away, in which case it will offer a bill that is surely veto-proof (since a sustained veto would yield such an unpleasant outcome.)[18]

Now, what will happen in the first round? The following argument supplies the intuition (I supply a constructive proof in the appendix). Consider the veto override player. Any type who would accept the second offer will definitely accept a similar offer in the first round, since to turn it down is to risk receiving the status quo in the event of a bargaining breakdown, while gaining nothing from the risk. Conversely, any type who would reject the second offer will also reject an identical

[17] Technically, the solution concept is a perfect Bayesian equilibrium. However, given the simple information structure and the president's and v-player's strategies in the assumed configuration, optimal offers can be calculated straightforwardly using stochastic dynamic programming.

[18] So far as I know, this elementary result first appeared in Matthews 1989.

offer in the first round, since such a type prefers the status quo to the offer. In other words, type-by-type, the strategy of the first v-player must be identical to that of the second v-player. Similarly, the strategy of the president must be the same in the first round as the second round. Since the strategies of the other players are the same and Congress's information about the veto player is the same in both rounds, if x^* is the optimal offer in the second round, it must also be the optimal offer in the first round. In short, the override model predicts that *Congress passes the same bill twice; it will not make concessions.*

The following proposition summarizes this analysis.

Proposition 3: In the override game, the following is a perfect Bayesian equilibrium in the assumed configuration: each round Congress passes the same bill, which lies between $\underline{\tau}$ and $\bar{\tau}$ (inclusive of the latter). Each round the president vetoes the bill (unless it lies at $\bar{\tau}$). In each round, the v-player overrides the veto if lies above the offer but otherwise sustains it.

Outcomes in the Model

Proposition 3 implies that vetoes can occur: incomplete information has resolved the Hicks paradox. Moreover, successful overrides can occur in this model. The following outcomes are possible:

- A bill is passed and vetoed; the veto is overridden.
- A bill is passed and vetoed; the veto is sustained, and the bill dies.
- A bill is passed and vetoed; the veto is sustained; the bill is repassed and revetoed; and the veto is sustained again.
- A bill is passed and vetoed; the veto is sustained; the bill is repassed and revetoed; and the veto is overridden.

An interesting implication of this range of outcomes is that the uncertainty about the location of the veto override player advantages the president, relative to a world without that uncertainty. Recall from proposition 2 that in the configuration assumed in this section Congress can surely impose a policy on the president that is worse for him than the status quo. But when there is uncertainty about the override player, override attempts will sometimes fail (or so the override model predicts), and bargaining may break down. The president will be able to maintain the status quo where otherwise he would not. Even though the uncertainty is symmetric in the sense that neither Congress nor president has better information than the other, it advantages the president in a conflict with a hostile Congress.

The model assumes Congress always attempts an override after a regular veto, whenever feasible. Ofttimes, however, Congress does not. Suppose there were a cost to Congress if it attempted an override, for instance an opportunity cost in precious floor time. Then Congress would never attempt hopeless overrides and even some that might succeed would not be essayed.

The range of possible outcomes generated by the model resembles that actually observed, at least superficially. In the next chapter I probe the model's empirical implications more thoroughly. Nonetheless, the model is a striking – and interesting – failure in one regard: it predicts zero congressional concessions during veto bargaining. Yet one of the most notable features of real veto bargaining is that concessions almost always occur. The problem in the current model is that a failed override is just a piece of bad luck, and bad luck in the previous round will not wrest a concession from Congress. To explain concessions, I turn to another type of uncertainty, one closely connected to the concept of presidential reputation.

SEQUENTIAL VETO BARGAINING

Presidential Reputation: Neustadt Revisited

There are few truly great books on the presidency. But there is one outstanding exception to this rule: Richard Neustadt's *Presidential Power*. In his 1960 analysis of the Roosevelt, Truman, and Eisenhower administrations, Neustadt set himself the task of identifying the bases of presidential power. He found three: the formal powers of the office, such as the veto; the president's reputation in the Washington community with whom he must deal; and his standing with the public at large (1980: 164). Of these Neustadt emphasized the second, for in his view presidential power is largely the power to persuade others to do what the occupant of the White House wants. And, Neustadt argued, critical to this persuasive ability is the president's reputation for "skill" and "will" in using his power resources.

Although Neustadt's analysis immediately assumed a canonic status among scholars of the presidency, the concept of "presidential reputation" remained as he had left it. The concept was not developed further, for two reasons. First, in the years immediately following the publication of *Presidential Power* political science moved into its behavioral stage. Measurement and quantification became de rigueur. Unlike presidential popularity (for example), which can be measured in a fairly plausible way through public opinion polls, Neustadt's "presidential reputation" seemed too ineffable for hard-nosed study. But perhaps even more important, the conceptual foundations of "reputation" remained murky –

and not just in political science. Nowhere in the social sciences was new light shed on the concept. No path could be seen for developing Neustadt's insights. And so they remained largely in the state he left them.

Far removed from presidential studies, however, two developments in game theory promised to break this intellectual stasis. The first was, again, the Harsanyi maneuver, which rendered tractable strategic situations with incomplete information. The second was the formulation of a powerful solution concept tailored to dynamic games of incomplete information, games in which the players operate under uncertainty, learn about each other over the course of play, and change their actions as learning occurs. This solution concept, known in slightly different versions as "sequential equilibrium" or "perfect Bayesian equilibrium," was developed by game theorists David Kreps and Robert Wilson (1987), though earlier work by Roger Myerson (1978) was closely related.

The power and flexibility of the new tools meant the concept of reputation could finally find a new and much more solid foundation, though it took some time for social scientists to realize this. The critical moment came with the simultaneous publication in 1982 of papers by Kreps and Wilson, and Paul Milgrom and John Roberts. These papers were among the most influential in economics during the 1980s.

The basic insight of the Kreps-Wilson-Milgrom-Roberts (KWMR) papers is that reputation and incomplete information are inextricably linked: your reputation *is* the beliefs that others have about your incompletely known characteristic. Those beliefs – your reputation – affect others' actions. Moreover, in a dynamic strategic setting their beliefs will evolve in response to your observed actions. Consequently, by choosing your actions carefully you may be able to manipulate your reputation to your advantage. Conversely, the need to maintain an effective reputation may inhibit your actions. KWMR showed how these ideas could be analyzed very precisely using the Harsanyi maneuver and the new solution concept. Suddenly, it became possible to construct detailed theoretical models of reputation building.

The implications of this work for the study of power are sweeping. Where the concept of subgame perfection made it possible to develop models of the second face of power (like the basic model), perfect Bayesian equilibrium makes it possible to develop models of what political scientists have called the "third face of power." The third face of power has two dimensions. The first involves transformation of values, in which the oppressed take on the values of the oppressor. This idea remains elusive to formal analysis. But the second involves the manipulation of others' beliefs. So, for example, coal miners refuse to strike because the company's reputation makes the miners believe a strike will be futile and self-defeating – a reputation carefully cultivated by the companies (Gaventa 1980). How such a power relationship could come into existence and be maintained, and how it might end, are topics ideally suited to the new tools.

Well within the reach of the new tools is Neustadt's concept of presidential reputation. Exactly the ideas in the KWMR papers appear repeatedly in *Presidential Power*. "A President's effect on them [the men who share in governing] is heightened or diminished by their thoughts about his probable reaction to their doing. They base their expectations on what they can see of him. . . . what these men think may or may not be 'true' but it is the reality on which they act, at least until their calculations turn out wrong" (1980:45). Therefore, "they must anticipate, as best they can, his *ability* and *will* to make use of the bargaining advantages he has. Out of what others think of him emerge his opportunities for influence with them. If he would maximize his prospects for effectiveness, he must concern himself with what they think" (p. 46).

Neustadt illustrates these points with telling examples. For example, Eisenhower diminished his power prospects in 1957–58 by sending contradictory signals that undermined his policy reputation on Capitol Hill (1980:49–60). In contrast, in 1959 he used veto threats, vetoes, and rhetoric to build an effective reputation (pp. 61–62).

Neustadt spells out the necessity for incomplete information about the president in a particularly compelling form:

> In a world of perfect rationality and unclouded perception it might turn out that Washingtonians could take the past performance of a President as an exact, precise, definitive determinant of future conduct, case by case. The known and open record, wholly understood, could be ransacked for counterparts to all details of each new situation. His skill, or lack of it, in using comparable vantage points for comparable purposes in like conditions, could be gauged with such precision that forecasting his every move would become a science practiced with the aid of mathematics. In the real world, however, nobody is sure what aspects of the past fit which piece of the present or future. As the illustrations in this book suggest, particulars of time, of substance, organization, personalities, may make so great a difference, case by case, that forecasting remains a tricky game and expectations rest upon perceptions of a most imperfect sort. (1980:46)

Propositions 1 and 2 are precisely the mathematical predictions that Neustadt envisioned. Detailing the "tricky game" of "forecasting" is the subject of the sequential veto bargaining model.

Adding Presidential Reputation to the Models

Before the new analytical tools can be used, a key question must be answered: what is the president's reputation *about*? What entity or variable is the subject of incomplete information? Neustadt states his view in several places: "The men he [the president] would persuade must be convinced in their own minds that he has the skill and will enough to *use* his advantages" (1980:44). It is these "residual impressions of tenacity and skill accumulating in the minds of Washingtonians-at-large" that constitute his reputation (p. 48). From the president's perspective, an effective reputation for "skill and will" must be such as to "induce as much uncertainty as possible about the consequences of ignoring what he [the president] wants. If he cannot make men think him bound to win, his need is to keep them from thinking they can cross him without risk, or that they can be sure what risks they run" (ibid.).

This formulation is helpful and puzzling at the same time. It is helpful because it links the president's reputation to his "advantages," his "vantage points" in Neustadt's phrase. His reputation will concern his willingness to use his powers. This is what his adversaries must predict. So it is in the *confluence* of formal powers and intangible reputation that presidential power lies. It is puzzling because "skill" is analytically intractable and "will" is extraordinarily ambiguous. Good models of strategic skill in politics must await a much deeper understanding of bounded rationality than contemporary social science possesses. But we seem to be waiting for Godot: despite nearly half a century of work, bounded rationality remains one of the philosopher's stones of modern social science.[19] This is not to suggest skill is unimportant in presidential politics: it surely is. But, at least at the end of the twentieth century a political theorist has little useful to say about it.

What then about "will"? Neustadt is rather vague about what he means by a reputation for "will" but sometimes he seems to invoke a quality of character, "grit" or "pluck." But suppose Congress were absolutely certain about the president's policy preferences. Would tenacity, toughness, or grit allow the president to escape the iron logic of propositions 1 and 2? Only if "will" actually means "willingness to behave irrationally." Suppose a president cultivated the image of a hothead who vetoed in a fit of pique, even if it meant cutting off his nose to spite his face (in policy terms). Such a reputation might well strengthen his bargaining position with Congress – recall the laboratory experiments on ultimatum games or game theorist Thomas Schelling's famous arguments about the value of appearing irrational (Shelling 1960). But no president, not Nixon or even Andrew Jackson, has tried to build a reputation as an irrational hothead in matters of domestic policy. As a practical matter, impetuous irrationality meshes poorly with the deliber-

[19] On the other hand, see Rubenstein 1998 and Young 1998.

ate pace of legislating. A reputation as a loose cannon is probably electoral poison.

Consider instead how one builds a useful reputation in some other setting, for example when bargaining over a car or in a weekend bazaar. You try to create the impression that the merchandise is worth little to you. For example, you may feign to leave the shop when the merchant announces his opening price. You lament your limited budget. In short, you don't try to create a reputation as a "tough bargainer." You *become* a tough bargainer by creating the impression you have a naturally low "striking price," the highest price you would possibly agree to. If the merchant believes your striking price is truly low, he will come down in price if he wants to sell.

What is the equivalent of the president's striking price in bargaining with Congress? It is the president's reservation policy, the point beyond which he will not go because he would rather veto and retain the status quo. In the spatial framework, it is exactly t, the point utility-equivalent to the status quo. The president's willingness to veto depends critically on the location of the bill relative to t. But for exactly the reasons enumerated by Neustadt – "the particulars of time, of substance, of organization, personalities" – Congress will often be somewhat uncertain where t lies. Over the course of a bargaining episode, the president may be able to turn this uncertainty to his advantage.

The Sequential Veto Bargaining Model

Much of the apparatus I developed for the override game transfers directly to sequential veto bargaining (SVB). Now, however, Congress's uncertainty concerns the president's policy preferences, which, of course, the president himself knows perfectly well. The Harsanyi maneuver provides a method to capture Congress's uncertainty about the president's policy preferences. So at the beginning of the game let t be drawn from the interval $[\underline{t}, \bar{t}]$ using the common-knowledge distribution $F(t)$, the same uniform distribution as in the override game. The president knows his own type t, which remains fixed for the entire game, but Congress does not.

The play of the SVB game depends heavily on the location of $[\underline{t}, \bar{t}]$ relative to the override player's reservation policy and Congress's ideal point $c = 0$. For the moment assume the configuration shown in Figure 4.11, that is, $0 \leq \underline{t}$ and $\bar{t} \leq \tau$. Allow the same type of dynamics as before: the game moves through two rounds of bargaining, with the possibility of a breakdown in bargaining after an initial veto.

All seems similar to the override game, except one thing: the president's true type t is fixed throughout the game, while the identity of the

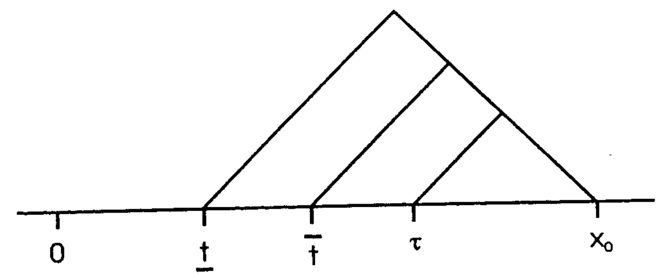


Figure 4.11. Sequential Veto Bargaining: The All Compromisers Case

override player varied from round to round – a seemingly small difference but sufficient to transform the strategic situation. Whatever Congress learns about the president in the first round can and will be used in the second round. The president thus has an incentive to build a policy reputation in the first round, in order to extract a better bill in the second.

To see how this might work, picture Congress in the first round of a bargaining episode. Congress begins with a notion of the range of possible presidential preferences and so bases the content of its initial bill on its expectations about what the president might accept. Congress will not pass a bill every likely type of president would veto – such a bill would be pointless. Nor is it likely (except under special circumstances, detailed shortly) to pass a bill the president would surely sign whatever his true preferences. To do so would be to yield too much. Thus, Congress is likely to pass a tough bill but one with a reasonable chance of enactment. Suppose, though, the president vetoes the bill. How will this affect his policy reputation? If the president had been sufficiently accommodating, he would have accepted the initial bill rather than risk a breakdown and receipt of the status quo. Because the president did not accept the bill, Congress can be quite sure the president did *not* have those preferences. In other words, Congress can screen out some types of presidential preferences after seeing a veto. Given the screening, Congress will see the president as somewhat "tougher" than it did before (in the sense that his policy preferences cannot be very accommodating). The content of the second bill, if Congress gets the chance to enact it, will reflect this new understanding of the president's policy preferences. Accordingly, the second bill will incorporate policy concessions.

In the first round of bargaining the president can anticipate what Congress will offer in the second round, if he vetoes the first bill. Depending on his preferences, the president may find the second bill, if it includes concessions, more attractive than the first bill. In fact, it may be so attractive that he is willing to risk a breakdown in order to alter his policy reputation and thus extract the better bill from Congress. Such a president would engage in a *strategic veto* in the first round. But can this work if Congress knows the president has the temptation to do so? This is indeed a "tricky game," in Neustadt's phrase! But it is possible to untangle.[20]

Optimal Bills and Strategic Vetoes

By this point, the strategies of president and Congress in the second round will be familiar. Since the second bill is a take-it-or-leave-it offer, the president will veto it only if it lies outside his preferred set. Let us say that Congress, based upon its initial bill and a presidential veto, has screened out all types with t's less than a particular value, call it t_2. So in the second round, Congress believes the president's type definitely falls somewhere in the range $[t_2, \bar{t}]$. Using the same methods employed in the analysis of the override game, I show in the appendix to this chapter that Congress's second offer will then be

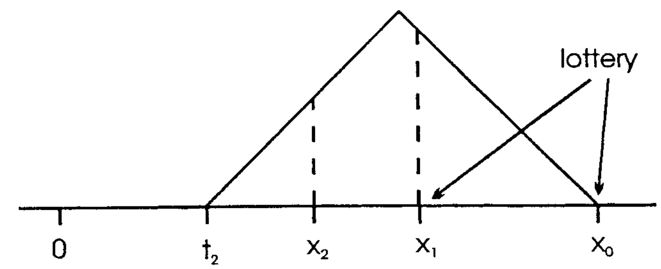
$$x = \begin{cases} \dfrac{t_2 + x_0}{2} \text{ if } \dfrac{t_2 + x_0}{2} \leq \bar{t} \\ \bar{t} \text{ otherwise} \end{cases}$$

Since this is exactly the form of the offer in the override game – an average of the lower bound on types and the status quo, unless the status quo is quite distant (see equation 4.3) – this should not be surprising.

Determining the president's strategy in the first round is straightforward. Call the offer in the first round x_2 (meaning, the offer occurs when two opportunities for vetoes remain) and that in the second round x_1 (meaning, only one opportunity for a veto remains).[21] The president, seeing x_2, is able to estimate that Congress will pass x_1 in the second round in the event of a veto, as long as bargaining did not break down. Then there would be a type who is exactly indifferent between accepting

[20] The first models of this type, focused on economic bargaining, can be found in Sobel and Takahashi 1983 and Fudenberg and Tirole 1983. Subsequently, this type of model has been used to study strikes, settlement in negligence suits, and monopoly pricing by durable goods monopolists. Gibbons 1992 provides a fairly accessible introduction, and Fudenberg and Tirole 1991b a more advanced review. Banks 1991 is a superb review of models in political science in which strategic reputation building is important.

[21] This somewhat unfortunate numbering follows a standard convention, which proves helpful with extensions to any arbitrary number of rounds of bargaining. Because I consider such extensions elsewhere, I maintain it here (see Cameron and Elmes 1995).



Type t_2 is indifferent between accepting x_2 and rejecting it in favor of a lottery between x_1 and x_0.

Figure 4.12. The Indifferent Type

the bird in the hand, x_2, and the gamble created by a veto, that is, between receiving the unattractive status quo and the quite desirable bird in the bush, x_1. Call this exactly indifferent type t_2.

Figure 4.12 illustrates such an indifferent type. He is presented the first offer, x_2, so if he accepts it he certainly has $V(x_2)$. If he rejects it, he may be offered x_1, which is more attractive. But it is a risky prospect, for with probability q he receives instead the status quo, x_0. Type t_2 is exactly indifferent between the two choices. Critically, all presidential types *lower* than t_2 prefer the first offer and so accept it, while all types higher than t_2 prefer the gamble and so veto the first bill. Hence, the president's strategy in the first round is simple: accept the first bill if $t \leq t_2$ but otherwise veto. If Congress understands this strategy, and can follow the president's reasoning, then it knows that $t > t_2$ if it sees a veto in the first round.

Somewhat surprisingly, the relationship in Figure 4.12, the equation for Congress's last offer, the shared network of mutual expectations, and the logic of utility maximization tie down Congress's twin offers. In the appendix, I calculate the optimal first offer to be

$$x_2^* = \frac{1 + 4q - q^2}{2(1 + 3q)} x_0 + \frac{(1 + q)^2}{2(1 + 3q)} \bar{t} \qquad (4.4)$$

and the optimal second offer to be

$$x_1^* = \frac{1 + 5q}{2(1 + 3q)} x_0 + \frac{(1 + q)}{2(1 + 3q)} \bar{t} \qquad (4.5)$$

while the critical value for t, t_2, is

$$t_2^* = \frac{2q}{1 + 3q} x_0 + \frac{1 + q}{1 + 3q} \underline{t} \tag{4.6}$$

These equations may appear distressingly complicated, but note that the quotients in each expression add to one. So in each case, the critical value is just a weighted average of the status quo and the lowest possible type. The forbidding appearance of the equations reflects the complex way the weighting depends on q, the probability of a bargaining breakdown.

A Numerical Example. To get a feel for the model's predictions, it is helpful to work through a numerical example. Suppose Congress begins with the belief that the lowest possible type $\underline{t} = 0$ while the highest possible type is $\bar{t} = x_0 = 1$ (recall that beliefs are assumed uniform over the interval). In other words, Congress is sure the president is a compromiser but is rather uncertain about his exact preferences. Let the probability of a breakdown in bargaining following a veto $q = \frac{1}{2}$. Congress begins by offering x_2^* which equation 4.4 reveals to be .55. The president accepts this bill if his true type t is less than t_2^*, which equation 4.6 reveals to be .4. Types with $t > .4$ veto the initial bill. Having seen the veto, Congress updates its beliefs about the president's type. Its new beliefs are restricted to the interval [.4,1]. Following the veto, there is a 50–50 chance bargaining breaks down. If it does, the status quo remains in place. But if it does not, Congress makes a second and final offer, which reflects the president's new policy reputation. Equation 4.5 indicates this bill will be placed at .7. Congress makes a rather large policy concession. If the president's true type falls below .7, he accepts the second bill. If not, he vetoes it once again.

The process of reputation building in the example illustrates the phenomenon Neustadt discussed in connection with "the new Eisenhower" of 1959. Through miscues and internal dissension, Eisenhower appeared to Congress in 1957–58 as a likely accommodator, or not a very distant compromiser, particularly in fields like education or welfare. Congress moved to take advantage of the policy opportunity. But a stunning set of vetoes in 1959 forced Congress to change its view: the president was indeed committed to a restrictive budget, low taxes, and parsimonious government. His vetoes, along with his rhetoric, recast his reputation.

The example also illustrates the concept of a strategic veto. All the presidential types between .4 and .55 actually prefer the first bill to the status quo. But that does not dissuade them from vetoing the bill. They know that if they do they face a reasonable chance of getting a much more attractive second offer though, of course, bargaining might break

down and leave them with the unattractive status quo. Nonetheless, for these types the gamble is worthwhile, so they take the plunge and veto. In fact, types as low as $t = .25$ prefer the second bill to the first, if they could simply choose between the two bills without the risk of a breakdown in bargaining.[22] But for types between .25 and .4, the second offer is not so attractive as it is for the types between .4 and .55. The risk of a bargaining breakdown dissuades them from attempting a strategic veto. Types between 0 and .25 actually prefer the first bill to the second, even neglecting the possibility of a breakdown. They also prefer the first bill to the status quo. Needless to say, they accept the first bill.

Other Cases. Extending the analysis from two rounds to any finite number involves no new principles, only a great deal of tedious calculation. However, there are several other configurations of preferences that deserve mention. All are straightforward extensions of the basic case.[23]

Suppose the top of the type space lies to the left of the status quo – that is, $\bar{t} < x_0$. As Congress screens out the lower types, its offers rise. In no case will Congress offer a bill greater than $\bar{t}$. But Congress may indeed offer a bill at $\bar{t}$, in which case the president surely accepts. Such a *constrained offer* is more likely to occur if the status quo is far from Congress's ideal point and accommodating types have been eliminated.

Suppose the President may be an *accommodator* – that is, $\underline{t} < 0$. If the probability that the president is an accommodator is sufficiently large, Congress may begin the bargaining by offering its ideal policy. If this bill is vetoed, the remaining bargaining proceeds similarly to the all compromisers case.

Suppose the president may be either a *compromiser* or a *recalcitrant* – that is $0 \leq \underline{t} < x_0 < \bar{t}$. Then bargaining proceeds as indicated in the all compromisers case, but offers can never be constrained (since they will never exceed the status quo).

Suppose the reserve policy for the veto override player lies not to the right of the status quo but to the left. Then bargaining proceeds as indicated previously. However, offers never exceed the reserve policy. The following might happen. Congress begins by passing a bill it hopes a compromiser will accept. If the bill is vetoed, Congress knows the president has rather distant policy preferences. Its next offer may then be

[22] Types whose ideal point z lies closer to .7 than .55 prefer .7; those whose ideal point lies closer to .55 than .7 prefer .55. The midway point between .7 and .55 is .625, so .7 is more attractive for those whose $z > .625$. Recall that $t = 2z - x_0$ so types greater than $2(.625) - 1 = .25$ prefer .7. Note that this comparison is between two "birds in the hand"; it neglects the gamble implied by a bargaining breakdown.

[23] For detailed exegesis of these cases, see Cameron and Elmes 1995.

geared for an *override* attempt rather than presidential acceptance, depending on the location of the override player.

These results are summarized in the following proposition:

Proposition 4: In the SVB model, Congress makes concessions in repassed bills; there is a positive probability the president accepts each bill; and there is a positive probability no offer is accepted (unless the final offer equals $\bar{t}$) even if bargaining does not break down. In the first period, some types of president are willing to strategically veto, that is, to veto a bill they prefer to the status quo.

What's Missing?

Needless to say, the sequential veto bargaining model omits some factors that may affect the politics of the veto. For example, reputation is sometimes a two-edged sword. The president builds a policy reputation with his vetoes, and if he wants to extract substantial concessions from Congress, he needs to appear somewhat extreme. But appearing extreme may sometimes hurt the president with the voters – after all, it was they who elected Congress as well. If appearing too extreme risks a heavy cost in votes, the president may not be as ready with strategic vetoes as the model predicts. In other words, the underlying dynamics of the model will remain the same but appear in more subdued fashion. An added complexity occurs if Congress tries to use "veto bait" to force a veto in order to make the president appear extreme (Groseclose and McCarty 1996). Rather than continuing to pursue additional strategic complexity, however, I will take the models in hand and bring them to data.

CONCLUSION

We now have a framework for thinking about override attempts, and a framework for analyzing sequential veto bargaining. Although these models are new, they represent rather straightforward extensions of a standard model, the Romer-Rosenthal model of take-it-or-leave-it bargaining, and build on a decades-long tradition of spatial modeling in political science.

The question remains: can the models explain the observed patterns in real veto bargaining? Are they able to bring order to the welter of facts compiled in Chapter 2's natural history of the veto?

Appendix to Chapter 4

Basic Model

Proofs of propositions 1 and 2 are readily available elsewhere so I do not consider them here.

Override Model

Because there are two rounds of play, I distinguish decisions made in one round from those in the other via subscripting. Following a standard convention in stochastic dynamic programming, I denote the *last* period as "$n = 1$" and the *prior* period as "$n = 2$," and subscript relevant variables accordingly.

A more complete version of Theorem 3 is the following.

Proposition 3: A perfect Bayesian equilibrium to the override game is:

$$x_n^* = \begin{cases} \dfrac{\tau + x_0}{2} \text{ if } \dfrac{\tau + x_0}{2} \le \bar{\tau} \\ \bar{\tau} \text{ otherwise} \end{cases}$$

$$r_n^*(x_n) = \begin{cases} \text{accept if } x_n \in \wp_p \\ \text{veto otherwise} \end{cases}$$

$$w_n^*(x_n) = \begin{cases} \text{override if } x_n \in \wp_v \\ \text{sustain otherwise} \end{cases}$$

$n = (2,1)$, and beliefs are everywhere determined by the common-knowledge distribution $f(\tau)$.

Proof. The proof is by construction. In the second period, the v-player will override if $x_1 \in [\tau_1, x_0]$ but otherwise sustain. The president will definitely veto any non-veto-proof bill not in his preferred set, since there is a chance the v-player will sustain the veto, thus killing the bill. He will be indifferent about vetoing a definitely veto-proof bill not in his preferred set, that is, $x_1 \in [\bar{\tau}, t)$. We can specify any action in such a contingency; I assume the president does not veto such a bill.

Given these strategies, for Congress $x_1 = \bar{\tau}$ dominates any higher offer, since the president will accept both with certainty while the former yields greater utility. Also, offers above $\underline{t}$ dominate those below, since ones above $\underline{t}$ have a chance of enactment while those below do not. So we need only consider offers in $(\underline{\tau}, \bar{\tau}]$. Under the assumed configuration, the president will veto all these bills. Consequently, Congress's problem is to choose the second offer to maximize

$$EU_1 \equiv \frac{x^1 - \underline{\tau}}{\Delta\tau} U(x_1) + \frac{\bar{\tau} - x_1}{\Delta\tau} U(x_0)$$

$$\Rightarrow \frac{1}{\Delta\tau}\left(-(x_1 - \underline{\tau})x_1 - \left(\bar{\tau} - x_1\right)x_0\right)$$

where $\Delta\tau \equiv \bar{\tau} - \underline{\tau}$. The first quotient gives the probability v-player 1 overrides the veto, the second the probability she sustains the veto. An interior maximum requires

$$\frac{\partial EU_1}{\partial x_1} = \frac{1}{\Delta\tau}\left(-2x_1 + \underline{\tau} + x_0\right) = 0$$

$$\Rightarrow x_1 = \frac{\underline{\tau} + x_0}{2}.$$

Hence, in the second period

$$x_1^* = \begin{cases} \frac{\underline{\tau} + x_0}{2} \text{ if } \frac{\underline{\tau} + x_0}{2} \leq \bar{\tau} \\ \bar{\tau} \text{ otherwise} \end{cases}$$

In the first period, there is the possibility that the v-player will strategically sustain a veto, that is, turn down a bill in order to get a more attractive bill in the second period, albeit risking the possibility of a breakdown. Given some offer in the first period, $x_2 < x^*_1$, there is a type of v-player $\hat{\tau}_2$ who is exactly indifferent between the two offers:

$$V_2^v(x_2;\hat{\tau}_2) = (1 - q)\pi(x_1^*)V_2^v(x_1^*;\hat{\tau}_2)$$

where $\pi(x_1^* = \frac{x_1^* - \underline{\tau}}{\Delta\tau}$ denotes the probability that the second v-player will override the veto of the optimal second offer, and V^v_i denotes the

utility of v-player i, which is (using the definition of rescaled utility in equation 4.2)

$$V_i^v(x_i; x_0, \tau) = \frac{|x_0 - \tau_i| - |\tau_i + x_0 - 2x_i|}{2}$$

where $\tau_i = 2v_i - x_0$, letting v denote the v-player's ideal point. Substituting this definition of utility into the indifference relationship and solving for the first offer yields

$$x_2 = \hat{\tau}_2 + (1 - q)\pi(x_1^*)(x_0 - x_1^*)$$

or more conveniently $x_2 \equiv \hat{\tau}_2 + k$. In other words, if the first offer is lower than this value, the first v-player will strategically sustain the veto in order to get the chance to enact the second offer. For a given first offer, the probability that the offer is this low is (from Congress's perspective) just the probability that $\hat{\tau}_2 > x_2 - k$, which is $\frac{\bar{\tau} - x_2 + k}{\Delta\tau}$, while the probability the first veto player will override the veto (thus ending the bargaining) is $\frac{x_2 - k - \underline{\tau}}{\Delta\tau}$. Consequently, the problem facing Congress is to choose the first offer to maximize

$$EU_2 = \frac{x_2 - k - \underline{\tau}}{\Delta\tau} U(x_2) + \frac{\bar{\tau} - x_2 + k}{\Delta\tau}\left(qU(x_0) + (1 - q)EU_1(x_1^*)\right).$$

After using the definition of Congress's utility, equation 4.1, the following describes an interior maximum:

$$\frac{\partial EU_2}{\partial x_2} = \frac{1}{\Delta\tau}\left(-(x_2 - k - \underline{\tau}) - x_2 - EU_2(x_1^*)\right) = 0.$$

In this expression, the expected utility of the optimum offer in the second period is

$$-\frac{x_1^* - \underline{t}}{\Delta\tau}x_1^* - \frac{\bar{\tau} - x_1^*}{\Delta\tau}.$$

Substitution and solution for x_2 then yields

$$x_2 = \frac{\underline{\tau} + x_0}{2}.$$

Hence, in the first period the optimum offer is

$$x_2^* = \begin{cases} \frac{\underline{\tau} + x_0}{2} \text{ if } \frac{\underline{\tau} + x_0}{2} \leq \bar{\tau} \\ \bar{\tau} \text{ otherwise} \end{cases}$$

which is the same as in the second period. Q.E.D.

Corollary to theorem 3. The probability of an override, given an attempt, is bounded by ½ and 1.

Proof. The probability of an override, given an attempt, is the probability that τ lies below x^*, that is

$$\frac{x_1^* - \underline{\tau}}{\Delta\tau} = 1 - \frac{\bar{\tau} - x_1^*}{\Delta\tau}$$

which, given x^*,

$$\Rightarrow \frac{1}{2} + \frac{x_0 - \bar{\tau}}{2\Delta\tau}.$$

The quotient may be zero (if $\bar{\tau} = x_0$) but otherwise must be positive. The upper bound on the probability is 1 (which occurs at $x = \bar{\tau}$). Q.E.D.

Sequential Veto Bargaining

The key to constructing equilibria is the following observation. Given two bills, x_i and x_{i-1}, with $x_i < x_{i-1}$, and a probability of breakdown q, there will be a presidential type in period i, t_i, who is just indifferent between the two offers. For this type,

$$(x_i;x_0,t_i) = (1 - q)V(x_{i-1};x_0,t_i) + qV(x_0;x_0,t_i). \tag{4.7}$$

This is the relationship illustrated in Figure 4.12. Lemma 1 then follows (recall that z_i is t_i's ideal point).

Lemma 1 (cutoff-rule property): If type t_i is indifferent between two bills x_i and x_{i-1}, with $x_i < z_i < x_{i-1}$, then all types less than t_i prefer x_i to x_{i-1}, while all higher types prefer x_{i-1} to x_i.

The cutoff-rule property has two implications. First, consider an ascending sequence of offers all less than min $\{x_0,\bar{t}\}$ (there is no need to be concerned with higher offers since Congress would never make such offers). Then the president's strategy takes the form of a simple cutoff rule in all periods except the last: accept x_i if $t \le t_i$, and reject otherwise. In the last period $i = 1$, the rule is: accept x_1 if $t \le x_1$, and reject otherwise, just as in the one-shot game. Second, given this cutoff rule and the sequence of offers, Congress can be certain following a veto that $t > t_i$. This fact allows Congress to update its beliefs about the president's type and make subsequent offers contingent on those beliefs. The

progressive winnowing down of possible types as offers are rejected gives the model its distinctive flavor of screening.

I now calculate equilibria in the two-period game. In brief, one finds the optimal last-period offer; then, backwards induction using the indifference relation (equation 4.7) reveals the optimal earlier offer. The cutoff rule used by the president allows updating of beliefs, for example, if priors are uniform on $[\underline{t}, \bar{t}]$ and all types lower than t_2 accept the first offer and all higher types veto, then following rejection of the first offer beliefs must be uniform on $[t_2,\bar{t}]$.

Let $U_i(\kappa)$ denote Congress's expected utility at time i when beliefs are uniform on $[\kappa,\bar{t}]$. In the two-period game, from dynamic programming

$$U_2(\underline{t}) = \max_{x_2,t_2} - x_2\left(\frac{t_2 - \underline{t}}{\bar{t} - \underline{t}}\right) + \left(\frac{\bar{t} - t_2}{\bar{t} - \underline{t}}\right)\{-qx_0 + (1 - q)U_1(t_2)\} \tag{4.8}$$

Subject to

$$(x_i;x_0,t_2) = (1 - q)V(x_1;x_0,t_2) + qV(x_0;x_0,t_2). \tag{4.9}$$

In equation 4.8,

$$U_1(t_2) = -x_1^*(t_2)\left(\frac{x_1^*(t_2) - t_2}{\bar{t} - t_2}\right) - x_0\left(\frac{\bar{t} - x_1^*(t_2)}{\bar{t} - t_2}\right)$$

where the asterisk on the second-period offer $x_1(t_2)$ denotes the utility-maximizing value given uniform beliefs on $[t_2,\bar{t}]$. Simple optimization indicates that

$$x_1^*(t_2) = \frac{x_0 + t_2}{2}$$

if $\frac{x_0 + t_2}{2} < \bar{t}$ and $\bar{t}$ otherwise. Assume the former "unconstrained" offer case (a detailed analysis of the "constrained" offer case in the n-period game can be found in Cameron and Elmes 1995). Substituting presidential utility (equation 4.2) into the indifference relation (equation 4.7) yields $x_i = t_i + (1 - q)(x_0 - x_{i-1})$, so equation 4.9 may be rewritten as

$$x_2 = t_2 + (1 - q)(x_0 - x_1) \tag{4.10}$$

Substituting equation 4.10 and the above expression for $x_1^*(t_2)$ into equation 4.8 yields an expression for $U_2(\underline{t})$ that is solely a function of t_2 and the parameters $(\underline{t},\bar{t},x_0,q)$. Maximizing this expression with respect to t_2 and solving for t_2 then yields

$$t_2^* = \frac{2q}{1 + 3q} x_0 + \frac{1 + q}{1 + 3q} \underline{t}. \quad (4.6)$$

Substituting this value into the expression for $x_1^*(t_2)$ yields

$$x_1^* = \frac{1 + 5q}{2(1 + 3q)} x_0 + \frac{(1 + q)}{2(1 + 3q)} \underline{t} \quad (4.5)$$

and substituting t_2^* and x_1^* into equation 4.8 to solve for x_2 yields

$$x_2^* = \frac{1 + 4q - q^2}{2(1 + 3q)} x_0 + \frac{(1 + q)^2}{2(1 + 3q)} \underline{t}. \quad (4.4)$$

The expression for t_2^* and x_i^* ($i = 1,2$) are weighted averages of x_0 and $\underline{t}$, that is, the coefficients are nonnegative and sum to one. Extensions to the general n-period game and detailed analyses of the "other cases" noted in text can be found in Cameron and Elmes 1995.

Multiple versus Unique Equilibria and Comparative Statics

In Chapter 5, I use the comparative statics of the SVB model to generate empirically testable propositions about veto bargaining. It is certainly possible to empirically test models with multiple equilibria; Cox 1997 provides an example. However, comparative statics become problematic in the face of multiple equilibria, since changes in parameters may not involve local perturbations in a given equilibrium but shifts across different equilibria. Multiple equilibria frequently arise in signaling and screening models, because Bayes's rule does not tie down beliefs at information sets off the equilibrium path. The looseness of these beliefs can give rise to multiple equilibria.

Multiple equilibria do not arise in the SVB model, as the strong backward induction flavor of the foregoing derivation may have suggested. (Of course, the model displays very different behavior depending on its parameter values.) The intuition for the absence of multiple equilibria is that the president is limited to "veto" or "accept," with the latter ending the game. Hence, there isn't much room to play with beliefs off the equilibrium path. This is a typical feature of bargaining models with one-sided offers and one-sided incomplete information (see Sutton 1986 for additional discussion).

5

Explaining the Patterns

As children, most of us delighted in Rudyard Kipling's "just-so" stories. Kipling began with a simple fact, for example, elephants have long noses. Then he made up a fanciful story to explain it: perhaps a crocodile stretched an elephant's nose and the trait was passed down to other elephants. Just so!

In the previous chapter, I began with some simple facts, and then made up a causal mechanism to explain them. The three facts were: vetoes actually occur, veto chains are relatively common, and concessions often occur over the course of a chain. The first model failed to generate any of these patterns, but it supplied a useful framework for additional thought. The override model can generate the first and second patterns, but not the third. The sequential veto bargaining (SVB) model can generate all three.

Are the override and SVB models merely just-so stories? Or do they capture something real about the dynamics of interbranch bargaining? How can we tell? To answer this question I rely on the criteria outlined toward the end of Chapter 3. As indicated there, a sine qua non for a good model is an ability to explain empirical puzzles it was not designed to explain. Table 2.12, which I reproduce in separate tables throughout this chapter, is filled with empirical puzzles that go well beyond the three "stylized facts." For example, why does the probability of a veto increase with legislative significance during divided government, but not during unified government? Why are veto chains short? Why don't any of the covariates predict the success of an override attempt, once the decision to attempt an override is made? Can the models explain *these* facts? If so, they begin to look less like just-so stories and more like real models of real politics.