

Intra-Coalition Politics and War Termination: On the “Early” End of the First World War*

Scott Wolford
The University of Texas at Austin
swolford@austin.utexas.edu

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Abstract

The Allies framed the First World War as a fight to the finish, yet Germany secured armistice well before military collapse. Why? I analyze a game-theoretic model of multi-lateral bargaining and war termination in which one side can request an armistice that solves its commitment problem only imperfectly while, on the other side, one coalition partner secures a larger share of the postwar pie if the war ends in military victory than if it ends in armistice. Under most conditions, the rising partner’s desire to increase its share of the pie ensures continuation of the war. But when a declining partner has more at stake than its rising partner and intra-coalition power isn’t shifting too rapidly, both rising and declining partners—like the Entente and the United States in 1918—grant a potentially fragile armistice. The analysis shows how bargains struck across and within warring sides shape the duration of wars and the terms on which they end.

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When the First World War ended on the Western Front, German territory remained unconquered and its army mostly intact, not yet concentrated on the main battlefield. Such an outcome was at clear variance with Allied rhetoric in the years and months before the armistice of November 1918.¹ British Prime Minister David Lloyd George had declared that the “The fight must be to the finish—to a knockout” (Meyer 1916, 153). In his 1917 address requesting a declaration of war, American President Woodrow Wilson articulated beliefs about the causes of the war that implied toppling the German government: autocratic governments like the one that ruled the *Kaiserreich* decided for war without consulting the people that paid its costs and so couldn’t be trusted to uphold the peace.² French premier Georges Clemenceau declared as late as September 1918 that “[a] military decision is what Germany desired and has condemned us to pursue” (quoted in Stevenson 1982, 114). And as Foreign Minister Sir Edward Grey conveyed to Edward House, Wilson’s personal envoy, British war aims required an “end to militarism,” a pithy euphemism for an end to the rule of the Houses of Hohenzollern and Hapsburg (Meyer 1916, 69). Germany’s enemies believed that the Kaiser and his generals were bent on unhinging the balance of power not just in Europe but globally (see Hull 2014, 271), and the best solution seemed to be a fight to the finish, to the proverbial “knockout” that would disarm Germany and disempower the generals that talked openly of a “Second Punic War” to avenge their impending loss (Strachan 2013, Ch. 8-10). Why, then, did the First World War end not with a bang but with a whimper? Why, even as Marshal Ferdinand Foch mocked the Treaty of Versailles as “an armistice for twenty years,” as Allied war-planning had accounted for fighting well into 1919 (McCrae 2019), and as American dollars and doughboys poured into Europe to tip the scales against the Central Powers, did the Allies settle for an armistice?

The First World War emerged from a network of commitment problems in Southeastern Europe triggered by rising Serbian and Russian power (Levy 1990/91). Yet French, British, and ultimately American decisions to fight were predicated on Germany’s own inability to commit not to dominate Europe if given the chance (Wolford 2019a), which in the early 20th century also meant dominating the imperial world system (Fischer 1967).³ Wars driven by commitment problems end when fighting slows, arrests, or reverses an unfavorable shift in power (Wolford 2019b, Ch. 2) or when fighting wipes out the benefits of exploiting newfound power (Leventoglu and Slantchev 2007). In many cases, that imperative drives the aims of war to totality—to military victory, to disarmament of the loser and the replacement of its government or wholesale elimination of the state (Lo, Hashimoto and Reiter 2008, Reiter 2009, Walter 2002). And solving Germany’s commitment problem, made manifest with the promulgation of 1914’s *Septemberprogramm* that described the “enfeeblement” of enemies and the establishment of an economic union that could cut Britain off from Europe, required (according to its foes) conquering, disarming, and dismembering or reordering Germany. Nods to democratization, like the one that put Prince Max von Baden at the head of the civilian government that requested the armistice, might’ve placated Wilson, but they were hardly credible as long as the old political class remained intact. By this line of reasoning,

¹A note on terminology: I refer to Britain and France as the Entente, but when combined with the United States, which joined the war as an “Associated” power, I follow convention and call this grouping the “Allies.”

²See <https://www.firstworldwar.com/source/usawardeclaration.htm>.

³Not for nothing is the original German title of Fischer’s book *Griff nach der Weltmacht*, or “Bid for World Power.” On this, see <https://adamtooze.com/2019/01/06/framing-crashed-8-provincializing-europe/>.

Foch was rightly skeptical; only foreign-imposed regime change might've done the job (Lo, Hashimoto and Reiter 2008). Prevailing IR theory thus leads us to expect that the First World War should've ended not with the armistice we saw in 1918 but with the march on Berlin that we didn't see until 1945.

I argue that explaining the ostensibly “early” end of the First World War requires an understanding of intra-Allied politics, as the Entente war effort came increasingly to rely on the United States over the course of 1918 and into the hypothetical war effort of 1919. To that end, I analyze a game-theoretic model of intra-war and intra-coalition bargaining, where two states prosecuting a war against a third must agree whether or not to grant the latter's request for an armistice. Coalition partners mind both the costs and potential gains of continued fighting, as is common in dyadic models of war termination (e.g. Filson and Werner 2002, Leventoglu and Slantchev 2007), but they also weigh the consequences of continued fighting for their respective shares of the postwar pie: the longer the war lasts, the greater the share of the postwar pie a rising partner can secure at its declining partner's expense. Such shifting intra-coalition power shapes the relative attractiveness of granting an armistice and continuing the war, with rising partners more inclined to continue the fight and declining partners more inclined to grant an armistice, the risks of failing to solve the enemy state's commitment problem notwithstanding. In equilibrium, shifting intra-coalition power most often undermines early settlement, lengthening wars as rising partners push to maximize their share of the postwar pie, pushing wars towards total victory that would otherwise end in armistice. But when (a) declining states have a greater stake in the war's outcome and (b) the rising state isn't rising *too* quickly, then both can agree on an “early” end to the war, even when armistice fails to solve the war's fundamental bargaining problem, leaving open a possibility of renewed conflict with which a total victory would dispense. Therefore, war duration and termination depend on the working out of bargaining problems both across *and* within warring sides.

Coalitions and War Termination

Nearly 40% of interstate wars identified by the Correlates of War (COW) project since 1816 have involved multiple states on at least one side (Sarkees and Wayman 2010), whether they fight in parallel or as a coalition (Morey 2016). Yet most theories of endogenous war termination are dyadic, and empirical models of war duration and outcome typically treat the number of parties involved—to say nothing of whether any such parties fight as a coalition—as a statistical nuisance (e.g. Bennett and Stam 1996, Slantchev 2004) or an unconditional source of inefficiency (Cunningham 2006). Military coalitions, however, aren't merely aggregations of power (see Wolford 2015, 41-45). Intra-coalition politics, especially the internal distributions of capabilities and the costs of war, shape the escalation of disputes to war (*ibid.*, Ch. 4), their expansion to include other states (*ibid.*, Ch. 5), and their duration (Chiba and Johnson n.d.). Intra-coalition politics also influence the outcomes of interstate wars (Gartner and Siverson 1996, Graham, Gartzke and Fariss 2017, Morey 2016), who gets (and pays) what in peace settlements (Starr 1972), and the durability of subsequent settlements (Phillips and Wolford n.d., Wolford 2017). Further, the ostensibly “early” end of the Great War on the Western Front suggests that intra-coalition politics can also shape the

duration of wars—and not always by encouraging delay and inefficiency.

Theories of endogenous war termination tend to be dyadic (see Filson and Werner 2002, 2004, Leventoglu and Slantchev 2007, Powell 2004, Slantchev 2003, Wittman 1979, Wolford, Reiter and Carrubba 2011). They focus on bargaining frictions, like information and commitment problems (Fearon 1995), that fighting can solve, and there’s no need to include other players to make the point. Once fighting (a) creates agreement on the likely outcome of a fight to the finish or (b) makes commitments credible that weren’t before, belligerents can negotiate peace and save the further costs of fighting. Still, these theories help explain why negotiated settlements that leave both sides still standing are the norm (Blainey 1988, Slantchev 2004, Wagner 2007) and why commitment problems can produce fights to the finish, because disarming an opponent is the best available means of enabling a settlement (Reiter 2009). Other theories relate leader’s private stakes, rather than public costs, to war duration and outcome (Croco 2005, Goemans 2000b, Stanley and Sawyer 2009) but still abstract away from intra-coalition politics. Morey (2016) and Graham, Gartzke and Fariss (2017) link coalitions to war outcomes, how the intra-coalition politics shapes the duration of war remains an open question, even as powerful countries like the United States after the Cold War wage coalition wars “by default” (Kreps 2011).

Theorizing about coalitions and war duration is sparse. Bennett and Stam (1996, 423–244) contend that collective action problems inside war coalitions should undermine the ability to wage war to a victorious conclusion, thereby shortening multiparty conflicts on average. Blainey (1988, 197) and Vasquez (1993, 258–260), on the other hand, contend that more actors in general imply longer wars, and Cunningham (2006) argues the same to support a finding that civil wars with more parties last longer than civil wars with fewer parties. Bennett and Stam (1996) excepted, arguments about the effects of multiple parties focus on total participants in the war, whether organized as coalitions or not, following a common trope that more parties mean more inefficiency (e.g. Huth, Bennett and Gelpi 1992, Lake 2010/11). Yet in many cases, like the formation of alliances for extended deterrence or collective military threats, the strategic involvement of more actors can *reduce* inefficiency by solving information problems or smoothing out otherwise dangerous shifts in relative power (Favretto 2009, Leeds 2003, Morrow 2000, Wolford 2014). But as indicated by the armistice of 1918, a useful theory of intra-coalition politics and war termination must be able to account for both “late” and “early” war termination.

Empirical work is largely silent on the question, focusing not on the presence of coalitions per se but the number of states involved in the war. Several models uncover a negative relationship between the number of belligerent states and interstate war duration (Bennett and Stam 1996, Goemans 2000a, Quiroz Flores 2012, Stanley and Sawyer 2009). Weisiger (2013, 2016) finds no relationship, and Slantchev (2004), sampling on war initiators, finds that duration increases in the number of parties.⁴ Data is, however, available on coalition participation in interstate wars. Morey’s (2016) analysis of war outcomes distinguishes between war coalitions (i.e., states on the same side that coordinate their activities) and wars fought in “parallel” or without such coordination.⁵ To get a rough sense of the relationship,

⁴Likewise, Cunningham (2006) finds that civil wars last longer when they have more parties.

⁵Graham, Gartzke and Fariss (2017) model war outcomes as a function of the number of states on a single side, but they don’t draw Morey’s (2016) coalitions versus wars-in-parallel distinction.

Table 1: Cox PH models of interstate war duration, with data from Morey (2016)

	Model 1	Model 2	Model 3	Model 4	Model 5
Coalition	–	-0.41* (0.23)	-0.35 (0.24)	-0.21 (0.34)	0.06 (0.35)
Wars in Parallel	–	–	0.67* (0.37)	–	0.91** (0.40)
Log Participants	-0.31* (0.18)	–	–	-0.19 (0.25)	-0.40 (0.28)
Model Statistics					
Subjects	95	95	95	95	95
Log Likelihood	-339.20	-339.32	-337.88	-339.00	-336.78
Significance levels : * : 10% ** : 5% *** : 1%					

I use these data to estimate Cox Proportional-Hazard models of the duration of the 95 COW interstate wars (Sarkees and Wayman 2010). Table 1 presents hazard coefficients, such that positive values indicate an increased risk of war termination (a shorter war) and negative values a decreased risk (a longer war). The results indicate no consistent relationship between the duration of war and either the total number of participants (logged to account for a few very large wars), the presence of a coalition on at least one side, or whether partners fought a war in parallel. On their own, both the number of participants and the presence of a coalition are associated with shorter wars, but when modeled together, only wars in parallel show a relationship with war duration, extending conflicts beyond the average duration. However, Grambsch and Therneau’s (1994) test for non-proportionality indicates a violation by *Wars in Parallel*, though interacting the offending variable with analysis time (see Box-Steffensmeier, Reiter and Zorn 2003) eliminates the significance of the offending variable; the interaction coefficient itself is also not discernible from zero.

The lack of a consistent bivariate relationship is instructive, because it’s consistent with the idea of a missing conditional variable—here, intra-coalition politics—that determines whether coalition partners lengthen or shorten interstate wars. The armistice of 1918 and intra-Allied debates over the desirability of ending the war are clearly indicative of such a conditional relationship. The United States could’ve benefited in principle from a continuation of the war into 1919, when its economic dominance would be matched with military dominance on the Continent, while the British and French saw the attractiveness of an early end to forestall such an outcome; indeed, a state bent on increasing its share of the postwar pie has incentives to push the war to total victory even when an armistice might solve the war’s bargaining problem with certainty. A useful theory of coalitions and war duration should help explain when these divergent interests in war termination arise and when one priority wins out over the other; in other words, it needs to explain why coalition partners develop these preferences and then how they’re aggregated to generate either long or short wars. Intra-coalition politics in the waning months of the Great War on the Western Front point to three factors relevant for such a theory: (a) divergent preferences over the

division of the postwar pie, (b) a means of aggregating those preferences, and (c) shifting relative power, which affects divisions of the postwar pie, inside the coalition.

Model

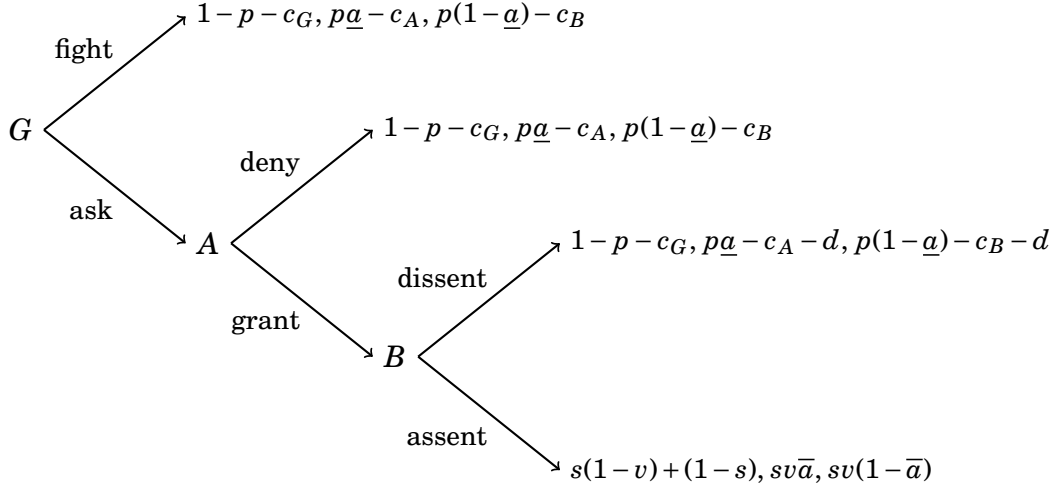
Recent models of endogenous war termination follow Wagner's (2000) advice to allow also for endogenous initiation (Filson and Werner 2002, Leventoglu and Slantchev 2007, Powell 2004, Wolford, Reiter and Carrubba 2011), which is especially useful for explaining the evolution of beliefs and war aims over time and the means by which fighting can resolve the bargaining problems that give rise to it. Models with three and more actors can easily become intractable, however, and it's not clear that war initiation is necessary to resolve the puzzle of an unexpected armistice in the First World War. It's more useful to focus here on a spare representation of the war termination process, assuming that belligerents choose between an armistice of questionable durability and a total victory that solves the bargaining problem crudely by disarming the losing side. This enables a richer representation of intra-coalition bargaining over whether to end the war in a negotiated settlement that leaves both sides standing or to fight on in pursuit of total victory. The most plausible reason to focus on initiation is that, if states can anticipate undesirable war termination processes, they might avoid the fight in the first place. However, (a) one partner's disadvantage at the intra-war bargaining table might be the other partner's boon, making any such strategic censoring difficult to achieve (much less observe) and (b) wartime events are often unpredictable, leading to an accumulation of additional actors, bargaining problems, and political issues whose emergence was discounted or simply ignored at the beginning of the conflict. Neither the Entente nor Germany, for example, anticipated a long war on the Western Front (Debs 2019), much less one that would involve the United States in the final settlement as an emergent financial-military hegemon (Tooze 2014).⁶ This section's model, then, looks in on the across- and within-side politics of ending an ongoing war.

Suppose that a belligerent state G must choose whether to request an armistice, which accepts the prevailing military situation as a basis for negotiations that may or may not succeed, or continue an ongoing war against a coalition of two states, $C = \{A, B\}$. Figure 1 shows that if G fights, the game ends in a total war with the probabilistic elimination of the losing side. If G asks for an armistice, each coalition member can force a fight to the finish if it wishes, but it takes both to accept an armistice and thus begin negotiations. I assume that a lead state (A) exercises agenda-setting power inside the coalition.⁷ State A 's denial leads to a continuation of the war, but if A proposes to grant the armistice, B gives assent or dissent. Assent implements the armistice, fixing the battlefield situation as the

⁶For more on the unpredictability of war and models that rely on it, see Wolford (2017) and (Wolford 2019b, Ch. 14).

⁷Note that this definition of coalition leader is more general than Wolford's (2015), where the leader is also the state whose participation is required for the conflict to occur; here, "leader" refers to agenda-setting power in intra-coalition politics. This representation rules out the possibility of one partner retiring from the fighting or signing a separate peace, but the sacrifice in realism allows me to isolate the strategic problem of interest—i.e., shifting intra-coalition power—from other potential causes of war termination. The possibility that coalitions grant armistices before separate peaces can be signed is, however, a promising avenue for future inquiry.

Figure 1: Intra-Coalition Politics and War Termination



basis for negotiations to end the war, but B 's dissent forces a fight to the finish. Dissenting imposes a shared cost for intra-coalition discord, but continuing the war allows A 's military-political influence inside the coalition to grow—say, as its blood and treasure account for an increasing share of the collective war effort—relative to its declining partner (B). Therefore, if the war ends in armistice, B secures a smaller share of the coalition's postwar pie than it does if the war continues, because the rising partner (A) can demand a commensurately larger share for itself.

The game ends in either continued war or an armistice, and payoffs depend on both whose decision continues the war and whether the coalition disagrees in the process. If G requests and the coalition grants an armistice, payoffs depend on the current military situation, the probability with which the armistice produces a settlement, and on the distribution of the postwar pie. The prevailing military situation at armistice leaves v for the coalition and $1-v$ for G . For its part, G consumes $1-v$, but the coalition must share v , where shares at this within-side bargain (cf. Phillips and Wolford n.d.) are determined by relative military-political power—i.e., the number of boots a partner has on the ground, the extent of its partner's dependence on its own financial resources, the costs it's paid in blood and treasure, or its ability to continue the war beyond a putative armistice. Thus, A receives a share $\underline{a} \in (0, 1)$, and B gets $1 - \underline{a}$. But this successful outcome, a settlement based on the present military situation, is only realized with probability $s \in (0, 1)$. With probability $1 - p$, G breaks out of the armistice and overturns the settlement, yielding 1 for G and 0 for each member of C . The extremity of this outcome stacks the deck against the coalition granting an armistice, making the consequences of foregoing a knockout blows as severe as possible

for the coalition.⁸ Payoffs for an armistice are

$$u_i(\text{armistice}) = \begin{cases} s(1-v) + (1-s) \times 1 & \text{if } i = G \\ s\underline{a} & \text{if } i = A \\ s\underline{v}(1-\underline{a}) & \text{if } i = B. \end{cases}$$

If the war continues, the coalition wins with probability $p \in (0, 1)$, and G wins with the complementary probability, $1 - p$. The stakes are larger, in that the winning side captures the whole pie, but continuing the war costs each player $c_i > 0$, where $i = \{G, A, B\}$. The cost term represents any disutility associated with continuing the war, like blood or treasure, but it also represents how states weigh the payment of costs against the attainment victory. When c_i is low, a belligerent has more at stake in the war outcome, i.e. it “cares more,” than it does when c_i is high. If war puts one state’s survival or status in the power hierarchy in jeopardy, for example, its stakes are higher (and its value of c_i lower) than they are for states that intervene from abroad or whose status is less sensitive to the war’s outcome; France’s stakes in the First World War, for example, were higher than those of the United States. Next, should the coalition win, A ’s influence over the final settlement will have increased, just as the United States’ would’ve had the war continued into Germany in 1919, with more boots on the ground and partners more firmly in its financial grasp. As such, the within-side bargain grants \bar{a} to A and $1 - \bar{a}$ to B , where $\underline{a} < \bar{a} < 1$. Finally, if B vetoes A ’s proposal to grant the armistice, each member pays an additional wartime cost ($d > 0$) of intra-coalition disagreement. These costs can arise from deepened intramural mistrust or the political costs—domestic or international—of public disagreement, as well as military opportunity costs like delays in lending, granting licenses for firms to export arms to allies, or the opening of extra fronts to relieve pressure on partners.⁹ When d is high, defying the coalition leader is more painful than when d is low, and when $d = 0$, disagreement over continuing the war is frictionless (though A retains agenda-setting power). Letting $I = 1$ after intra-coalition disagreement and $I = 0$ otherwise, payoffs for war are

$$u_i(\text{war}) = \begin{cases} 1 - p - c_G & \text{if } i = G \\ p\bar{a} - c_A - Id & \text{if } i = A \\ p(1 - \bar{a}) - c_B - Id & \text{if } i = B. \end{cases}$$

The model isolates two strategic tensions, one for the across- and another for the within-side bargain, both of which are present in intra-Allied negotiations over the Western Front armistice. First, continuing the war holds out the costly promise of controlling the entire prize, solving G ’s commitment problem by disarming it if the coalition wins. An armistice, on the other hand, saves the costs of further fighting but may give G an opportunity to overturn the settlement, leaving the commitment problem only imperfectly solved. Commitments to peace aren’t automatically credible after an armistice, as they would be if the coalition were to win a total war. Second, ending the war in an armistice today allows the declining

⁸This is without loss of generality; if G were to get some $b < 1$ and the coalition $1 - b$, for example, then armistice becomes less attractive for the former and more so for the latter, but the effect of shifting intra-coalition power on why a war ends in armistice or total war would be the same.

⁹I’m indebted to Pat McDonald for the opportunity costs examples.

coalition partner to secure a larger share of the postwar pie should the settlement stick, albeit of a smaller pie than victory could secure. Armistice also requires that the rising side forego the larger share of the larger pie it can assure itself if the war continues to total victory. I show in the next section that these tensions can interact, such that shifting intra-coalition power can shorten or extend the war relative to a case in which intra-coalition power is static, shedding light on the following section on why the First World War ended in 1918's armistice rather than an ultimate disarmament of Germany.

Analysis

How does shifting intra-coalition power shape the duration of war? Answering this question entails identifying the game's Subgame Perfect Equilibria (SPE, or just "equilibrium"), where strategy profiles constitute Nash Equilibria in every proper subgame, thereby ruling out incredible threats and promises. I build the argument in three steps. First, I show that if an equilibrium doesn't entail an armistice, it's guaranteed to entail total war. This allows me to focus only on proving the existence of armistice equilibria: if an armistice equilibrium doesn't exist, then the war is sure to continue. Second, I analyze a restricted version of the model in which intra-coalition power is static, such that $\underline{a} = \bar{a} = 1/2 = a$. Fixing $a = 1/2$ is without loss of generality, since no actions on any player's part can change the value of a realized in the payoffs; it just eases the presentation. I then analyze the model with shifting power, where $\underline{a} = 1/2$ and $\bar{a} \in (1/2, 1)$, which facilitates comparison to static-power equilibria. This restriction is also without loss of generality; shifting intra-coalition power won't shorten or lengthen the war for different reasons if $\underline{a} \neq 1/2$. Finally, I identify the conditions under which shifting intra-coalition power encourages and discourages war termination.

There are two relevant types of SPE. At an *armistice equilibrium*, G asks, A grants, and B assents, and at a *war equilibrium*, at least one player takes an action that ensures continued fighting. Proposition 1 establishes that, unless an armistice equilibrium exists, G is sure to continue the war in its first move.

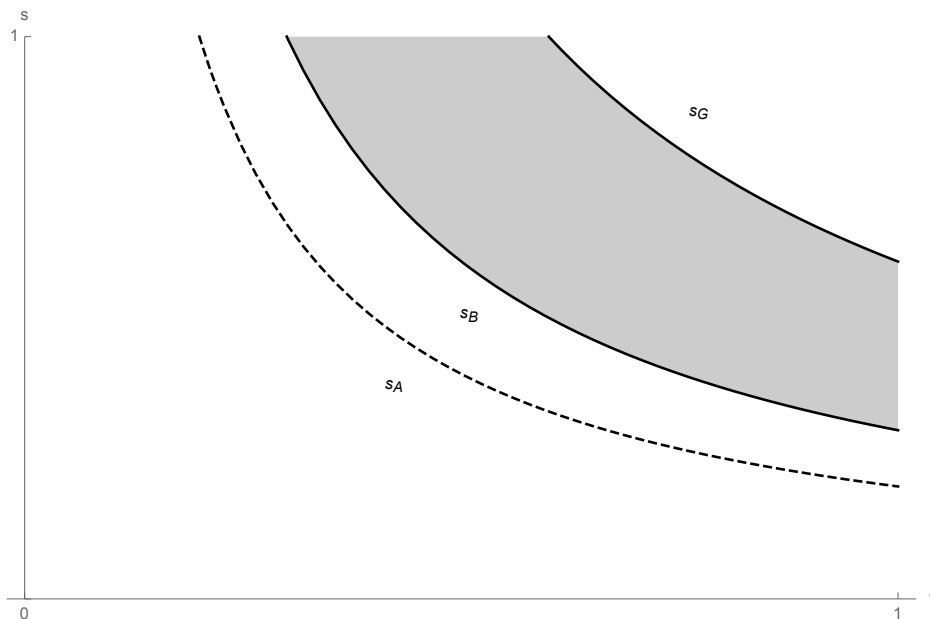
Proposition 1 (War). *If an armistice SPE does not exist, then all SPE entail G fighting at the first move. See appendix for proof.*

Unless it turns down an armistice that would otherwise be granted, G is indifferent between asking and fighting for most cases covered by Proposition 1. Indifference is sufficient for fighting to be a best response, but the claim holds strictly for SPE in which no armistice would be accepted as long as there's a small cost—say, appearing weak or indecisive before international or domestic audiences—to asking for an armistice and being denied. Therefore, if the armistice SPE identified below doesn't exist, then the war continues, whether G forgoes a chance to end the war or the coalition refuses to grant an armistice. The multiple causal pathways behind the war SPE are interesting, but for the purposes of identifying the effects of shifting power on war termination, we can safely ignore them.

Static Intra-Coalition Power

In both static- and shifting-power variants of the game, armistices emerge for the same reason: both sides find reaching a settlement that reflects the military situation, even if it

Figure 2: The Equilibrium Space by Probability of Armistice Success (s) and Military Situation (v), where B Sets the Binding Constraint for Armistice



may prove fragile, more attractive than paying the costs of further fighting.

Proposition 2 (Static Power). *When $\underline{a} = \bar{a} = 1/2$, the armistice SPE exists and is unique when*

$$\max\{s_A, s_B\} \leq s \leq s_G \quad \text{and} \quad v > \max\{p - 2c_A, p - 2(c_B + d)\}$$

where

$$s_A = \frac{p - 2c_A}{v}, \quad s_B = \frac{p - 2(c_B + d)}{v}, \quad \text{and} \quad s_G = \frac{p + c_G}{v}.$$

See appendix for proof.

Proposition 2 describes the conditions supporting the armistice SPE when intra-coalition power is static, and Figure 2 presents them graphically, where the conditions supporting the armistice SPE are highlighted in gray. First, the armistice must be sufficiently likely to succeed to win the coalition's consent, reaching minimum thresholds of success for each partner ($s \geq s_A$ and $s \geq s_B$), but nor can it be too likely to bind G to the present military situation ($s \leq s_G$). Second, the military situation (v) must be sufficiently favorable for the coalition to find peace attractive; but since armistice offers only G a chance to break out of the terms, asking for armistice is always attractive when v is low and the battlefield favors it. This explanation for armistice falls generally in line with models of bilateral war termination, where conflicts tend to end when (a) belligerents can offer terms that reflect shared expectations about the costs and likely outcome of continued fighting (see Filson and Werner 2002, Powell 2004, Slantchev 2003) and (b) the risks of one's opponent renegeing aren't too great (see Leventoglu and Slantchev 2007, Wolford, Reiter and Carrubba 2011).

Intra-coalition politics enters the story through the lead state's political power and partners' relative stakes in the conflict. First, the costs of disagreement (d) encourage B to accept an armistice if A proposes one, lowering the threshold of settlement success (s) above which B assents to negotiations. The lead state can thus leverage B 's distaste for disagreement to secure some armistices that would otherwise be rejected. Second, A 's agenda-setting power, combined with the costs of disagreement, ensures that it often sets the binding constraint for the armistice equilibrium. That is, $s_A > s_B$, such that A can drag B into an armistice that it would otherwise not grant. A 's political power can be offset, though, when B has enough at stake in the war. When $c_B < c_A - d$, such that B 's stakes in the war outweigh both A 's lower stakes and the costs of disagreement, B sets the binding constraint ($s_B > s_A$). This ensures that B can push A to grant armistices it would otherwise refuse. At this static distribution of power, intra-coalition politics determines both the range of the parameter space over which the armistice SPE exists and which partner sets the binding constraint—that is, which partner requires better chances of settlement success before it agrees to end the fighting. I show in the next section that the introduction of shifting intra-coalition power can either discourage or encourage armistice relative to the static case, but whether it does so depends on both relative stakes and political power inside the coalition.

Shifting Intra-Coalition Power

Proposition 3 characterizes the conditions that support the existence of an armistice SPE when intra-coalition power is shifting in A 's favor. As they do in the static-power version of the model, armistices emerge in equilibrium when (a) their terms are likely, but not too likely, to remain intact and (b) the military situation is favorable enough for the coalition. And though G 's threshold for requesting armistice ($s \leq s_G$) remains unchanged, the coalition's threshold values (s_A and s_B) now depend on the intra-coalition power that A will wield if the war continues beyond today's opportunity for armistice.

Proposition 3 (Shifting Power). *When $\underline{a} = 1/2$ and $\bar{a} \in (1/2, 1)$, the armistice SPE exists and is unique when*

$$\max\{s_A, s_B\} \leq s \leq s_G \quad \text{and} \quad v > \max\{2p\bar{a} - 2c_A, 2p(1 - \bar{a}) - 2(c_B + d)\}$$

where

$$s_A = \frac{2p\bar{a} - 2c_A}{v}, \quad s_B = \frac{2p(1 - \bar{a}) - 2(c_B + d)}{v}, \quad \text{and} \quad s_G = \frac{p + c_G}{v}.$$

See appendix for proof.

How does shifting intra-coalition power affect the conditions for armistice? Key to the answer is that A 's rising power moves coalition partners' minimum success thresholds, s_A and s_B , in opposite directions.¹⁰ As \bar{a} increases, A finds a fight to the finish more attractive, because it promises a larger share of a larger pie. A thus requires an increasing chance of settlement success (higher s) and a more favorable military situation (higher v) before it

¹⁰Formally, $\partial s_A / \partial \bar{a} = 2p/v > 0$ and $\partial s_B / \partial \bar{a} = -2p/v < 0$.

proposes to grant an armistice. State B , on the other hand, accepts longer odds of settlement success (lower s) and less favorable military situations (lower v) than it would at a static distribution of power as the price of an armistice that prevents it from conceding a larger share of the postwar pie to its rising partner. Whether shifting power makes armistice SPE more or less likely than the static case, though, depends on the ordering of each partner's success thresholds at a static distribution of power (as described in Proposition 2) and the magnitude of the increase in A 's power occasioned by a continuation of the war.

Proposition 4 describes how shifting power narrows the range of the parameter space (the gray area in Figure 1) for which the armistice SPE exists (which makes armistice less likely) and when it widens that range (making armistice more likely). Under fairly general conditions, A 's rising strength and proposal power ensure that it can force a continuation of the war, paying the upfront costs of continued fighting for a larger share of a larger pie should the coalition win. But under some conditions the declining partner can secure an armistice that prevents power from shifting too far in A 's favor.

Proposition 4 (Shifting Power and War Duration). *When*

$$c_B < c_A - d \quad \text{and} \quad \bar{a} - \frac{1}{2} < \frac{c_A - (c_B + d)}{2p},$$

armistices are more likely under shifting than static intra-coalition power; when either condition fails, armistices are less likely under shifting than static intra-coalition power.

The easiest way to understand the effect of shifting power is to focus on the relative ordering of coalition members' success thresholds (s_A and s_B) under static power, then show how shifting power changes the magnitudes and ordering of these thresholds. Recall that (a) the higher of the two thresholds is the binding constraint and (b) shifting power raises A 's threshold, making it less inclined to armistice, as it lowers B 's, such that the declining partner more inclined to grant G 's request. First, when A has enough at stake that it sets the binding constraint under static power, or $c_A < c_B + d$ such that $s_A > s_B$, shifting power makes an armistice equilibrium less likely. The rising partner can dictate a continuation of the war under conditions that would otherwise produce armistice if power were static. And when the declining partner has a sufficient stake in the war ($c_B < c_A - d$) to set the binding constraint under static power ($s_B > s_A$), A 's power may still grow sufficiently that its success threshold overtakes B 's. A 's desire to continue the war means that it sets the binding constraint under shifting power where it wouldn't under static power; shifting power makes armistice less likely under these conditions by shifting the distribution of intra-coalition political influence away from B and towards A .

Suppose, however, that $s_B > s_A$ under shifting power and that B 's threshold (s_B) doesn't fall so far that s_A overtakes it. B continues to set the binding constraint ($s_B > s_A$) even under shifting power, and that constraint is easier to satisfy than it is under static power. Formally, B sets the binding constraint under shifting power when

$$\bar{a} - \frac{1}{2} < \frac{c_A - (c_B + d)}{2p},$$

where the left side is the size of the shift in power, the right side's numerator is the difference between A 's and B 's costs for continuing the war (note that the latter's also entails the costs

of intramural disagreement), and the denominator is proportional to the coalition’s probability of winning a total war.¹¹ This constraint becomes easier to satisfy as the differences in partners’ stakes, $c_A - (c_B + d)$, increases—i.e., as B cares more about the outcome relative to A —and as the coalition’s military prospects fall. But as partners’ stakes in the war become more similar (or as A ’s stakes rise above than B ’s) and as the chances of ultimate victory increase, then A finds armistice less and less attractive, and its desire to continue the war once again binds over B ’s desire to end it.

What can this model tell us about the effect of shifting intra-coalition power on war termination? First, whether shifting power increases or decreases the chances of war ending in an armistice depends on the distribution of costs and political power inside the coalition. When (a) the declining partner has enough at stake in the war to outweigh both the rising partner’s stakes and the political costs of disagreement and (b) power won’t shift too far, shifting intra-coalition power makes armistices more likely than they would be under static power, thereby shortening the war. Second, if either condition in Proposition 4 fails—if power is shifting substantially in A ’s favor or B ’s stakes in the war aren’t sufficiently larger than A ’s—then shifting power makes armistices less likely and, as a consequence, wars longer. The model predicts no consistent bivariate relationship between shifting intra-coalition power and the duration of multilateral wars in the empirical record, which is consistent with the patterns described by Table 1. The observed relationship in either large samples or any given case can be positive or negative, depending on how the stakes of the war, political authority, and power are distributed inside the coalition. Therefore, empirical models that find either positive or negative average effects are subject to omitted variable bias; the relationship in a given sample may be positive or negative, but only because the un-modeled distribution of war costs and political authority in the sample favors either a positive or negative effect of shifting power. The present model counsels caution in interpreting any observed relationship between coalition participation and war duration.

It’s also notable that the mechanism driving variation in coalition behavior has nothing to do with collective action problems (Olson 1965), which factor often into the study of multilateral war and crisis bargaining (Papayoanou 1997, Saideman and Auerswald 2014). Bennett and Stam (1996) follow the same cue and argue that free-riding can account for sub-optimally short wars, but the same desire to shift the burden of fighting onto others can also explain long wars if it means that the putatively winning side delays application of sufficient force; collective action problems alone can’t explain either short or long wars without additional premises. Accounts rooted in collective action failures also elide the fact that coalition leaders often compensate partners to discourage free-riding (Wolford 2015, Ch. 3, 4), keeping all but the most minor collective action problems off the equilibrium path—i.e., out of the empirical record. In fact, competition over shares of the postwar pie is a compelling explanation for why collective action problems were minimized between Entente and Allied powers, even as they plagued the Central Powers throughout the War (Wolford 2019b, Ch. 7). It’s thus a virtue that the present model can explain why some coalition wars end “early” and others “late” without reference to the collective action problem.

¹¹If this looks like a variant of Powell’s (2006) inefficiency condition, that’s no coincidence; but note that here, the shift in power *doesn’t* outweigh the costs of war.

The Armistice of 1918

Why did the First World War end early on the Western Front, before Allied armies could put paid to German ambitions to dominate the international system? Answering this question requires showing that the model can explain the Allied decision to grant Germany's request for armistice when continued fighting promised ultimate victory, the costs of doing so notwithstanding. The Entente and the United States were both mindful of the costs of fighting, but that doesn't explain why the Entente would settle for an armistice that didn't preclude a revived Germany and why the United States, more insulated from the costs of war, wasn't more eager to fight on. Resolving puzzles like this requires treating the entire equilibrium, which depends on both the extensive form of the game and the solution concept, as the causal mechanism (Goemans and Spaniel 2016).¹² This requires the analyst to show that (a) the structure of interactions to be explained is similar to the game form, (b) the facts of the case match the parameter values that support the existence of the equilibrium that implies the explanandum and (c) decision-makers reasoned as actors do at the relevant equilibrium, particularly with respect to what they believed would be the consequences of choosing other than they did.¹³ To that end, I provide evidence in this section that (a) the Americans, British, and French believed that a longer war would increase the former's influence over the final settlement; and (b) the Entente accepted a potentially fragile armistice to avert an American-dominated victory, while (c) the Americans accepted the same early end thanks in part to lower stakes in the war that rendered them more accepting of German moves toward civilian rather than military government.

First, how well does the structure of the model represent the case? To say that the Allies were engaged in a costly war with Germany is unproblematic; the costly lottery is a flexible means of representing both the outbreak and end of war (Powell 2004, 349-350). The model also reflects the fact that continuing the war would've given the Allies a high probability of ultimate victory (p), higher even than that reflected by the current military situation ($p > v$), at a cost distributed unevenly inside the coalition (c_i). Critically, the British and French had much more at stake than the United States in 1918; either defeat or a Pyrrhic victory would've compromised their survival as great (which in the early 20th century meant imperial) powers. The United States, on the other hand, would've entered a new era of economic and military (primarily naval) power, whoever ended up in control of Europe. Coalition members were also well aware of possible rivalries over the fruits of victory, which amounted to nothing more than a say in designing a new international legal-political regime (Parsons 1978, Rothwell 1971, Stevenson 1982), the scope of which had been increased by both Lenin's and Wilson's competing appeals to overturn the old imperial system (and replace it with Russian- and American-led systems) (see Manela 2009, Tooze 2014). Goemans (2000b, 291) notes that the Allies were each "concerned almost as much about how the terms of settlement would affect their power relative to their enemy as how they would affect their power relative to their current allies."

The model's characterizations of the armistice and intra-coalition politics also represent key elements of the case. First, armistice works as it did in the minds of the participants,

¹²I don't like the term "causal mechanism," and I'm not sure I ever will.

¹³For a guide to process-tracing of which I'm sure my effort will fall short, see Ricks and Liu (2018).

creating a pause in the fighting that froze the military situation as the basis for negotiations, saving the present costs of war at some risk that the armistice might break down after conferring an advantage on the side that currently has its back to the wall. Allied leaders placed military victory front and center in both public and private discussions. Reiter (2009) recounts discussions in Britain's War Cabinet in the fall of 1917 expressing fears that a settlement that reflected German gains (it still held or dominated large swathes of foreign territory when it requested an armistice) would allow it to grow stronger and resume its attempts to dominate Europe, "making a limited war outcome unstable," (173) and he notes that the French saw things in much the same way: an unconquered Germany might make another bid at Continental supremacy. Finally, German military leaders, for their part, were ambivalent about armistice, even when the true scale of imminent military disaster became clear; and the military was only too happy to pin the blame on the new civilian government that agreed to ask for it after Ludendorff accepted the inevitability of defeat and the inability to crush internal rebellion while fighting on (Leonhard 2018, 782-788). Both sides, then, agreed that a negotiated settlement based on the Fourteen Points, which entailed the prospect of finalizing the dismemberment of the Russian Empire in Eastern Europe, would give Germany a chance to recover that total military defeat would not.

Second, the model's spare representation of intra-coalition politics reflects both American agenda-setting power and the Entente's ability to, at some cost proportional to their dependence on American arms and finance, veto the agenda-setter's initiatives. Recognizing both American power and divergent intra-coalition preferences, Germany pointedly made its first appeal to the United States (Herwig 2014, 411), because Wilson had shown himself to be only a reluctant friend of the Entente; true to form, he largely sidelined Britain and France throughout October (Stevenson 1982, 114-115). Consistent with German hopes, much of the intra-allied bargaining came down to whether the Fourteen Points could be accepted as the basis of negotiations, a set of vague principles on which both France (Stevenson 1982, Ch. IV) and Britain (Rothwell 1971, Ch. VI) looked with scorn. Finally, the Entente tried its best to limit American political influence as the Allies begin rolling up the German army after the failure of the *Kaiserschlacht*, limiting the deployment of American troops by diverting its shipping effort away from deployments to the Continent (Parsons 1977). Therefore, it's reasonable that the United States plays the role of *A* in the model and that *B*, the Entente, both recognizes and tries to limit the costs it might pay (*d*) for defying the coalition leader. The costs of disagreement are exogenous in the model, but these conscious Entente attempts to shape them indicate that they played a similar role in 1918.

Finally, it remains to show that the model's critical moving part, which links the continuation of the war to a shifting distribution of the postwar pie, was known to both rising and declining partners. First, McCrae (2019, Ch. 5) shows that by 1918 the Allies expected that (a) the war would go on into 1919, thanks to Germany's ability to exploit Russia's collapse and the signing of Brest-Litovsk, and (b) American manpower, up to 100 division by some estimates, would be necessary to ensure victory. But in summer 1918, barely a third of that number was in the field thanks to British foot-dragging. Nonetheless, the Americans were well aware that they held the ring and that their grasp would only grow tighter. Wilson wrote to House that "When the war is over we can force [Britain and France] to our way of thinking because by that time they will, among other things, be financially in our hands"

(Mayer 1969, 332).¹⁴ And when the Entente moved to impede the arrival of doughboys in Europe, American generals and members of the Wilson administration expressed frustration, the former because they wanted a larger share of the credit for victory and the latter because they wanted a credible claim on political influence (Parsons 1978, 143). Second, the British and the French lamented rising American power throughout the summer of 1918. As the American war effort spun up to capacity,

Clemenceau confided to Lloyd George his fear that if America supplied too many of the effectives on the Western Front it would be able to decide the outlines of the settlement. (Stevenson 1982, 110)

By early November, American “effectives” (that is, combat soldiers) outnumbered British and would in a matter of months outnumber French forces as well (*ibid.*, 131). Thus, rising American power inside the Allied coalition was widely anticipated and, in the case of British foot-dragging on transporting doughboys to France, thwarted once victory looked likely.

Explaining why the war ended early requires explaining why both Entente and the United States were willing to forego a total military victory over Germany, when (a) the former saw total victory as necessary to solve the German question that had vexed Europe for centuries and (b) the latter knew that victory could secure an unprecedented degree of influence over such a settlement. These divergent preferences over the outcome provide the answer. The armistice equilibrium sees the Entente reasoning that an early end, even with an uncertain solution, is better than a later end with a more complete solution guaranteed with American arms. As the Imperial War Cabinet debated armistice in October, Jan Smuts drew a distinction between the “British peace” made possible by an armistice and the “American peace” that would follow military victory in 1919 (Goemans 2000b, 292-294), and “[o]n 26 October, finally, the War Cabinet agreed that Britain would get a better peace in 1918 than in 1919” (*ibid.*, 293), leading to an acceptance of the armistice despite widespread skepticism that Germany’s new civilian government could ensure compliance with whatever settlement came out of an armistice. This was no small sacrifice on the part of the British, but they saw in American dominance a prohibition on their right of blockade (Rothwell 1971; Goemans 2000b, 297); better to end the war on imperfect terms than let the Americans, Wilson in particular, carry the day and gain the political and military wherewithal to rewrite the laws of the sea around their own impending naval dominance.

And what of the United States, the coalition partner that stood the most to gain from taking the war into 1919, and thus into Germany? Wilson’s desire to reshape the world required the humbling of the European powers, especially the imperial heavyweights of Britain and France in whose favor American intervention had tilted the balance in 1917 (on this, see Tooze 2014), so why help those very imperial powers to victory? The rising partner’s willingness to grant in the armistice equilibrium offers an answer. Wilson, perhaps uniquely among Allied leaders, saw international threats emerging from other countries’ political systems rather than the international environment (see Saunders 2011). As such, he found the German “revolution from above,” which nominally broke the Hindenburg-Ludendorff

¹⁴I owe my awareness of this quote to Goemans (2000b), who found it in Stevenson’s (1982) footnotes. On American financial power and Wilson’s faith in it as tool of guiding the war and reshaping global order, see Tooze (2014).

military dictatorship that had effectively ruled Germany in the second half of the war, a relatively credible solution to the problem of German commitment to the terms of armistice (see [Wolford 2019b](#), Ch. 14); this enabled him to accept a rate of settlement success that his partners would reject out of hand but that, under the circumstances, they were willing to tolerate. Further, driving into Germany would let him dictate a democracy, getting one on the cheap was much more preferable. This willingness to trust commitments made by “popular” governments over those made by autocrats or generals ([Meyer 1916](#), 69) allows the United States to tolerate lower probabilities of settlement success than the Entente—i.e., if each partner had its own estimate of s , or s_i , then A ’s threshold s_A would be still lower (this can be verified with an appropriate modification of the model, but it’s not necessary to generate an armistice equilibrium). Wilson may be unnecessary to the story, however, if we focus on the fact that the United States had lesser interests at stake than its Entente partners; separated from Europe by the Atlantic Ocean, it wasn’t within Germany’s military reach, and the consequences of a faulty peace wouldn’t fall immediately at its feet. If, however, the rising coalition partner were a European power, then we could imagine the war dragging on to ensure a that it would end at a different distribution of intra-coalition power.

Shifting intra-coalition power and the fraught intra-coalition politics it implies offers a useful explanation for the early end of the First World War on the Western Front. Germany, with its armies exhausted and nearly mutinous (and its navy *actually* mutinous), requested an armistice that might afford a chance of breakout, a chance to make another *griff nach der weltmacht*, that total defeat would foreclose. The British and French, faced with the tradeoff of breaking German power at the cost of American dominance, were inclined to a settlement that, all else equal, they’d abhor. Yet as hard as intra-coalition bargaining was, with threats of separate peaces lobbed across those partners that had and hadn’t signed the Declaration of London (see [Rapp Hooper 2014](#)), it would’ve harder still for the British and the French had the war dragged into 1919. And finally, the United States, putative beneficiary of a total victory, granted the armistice because its leadership believed that the democratic promise Prince Max’s civilian government made German commitments to the peace that would follow an armistice acceptably credible. American willingness to accept what the British and French viewed as lower probabilities of armistice success only made the armistice equilibrium even more likely. But had the American stake in the war, its ability to impose its will its coalition partners, or the extent of shifting power been greater, the model suggests that the war could’ve dragged on far longer in search of the victory that would’ve secured the fruits of shifting intra-coalition power.

Conclusion

The First World War may have ended with an unexpected whimper, but 1918’s armistice is useful for explaining how intra-coalition politics shapes the duration of war in general. Shifting intra-coalition power can encourage rising states to continue the war even in the face of credible opportunities to end it, but when (a) power isn’t shifting too dramatically and (b) declining states have enough at stake in the outcome, they can force an ostensibly early end to the war—even when all parties agree that the war’s underlying bargaining problem remains unresolved. In multilateral conflicts, war duration and termination de-

pend on the working out of bargaining problems both across *and* within warring sides. The model explains why the First World War ended short of an Allied military victory *and* why the conditions supporting that early end were rare: the rising United States had less at stake than its French and British partners that lived next to Germany, which made it more difficult for any prospective shift in power to outweigh the attractiveness of ending the war on imperfect terms. More generally, intra-coalition politics can explain why some wars end without solving the bargaining problems that necessitated fighting in the first place.

Appendix

Proof of Proposition 1. Unless A grants and B assents, G 's payoff for asking is $1 - p - c_G$. G thus has no profitable deviation from fighting, since $1 - p - c_G \geq 1p - c_G$. \square

Proof of Proposition 2. Begin with the game's final move, where B assents if

$$sv \left(1 - \frac{1}{2}\right) \geq p \left(1 - \frac{1}{2}\right) - c_B - d,$$

or when

$$s \geq \frac{p - 2(c_B + d)}{v} \quad \text{and} \quad v > p - 2(c_B + d).$$

Anticipating that B assents, A grants when

$$sv \left(\frac{1}{2}\right) \geq p \left(\frac{1}{2}\right) - c_A,$$

or when

$$s \geq \frac{p - 2c_A}{v} \quad \text{and} \quad v > p - 2c_A.$$

Anticipating an armistice if it requests one, G asks when

$$s(1 - v) + s \times 1 \geq 1 - p - c_G,$$

which is satisfied when either $v \leq p + c_G$ or

$$v > p + c_G \quad \text{and} \quad s \leq \frac{p + c_G}{v}.$$

Each player chooses optimally given the history of play, so the proposed strategy profile constitutes an SPE. \square

Proof of Proposition 3. Begin with the game's final move, where B assents if

$$sv \left(1 - \frac{1}{2}\right) \geq p(1 - \bar{a}) - c_B - d,$$

or when

$$s \geq \frac{2p(1-\bar{a})-2(c_B+d)}{v} \quad \text{and} \quad v > 2p\bar{a}-2(c_B+d).$$

Anticipating that B assents, A grants when

$$sv \left(\frac{1}{2} \right) \geq p\bar{a} - c_A,$$

or when

$$s \geq \frac{2p\bar{a}-2c_A}{v} \quad \text{and} \quad v > 2p\bar{a}-2c_A.$$

Anticipating an armistice if it requests one, G asks when

$$s(1-v) + s \times 1 \geq 1 - p - c_G,$$

which is satisfied when either $v \leq p + c_G$ or

$$v > p + c_G \quad \text{and} \quad s \leq \frac{p + c_G}{v}.$$

Each player chooses optimally given the history of play, so the proposed strategy profile constitutes an SPE. \square

Proof of Proposition 4. For armistices to be less likely under shifting power, it must be the case that $s_A > s_B$ under both static and shifting power. Otherwise, an increase in s_A induced by shifting power either means that A still sets the binding constraint or that it does after shifting power when it wouldn't under static power; in these cases, shifting power makes armistice less likely. Thus, we solve two inequalities,

$$\frac{p-2(c_B+d)}{v} > \frac{p-2c_A}{v} \quad \text{and} \quad \frac{2p(1-\bar{a})-2(c_B+d)}{v} > \frac{2p\bar{a}-2c_A}{v},$$

which are jointly satisfied when

$$c_B < c_A - d \quad \text{and} \quad \bar{a} - \frac{1}{2} < \frac{c_A - (c_B + d)}{2p},$$

and when either constraint is not satisfied, shifting power makes armistice less likely. \square

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