After Deterrence: Explaining Conflict Short of War

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Abstract:	Russia's "gray zone" intervention in Ukraine has prompted fears that Russia will use similar tools elsewhere to undermine the liberal order. Under this conception, gray zone conflict is both an efficient and effective way for revisionists to thwart Western deterrence. Alternatively, the choice to use limited means might reflect limited willingness and bounded interests. Drawing on research on deterrence and limited war, we hypothesize the scope and intensity of revisionist conflict should vary with the resolve of the revisionist and inversely with the credibility of deterrence. Highly resolved actors adopt more potent military methods, while less resolved actors favor low-cost aggression despite its muted effectiveness. We find empirical support in assessments of Russian aggression. Russia tends to exercise greater force closer to its own borders, while exhibiting restraint further from home. Gray zone conflict, so often depicted as a failure of deterrence, is in fact a product of deterrence success.

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Key words: gray zone, limited war, deterrence, Russia, escalation, cyber

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Introduction

In the wake of the overthrow of Ukrainian President Viktor Yanukovych in February 2014, the Crimean Peninsula was invaded by "little green men," soldiers whose uniforms lacked insignia or other identifying information. While nobody seriously doubted the Russian origin of these troops, the pretext of anonymity provided a fig leaf for NATO—had it needed one—to avert direct confrontation between West and East. As Brussels remained on the sidelines, the Kremlin formally annexed Crimea shortly thereafter. Russian intervention in Ukraine continues to this day, consisting of limited ground operations and aggressive cyber campaigns (Angevine et al. 2019). Many now worry about a potential repeat performance in the Baltics, where ethnic Russian minorities and NATO membership make for a dangerous mix. Other Russian "active measures" similarly appear to be designed to undermine the legitimacy of Western democratic institutions and to inflame a wave of nationalist populism opposed to the "liberal international order," while ensuring that military confrontation between Russia and NATO does not take place (Paul and Matthews 2016).

According to former British Defense Secretary Michael Fallon, "That is not a Cold War. It is a grey war. Permanently teetering on the edge of outright hostility. Persistently hovering around the threshold of what we would normally consider acts of war" (Fallon 2017). The imagery of little green men in "the gray zone" has also been extended to "little blue men" used by China to erode "red lines" in maritime East Asia (Green et al. 2017). The kaleidoscopic language highlights both practical and conceptual challenges in the practice of deterrence. As the Chairman of the Joint Chiefs of Staff noted, "Our traditional approach is either we're at peace or at conflict. And I think that's insufficient to deal with the actors that actually seek to advance their interests while avoiding our strengths" (Dunford 2016). Many have concluded that Russia

and other countries are outsmarting the West by utilizing new technologies, or combinations of different kinds of capabilities (hybrid warfare), to undermine traditional defenses and change facts on the ground. Revisionists seem to be undeterred from using cyber-enabled aggression and disinformation campaigns as efficient and effective ways to threaten or overturn governments without risking retaliation. These concerns reflect widely held, yet also largely unsubstantiated, beliefs that gray zone conflict is either a thoroughly novel, or especially potent, form of warfare.

In contrast, we view gray zone conflict as neither especially new nor irresistibly effective. A large body of scholarship on limited war describes how conflicts may be limited by either the means employed or the ends at stake. Much of recent scholarship has been preoccupied with the problems of counterinsurgency and terrorism, where at least one of the belligerents is limited in its means (capabilities). In so-called gray zone conflict, however, powerful nation-states with often abundant material means choose to employ only a subset of these capabilities in pursuit of limited ends. This is not a new problem; strong states have long been concerned that provocative moves might trigger longer or more costly conflicts than limited ends would justify. Throughout the Cold War, therefore, the superpowers engaged in covert operations, proxy wars, influence campaigns, and other subversive means to limit costs and lower the risks of escalation (Carson 2018; O'Rourke 2018a; Poznansky 2019; Rid 2020). Yet by the same token these "second best" alternatives often achieved only limited or mixed policy results. By contrast, actors resolved enough to pay higher costs or run greater risks usually have a better chance of imposing their will. Put simply, gray zone provocateurs may often fail to care enough to do their very worst.

In our view, recent attention to the gray zone has focused overmuch on the means of limited conflict (often involving cyber or other new technologies), on the assumption that novel modes of subversion undermine deterrence. This conventional wisdom has it backwards. On the

contrary, a capable actor's choice to employ limited means of any type is a function of its limited willingness to exercise more potent forms of power. This implies that less resolved actors tend to prioritize efficiency at the potential expense of effectiveness while highly resolved actors forego efficiency in order to increase their chances of success. The scope and intensity of revisionist contests should thus vary with the resolve of the revisionist and inversely with the credibility of deterrence. We test this prediction by drawing on a new dataset of Russian interventions since the end of the Cold War, and with qualitative case studies of Russia's major cyber campaigns, which vary in the amount and type of kinetic force mobilized by Russia. We find that Russia limits its use of its military means along an East-West gradient shaped by deterrence credibility, analogous to the military loss of strength gradient across geographical distance (Boulding 1962). Because the credibility of Western deterrence varies by region and issue area, Russian responses to it vary too, exhibiting more restraint in areas where retaliation is more credible. Policymakers should be sensitive to the deterrence gradient, seeking to reinforce success and respect weakness.

We proceed with our argument in four sections. First, we locate gray zone conflict in the broader literature on limited war. Second, we analyze limited conflict through the familiar lens of deterrence theory. Third, we assess our argument empirically using the recent history of Russian acts of cyber and/or military aggression. We finally conclude with implications of our argument.

Between Peace and War

There is nothing new about conflict that falls ambiguously between peace and war. There is a long history of, and a vast literature on, limited conflict (Kissinger 1955; Osgood 1969), salami tactics (Schelling 1966), low intensity conflict (Turbiville 2002), revolutionary war (Shy and Collier 1986), military operations other than war (Kinross 2004), covert operations and proxy

wars (Carson 2018; O'Rourke 2018b), small wars (Olson 1990), and frozen conflict (Driscoll and Maliniak 2016). Many (but not all) of these concepts emphasize asymmetric struggles with combatants that are unable in material terms to fight on a larger scale or with higher intensity.

The interesting puzzle about gray zone conflict stems from the fact that adversaries are able but *unwilling* to broaden the scope or intensity of a military engagement. Of course, this is also not new. In 1978, Kissinger advocated for an intelligence community that could "defend the American national interest in the gray areas where military operations are not suitable and diplomacy cannot operate" (Johnson 2013). General Votel has described the Cold War as "a 45-year-long Gray Zone struggle" in which the United States and Soviet Union conducted proxy wars, covert operations, and (dis)information campaigns while avoiding a direct military and likely nuclear confrontation (Votel et al. 2016). Cold War deterrence shaped the modality and severity of conflict, but it did not, and could not, eliminate it completely. Today many are concerned about an emerging manifestation of limited war, often called "gray zone conflict." The United States Special Operations Command (SOCOM) defines the gray zone as:

> a conceptual space between peace and war occurring when actors purposefully use single or multiple elements of power to achieve political-security objectives with activities that are typically ambiguous or cloud attribution and exceed the threshold of ordinary competition, yet intentionally fall below the level of large-scale direct military conflict and threaten US and allied interests by challenging, undermining, or violating international customs, norms, or laws (Bragg 2017).

While it may be convenient to conceptualize war and peace as discrete outcomes, observers have long recognized that violence exists on a spectrum, even as the language used to

describe it evolves (Lebow 2010). The Cold War generated three distinct threads of thought dealing with limited war: aggressive peacetime competition and intelligence operations vis-a-vis the Soviet Union (wars limited by ends), conventional war in the shadow of nuclear weapons (wars limited by risk), and low-intensity conflict with irregular forces (wars limited by means).

Wars Limited by Ends

In the early days of the Cold War, Kennan emphasized that both overt and covert political warfare could play a role in long-term strategic competition with the Soviet Union.

> In broadest definition, political warfare is the employment of all the means at a nation's command, short of war, to achieve its national objectives. Such operations are both overt and covert. They range from such overt actions as political alliances, economic measures..., and "white" propaganda to such covert operations as clandestine support of "friendly" foreign elements, "black" psychological warfare and even encouragement of underground resistance in hostile states (Kennan 1948).

The emphasis on limited political objectives over military operations represented an important shift in thinking. The Korean War exemplified an underappreciated type of war fought to achieve political ends short of traditional military victory despite having the capability to do so (Osgood 1969). Contemporary treatment understood limited war as a conflict between actors who had the capacity to increase battlefield commitment but did not want to do so, creating a third option short of major war yet beyond acquiescence (Brodie 1957; Kissinger 1957). Kissinger and Osgood tried to figure out ways to conduct limited war and avoid escalation by restricting targets and weapons systems or limiting the geographic scope of conflict (Woodman 1991). This form of war required some degree of tacit cooperation among adversaries to limit the

scope of war. During the Vietnam War, for instance, the North Vietnam was prepared to escalate the conflict even as China and the Soviet Union worked to restrain their ally (Carver 1986).

Wars Limited by Risk

Ends are the goals of strategy. They encompass both the demands an actor makes (to maintain or alter the status quo) and the value it attaches to their realization. Ends can be considered limited either because demands are modest, or the actor is not willing to pay much for them. Schelling (1966) argues, accordingly, that the advent of nuclear weapons transformed contests of strength and power into contests of risk and resolve. Even as war became prohibitively costly, resolved actors could still exert influence over less resolved types by displaying a willingness to approach the brink. Cold War strategists advanced the notion of "the stability-instability paradox" to explain how incentives for engaging in conflict at lower levels of intensity or in peripheral theaters arise out of disincentives for initiating nuclear war or even major conventional war (Jervis 1984). According to Snyder (1965, 167), "nuclear technology introduced a new form of intent-perception and a new form of uncertainty — that concerning what types of military capability the opponent was likely to use and what degree of violence he was willing to risk or accept." The presence of nuclear weapons might prevent world war, but it could simultaneously encourage localized aggression or smaller, more limited conflicts (Sagan and Waltz 2003). At the same time, the feasibility of "weakening the enemy with pricks instead of blows" is limited by the implicit risk of nuclear escalation (Hart 1954, 186). Modern studies have empirically evaluated these insights quantitatively and in specific regions (Ganguly 1995; Rauchhaus 2009).

Recent formalizations of limited conflict in the shadow of major war point to the need for updated conceptions of deterrence. Schelling (1966, 107) argued that "the main consequence of limited war, and potentially a main purpose for engaging in it, is to raise the risk of larger war"

(Schelling 1966, 107). Gray zone conflict poses a different relationship in which a capable actor may choose to engage in limited war precisely to *lower* the risk of larger war (Schram 2019). As Powell (2015, 598) states, "the amount of power the challenger brings to bear affects the stability of the conflict. More specifically, how much power the challenger brings to bear limits how much risk the defender can generate." Mutually constrained actors pursue (and resist) aggression furtively, so as to protect broader cooperative or compatible goals.

Deterrence essentially serves to buy time against an adversary committed to changing the status quo. George and Smoke raise the issue of "designing around" deterrence as adversaries seek out options that "offers an opportunity for gain while minimizing the risk of an unwanted response by the defender" (A. George and Smoke 1989, 173). Sometimes this can result in serious fighting as when Egypt "designed around" Israel's deterrent in 1973 (Stein 1989). Even so, designing around deterrence remains a perverse symptom of its success so long as the adversary limits its means and aims, even in cases where the target panics or misperceives that the attacker has expansive aims (as Israel did). Lieberman thus argues that "designing around" is a sign of deterrence success if an adversary shapes its challenge in response to the anticipated reaction of the defender (Lieberman 2012).

Wars Limited by Means

The Cold War also witnessed numerous decolonization struggles and proxy wars in the developing world. Limited war with irregular forces rather than a peer competitor directly garnered much attention in the 1970s under the rubric of "low intensity conflict" (LIC) (Schultz 1986). Some treatments of LIC focus on the use of tactics — light weapons and ambush (Kornbluh and Hackel 1986) while others identify the phenomenon in terms of actor — non-state (Kinross 2004). Unsurprisingly LIC predominates in under-developed or poorly institutionalized

regions (Hammond 1990). Classical studies of counterinsurgency (Galula 1964; Taber 1965) and their modern variants (Nagl 2005; Kilcullen 2010) fall into this category of war of limited means.

Wars with means-limited actors have received most of the attention after the Cold War as the United States has been involved in a long series of peacekeeping operations and grueling counterinsurgencies. A vast academic literature on civil war has emerged in recent years to explain the behavior, motives, and organizational structure of irregular actors (Petersen 2001; Wood 2003) and the militaries that fight them (Hazelton 2017). The recent renewal of interest in low-intensity conflict between more capable competitors in many ways represents a return to the two earlier themes—wars limited by ends and risk-sensitivity.

Modern Gray Zone Conflict

Gray zone conflict today has been described as "a carefully planned campaign operating in the space between traditional diplomacy and overt military aggression" employed by revisionist states with grand geopolitical ambitions and irresistible capabilities (Mazarr 2015). Pessimism has even led some to advocate revamping deterrence to focus on threats from the gray zone (Matisek 2017). Russia, and its intervention in Ukraine in particular, is paradigmatic (Marten 2015). Russia uses novel forms of "hybrid warfare" to facilitate increased aggression against NATO and the West (Chivvis 2017). This view holds that aggressors circumvent adversaries' red lines to achieve coercive bargaining success without triggering escalation (Altman 2018). If so, we might expect to see Russia engaging in gray zone conflict as often as possible, since there is little reason to avoid undertaking a form of warfare that provides significant gains at low cost.

The familiar logic of the stability-instability paradox plays out today with different, usually lower, thresholds. Deterrence now results as much from the risk of escalation to major conventional war, or even economic disruption, as from the threat of nuclear conflagration. One

potential novelty, however, exists in the growing diversity of means by which low intensity conflict can be practiced (Wirtz 2017). The emergence of new, cheaper implements of coercion have made it easier than ever before to fight circumspect contests (Lindsay and Gartzke 2018).

Even sceptics of the potency of new information technologies highlight the expanded repertoire of military strategies available for low intensity conflict, especially online espionage and cyber disruption (Rid 2013; Jensen, Valeriano, and Maness 2019). Compared to historical precedent this is certainly true. Yet there are also more, and more technologically sophisticated, means available for all types of warfare, some of which are only likely to be used in major war (e.g., anti-satellite weapons, hypersonic munitions, anti-ship ballistic missiles). It is important not to conflate the increasing variety of tools available for conflicts of *all* types with the use of a *subset* of means for limited war. Cyberwarfare and special operations may be prevalent in gray zone conflicts, but they are also likely to be prevalent in every war of the 21st century.

The silver lining to gray zone conflict is, and always has been, that it could be worse. The bad news about persistent conflict is good news about restraint. In the last decade of the Cold War, Secretary of State George Schultz (1986) offered a note of cautious optimism in this regard:

> The ironic fact is, these new and elusive challenges have proliferated, in part, because of our success in deterring nuclear and conventional war. Our adversaries know they cannot prevail against us in either type of war. So they have done the logical thing: they have turned to other methods. Low-intensity warfare is their answer to our conventional and nuclear strength a flanking maneuver, in military terms.

We seek here to synthesize insights from deterrence theory and the study of limited war, reflecting the more optimistic perspective in the literature concerning the motivations underlying gray zone conflict. The phenomenon of gray zone conflict is not new, but its practice has evolved in a way that should encourage patience before sounding alarms.

A Theory of Gray Zone Conflict

We begin by locating gray zone conflict in a typology of limed war. Our focus is on actors with limited ends, rather than limited means. We then consider the willingness of these limited aims revisionists to run risks, leveraging the classic concept of the security dilemma in the context of limited war. Our basic claim is that the scope and scale of conflict varies with the resolve of the revisionist and inversely with deterrence credibility. We operationalize this view by introducing the notion of a deterrence gradient similar to the military loss of strength gradient. We conclude this section with a brief discussion on the important role of third parties in this framework.

A Typology of Limited Conflict

Table 1 describes a typology of limited war. Some actors are limited in both the quality and quantity of force they can mobilize. Their maximum effort is inherently bounded. Furthermore, weak states and rebel groups may vary considerably in their war aims and thus may refrain from giving their maximum effort (Staniland 2012). Insurgents or criminal networks may engage in small wars to extract a few concessions from the government, such as control over a particular region or smuggling routes. If they aspire to overthrow the government, however, they tend to embrace maximalist Maoist or jihadist strategies in pursuit of political or ideological revolution.

		Ends	
		Limited concessions	Decisive conquest
Means	Smaller, less diverse forces	Small Wars	Revolutionary Wars
	Larger, more diverse forces	Gray Zone Conflict	Combat Operations

Table 1: A Typology of Limited Conflict

Other actors, notably industrialized states, have a larger and more diverse portfolio of military and intelligence means from which to choose. This differentiates Russian or American special operations forces from insurgents, even in cases where their tactics appear similar. When such actors limit the means that they use in war they do so by choice. Limitation here is the result of agency rather than necessity. It is as important to pay attention to the capabilities that are *not* employed as well as the ones that are utilized. In limited war, capable actors refrain from using some of their most potent military capabilities.

Why would actors forego the most effective means for the job? One reason is that even rich actors have many priorities. They may possess important domestic objectives (butter rather than guns) or experience other military contingencies. Even actors that are committed to revising the status quo decisively in their favor (i.e., conquest) may opt to use only the minimum force to prevail in combat, perhaps with an extra margin to insure against battlefield uncertainties. While high intensity conflict may accomplish an aggressor's goals, it may also be unnecessary and inefficient if victory can be achieved at lower cost, with lower levels of dispute intensity (Altman 2018). If the local balance of power greatly favors the initiator, then it may only need to employ modest resources to get all that it seeks in a reasonable timeframe. A challenger who is patient

and can outcompete its adversaries at low intensities might benefit by adopting a limited conflict strategy. A given level of resistance can always be met with excess force, but overkill inevitably wastes resources. In practice an actor might only need to use a special operations task force rather than a large combined-arms force, so that the term "combat operations" can be misleading. We use it here in the absence of a better phrase simply to underscore the fact that capable actors with sufficient resolve may apply as much or as little force as they deem necessary to prevail.

Yet capable actors with limited aims may find that minimizing the risk of escalation becomes as much, or more important a concern as minimizing cost. Gray zone conflict, as we use the term here, occurs when militarily capable aggressors intentionally limit the intensity and capacity with which they conduct military or intelligence operations. Importantly, gray zone conflict must be preferred by both sides in a contest; a target must also choose not to escalate. Capable belligerents have the capability to escalate but they choose not to. The target would rather have the opponent engage in gray zone conflict than engage in overt warfare as a result of the target's reaction to the provocation. Anticipating this, the attacker selects technologies that deliberately obfuscate its intentions or complicate attribution. Voluntary limitation of means enables the aggressor to minimize costs and risks. Voluntary limitation of ends allows the target to keep more of what it already has. Escalation in this situation is thus mutually undesirable. Tacit collusion among adversaries allows them to avoid some mutual harm (Carson 2016; 2018).

By way of illustration, the Iraq War features all four categories. Between 1991 and 2003, the United States engaged in a protracted gray zone contest to contain Saddam Hussein with air policing, economic sanctions, covert intelligence, and occasional air strikes. The Baathist regime survived while the United States avoided a costly ground war, outcomes that were mutually preferable for both sides compared to the conquest of Iraq. The exogenous shock of the 9/11

terrorist attacks, however, amplified concerns held by some U.S. policymakers about the long-term viability of the containment regime. American war aims expanded from limited concessions to conquest, yet even so the United States did not throw everything into the fight. The U.S.-led Coalition invaded Iraq in 2003 with less than 180,000 troops even though the United States could have mobilized hundreds of thousands more (as some advisors recommended at the time). Major combat operations in Iraq were limited by the Bush administration's desire to wage war efficiently, not concerns about deterrence. As subsequent events made clear, American politicians ignored the significant and arguably foreseeable costs of occupation.[1] Throughout the next decade the U.S. military battled a mixture of foreign jihadists and local militias. Both types of adversaries had inherently limited means and thus relied on improvised explosive devices and ambush attacks, but their aims differed. Jihadists sought the revolutionary transformation of Iraqi society, while militias just sought control over local areas and economies. Coalition Forces struggled with both groups before learning how to defeat the former with counterterrorism operations and coopt the latter using counterinsurgency methods (Gordon and Trainor 2007; Lindsay and Petersen 2012). The United States surged more troops into the fight as American war aims again expanded, from conquest of the Baathist state to the transformation of Iraqi society. Escalating force commitments in pursuit of effectiveness, policymakers thus abandoned their earlier commitment to efficiency.

Gray zone conflict is not just a matter of limited ends but also, and primarily, of risk-sensitivity. In both categories of limited conflict (gray zone and major combat), strong actors

[1] Intelligence assessment and rational decision making, both defective in this case (Brooks 2008; Rovner 2011), are important for assessing the expected costs of deterrence and war.

choose to limit means, but they do so for different reasons. A resolved actor that values the stakes of the conflict may be willing to pay more to get (what it hopes will be) a better outcome. But it does not necessarily have to break the bank to achieve victory; it may want to spend its surplus elsewhere. A less resolved actor, however, will not only be interested in reducing costs but will also be willing to make compromises to minimize risk. The fact that both types exercise calculated restraint creates something of a "gray zone" between our two categories.

Efficiency, Resolve, and Escalation

If cheap and efficient policy tools are available, then all things being equal, it is reasonable to use them. Any rational actor would like to get something for nothing if they can. Only a highly resolved actor, however, is willing to pay dearly to get (or keep) something that they value. At low levels of conflict, or with technological means that are cheap to acquire and use, it may be difficult to tell whether actors are resolved. Gray zone conflict may be behaviorally indistinguishable from combat operations in the sense discussed above. Actors employing cheap and efficient military means may be doing so because they are unwilling to pay more or because they feel they do not have to pay more. Escalation then becomes the distinguishing test that separates resolved from unresolved types.

If an aggressor motivated by conquest only needs a few special operations units and some cyber effects to overwhelm a weaker foe, then that contest may be observably indistinguishable from the prototypical gray zone conflict. This ambiguity is most likely in cases where the revisionist has narrow aims and a flexible timeline for achieving them but places a high priority on their achievement. Yet efficiency, which minimizes the cost and risk of a policy, is different from effectiveness, which maximizes influence over the outcome. A tool that can be used easily is not necessarily the best tool for the job. Defenders can force an aggressor into fighting less

efficiently by raising the costs and risks the contest, but only by also accepting higher costs/risks themselves. Threats of retaliation or actual military resistance may cause an influence-maximizing combatant to switch to a more intense form of combat.

This type of actor prefers high intensity warfare to ordinary peacetime competition. By contrast, the risk-sensitive gray zone actor will back down as the costs and risks of its aggression increase. These two types differ in their willingness to pay for a given outcome in the face of resistance. Both have the means and the willingness to engage in limited conflict to attempt to get something at low cost. Both also prefer aggression on the cheap to peaceful competition in which they must accept the status quo. Declining costs in the technology of subversion can make limited aggression attractive for any type of revisionist in comparison to the transaction costs of ordinary negotiation. Yet they differ in their willingness to engage in less efficient but more effective combat operations to achieve their goals if the opening gambit fails.

Revisionist type	**Preference order**
Resolved	Limited conflict ≳ High intensity warfare ≳ Peaceful competition
Unresolved	Limited conflict ≳ Peaceful competition ≳ High intensity warfare

Table 2: Preferences of actors initiating limited conflict

The preference orderings summarized in Table 2 produce similar behavior (limited conflict), but they have different escalation dynamics. An actor with the first set of preferences should escalate if opposed, preferring war to peace, while an actor with the second set will tend to back down, preferring peace to war. The first type of actor is motivated by efficiency first, but also by effectiveness. It is willing to go to war if the employment of more costly means is

necessary to achieve its objective but would like to succeed using easier and less costly limited conflict if at all possible. The second type is constrained by deterrence. The initiator refrains from using too much force (or deliberately limits its effectiveness) in order to limit provocation to save face. It sees retaliation or related consequences (incursions, sanctions, etc.) as sufficiently costly. This situation might be described as pure gray zone conflict as discussed above in the typology of Table 1. The former situation, by contrast, is a limited combat operation that is behaviorally indistinguishable from gray zone conflict. A pressing challenge for the target of limited aggression, therefore, to glean the aggressor's valuation of the stakes and willingness to run risks to achieve them.

This situation recapitulates the basic logic of the security dilemma (Herz 1951; Jervis 1978; Tang 2009), with an interesting difference. The classic problem is to divine whether a state is satisfied with the status quo or has revisionist intentions. The spiral model applies to the former while the deterrence model applies to the latter and applying the wrong model leads to tragic escalation (threatening status quo seekers) or preventable exploitation (appeasing revisionists). The difference here is that the gray zone actor is already known to be revisionist; the uncertainty is thus more about its resolve than its interest. In security dilemma logic, escalation occurs when the deterrence model is (inappropriately) applied to a status quo actor (but not to the revisionist). In gray zone logic, escalation occurs when the deterrence model is applied to a more resolved revisionist (but not to the less resolved aggressor). If the problem of the security dilemma is to decide *whether* to deter, the problem of the gray zone is to decide *how much*.

Even if most actors are assumed to harbor revisionist ambitions (Schweller 1996), would-be deterrers still face something like the security dilemma in shaping how aggression is

expressed. In the classic security dilemma model, the outcome of a "threat" from the target state is a function of whether the aggressor is revisionist. Toleration on the part of the deterrer (compromise, appeasement, neglect, etc.) can either reassure a status quo actor or enable exploitation by revisionists. Also, threatening non-revisionists leads to a tragic spiral. Conflict short of war complicates this picture because exploitation in the gray zone by an irresolute revisionist and limited combat operations by a resolved revisionist are behaviorally indistinguishable. Yet, whether deterrence by the target succeeds or fails depending on the resolve of the target. The consequence of threatening to escalate vastly differs for both cases. This in turn raises the question of whether the deterrer is itself resolved enough to risk escalation.

The Deterrence Gradient

Just as not all revisionists are willing to pay to achieve their goals, not all deterrers are willing to pay to prevent them. Revisionists will be attracted to efficient means that allow them to get something for nothing (or very little) and similarly, deterrers will be attracted to policies that provide influence at low risk or cost. Yet if deterrence statements are suspected of being nothing but cheap talk, then revisionists will be tempted to test them (Fearon 1995). Challenges might be discouraged by costly signals and other credible indices that demonstrate the deterrer's willingness to respond to aggression (Jervis 1970; Fearon 1997). The classic problems of credible commitment have been studied extensively in the deterrence literature (Schelling 1966; Powell 1991; Zagare and Kilgour 2000). Estimating deterrence credibility, and cultivating a reputation for resolve to influence others estimates, are notoriously difficult problems fraught with dangers of deterrence failure (Mercer 1996; Press 2007; Yarhi-Milo 2018).

If conflict can vary continuously between peace and war, and revisionist resolve can be lesser or greater, then it also makes sense to treat deterrence success and failure as a continuous

variable, where deterrer credibility can be higher or lower. Indeed, these concepts are interrelated. Resolve in general is the willingness to pay for a desired outcome. Revisionist resolve encompasses the willingness to pay the costs of aggression and to run risks of escalation. Clearly the target (and its allies) influence the magnitude of these costs and risks. The expected costs of challenging a highly credible and capable defender must be much higher than the prospective costs of calling an irresolute bluff.

This leads to our primary hypothesis: the scope and intensity of limited conflict should vary proportionally with the resolve of the revisionist and inversely with the credibility of deterrence. Credible deterrence places an upper bound on gray zone conflict. Where deterrence is credible, initiators are only willing to engage in low-cost, low-risk means of aggression, even if that is unlikely to be effective. As deterrence becomes less credible, and as initiators care more about the stakes of the conflict, for whatever reason, they have more freedom to choose whatever amount of force is needed to get the job done as they see fit.

We also posit a secondary hypothesis that allows us to operationalize the primary one. Namely, we expect the credibility of deterrence to vary along a geographical gradient analogous to the military loss of strength gradient (Boulding 1962). Geography is not the focus of this article, per se, but we use it here to instrument variation in the strength of deterrence. This in turn enables us to examine arguments about the relationship between deterrence and gray zone conflict in the next section. If gray zone conflict is something other than a second-best response to credible deterrence, then we should not expect to see any geographical pattern in its distribution. If, however, conflict severity is bounded by deterrence, then we should see more intense aggression in areas where deterrence is less credible. An empirical gradient of gray zone

conflict inversely correlated with deterrence credibility would increase confidence in our hypothesis.

The traditional loss-of-strength gradient emphasizes only military capabilities. All things being equal, a state requires more supplies and troops to achieve the same concentration of force further from its border. Distant deployments extend supply lines and expose flanks. An army may also lack sympathetic populations and local knowledge in "contested zones" far from home (Posen 2003). The loss of strength can be partially offset by basing and mobility but not eliminated due to the enduring vulnerabilities of naval power and frictions with host nations (Corbett 1911). Insofar as military power is affected by a loss of strength gradient, deterrence that relies on military power should also decay in distance. Military capabilities—the power to hurt—are only one component of deterrence, however. The willingness to use them—resolve—is also important.

Nevertheless, there are reasons to believe that resolve might co-vary with capabilities along a geographical gradient. All things being equal, states likely care more about regional issues that more directly affect their populations than about events far from home. Defenders will be more resolved to resist aggression on their borders, and attackers campaigning from distant shores will are less so. Alliances with neighboring states should similarly be more credible since patrons are generally more willing to defend a proximate client (Bak 2018). Conversely, commitments should be less credible with distance as well, as patrons are more likely to fear entrapment by distant allies who have stronger local interests (Christensen and Snyder 1990). While NATO security guarantees nominally cover all 29 member states equally, the 12 founding members in Western Europe and North America are arguably more confident in this commitment (J. George and Sandler 2018). Indeed, recent Eastern European entrants have questioned NATO

resolve. Eastern European members also appear to have greater need of protection, given that Russia is both more interested in, and better able to control, territory near its borders (Matláry 2014). Cyber operations are less constrained by distance, and deterrence is notoriously hard in cyberspace, at least for low-intensity espionage and harassment (Lindsay 2013; Gartzke and Lindsay 2015). At the same time, cyber conflict tends to be empirically concentrated along the fault-lines of local rivalries (Valeriano and Maness 2014) because it emerges as a complement for more terrestrial concerns.

We are not arguing that geography causes deterrence directly, but simply that it is a convenient proxy for other factors that do. To operationalize our hypothesis for the case of Russia and NATO, we expect Western resolve and capability to decrease from West to East while Russian resolve and capability increases. The distribution of Russian aggression, accordingly, should tend include more types and more intensity of conflict as the constraints of deterrence are relaxed.

A Note on Third Parties

As the logic of our argument is dyadic, the role of third parties deserves a brief comment. Many treatments of covert warfare focus on military aid to local proxies from a powerful patron. As an analytical first cut, a complex portfolio of actors can be simplified as a dyadic pairing in gray zone conflict.[2] That is, a target's allies can be treated as part of the target's capabilities, discounted by the level of commitment (or disunity) in an alliance. Lanoszka (2016) argues that a gray zone initiator must have escalation dominance over the target, e.g., Russia has more

[2] At least initially. For complications, see Pearlman and Atzili (2018).

capability at every rung of the escalation ladder than Ukraine or Lithuania. His argument appears to run counter to our deterrence story until the weaker state is considered together with its powerful protector(s). Russia may not be deterred by the Ukrainian military directly, but it calibrates its actions to avoid triggering a confrontation with NATO. More actors may be considered "capable" in this sense than if assessed in purely bilateral terms.

Importantly, alliances, commitment mechanisms, and other attempts to aggregate capabilities are often explicitly or implicitly designed to generate deterrence by reducing agency (autonomy) on the part of individual participants, making them behave more like a single unit (Sobek and Clare 2013). Deterrence works if an ally might respond to a given provocation, but friction between them complicates deterrence effectiveness (Danilovic 2001). Indeed, misalignment of interests within an alliance (or domestic civil politics) can serve to weaken deterrence and provide opportunities for gray zone intervention.

Conflict initiators can similarly rely on proxies to complicate the deterrence calculus. Ambiguity regarding responsibility for an attack makes a retaliatory response less likely, especially if the target is looking for reasons not to retaliate (Borghard and Lonergan 2017). Recognizing the potential for agency problems, targets may discount the harm that proxies inflict. Reliance on third parties may thus transform cases that would have been small wars into gray zone conflicts. The explicit delineation of an extended deterrence *quid pro quo* probably increases this risk, as red lines clarify what can be achieved in the gray zone.

Russian Gray Zone Campaigns

We now test the plausibility of our argument by examining major Russian foreign interventions over the past two decades. Almost all cases feature cyber campaigns for disruption or influence.

Some also feature intervention by special operations or conventional forces. Why does Russia bring more of its capabilities to some fights than others? We focus on Russia because its recent interventions, especially those featuring significant cyber operations, are often referenced as paradigmatic examples of gray zone conflict (Marten 2015; Driscoll and Maliniak 2016; Chivvis 2017). Specifically, we focus on four major Russian cyber campaigns targeting states that are geographically situated at different locations along the Western deterrence gradient: Estonia (2007), Georgia (2008), Ukraine (2014), and the United States (2016). The diversity of Russian targets provides an opportunity to conduct a natural controlled comparison of Russian choices under different deterrent circumstances.

Cross-National Data

It is perhaps fitting that data on Russian gray zone interventions are themselves ambiguous. Previous studies have compiled open source data on Russian-attributed cyber conflict over the past three decades. Two cross-national datasets – Dyadic Cyber Incident and Dispute (DCID) and Russian Electoral Interventions (REI) – cover almost entirely distinct samples (Valeriano and Maness 2014; Casey and Way 2017). Indeed, the only country-year that appears in both datasets is Ukraine 2014. The DCID data identifies the United States, United Kingdom, Poland and Ukraine as targets of the most severe Russian cyber operations. In the cases documented by REI, the most severe Russian attacks occurred against France, Austria, and Ukraine. The different emphases of each dataset result in major coding heterogeneity.

We present an expanded and consolidated dataset of 82 cases of Russian intervention from 1994-2018. DCID and REI together describe 71 unique cases of Russian aggression that

have either included some degree of cyber intervention or were cases of electoral interference.[3] We have identified 10 additional instances of Russian cyber-attacks from 1994-2018 that are not covered in the previous datasets. Most of these new cases cover cyber conflict after 2011 (the latest year in DCID) that were non-electoral (the universe of cases in REI). We further include 3 cases of non-cyber Russian aggression from the International Crisis Behavior (ICB) dataset (Singer, Bremer, and Stuckey 1972). To resolve the heterogeneity across datasets, we compiled an entirely new coding of the intensity of Russian attacks. For each incident, we code whether Russia used conventional ground forces, conventional air or sea forces, paramilitary or covert forces, cyber disruption (service denial or industrial control system attacks), and information operations (social media and disinformation). By distinguishing between these five types of aggression, we obtain a clearer picture of the intensity of each case of Russian intervention.

Figure 1 shows the frequency distribution of Russian gray zone operations since 1994. We follow the coding criteria used in DCID, coding each country-year's intensity as the highest observed Russian intervention on a scale where information operations are the least intense type of intervention and ground troops are the most intense.[4] Contrary to descriptions of gray zone conflict as new or the product of technological innovation, there does not appear to be an increase in low-intensity or non-kinetic Russian activity over time. Chechnya (1999) and Georgia (2008) represent the most intense Russian intervention and 2014 experienced the highest number of interventions (most of which were associated with Ukraine). Russian gray zone

[3] Our unit of analysis is country-year. See the data appendix for description of coding procedures, documentation of primary sources, and dataset comparison.

[4] We code intensity as the highest level of intervention rather than the average since the types represent categorical, not ordinal variables.

operations have not increased in intensity, but they do appear to be happening more frequently. This might reflect a weakening of Western deterrence, an emboldening of Russian leadership, or the maturation of technical capabilities. Whatever the cause, the result is likely to be a self-defeating (for Russia) strengthening of Western defenses and resolve given better information about the nature of the Russian threat. Like a stain on a microscope slide, Russian operations highlight the contours of the Western deterrence gradient.

A basic hypothesis of our theory is that limited war constrained by deterrence (gray zone conflict) should be distributed along a deterrence gradient, with conflict intensity inversely proportional to the credibility of deterrence. Limited war that is motivated only by efficiency and effectiveness considerations, by contrast, should be less correlated with geography.

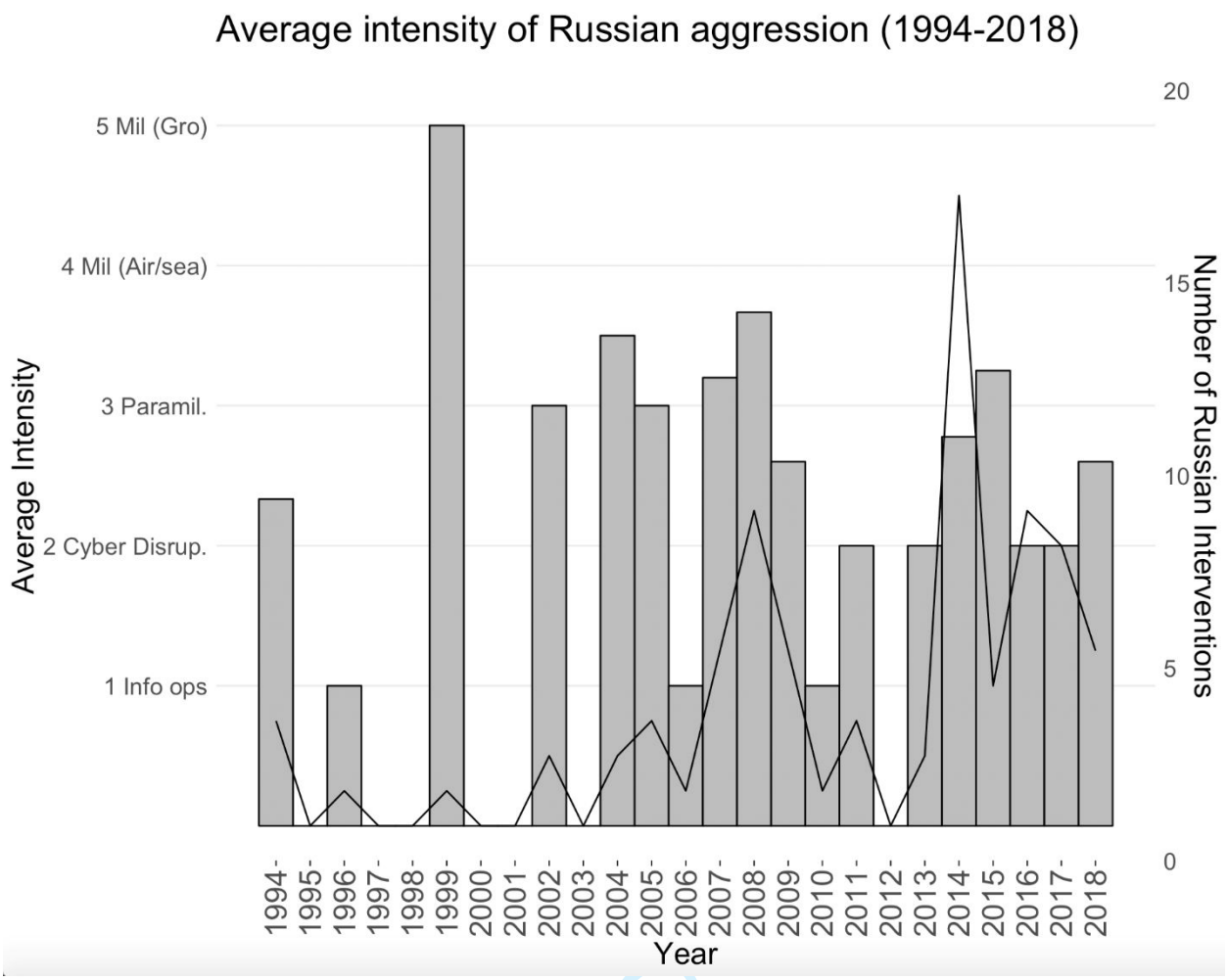

Figure 1 Intensity of Russian intervention over time. The bars represent the average intensity of Russian interventions in each year using the 1-5 scale provided. The line denotes the number of interventions per year.

Figure 2 reveals a pattern that is roughly consistent with our argument about the geographical deterrence gradient. At the West end is the United States, and on the East end is Russia. In between are European states in a variety of alliance configurations with the United States, to include no alliance at all. Russia appears to be willing to use more force in its "near abroad" where it is less deterred than farther away. The exception to this geographical pattern is Syria, which hosts a major Russian naval base on the Mediterranean. The port of Tartus, a staging base for Russian combat operations in Syria, serves to lessen the Russian loss of strength

gradient and may help to explain the Syrian exception to the East-West pattern in the intensity of Russian operations in Figure 2.

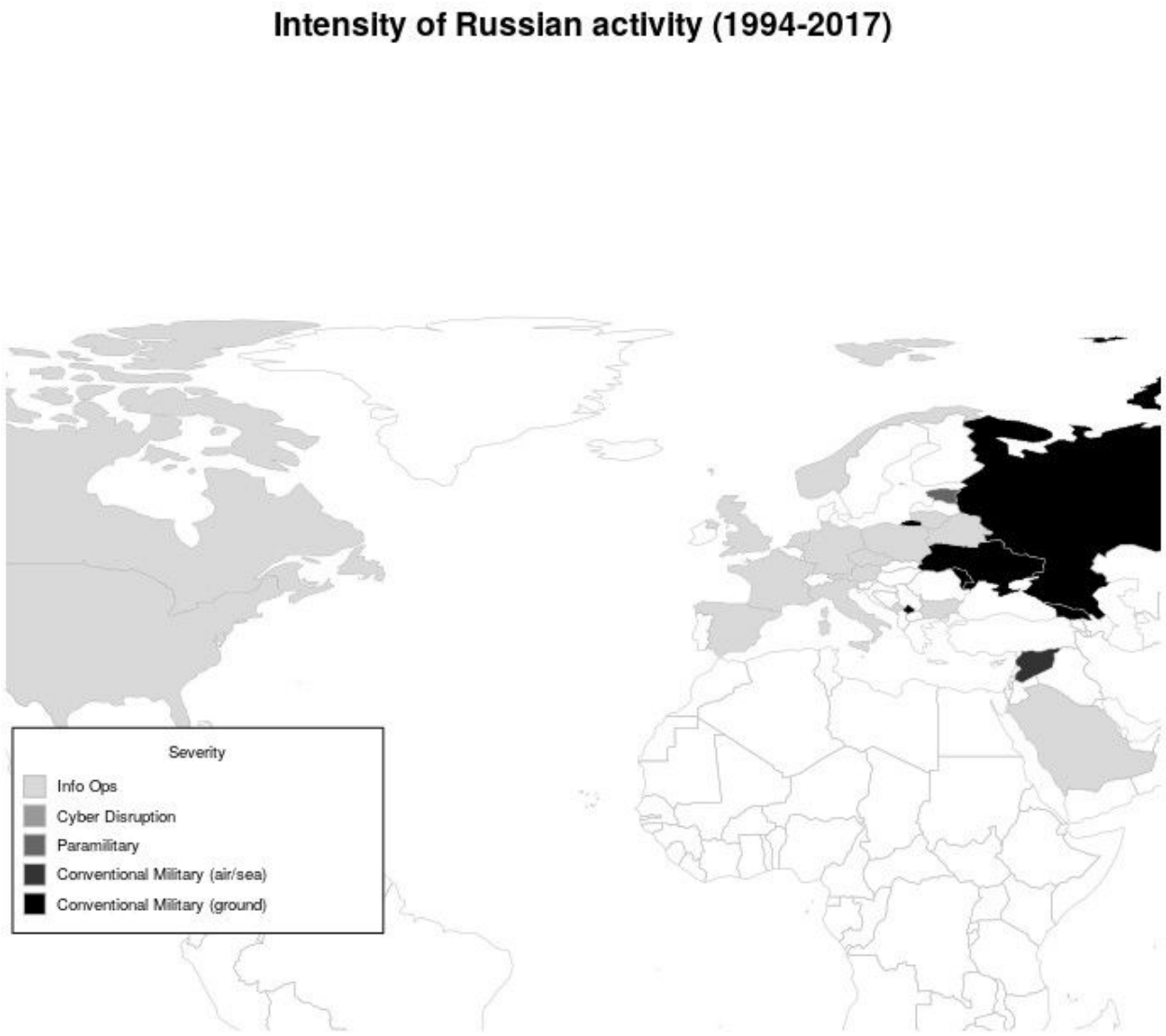

Figure 2 Geographic representation of Russia intervention. Each country's shading represents the highest intensity of Russian intervention in that state between 1994-2017. States closer to Russia have noticeably higher levels of severity.

Because the deterrence gradient still matters in cyberspace, furthermore, we see Russia conducting low-intensity cyber influence and espionage operations around the world, while it conducts high-intensity cyber-physical operations in closer proximity to its border. While Russian influence operations are ubiquitous, cyber disruption is less common, and overt military intervention occurs only in Russia's immediate periphery ("near abroad").

Major Cyber Campaigns

Russia is involved in numerous gray zone conflicts, but the actual shade of gray in each case depends on the deterrence gradient. For a more fine-grained test of our argument, we briefly examine the four major cyber campaigns attributed to Russia that feature prominently in the cybersecurity literature. An overemphasis on cyber operations by themselves tends to obscure the cross-domain and cross-national context of these operations. We thus employ a most similar case comparison by choosing cases that have the same conflict initiator (Russia) and the same means of low intensity conflict (cyber) but that differ in their geographical location and other military instruments employed (Bennett and Elman 2007). We code four rough categories of Russian operations in declining level of intensity, risk, and cost for the initiator (Russia): overt deployments of conventional military force, covert use of special operations or unattributed military forces, cyber operations that result in disruption of infrastructure, and information operations.

We do not focus here on the origins of Russian motives or their formulation in Russian foreign policy, even as understanding these is essential for devising practical policy responses in any given case. There are many potential explanations for Russian motives, to include the personality of Vladimir Putin, political competition for regime control, nationalist identity and status seeking, and geopolitical imperatives for security (Götz 2017). Rather we argue that how

motives are expressed, whatever their origins, will be more or less constrained by Western deterrence. We will consider some counterarguments in the case narratives. Our case studies are deliberately brief, drawing on secondary sources that treat them in depth, as our goal is simply to highlight variable context and effectiveness in each case.

Russian Response	United States (2016)	Estonia (2007)	Ukraine (2014)	Georgia (2008)
Conventional Forces				X
Special Operations			X	X
Disruptive Cyber		X	X	X
Information Operations	X	X	X	X

Table 3: Case comparison of Russian gray zone conflicts

Table 3 lists these cases by distance from Washington DC.[5] Again the geographical pattern is striking. Moscow is more likely to pull its punches for cases closer to Washington. Russian operations directly against the United States have been limited to cyber influence and

[5] We considered other geographic measures of the deterrence gradient like distance from Moscow or contiguity with Russia. We found less variation on these measures given half of the cases border Russia (Georgia, Ukraine, and Estonia) and one (Chechnya) occurred within Russia's borders. Distance *from* the United States is also more in keeping with the loss of strength gradient for retaliations initiated by the United States.

espionage operations. Operations against Estonia in 2007 were also restrained—Estonia is a NATO member—but further included a more punishing set of DDoS attacks. Ukraine is not a member of NATO and is highly salient to Russia, but it borders European NATO states and was in negotiation for EU membership when the crisis began. Russian attacks on Ukraine have been diverse and punishing but have fallen short of avowed military intervention. Georgia, by contrast, is not a NATO member and is deep in Russia's sphere of influence. At the weakest end of the deterrence gradient, Russia intervened in Georgia in 2008 using not only cyber-attacks but also paramilitaries and overt military force.[6] We will briefly consider each of them in chronological order.

Estonia (2007)

Moscow coordinated a wave of DDoS attacks against Estonia following the relocation of a Soviet statue (Schmidt 2013). The gap in time between Estonia's 2004 ascension to NATO and the 2007 Russian cyber campaign is telling. In Georgia and Ukraine, the mere prospect of future NATO membership (announced in the April 2008 Bucharest Summit Declaration) would provoke a Russian response. The Estonian attacks, by contrast, were a muted opportunistic protest, not a determined bid to change or return to the status quo. No one issued any clear demands or claimed responsibility, and Estonia did not replace the statue. The DDoS attacks were an ambiguous symbolic move calibrated to fall well below the threshold of a NATO response. The ambiguous legal status of a cyber-attack in 2007 both enabled and constrained Russia in this respect (Joubert 2012). NATO was highly unlikely to seriously consider formally

[6] Although not considered in detail here, Russian operations in outside cases like Kosovo and Chechnya are also consistent with the observed deterrence gradient.

responding so long as Russia avoided causing serious harm. Estonia's defense minister considered but ultimately rejected invoking Article V, the collective defense clause of the NATO treaty, ultimately treating the episode as a domestic law enforcement matter (Traynor 2007). After the event, Tallinn became more resolved to bind with the West. Indeed, Estonia became a hub for coordinating NATO cyber defences. Because Russian moves were motivated by deterrence rather than efficiency alone, subsequent improvements in NATO cyber deterrence were not met by Russian escalation.

Georgia (2008)

Georgia was hit by similar DDoS attacks amidst an even more fractious duel of competing narratives in online for a (Deibert, Rohozinski, and Crete-Nishihata 2012). Yet Russia also intervened militarily in South Ossetia and Abkhazia, an early example of cross-domain operations leveraging cyberspace. Russia's intervention choices in this conflict, situated at the far end of the Western deterrence gradient, were relatively unconstrained. The same month as NATO announced a pathway to membership for Georgia, Russia announced that it would unilaterally increase peacekeepers in Abkhazia. Russia then used whatever mix of tools it needed to accomplish its objectives and did not pull its punches out of concern for Western counteraction. If anyone was deterred, it was NATO. As Driscoll and Maliniak (2016, 590) point out, "because of Georgia's location and its contested map, it is a security liability from the point of view of many in the West". The Russian intervention served to clarify the stakes of Western interference in its near abroad. While Russia's tactical performance left much to be desired, the mission was a strategic success that reinforced the status quo ante and ended the conversation about Georgia joining NATO. Our theory predicts that a more forceful Western response would

have only escalated the situation since Russia's actions were chosen through a calculation that its objectives could be accomplished at reasonable cost.

Ukraine (2014)

Can efficiency calculations alone explain the single-domain response in Estonia versus the multi-domain engagement in Georgia? One might argue that Russia values the stakes differently in each conflict and thus the geographical correlation observed in Table 2 is spurious. Indeed, Russia let Estonia join NATO without a fight in 2004 and merely sought to register a protest vote in 2007 when Tallinn moved a Soviet statue. By contrast, Russia had supported Georgian separatists since the early 1990s and was highly resolved to ward off Western encroachment. The Ukraine case, however, finds this alternative account wanting. The seat of the medieval Kievan Rus empire is more salient in Russian nationalist mythology than Georgia, a peripheral outpost in the Caucuses far from Moscow, and the Black Sea port of Sevastopol also makes Crimea more strategically relevant. If Russian moves were motivated solely by efficiency rather than constrained deterrence, then we would expect more overt Russian military efforts in Ukraine, as in Georgia. On the contrary, despite Russia's higher valuation of the stakes in Ukraine, we observe considerable restraint. Despite five years of protracted war—killing nearly ten thousand and displacing millions—so far there has occurred neither large-scale combined arms warfare nor unrestrained ethnic cleansing. Indeed, cumulative civilian deaths plateaued at about 4000 in 2015 (Driscoll and Steinert-Threlkeld 2019). The fact that the costs of war could be much higher,

together with efforts made to allow both sides to save face, is suggestive of Russian motives for restraint.[7]

Militating against the efficiency explanation, Russia took pains to create a fig leaf of ambiguity about the identity of Russian troops, the presence of Russian heavy weapons, and its role in orchestrating disinformation campaigns. Even though NATO has no formal commitment to Ukraine, conflict in a country that borders NATO allies like Poland and Hungary is implicitly shaped by Western deterrence. Russia would probably lose a conventional contest with NATO, risking nuclear escalation in the process. Russia acts circumspectly as a result. For example, when Malaysian Airlines flight MH17 was shot down over Donetsk by a Russian anti-aircraft system, Moscow withdrew its heavy weapons from the battlefield (Smith-Spark and Masters 2018). Russia has also not realized significant gain for all of its creative efforts in cyberspace (Baezner and Robin 2017). Endemic Russian cyber-attacks and information operations have had little impact on battlefield events (Kostyuk and Zhukov 2019). Even as social media manipulation is supposedly a Russian specialty, pro-Kremlin narratives have never really taken hold in Western Ukraine (Driscoll and Steinert-Threlkeld 2019). The cyber domain is especially attractive for a risk-averse opportunist, providing lots of ways to do something without doing too much. As Brantley et. al. points out, the modal diversity of conflict in Ukraine has lacked sufficient intensity to warrant outside intervention (Brantly, Cal, and Winkelstein 2017). Russia has the ability to impose its will on Ukraine, but it stops short. Russian moves in Ukraine are a second-best option shaped by Western deterrence.

[7] Mixed messages of resolve and restraint are common in covert action (Carson 2018).

United States (2016)

A U.S. intelligence community statement released soon after the 2016 election concluded with "high confidence" that "Russian President Vladimir Putin ordered an influence campaign in 2016 aimed at the US presidential election. Russia's goals were to undermine public faith in the US democratic process, denigrate Secretary Clinton, and harm her electability and potential presidency. We further assess Putin and the Russian Government developed a clear preference for President-elect Trump" (Office of the Director of National Intelligence 2017). Moscow's influence operations might thus be described as unrestrained, even brazen, and thus motivated entirely by efficiency calculations. Yet the choice to pursue this course of action in the first place was very much constrained by the implicit deterrence posture of the United States. Russia can safely assume that the most powerful military in the world will retaliate for armed attacks directly against its vital interests. While the United States had not designated its electoral processes "critical infrastructure" to explicitly signal that cyber interference against them might be proscribed, Russia still had to consider America's power to retaliate. Russia sought opportunities to impose costs and seek benefits while minimizing the risk of retaliation, and it found them in covert manipulation of democratic discourse. Indeed, Russia's electoral interference has gone essentially unpunished by the United States to date, aside from the expulsion of some Russian intelligence officers and the application of some additional sanctions to an already heavy regime put in place after Ukraine. If Trump's victory or subsequent policies can ever be credited to active measures by the Russian Federation, even in part, it would amount to one of the most consequential intelligence coups in history. It is just as likely that the Russian campaign simply added noise to one of the most chaotic campaigns in U.S. presidential history (Gelman and Azari 2017). Russian information operations were a low-cost gamble to influence an overdetermined outcome.

Discussion

The overall pattern of recent Russian intervention is largely consistent with our hypothesis that deterrence encourages capable actors to engage in calculated restraint. As the deterrence gradient declines from West to East, Russia has more freedom to pursue its international objectives. Geography does not determine deterrence, but it is correlated with other factors like military power, NATO membership, and the proximity of interests that do shape deterrence credibility. While the degree of Russian interest does vary across these cases, the case of Ukraine demonstrates that Russia is sensitive to deterrence even when its interests are high. Differences in Russian choices also cannot be explained simply as an artefact of more options becoming available over time (i.e., maturation). The oldest cases (Estonia and Georgia) feature very different levels of intensity between them; as do the most recent (Ukraine and United States). To explain these differences, we must look to strategic incentives rather than technological capabilities. Gray zone conflict is not so much about the utilization of an expanding toolkit as careful decisions about what should be drawn from it.

Every Silver Lining's Got a Touch of Gray

Gray zone conflict occurs when capable actors intentionally limit the intensity or capacity of aggression and refrain from escalation. It differs from other forms of irregular or asymmetric warfare that are also limited but because one of the combatants simply lacks the means to escalate. Unlimited war for the guerrilla will be limited war for the state. Gray zone actors, by contrast, exercise calculated restraint out of concern for the potential consequences of aggression. Adversaries who no longer possess monolithic interests will also prefer to compete around the edges rather than openly confront opponents, concerned that the maximization of military power would undermine larger political objectives. Limited conflict, ironically enough,

is a symptom of deterrence success. Gray zone conflict, conversely, may be a reflection of weakness more than an expression of strength.

The good news is that gray zone conflict is symptomatic of deterrence success. The bad news is that gray zone conflict probes the threshold of deterrence effectiveness. A nation's interests tend to vary across different issue areas, as does its ability to project military power to back up deterrent threats. Therefore, we expect conflict severity to be greater wherever there are questions about the willingness or ability of deterrers to respond forcefully. Deterrence shapes the way that conflict emerges, but it cannot suppress conflict altogether. An adversary is seldom passive. There will always be attempts at end-runs or push-back, even when deterrence is credible. It is also important to avoid overextending commitments where credibility is in doubt.

Just as there is a gray zone between war and peace, the distinction between effective and ineffective deterrence is also fuzzy. We have introduced the notion of the deterrence gradient, a straightforward extrapolation from the military loss of strength gradient, to describe credible deterrence as a continuous variable. Wherever deterrence is credible (due to a favorable balance of power, greater relative valuation of the stakes, costly signals of commitment, a reputation for resolve, etc.), revisionists will exercise considerable restraint as they probe to see what they can get away with. Wherever deterrence is not credible, revisionists will be more emboldened to use whatever means they have at their disposal to meet their objectives, limited only by efficiency concerns. The challenge lies in between these extremes, where the variable threshold of credibility creates a policy arena for limited conflict, and where it can be difficult to distinguish efficiency motivations from risk sensitivity. Doubling down on deterrence can mitigate conflict in the latter case but provoke escalation in the former.

We have used the same cases that have raised alarms about the dangers of gray zone conflict—Russian incursions in Georgia and Ukraine and cyber campaigns targeting many other countries—to test our alternative explanation. Deterrence credibility is highest for United States immediate deterrence and lowest in Russia's Eurasian backyard, with decreasing values for Western NATO members, newer Eastern members, and European non-members. We found that Russia systematically reduces operational intensity along the deterrence gradient, employing a greater variety of means with more lethal intensity where deterrence is weakest and conducting only ambiguous information operations where deterrence is most robust. Recent Russian interventions offer the paradigmatic exemplars of gray zone conflict, but conventional wisdom about it is wrong. Russia does not have a general-purpose capability that it can use at will to destabilize any Western democracy or undermine any deterrence posture. Rather it acts opportunistically as circumstances enable it to hassle adversaries and their clients without, however, risking a military confrontation that Moscow does not desire. The flip side of this logic, however, is that Russia is willing to call NATO's bluffs in cases where it can reasonably expect that NATO is unwilling to intervene. The case of Georgia (and even more so Chechnya and less so Ukraine) illustrates Russian willingness to prioritize effectiveness at the price of efficiency (i.e., take the gloves off) when there is little prospect of NATO punishment.

This argument has implications for the debate over NATO expansion after the Cold War (Shifrinson 2016). When expansion is posed in starkly binary terms, expansion is seen as either a stabilizing force for Europe in the face of Russian recidivism or an irresponsible provocation of legitimate Russian security interests fueled by liberal delusions (McFaul, Sestanovich, and Mearsheimer 2014; Mearsheimer 2014). If deterrence and conflict are continuous variables, however, then the real question is not simply whether NATO should or should not have

expanded its security guarantees, but how far. One might thus argue that the first round of expansion to include the Eastern-Central countries (Poland, Hungary, Czech Republic) under the NATO umbrella helped to stabilize an historically conflict-prone part of Europe. After the fall of the Soviet Union and during a period of military and economic weakness, moreover, Russia was grudgingly willing to accept a downward revision of its European influence. One might also debate whether later rounds which brought in Baltic and Balkan countries made sense in whole or part. This is not the place to debate this history. We merely wish to point out that the alternative perspectives of NATO provocation and Russian aggression are better conceived as context specific variables rather than absolute qualities of either actor. The right question is not whether NATO should have expanded, but how far.

Just as deterrence varies along the gradient, the contours of the gradient can shift over time. When NATO's relative power was increasing, expansion was defensible. If NATO's relative power decreases for whatever reason, then retrenchment makes more sense. Conversely, declining Russian relative power may enable NATO to bolster the line, rendering today's gray zone provocations prohibitively costly tomorrow. As gray zone conflict reveals the contours of the deterrence gradient, especially in areas where the "defender" has overreached its ability or will to respond, actors can take steps to shore up defenses for the things they really value. Russia has advertised its willingness to interfere in elections, distort public debate, mobilize nationalist movements, and engage in other provocations, which in turn has already mobilized a Western response to improve awareness, counterintelligence, defenses, and deterrence postures. Much as the shooting down of the Malaysian Airlines aircraft over Donetsk led both to heightened debate in NATO about the possibility of intervention and to greater restraint on the battlefield on the part of Moscow, so too the lowering of credible escalation thresholds can help to contain risk-

averse opportunists. Just as gray zone conflict is symptomatic of deterrence success, the increasing incidence of Russian provocation may be symptomatic of a closing window for its effectiveness, such as it is.

The very fact that an adversary is engaging in limited conflict suggests vulnerabilities and opportunities. Instead of worrying that Russia is outwitting the West, we should instead realize that NATO has already blocked Russia from wielding even more influence. The general deterrence posture of NATO and US deterrence policy has arguably succeeded in keeping the more overt forms of Russian aggression in check. The unfortunate fact remains, however, that a simple remedy for gray zone conflict does not exist and it instead requires constant activity across domains to understand and contain new variations of provocation. Because conflict and deterrence are variable, they must be managed continuously as well.

While Russian cyberattacks are the focus of our empirical analysis, the theory should apply more broadly to all cases of gray zone conflict. Chinese incursions in the South China Sea offer another potential test. China's use of "little blue men" suggests that Chinese opportunism and restraint are both enabling and constraining its foreign policy. That is, Beijing appears to fear that the use of more intense military operations risks provoking a Western response that both sides hope to avoid (Zhang 2019). Focusing on the credibility of deterrence rather than the novelty of means used for gray-zone conflict can also help to evaluate proper policy responses (Green et al. 2017). Confronted with gray zone provocations by capable actors like Russia, China, and Iran, the United States would be well advised to reinforce its strengths while avoiding overextension.

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Appendix

Author names redacted

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This appendix provides supplemental information about the dataset of Russian gray zone campaigns introduced in the accompanying paper "After Deterrence: Explaining Conflict Short of War"

Case selection

The universe of cases was created by first identifying cases of Russian foreign interventions from 3 prior datasets; ICB, DCID, and REI. Code replicating those findings is provided in the appropriate RMarkdown files. These cases were then supplemented with additional cases of Russian interference the authors were able to identify.

Coverage of current datasets

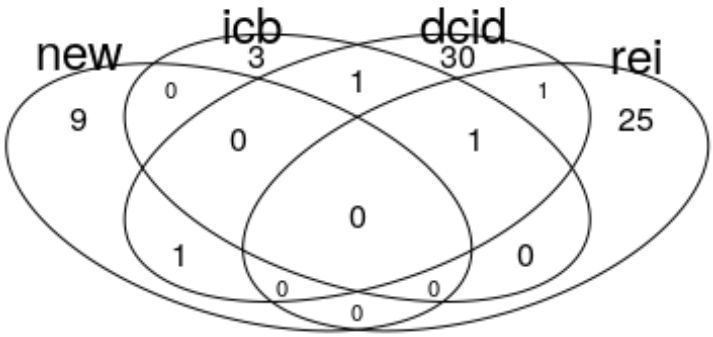
A comparison of what cases were covered in each individual dataset is provided here:

Target	Year	new	icb	dcid	rei
Chechnya	1994	1			
Belarus	1994				1
Ukraine	1994				1
Moldova	1996				1
Kosovo	1999	1			
Georgia	2002		1		
Ukraine	2002				1
Georgia	2004		1		
Ukraine	2004				1
Lithuania	2005			1	
Ukraine	2005			1	
Moldova	2005				1
Belarus	2006				1
Estonia	2007			1	
Georgia	2007			1	
Georgia	2008		1	1	

Target	Year	new	icb	dcid	rei
US	2008			1	
Lithuania	2008			1	
US	2009			1	
Poland	2009			1	
Ukraine	2009			1	
Moldova	2009				1
Ukraine	2010				1
US	2011			1	
Canada	2011			1	
UK	2011			1	
Lithuania	2012			1	
US	2013			1	
Ukraine	2013			1	
Ukraine	2014		1	1	1
US	2014			1	
Canada	2014			1	
UK	2014			1	
Germany	2014			1	
Poland	2014			1	
Georgia	2014			1	
Moldova	2014				1
Ukraine	2015	1		1	
Syria	2015		1		
US	2015			1	
US	2015			1	
France	2015			1	
Germany	2015			1	1
Russia	2015			1	
Turkey	2015			1	
United Kingdom	2015				1
Canada	2016	1			
US	2016			1	

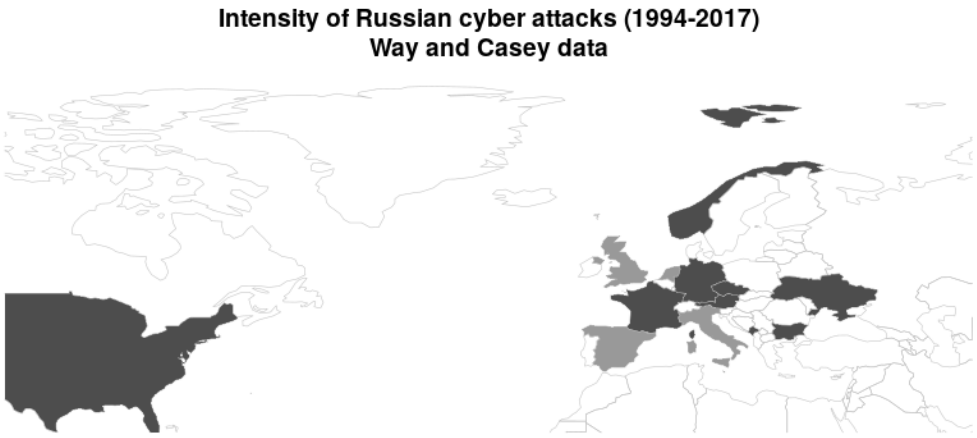
Target	Year	new	icb	dcid	rei
UK	2016			1	
France	2016			1	
Ukraine	2016			1	
Austria	2016				1
Bulgaria	2016				1
Italy	2016				1
Montenegro	2016				1
Norway	2016				1
Netherlands	2016				1
United Kingdom	2016				1
United States	2016				1
United Kingdom	2017	1			
Czech Republic	2017				1
France	2017				1
Germany	2017				1
Malta	2017				1
Netherlands	2017				1
Spain	2017				1
Netherlands	2018	1			
Saudi Arabia	2018	1			
Ukraine	2018	1			
United Kingdom	2018	1			
United States	2018	1			

The overlap between cases is seen here:



Consistency of current datasets

Aside from the cases covered, the intensity codings for current datasets are difficult to compare given their different scales. A more thorough analysis is provided in the appropriate R Markdown files, but a comparison of intensity codings in DCID (Valeriano and Maness) and REI (Way and Casey) is visualized here:



The DCID data identifies the United States, United Kingdom, Poland and Ukraine as targets of the most severe Russian cyber operations. In the cases documented by REI, the most severe Russian attacks occurred against France, Austria, and Ukraine. Part of this discrepancy is due to the respective foci of each dataset; DCID seeks out cases of cyber incidents and disputes while REI focuses on Russian electoral interference. While a majority of the REI cases include some form of Russian cyber activity, there are a few cases where only material support was provided (eg. Moldova 2014 and Belarus 1994). This discrepancy exemplifies not only the challenges of relying on open source reporting for identifying cyber influence or disruption campaigns, but also differences in defining what counts as an attack. The only country-year that appears in both datasets is Ukraine 2014. We standardized codings across the two datasets using variable definitions from respective codebooks. A severity less than or equal to 2 in DCID's coding is synonymous in our recoding with REI's coding for disinformation, a severity between 3 and 7 equals REI's coding for cyberattack, and no cases in DCID have a severity greater than 7. We adopted

Valeriano and Maness (2014)'s approach of sampling on intensity when there are multiple observations in a given time unit.

Variable codings

For each incident, we code whether Russia used conventional ground forces, conventional air or sea forces, paramilitary or covert forces, cyber disruption, and information operations. By distinguishing between these five types of aggression, we obtain a clearer picture of the intensity of each case of Russian intervention. The vast majority of cases include at least some type of cyber operations. In a few cases, data limitations preclude coding of non-kinetic activity by Russia or other actors. In Moldova 2005, for example, Russia provided material support for the Communist Party but there is no credible evidence of cyber activities.

The following binary coding criteria were used for each case:

- **resp_infoops** - Did Russia use information operations during this event? That includes propaganda, misinformation campaigns, etc
- **resp_cyberdisrup** - Did Russia use cyber attacks during this operation? That includes hacking, phishing, cyber espionage, DDOS attacks, etc
- **resp_paramil** - Did Russia use paramilitary troops during this event? Special forces, covert troops, speznatz, etc all count
- **resp_convmil_airsea** - Did Russia use conventional naval or air forces during this event?
- **resp_convmil_gro** - Did Russia use conventional ground troops like their army, artillery, tanks, etc during this event?

The complete dataset is provided in the appropriate .csv file. It includes sources used for the codings as well as justifications and explanations where needed.