

Team of Former Rivals: A Multilateral Theory of Nonaggression Pacts

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Abstract

Why do states form nonaggression pacts? Nonaggression pacts are different from typical alliances because the latter tend to be focused on relationships between members of the alliance and other states, such as by deterring external threats or mediating the resolution of conflicts between an alliance member and a third party challenger. We offer two contributions that build on existing work. First, we provide a theory that explains why leaders use nonaggression pacts as information mechanisms. Leaders of states that have recently emerged from a rivalry seek to overcome an important information asymmetry: they know the probability of future conflict among the former rivals has decreased, but other actors may fear a resumption of hostilities. Such leaders use nonaggression pacts to signal that the rivalry has truly ended and that future relations are likely to remain peaceful. Second, our analysis recognizes the often multilateral nature of the nonaggression pact formation process. We use the ‘k’-adic statistical procedure outlined by Poast (2010) to model nonaggression pact formation as a multilateral process. To operationalize recent rivalry cessation within a group, we use a network analytic density measure. Consistent with our theory, we find that groups of states with greater densities of recently ended rivalries are significantly more likely to form nonaggression pacts. These results hold across a series of model specifications.

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Introduction

Why do states form nonaggression pacts? Nonaggression pacts are different from typical alliances (Mattes & Vonnahme, 2010) because the latter tend to be focused on relationships between members of the alliance and other states, such as by deterring external threats (Waltz, 1979; Walt, 1987) or mediating the resolution of conflicts between an alliance member and a third party challenger (Fang, Johnson & Leeds, Forthcoming, 2015). Like other alliances (Lake, 1999; Weitsman, 2004; Leeds & Savun, 2007; Fang, Johnson & Leeds, Forthcoming, 2015), nonaggression pacts can be usefully conceived of as a type of international institution that members may be able to use to overcome cooperation problems (Long, Nordstrom & Baek, 2007; Mattes & Vonnahme, 2010). Nonaggression pacts are often used to reduce the likelihood of future conflict (Long, Nordstrom & Baek, 2007; Mattes & Vonnahme, 2010; Warren, 2016).

If nonaggression pacts are designed to reduce conflict, why do states need to write down these commitments? Many international legal instruments, perhaps most importantly the United Nations Charter, create broader commitments to refrain from the use of force. Formal agreements are far from a necessary condition for international cooperation (Smith, 1995; Morrow, 2000). Recent work provides explanations. States formalize their commitments not to enter into conflict with each other in order to generate domestic audience costs for renegeing on these commitments (Long, Nordstrom & Baek, 2007; Mattes & Vonnahme, 2010; Warren, 2016). Nonaggression pacts also allow states to signal to each other their future peaceful intentions, which can be especially important among former rivals (Mattes & Vonnahme, 2010). As Mattes & Vonnahme (2010) note, ‘states that have a history of conflict or that are rivals may be suspicious of one another and might try to alleviate their fears by concluding agreements that are aimed at preventing armed conflict’ (p. 928).

While existing work has improved our understanding of nonaggression pacts, it has two limitations. First, many states with little interest in going to war with each other never take the step of formalizing this intent, and it is not clear why former rivals should do

so if the purpose is to signal peaceful intentions to each other.¹ Former rivals may have other motivations for formalizing their non-aggressive intentions. Second, by focusing on the dyad, existing work does not account for the often multilateral nonaggression pact formation processes. Of the 137 nonaggression pacts in the Alliance Treaties and Obligations (ATOP) data set (Leeds et al., 2002) that we include in our empirical analysis, 14 include more than two members.² In some cases, pacts that include only two states may have resulted from decisions not to include other states, which also suggests an underlying process in which a multilateral option was a possible outcome.

This article builds on existing work by providing new theory and empirical results. We begin by focusing on private information. Leaders of states emerging from a rivalry know something other actors may not: that the future likelihood of conflict among the former rivals has significantly decreased. Nonaggression pacts are useful when the probability of future hostilities seems relatively large to other outside actors because it was large in the recent past, but when inside actors know it has actually become smaller. Many rivalries endure and recur, so outside actors may be uncertain as to whether rivals that appear to be improving their relations are committed to doing so. Leaders of states that have recently ended a rivalry can use nonaggression pacts to help alleviate this uncertainty.

While existing work on why states join nonaggression pacts empirically tests the pacts' effects on conflict, we directly analyze factors associated with nonaggression pact formation. Nonaggression pact formation is often the result of processes that involve more than two states. We therefore use the k -adic research design proposed by Poast (2010) to account for the multilateral nature of some nonaggression pact formations (and non-

¹ See generally Haim (2016); Kinne (2016).

² Five of the 144 nonaggression pacts in the ATOP data were formed after 2001 (ATOPID # 5010, ATOPID # 5015, ATOPID # 5020, ATOPID # 5025, ATOPID # 5030). Removing these five leaves us 139 nonaggression pacts between 1815 and 2001. For two other nonaggression pacts, formation took place the exact same year as at least one member-state entered the system, which is a problem for survival analysis. These two pacts are ATOP ID # 3070 in 1949 (when Taiwan became a system member) and ATOP ID # 4375 (when Slovenia became a system member).

formations). To operationalize recent rivalry cessation within groups of states,³ we use a network analytic measure of density. We find, across a host of empirical specifications, that groups of states within which more rivalries have recently ended are significantly more likely to form nonaggression pacts.

The remainder of this article is organized as follows. The next section summarizes the literature on nonaggression pacts, highlighting the questions left open by existing work. Next, we present our theory regarding the importance of signaling to outside actors in the formation of nonaggression pacts. This section also uses this logic to explain why third-party states are sometimes included in nonaggression pacts. We then describe our research design and offer empirical evidence supporting our claims. The final section concludes.

Nonaggression pacts, conflict, and rivalry

Nonaggression pacts require member-states ‘to refrain from military conflict with one another’ (Leeds, 2005: 5). By ‘nonaggression pact’, we are referring to a treaty that includes a nonaggression provision, but does not also include any defensive, offensive, or consultative alliance provisions. Figure 1 shows the number of nonaggression pacts formed per year, according to the ATOP data. Of the 29 nonaggression pacts signed in the 1920s and 1930s, 16 were between states in Europe. After World War II, spikes in nonaggression pact formation occurred in 1960, 1970, 1979, and, most notably, the early 1990s (when Russia, other former Soviet Republics, and Eastern European nations signed a number of nonaggression pacts following the collapse of the Soviet Union).

While nonaggression pacts are commonly included in alliance data sets, scholars recognize that nonaggression pacts are distinct from other alliances (Leeds et al., 2002; Gibler & Sarkees, 2004; Long, Nordstrom & Baek, 2007; Mattes & Vonnahme, 2010). Standard alliances require cooperation in the event of conflict with third parties (Leeds et al., 2002).

³ Throughout this article, we use the term ‘group of states’ to refer to any set of states containing 2 or more members.

Such assistance can include defense in case of attack (defense pact), attacking another state (offensive pact), and/or consulting with one another state in case of conflict with a third party (entente or consultative pact). Hence, alliances pertain to a signatory's military-oriented interactions with a third party and, with the exception of neutrality pacts, place positive obligations on the signatories. Nonaggression pacts likely follow a process that is distinct from other military alliances: 'because pure nonaggression pacts require no active coordination, ... their formation and termination are governed by different processes' (Leeds & Savun, 2007: 1125). Mattes & Vonnahme (2010) argue that, as a result, nonaggression pacts are similar to peace treaties and cease fires in the sense that they focus on future peaceful relations among their members.

Why do states form nonaggression pacts? The formation of these institutions can be puzzling because they are certainly far from necessary in order for states to refrain from aggressive acts against each other. Despite the differences between nonaggression pacts and standard alliances, several insights from the broader alliance literature are relevant to nonaggression pact formation. Like nonaggression pacts, standard alliances can serve to manage conflict by facilitating cooperation and information exchange.

Alliances provide an institutional framework that facilitates continued cooperation. (Pressman, 2008: 4), building on Axelrod & Keohane (1985), claims that 'alliances facilitate the exchange of information, allow for closer monitoring, and create channels for issue linkage and side payments.' In fact, some alliances explicitly provide a framework for mediating disputes (Gelpi, 1999). A prominent example is Article II of the Rio Pact: 'The High Contracting Parties undertake to submit every controversy which may arise between them to methods of peaceful settlement and to endeavor to settle any such controversy among themselves by means of the procedures in force in the Inter-American System.'⁴

Second, alliances provide costly signals of states' intentions (Morrow, 2000). As (Pressman, 2008: 4) asserts, 'the act of joining the alliance itself may send signals that

⁴ Quoted from ATOP ID #3075 Codesheet.

are absent in the regular ebb and flow of international affairs...the fact that the restrainer in the alliance was willing to absorb some costs and risks associated with the alliance indicates to its new partner[s], the restraine[e]s, just how much the former values the policy of alliance restraint.’ More importantly, the alliance, particularly if it is multilateral, allows for third parties who can act to help ensure a lack of conflict between the two sides. This enhances the alliance’s ability to deter aggression among the alliance members. As Weitsman (2004, 8) states, ‘alliances between or among adversaries may be productive. States seek to control threats by tethering them.’ Consider NATO. While countering the Soviet threat was a certainly a primary motivator in forming the alliance, also crucial was NATO’s role in managing a resurgent Germany. NATO General Secretary Lord Ismay famously remarked that NATO has intended to ‘keep the Americans in, *the Germans down*, and the Russians out’ (quoted in Weitsman 2004: 2. emphasis added).

Two recent studies examine why states form nonaggression pacts by focusing on conflict behavior among their member-states. Long, Nordstrom & Baek (2007) argue that states form nonaggression pacts in order to avoid future conflict. Nonaggression pacts facilitate information exchange between members, they argue, thus reducing the types of uncertainty that can lead to conflict. In addition, they argue that nonaggression pacts reduce conflict by creating audience costs for aggressors. Their empirical results demonstrate that conflict is significantly less likely among nonaggression pact members. Similarly, Mattes & Vonnahme (2010) focus on the effects of nonaggression pact formation on conflict. They note that states create these institutions ‘because there is an expectation that conflict between them is possible or even likely. Countries that have friendly relations do not need assurances of nonaggression because neither side expects that conflict could occur’ (p. 927). This logic implies that states with a history of rivalry and/or conflict use nonaggression pacts to prevent future conflict with each other. Like Long, Nordstrom & Baek (2007), they argue that nonaggression pacts raise audience costs, both domestically and internationally, which make commitments to peace more credible. Using a two-stage matching design, they find signifi-

cant support for the argument that nonaggression pact formation reduces the likelihood of conflict.

Why do states form nonaggression pacts?

This section provides our theoretical argument for why states form nonaggression pacts. Like previous studies, we focus on the logic of the effects of nonaggression pacts on outside actors. Also like previous studies, we emphasize the role of prior rivalry in the process of alliance formation. Our analysis nonetheless departs from existing work in three ways. First, we argue that a key purpose of nonaggression pacts is to signal to outside actors that a rivalry has ceased and that the rivals intend to maintain peaceful relations. Second, by emphasizing signaling to outside actors, our theory allows us to better explain why some nonaggression pacts include states that were not part of a prior rivalry. Finally, our empirical analysis explains nonaggression pact formation and membership directly, whereas existing work analyzes the association between pact formation and subsequent conflict.

Who needs nonaggression pacts?

We begin with Mattes & Vonnahme's 2010 observation that there is a close relationship between rivalry and nonaggression pact formation. We follow Thompson (2001) in defining rivalry as a period in which states view each other as competitors, threats, and enemies. According to the 'strategic rivals' concept of Thompson (2001) and Colaresi, Rasler & Thompson (2007), '[rivalries are] instances in which decision makers in one state perceive another state of relatively equal status as a competitor for the same resources (such as territory) against whom it is likely to become militarily engaged' (Colaresi, Rasler & Thompson, 2007: 15). In other words, 'Rivalries thus represent a distinctive class of conflict in the sense that rivals deal with each other in a psychologically charged context of path-dependent hostility' (Thompson, 2001: 558). Rivalry is therefore inherently about states' subjective perceptions

of each others' status, preferences, and intentions.

This is not to say that actors will *correctly* perceive intentions, be they aggressive or benevolent. Consider a statement by Nicholas de Giers, Russian Foreign Minister, in 1891. Giers wrote, 'some people imagine that we have designs upon Constantinople' and, for this reason, perceive Russia as a threat (quoted in Michon 1969: 15). De Giers goes on to state how, in reality, 'nothing would be more embarrassing for Russia' than to conquer Constantinople because it would shift Russia's 'center of gravity' away from St. Petersburg (ibid). In his classic work *Perceptions and Misperceptions in International Politics*, Jervis seeks, among other objectives, to explain the mechanisms creating misperceptions amongst the European powers prior to the onset of World War I. A key point from the Jervis study is summarized well by Levy (2013, 308) in his recent review of the role of psychology in foreign policy scholarship:

'A central proposition of the cognitive paradigm is that an individual's cognitive predispositions or mindsets play a disproportionate role in shaping his or her perceptions. This leads to a general tendency to selective attention to information, to premature cognitive closure, for people to see what they expect to see based on prior belief and world views, and consequently to the perseverance of beliefs. In other words, perception is more theory driven than data driven.'

Rivalries can endure over long periods (Goertz & Diehl, 1993), although they can and do end. Indeed, the two longest running rivalries, largely driven by disputes over territory and shared water passages, each persisted for over 160 years (Argentina-Brazil (1817-1985) and Ecuador-Peru (1830-1998)) (Colaresi, Rasler & Thompson, 2007: 86). A rivalry ends when decision makers within the states change their perceptions of the other state. For example, Thompson (2001) and Colaresi, Rasler & Thompson (2007) identify the US-Soviet rivalry as ending in 1989, with the Soviet Union's unilateral decision to permit the collapse of the Berlin Wall. Rivalries can end for a host of reasons: by one party defeating the other in war; by one side acknowledging defeat, possibly induced by economic exhaustion; changes in the regime or leadership; or events outside the rivalry leading to a change in strategic priorities (e.g., a shift into isolation) (Colaresi, Rasler & Thompson, 2007: 86-87).

Yet determining when a rivalry has truly ended can be difficult. As (Thompson, 2001: 563) writes, ‘[r]ivalries are sometimes declared to be over and sometimes the declarations can be taken at face value—but only sometimes.’ This is because some rivalries can de-escalate and seemingly end, only to restart. Thompson (2001) finds that 19 rivalries were actually a resumption of prior rivalries between two states. While the gap between such resumptions can sometimes be quite long (e.g., the first rivalry between Saudi Arabia and Yemen ended in 1932, with the second initiating in 1990), other interregnums can be quite short (e.g., 11 years between the first and second Iraq-Saudi Arabian rivalries).

Uncertainty about whether or not a rivalry has truly ended can create an important information asymmetry. During a rivalry, the probability of hostilities between the rival states is likely to be relatively large. When a rivalry ends, the probability of future hostilities between the former rivals decreases significantly (Rasler, Thompson & Ganguly, 2013: 3). Yet not all actors are equally able to determine whether and when the rivalry has ended, which in turn means that some actors are better able to assess the probability of future hostilities. As noted above, whether or not states are in a rivalry depends on the subjective perceptions (and misperceptions) of leaders and other government officials. We therefore assume that these inside actors have more information about such perceptions and, as a result, more information about whether a rivalry is ongoing or not. These inside actors also have access to information about the causes and consequences of the rivalry cessation that other actors cannot access, such as recent diplomatic exchanges, intelligence reports, and other classified information that they cannot directly reveal. By contrast, actors whose subjective perceptions about the states’ relationship do not affect whether or not the states are strategic rivals have less information. When a rivalry ends, inside actors therefore have more information than outside actors about the extent to which the probability of future hostilities has decreased.⁵

⁵ Of course, some degree of uncertainty likely exists even among inside actors. For example, actors with differing foreign policy preferences might exist in the same government, raising concern about whether leader turnover might result in a resumption of the rivalry.

Outside actors, such as domestic groups and other states, may have some information about the subjective perceptions of leaders and government officials, but we assume they have less such information than the inside actors themselves—and this is the case specifically because the relevant information in this context consists of subjective perceptions. When outside actors attempt to assess the probability of future hostilities between the relevant states, they may have doubts as to whether the rivalry has ended, i.e., doubts as to whether the relevant leaders still perceive each other as rivals. In many cases, states with ongoing rivalries are not actively engaged in hostilities, so a lack of hostilities alone may not overcome the information asymmetry.

This information asymmetry creates a dilemma for leaders of states that have recently ended a rivalry. The end of a rivalry can bring with it many benefits. Ending a rivalry with one state can also help improve relations with other states that were previously more closely aligned with one's rival. After Jordan and Israel signed a peace treaty and ended their rivalry in 1994, for example, Jordan was able to improve its relations with the United States, officially becoming a Major Non-NATO Ally in 1996. Peaceful relations between former rivals can also lead to improvements in economic relations, such as trade and investment, that can lead to joint prosperity. Leaders of states ending a rivalry likely seek to take advantage of such benefits.

If, however, other actors are not able to assess whether a rivalry has ended, and therefore may overestimate the probability of future hostilities between the former rivals, the former rivals may not reap these benefits fully. For example, firms in a former rival state may perceive trade with firms in the other former rival state as too risky if they fear future conflict. Likewise, firms in third-party states may be less willing to invest in either of the former rivals if they fear the instability and potential loss of their investment that may be associated with future hostilities. Finally, leaders of states currently aligned more closely with one of the former rivals may be hesitant to improve their ties to the other former rival without a clear signal that the rivalry has truly ended.

This logic helps explain why nonaggression pacts are relatively rare as well as in which situations they are most likely to be used. At any given time, most states are unlikely to initiate hostilities with most other states. Outside actors can correctly assess that such probabilities are small. The leaders of Nepal and El Salvador, for example, have no need to form a nonaggression pact with each in order to signal to other actors that they intend to maintain peaceful relations. At the other extreme, when rival states expect their rivalry to continue, they are will not agree to refrain from aggression in the future. In both such scenarios, the information asymmetry identified above is not relevant. The asymmetry is relevant, and the signal is useful, when the probability of future hostilities seems relatively large to outside actors because it was large in the recent past, but when inside actors have private information that the probability has changed and decreased. The asymmetry is especially important in the context of strategic rivalries because the relevant information consists of the subjective perceptions of inside actors.

As a result, leaders of states that recently emerged from a rivalry have important incentives to clearly signal that the probability of hostilities between them has significantly decreased. We argue that this is an important explanation for the formation of nonaggression pacts. We agree that one reason for the formation of these pacts may be a commitment to preventing future aggression, as others have argued, and in many cases nonaggression pacts are formed for both reasons. Our logic suggests that nonaggression pacts are, in part, instruments for state leaders to signal to third parties (domestic and international) that a rivalry has ended. Moreover, because nonaggression pacts are associated with a lower likelihood of future conflict, this signal is informative (Long, Nordstrom & Baek, 2007; Mattes & Vonnahme, 2010).

We illustrate our argument using the example of the US-Russia Charter for Partnership and Friendship, a nonaggression pact formed on June 17, 1992.⁶ The US-Soviet Cold War rivalry ended in 1989 with the fall of the Berlin Wall. Yet, given the long history of

⁶ Cited in *International Legal Materials (ILM)* Vol. 21: 782-789, 785).

the rivalry, some observers feared a resumption of the rivalry in the near future, particularly with contentious issues, such as the reunification of Germany, still to be rectified (Gaddis, 2006: 250). Fears were inflamed by events such as the attempted coup by Soviet hard-liners in 1991 and the beginning of the wars in the Former Yugoslavia.

Thus, when George H.W. Bush and Boris Yeltsin signed the US-Russia Charter, they attempted to send clear signals that peaceful relations between the former rivals would endure. Both leaders made sure to express a new era in economic relations between the powers. Bush stated: ‘Let me just say to the American people: Our support for Russia is unshakable because it is in our interest.’ Yeltsin echoed that ‘...the documents that we have signed today are not designed to define what has already been established in context but to find new ways to go forward. And the treaties and agreements that we have signed today do not just pertain to the two countries of ours. They are a sketch for a future world. They are characteristic of the kind of features that we want to see in this world. This world is becoming more attractive, more humane, kinder than we see today.’⁷

As our general argument suggests, both leaders stressed the importance of economic relations. Yeltsin noted that ‘Among the Russian-American relations, there are two things that are most important to my mind: strategic arms limitations and economic cooperation.’ He added that ‘[A] very important area in our relationship is designing a good basis for fruitful economic cooperation and establishing all kinds of contacts in this economic sphere. We have concluded very important agreements that have removed obstacles in this way and to make it more attractive for businessmen to join in this effort, and this is very important for our country at this time. After 70 years of travesty as far as personal property was concerned, now private property is becoming ever more important and will become even more so in times to come.’ Likewise, Bush stated that ‘At this summit we’ve also opened a new chapter in our economic relationship. The economic agreements that we have signed

⁷ Transcript from the Press Conference at the July 17, 1992 signing of the US-Russia Charter for Partnership and Friendship, available at <http://www.presidency.ucsb.edu/ws/?pid=21101>. Accessed on January 27, 2015.

today will pave the way for trade and investment in Russia, as will most-favored-nation status which takes effect today. We hope very much that Russia and the International Monetary Fund can reach a standby agreement soon in order to unlock the G-7's economic support package.'⁸

The role of third parties: nonaggression pact formation as a multilateral process

In some cases, nonaggression pacts include more than 2 members. The signaling logic helps us explain why, in some cases, former rivals join with third parties to form nonaggression pacts.⁹ The inclusion of a third can strengthen the signal sent by the former rivals that their probability of future hostilities has, indeed, decreased. Generally, when a third party joins an alliance, this can signal to other states that alliance partners are more serious about their obligations (Pressman, 2008). In the context of nonaggression pacts, having participated in the (generally private) negotiations leading up to the pact formation, the third party state has also obtained private information about the former rival states' perceptions of each other. By joining the nonaggression pact based on this private information, the third party can strengthen the signal to other outside actors that the rivalry has ended. In addition, in some cases nonaggression pacts terminate for all members if violated by any member, e.g., the 1938 Salonika Agreement between Bulgaria, Romania, Turkey, Yugoslavia, and Greece, which terminated in 1940 when Bulgaria made territorial demands on Romania. A third-party's willingness to join such an agreement signals that it believes, again based on information revealed negotiations that may not be public, that the rivalry has ended.

⁸ Transcript from the Press Conference at the July 17, 1992 signing of the US-Russia Charter for Partnership and Friendship, available at <http://www.presidency.ucsb.edu/ws/?pid=21101>. See also (Haim, 2016).

⁹ An example of such an agreement is the original ASEAN nonaggression pact, formed by Malaysia, Singapore, Indonesia, Philippines, and Thailand in 1976. Indonesia and Malaysia had ended their rivalry, whereas the other members had not been involved in this rivalry.

An alternative logic might suggest that a third party may make the commitment to nonaggression between the former rivals more credible. This logic is often the case in other types of alliances, in which states agree to come to each other's aide if attacked. Yet this does not apply to nonaggression pacts. A non-former-rival third party in a nonaggression pact simply agrees not to commit aggression against either of the former rivals. If one of the former rivals were to violate the pact, the third party would be under no obligation to defend the attacked state. The inclusion of such a party in a nonaggression pact therefore does not make the commitments made by the former rivals more credible.

Existing analyses of nonaggression pacts conceive of them as having been formed as a result of bilateral processes. Yet nonaggression pacts are often formed as a result of multilateral processes. Even when the outcome of the formation process is a bilateral pact, the member-states may have considered including other members but decided against doing so. Often, nonaggression pact formation is multilateral in part because the rivalries preceding the pact are also multilateral. While the empirical literature often models rivalries as dyadic, the underlying facts that gave rise to these rivalries are often multilateral events. For example, in rivalry data sets, Israel is generally coded as having long-term rivalries with all of its neighbors, but these rivalries are clearly part of the multilateral Arab-Israeli conflict rather than entirely separate bilateral processes.

Our argument is analogous to that of Fordham & Poast (Forthcoming, 2015) with respect to alliances. They claim that all alliances, even those between two parties, are multilateral in the sense that states must consider who to include and not include in the alliance pact. Just as consumers select among 'baskets' of goods, leaders must assess the whole composition of the potential alliance. Doing so may lead to the formation of a purely bilateral pact, but this determination was the outcome of deciding that the inclusion of additional members was suboptimal.

The argument in the previous section suggests that nonaggression pact formation should be more likely among states that have recently ended a rivalry. Yet because nonag-

gression pact formation can be the result of a multilateral process, it is important that we consider how this might affect nonaggression pact formation among groups of states. In a given group of states, there may be relatively few or relatively many recent rivals. A group with few recently ended rivalries will have little incentive to form a nonaggression pact. In such a group, there may be little need to use such an institution to signal future peaceful intentions because most of the group has little history of perceiving each other as potentially hostile. Within such a group, individual dyads that were involved in recent rivalries may be more likely to form nonaggression pacts, but the group is unlikely to do so *as a group*. By contrast, the more rivalries that recently ended in a group, the more incentive will be there for the group to clearly signal that such rivalries have ended by forming a group nonaggression pact. This leads to our hypothesis:

Hypothesis: *Groups of 2 or more states among which more rivalries have recently ended are more likely to form nonaggression pacts.*

Research design

This section describes how our research design takes into account the multilateral nature of some nonaggression pact formation. We also explain below how we use the network analytic concept of density to operationalize the extent to which rivalries have recently ended within groups of states.

Dependent variable and unit of analysis

Drawing from the ATOP data set, we identify 137 nonaggression pacts formed between 1815 and 2001. Of these, 29 also contain neutrality provisions (but do not contain offensive, defensive, or consultative commitments). While the majority (123) of nonaggression pacts are bilateral, the 14 multilateral nonaggression pacts include most of the dyadic

nonaggression ties.¹⁰ More precisely, five of the nonaggression pacts are trilateral, one has four members, four have five members, one has 13 members, one has 14 members, one has 15 members, and one has 31 members (The Helsinki Final Act, ATOP ID #3740). These create 867 unique state-to-state nonaggression dyadic ties.¹¹

To account for the multilateral nature of some nonaggression pact formations, we follow Fordham & Poast (Forthcoming, 2015) and Poast (2010) by using k -adic data. A k -ad is a unit with k members, where $k \geq 2$. Hence, a dyad is a special case of k -adic data, where $k = 2$. A k -adic research design allows us to capture characteristics of a group of states, whether that group contains 2, 3, 4, or more members. This modeling strategy does not assume that all nonaggression pacts are multilateral nor even that all nonaggression pacts could have been multilateral. Instead, relative to a traditional dyadic model, our modeling strategy relaxes the assumption that all such pacts are bilateral and could only have been bilateral. That is, what the k -adic models do, relative to dyadic models, is relax the assumption that the relevant unit of analysis is always a group of 2 states.

Creating a k -adic data set is done in two steps. First, we must construct a data set of k -ads in which the event of interest occurred. With respect to nonaggression pact formation, each formation event, regardless of the number of participants, is an observation. Hence, one ‘event’ k -ad is the 1992 bilateral pact between the United States and Russia, while another ‘event’ k -ad observation is the 1986 trilateral pact between Guinea, Liberia, and Sierra Leone. It is possible (even likely) that the formation of an earlier bilateral pact affects the probability of being involved in a later pact (of any size).

Second, we construct a data set of the ‘non-event’ k -ads. Here, a ‘non-event’ k -ad is a group that did not form a nonaggression pact. On the one hand, the practice used in

¹⁰ The 14 multilateral nonaggression pacts were formed in 1907 (ATOP ID # 1450), 1923 (ATOP ID # 2105), 1929 (ATOP ID # 2240), 1938 (ATOP ID # 2425), 1975 (ATOP ID # 3740), 1976 (ATOP ID # 3755), 1978 (ATOP ID # 3810), 1979 (ATOP ID # 3853), 1983 (ATOP ID # 3948), 1986 (ATOP ID # 3982), 1988 (ATOP ID # 3990), 1995 (ATOP ID # 4750), 1996 (ATOP ID # 4810), and 2001 (ATOP ID # 4985).

¹¹ These 867 dyads do not include ATOP ID # 2105 as it contains the same five states as ATOP ID # 1450.

constructing dyadic data sets could suffice, i.e., include all possible k -adic combinations of states in the data set so that some k -ads witnessed the formation of a pact, while others (most, in fact) did not. In practice, this leads to computationally unmanageably large data sets. For example, if one had 100 countries in a data set, all combinations of 100, 99, 98, 97, ..., down to 2 countries would result in a data set of 1.26765×10^{30} observations!

For this reason, Poast (2010) shows that one can use choice-based sampling to create a feasibly sized sample of ‘non-event’ k -ads. Choice-based sampling entails creating a random sample of ‘non-event’ observations that are stratified according to the distribution of observations in which the event occurred. How many ‘non-event’ observations should the analyst collect? According to (King & Zeng, 2001: 702), one can collect anywhere from two to five times more non-event observations as event observations. Consider a simple example. Suppose the ‘event’ k -ads data set from step one contains 100 dyads that formed a pact (i.e., there were 100 bilateral nonaggression pacts formed) and 50 triads that formed a pact (i.e., there were 50 trilateral nonaggression pacts formed). If this is the case, the ‘non-event’ sample could contain 200 dyads that did not witness the formation of a pact and 100 triads that did not witness the formation of a pact. Stated differently, if one is working with a binary dependent variable (where the dependent variable, Y , equals 1 when the event occurred, zero otherwise), then the final data set will have 100 dyads where $Y = 1$, 50 triads where $Y = 1$, 200 dyads where $Y = 0$, and 100 triads where $Y = 0$.

We can now combine the ‘event’ and ‘non-event’ k -ads. In our case, we use the 137 nonaggression pact formations as our event k -ads. The dependent variable is *Nonaggression pact formation*, a binary coded with a 1 in year t for k -ad i , when k -ad i formed a nonaggression pact in year t . Next, we create a random sample of $2 \times 137 = 274$ k -ads that did not witness the formation of a nonaggression pact.¹² The distribution of these 274 k -ads is approximately the same as the k -ads that witnessed nonaggression pact formation. We next create a data set with a panel structure, such that the unit of analysis is the k -ad-year. It

¹² We randomly sample only from those k -ads that are made up of countries that exist in the international system in a given year.

should be noted that our panel data set is unbalanced, as each k -ad only has yearly values in the years in which each state in a k -ad was a member of the international system. Once we set the data for survival analysis (meaning we disregard observations following the formation of a nonaggression pact), we have a total of 11,207 observations.

Key independent variable: rivalry cessation density

We rely on the ‘strategic rivals’ concept of Thompson (2001) and Colaresi, Rasler & Thompson (2007) to identify when states view one another as rivals and when that rivalry ends. Thompson (2001) and Colaresi, Rasler & Thompson (2007) draw upon diplomatic and political histories of individual states’ foreign policy activities to determine when decision-makers perceived one another as rivals. Thompson identifies 173 rivalries between 1816 and 2001, covering a wide range of states, such as Afghanistan and Pakistan (1947-79), Britain and Germany (1896-1918), Chad and Libya (1966-1994), and the Soviet Union and the United States (1945-89). We use all rivalries in the Thompson data.

In our main specifications, we focus on rivalries that have ended in the 10 years prior to the year of interest.¹³ If we were working with solely dyadic data, the identification of rivalry cessation would be quite straightforward: if states i and j ended their rivalry in the prior 10 years, then a *rivalry cessation* variable could take on a value of 1. Because our data has a k -adic structure, we must identify the influence of rivalry cessation within each k -ad.

In coding our key independent variable, we can also make a more general contribution: the tools of network analysis offer a principled approach for coding the characteristics of a group of states.¹⁴ More directly to this study, network analysis can provide guidance for coding the extent to which rivalry cessation influences nonaggression pact formation within a k -ad. We conceptualize a single k -ad as a network. Because some (but not necessarily all) members of the k -ad could have been rivals and some (but not necessarily all) of these

¹³ Only in one case in our data did a rivalry termination and non-aggression pact formation occur in the same year.

¹⁴ See generally Maoz (2009); Lupu & Traag (2013).

rivalries could have ended in the prior 10 years, we can use the network’s *density* of rivalry cessation to capture the influence of rivalry cessation in this k -ad. Network density is the proportion of possible connections that are actually present in a network (Wasserman & Faust 1994: 101, Maoz 2010: 40). More precisely, for each k -ad h in year t , we measure the *Rivalry cessation density*, $D_{t,h}$, which is defined as:

$$D_{t,h} = \frac{2E_{t,h}}{N_{t,h}(N_{t,h} - 1)} \quad (1)$$

where $E_{t,h}$ is the number of rivalries that ended in the prior 10 years and $N_{t,h}$ is the number of states in the k -ad-year. *Rivalry cessation density* is therefore a ratio between the rivalries that have ended in the group of states in the past 10 years and the total number of possible dyadic ties in the group. For example, in a simple dyad, *Rivalry cessation density* would be equal to 1 if the dyad had ended a rivalry in the past 10 years and 0 otherwise. In a group of three states A, B, and C in which states A and B had ended a rivalry in the past 10 years, *Rivalry cessation density* would be equal to 1/3. In a group of seven states in which 2 pairs of states had ended rivalries in the past 10 years, *Rivalry cessation density* would be equal to 0.095 (or 2/21). Overall, this variable has a value ranging from zero (no rivalries ceased) to one (all of the states in the k -ad were rivals and ended their rivalries). As described below, we can conduct additional analysis to demonstrate the extent to which our results are sensitive to the choice of a 10-year lag.

Descriptive analysis

We begin with a look at the raw data. A simple cross tabulation appears to support our hypothesis regarding the relationship between rivalry cessation and nonaggression pact formation (Table I). For the 10,531 k -ad years that did not witness the formation of a nonaggression pact, the average value of *Rivalry cessation density* is 0.007. In contrast,

for the 137 k -ad years that witnessed the formation of a nonaggression pact, the average value of *Rivalry cessation density* is 0.037, a four-fold increase in the observed likelihood of nonaggression pact formation. The difference between the two rates is statistically significant from zero at the 0.99 confidence level. This is consistent with our primary hypothesis: ending a rivalry is associated with an increased likelihood that a group of states will form a nonaggression pact. Table II provides additional summary information regarding our sample and key variables. Several points about the data are worth noting. The first is that, while most (123) nonaggression pacts are bilateral, the 14 multilateral nonaggression pacts involve a total of 105 members. Of these 14 multilateral nonaggression pacts, 4 involve at least one pair of former rivals. In a purely dyadic model, these multilateral nonaggression pacts would be broken apart into many separate dyadic outcomes. Many of dyads would not be coded as former rivals, but in reality have joined a nonaggression pact with other dyads who are former rivals. If and to the extent such a former rivalry affected the nonaggression pact formation process, such a model would be ill-suited to capturing that effect.¹⁵ Finally, Table II indicates that *Rivalry cessation density* tends to be larger in smaller k -ads.

[TABLES I AND II HERE]

While useful, the results in Tables I and II do not account for potentially confounding variables. Multivariate analysis enables us to account for potential complications in the data that can undermine conclusions based on simply observing the data. Therefore, we now turn to describing our control variables before presenting the results from our multivariate analysis.

Control variables

We control for several additional variables that may confound the relationship identified in Table II. First, we control for the number of members in the k -ad. As Table II

¹⁵ We discuss this point in further detail in the Appendix

suggests, *Rivalry cessation density* tends to be smaller in larger k -ads, and this could bias our results.¹⁶ Because nonaggression pacts are associated with a reduced probability of conflict onset (Long, Nordstrom & Baek, 2007; Mattes & Vonnahme, 2010), it might be the case that experiencing a conflict in the recent past can increase the likelihood of nonaggression pact formation. Therefore, we control for the proportion of k -ad members that fought a MID against one another in the previous 10 years. We note that China and the Soviet Union/Russia formed more nonaggression pacts than any other states. To test whether the relationships we estimate are driven by these two outliers, in Model 3 we add indicators for whether these states are members of the applicable k -ad.

In Model 4, we add several controls common to the alliance formation literature. Although we, and others, have argued that nonaggression pacts are distinct from alliances in important ways, others may view these pacts as types of alliances. We therefore control for the presence of common threats, which might influence states' likelihood of forming alliance and/or nonaggression pacts. We draw from the Thompson data to create a measure of threat density, meaning the proportion of the k -ad's dyadic combinations that share a threat. If $k = 2$ (meaning the group is a dyad), then the threat density can be equal to 0 (meaning the one possible dyadic combination from this k -ad does not share a threat) or 1 (meaning the one possible dyadic combination from this k -ad does share a threat). If the $k = 3$, then the threat density can take on a host of values. Three states (A, B, and C) generate three possible dyadic combinations (A-B, A-C, B-C). Hence, if state A and B share a threat and states A and C share a threat, but B and C do not share a threat, then the threat density is 2/3.

Regime type is thought to have important relationships with both the probability of conflict and rivalry between states and their likelihood of military cooperation (Siverson & Emmons, 1991; Leeds, 1999; Lai & Reiter, 2000; Gibler & Wolford, 2006). We control for this in two ways. Much of the alliance formation literature controls for the lower of a dyad's

¹⁶ Our results are robust to the exclusion of this variable.

Polity IV scores, and we control for the lowest score in the k -ad. States with very different regime types may be more likely to be rivals and may also be unlikely to form alliances (Lai & Reiter, 2000). We therefore control for the largest dyadic difference in Polity scores in the k -ad.

States with similar foreign policies may be less likely to be rivals, but more likely to be allies. We follow many recent studies (Lai & Reiter, 2000; Gibler & Wolford, 2006; Gibler, 2008; Fordham, 2010) by addressing this by controlling for the Signorino & Ritter (1999) S score of foreign policy similarity. Like Fordham & Poast (Forthcoming, 2015), we operationalize this for the k -adic unit of analysis by using the mean S score of all the dyads in the k -ad.

We include a measure of geographic distance between k -ad members. States that are geographically closer together are more likely to be rivals, whereas distant states may be less likely to form nonaggression pacts because a conflict between them is unlikely. For each dyad in the k -ad, we measure the square root of the capital-to-capital distance (Singer & Small, 1982), unless states are contiguous, in which case distance is set to 0. We convert these measures by following the ‘weakest link’ principle of Oneal & Russett (1997) and including in our model the geographic distance between the most distant pair of states in the k -ad (Poast, 2010).¹⁷

To control for the power of the states in the k -ad, we use the total Composite Index of National Capabilities (CINC) score (Singer, Bremer & Stuckey, 1972) of the k -ad member and its square . As Riker (1962) argues generally and Fordham & Poast (Forthcoming, 2015) argue is the case with respect to alliance formations, the participants of a pact should seek to reach an optimal level of military capabilities, but not aggregate beyond it. This implies that additional capabilities, via additional members to a pact, can raise the probability of formation, but only up to a point, after which they may lower such probability.

¹⁷ Fordham & Poast (Forthcoming, 2015) also include the proportion of contiguous states in the k -ad, but find this variable to be statistically insignificant.

Multivariate analysis results

We test our hypothesis using survival (event history) analysis. The central concept in survival analysis is the hazard function or hazard rate, $h(t)$. The hazard rate typically has the following form: $h(t|x) = h_0(t) \exp^{x\beta}$ where $h_0(t)$ is the baseline hazard rate and $x\beta$ denotes the covariates and coefficients on these covariates. This is the probability that an event will occur at a particular point in time given a set of covariates and that the event has yet to occur. For our purposes, the event in question is the formation of a nonaggression pact. The hazard rate has two components. The first is a set of covariates that are hypothesized to systematically affect the timing of an event. The second is the baseline hazard function that indicates the rate of event occurrence when all the covariates are zero, that is, the baseline hazard reflects how the rate of event occurrence changes with time only.

We employ a Cox proportional hazard model with time-varying covariates as this allows us to estimate the effect of the covariates on the hazard rate without requiring us to specify a particular parametric form for the baseline hazard. According to our argument, the cessation of a rivalry is an important determinant of nonaggression pact formation. This means the absence of rivalry cessation from a k -ad serves as the baseline case, with a higher rates of cessation leading to a higher probability of nonaggression pact formation.

An important assumption underpinning the use of hazard models, particularly the Cox model, is the proportional hazards assumption. This assumption holds that the effect of the covariates in the specified model does not change over time (Box-Steffensmeier & Jones, 2004). A Schoenfeld residual test indicates that we are not violating this assumption, as we fail to reject the null hypothesis of no relationship between the residuals and time (chi-squared statistic of 8 with 11 degrees of freedom and a p -value of 0.71).

Table III reports the results from several hazard models. Models (1) through (4) progressively add control variables in order to illustrate the insensitivity of the coefficient on *Rivalry cessation density* to the addition of controls.

[TABLE III HERE]

Across all five models, the *Rivalry cessation density* hazard ratio remains large, positive, and statistically significant (at the 0.99 confidence level). We use Model 4 to consider the hazard ratio associated with *Rivalry cessation density*. A hazard ratio of 2 would suggest that a one-unit change in *Rivalry cessation density* would increase the likelihood of nonaggression pact formation by 100 percent. Using Model 4, the hazard ratio associated with *Rivalry cessation density* is 5.16, indicating that going from no rivalry cessations to a *Rivalry cessation density* of 1 will result in a 416% increase in the probability of nonaggression pact formation.

Robustness tests

We estimate several additional models to test the robustness of our results. First, we begin by testing the robustness of our focus on *Rivalry cessation density* in the preceding 10 years by estimating models that change this time period to 5 years and 15 years. Second, some nonaggression pacts include multiple members that were already joint members of another nonaggression pact. We estimate a robustness test that controls for the proportion of the k -ad members that were previously members of a pact. Third, because the nonaggression pacts that contain more than 5 members appear to be outliers in the data, and therefore may result from qualitatively different formation processes, we estimate a robustness test that excludes these pacts from the data. Finally, we estimate a robustness test that accounts for five cases in which dyads formed more than one nonaggression pact (e.g., the Soviet Union/Russia and Lithuania in 1926 and 1991). The results of these models, reported in the Appendix, are consistent with our main models.

Conclusions

Existing studies of nonaggression pacts have explained much about the effects of these agreements by focusing on their function as devices by which states commit to refraining from hostile activities toward each other. This article builds on this literature by directly focusing on the nonaggression pact formation process. We have argued that, in addition to their function as a commitment device, nonaggression pacts can also be used as a signaling device.

When interstate rivalries end, the leaders of those states face an important dilemma. Previously, the probability of conflict between their states was relatively large, but the end of the rivalry has decreased it significantly. Outside actors, both domestically and internationally, are nonetheless concerned that the rivalry may soon resume. Without the information the leaders have, other actors may continue to estimate the likelihood of future conflict as relatively large. To overcome this information asymmetry, leaders use nonaggression pacts to signal that the rivalry has truly ended and that they intend to refrain from future conflicts.

Yet the nonaggression pact formation process is not purely bilateral. Nonaggression pacts sometimes include more than 2 states, and we may not fully observe the extent to which the formation processes for pacts that become bilateral considered including additional states. As a result, a group of states of 2 or more is likely to form a nonaggression pact when the group contains a relatively dense network of recently ended rivalries. We combine a k -adic research design with a network analytic measurement strategy to test this theory. Across a range of model specifications, we find support for the hypothesis that groups of states with greater Rivalry cessation density are more likely to form nonaggression pacts.

Our article contributes to a broader understanding of how network analysis tools can be used in international relations research. As discussed in the Introduction to this Special Issue, one application of network analysis is as a measurement tool, which can be used to estimate the properties of individual states or groups of states in the system, while accounting for the structure of the system. One of the challenges of using k -adic data is determining

the most appropriate operationalization of variables, especially when properties of the k -ad are being operationalized.¹⁸ As our approach to operationalizing rivalry and threat within a k -ad demonstrates, network analysis provides a set of tools that take into account the structure and full set of relationships within the k -ad and can be used to measure important aspects of the k -ad. We hope others using k -adic data will continue to integrate the use of network analytic tools.

Our arguments and evidence suggest several areas for further research. First, like Mattes & Vonnahme (2010), we believe that nonaggression pacts are analytically similar to peace treaties and cease-fires. The literature on those institutions indicates that the involvement of third-parties is crucial to both the formation of the institution and its success (Fortna, 2004). In addition, as we have argued, the nonaggression pact formation process is often multilateral. Third parties may therefore play important roles in the formation and effects of nonaggression pacts even when they are not members of such pacts. A pair of states, for example, may be more likely to form a nonaggression pact when a third-party state makes an informal (or even tacit) commitment to confer some benefits upon those states for maintaining peaceful relations or a commitment to helping the nonaggression pact members-states maintain the peace. In other words, the role of third-parties in nonaggression pacts may be far more complex than what we can explore in the space of this article.

Second, our argument also has broader implications for researchers interested in alliances. While preventing conflicts between alliance members and non-members is an important function of alliances, many argue that states use alliances for an alternative purpose: to manage conflicts *between* allies (Gelpi, 1999; Weitsman, 2004; Pressman, 2008). Yet the empirical literature on the effects of alliances offers conflicting findings. For example, Lai & Reiter (2000) find that conflictual relations reduce the probability of alliance formation, Gibler (2008) find that conflictual relations increase the probability of alliance formation, and Cranmer, Desmarais & Menninga (2012) find that conflictual relations have no influence

¹⁸ This is, of course, also a challenge when using dyadic data, but in that context the options (e.g., minimum, mean, maximum, ratio) are fewer.

on the probability of alliance formation. We hope to shed light on this debate and build on this article by directly comparing nonaggression pacts, alliances that contain nonaggression provisions, and alliances with no nonaggression provisions. By analyzing the ways in which the formation processes of these three institutions differ, we hope to better understand the extent to which their effects on conflict may differ.

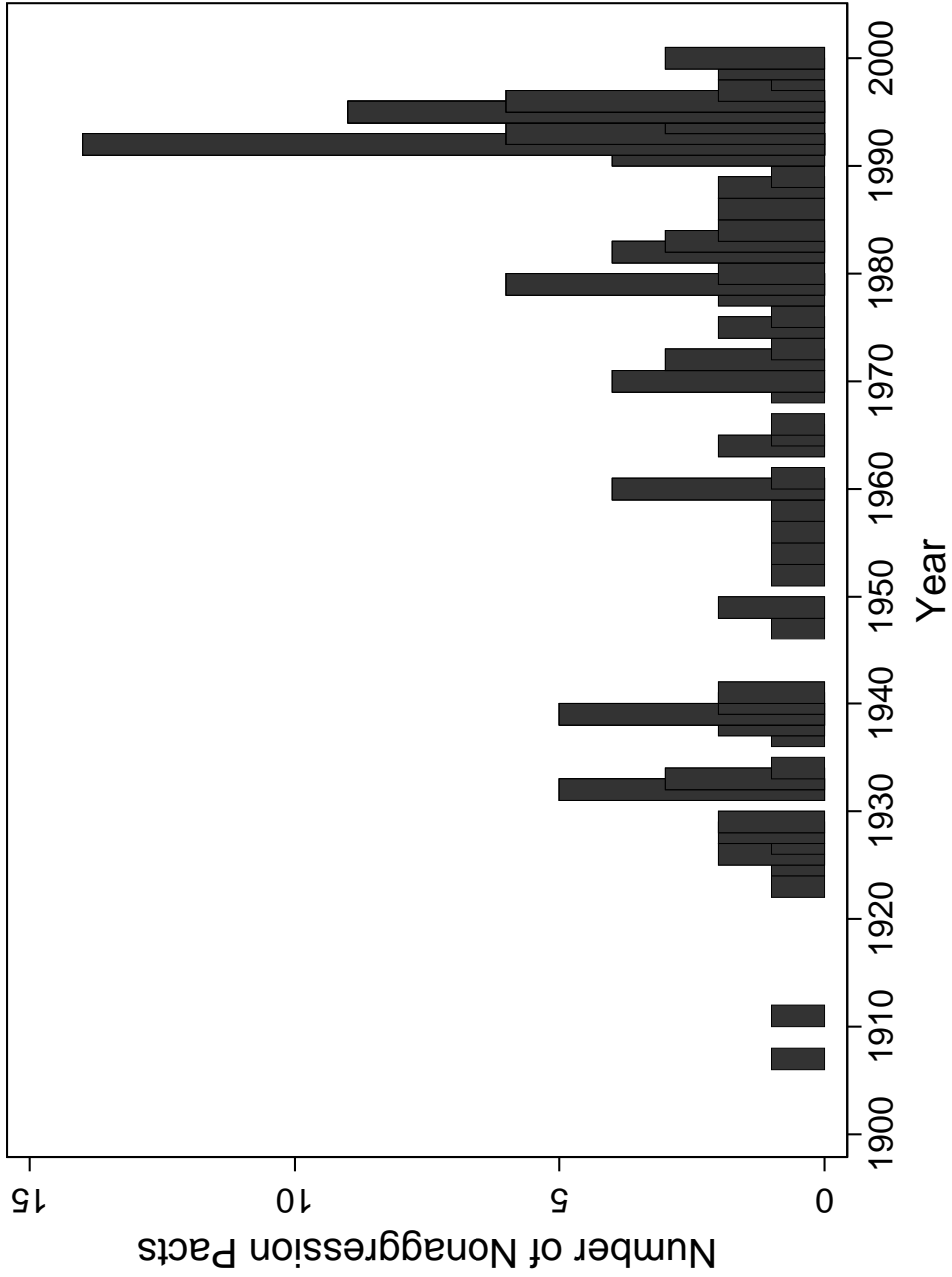


Figure 1. Nonaggression pact formations, 1900 to 2001 (by year)

Table I. Relationship between nonaggression pact formation and rivalry cessation density

	Nonaggression pact formation	
	Yes	No
Average rivalry cessation density	0.037 N=137	0.007 N=10,531

Note: Difference in means is statistically significant at the 0.99 confidence level (two-tailed t-test).

Table II. Nonaggression pact formations by k-ad Size

<i>K</i> -ad Size	Mean rivalry cessation density	Nonaggression pacts	Total nonaggression pact members	Nonaggression pacts with at least 1 pair of former rivals
2	0.007	123	246	11
3	0.000	5	15	0
4	0.000	1	4	0
5	0.002	4	20	1
> 5	3.26E-6	4	66	3

Table III. Nonaggression pact formation, survival analysis

	(1) Base model	(2) + Key controls	(3) + Russia and China fixed effects	(4) + Other controls
<i>Main explanatory variable</i>				
Rivalry cessation density in past 10 years	6.55** (3.62)	6.09** (3.32)	6.16** (3.42)	5.16** (2.89)
<i>Key control variables</i>				
Number of members		1.09** (0.03)	1.09** (0.03)	1.23** (0.04)
Proportion of k -ad members fought a MID against one another in the past 10 years		1.96** (0.42)	1.75* (0.41)	1.25 (0.29)
Russia			0.92 (0.23)	1.16 (0.48)
China			1.78 (0.53)	1.87 (0.76)
<i>Controls common to alliance studies</i>				
Total CINC				34.61 (132.05)
Total CINC ²				0.00* (0.00)
Maximum distance				1.00** (0.00)
Maximum Polity difference				1.04* (0.02)
Minimum Polity				1.02 (0.02)
Mean S				4.29** (2.40)
Number of observations	10,668	10,668	10,668	10,499

* $p < 0.05$, ** $p < 0.01$

Standard errors computed by $exp(\beta) * se(\beta)$, where β is the coefficient that produced the reported hazard ratio.

Test of proportional hazard assumption (Model 4) produces p -value of 0.71, indicating no violation of the assumption.

References

- Axelrod, Robert & Robert O Keohane (1985) Achieving cooperation under anarchy: Strategies and institutions. *World Politics* 38(1):226–254.
- Box-Steffensmeier, Janet M & Bradford S Jones (2004) *Event history modeling: A guide for social scientists*. New York: Cambridge University Press.
- Colaresi, Michael P; Karen Rasler & William R Thompson (2007) *Strategic rivalries in world politics: position, space and conflict escalation*. New York: Cambridge University Press.
- Cranmer, Skyler J; Bruce A Desmarais & Elizabeth J Menninga (2012) ‘Complex Dependencies in the Alliance Network.’ *Conflict Management and Peace Science* 29(3): 279–313.
- Fang, Songying, Jesse C Johnson & Brett Ashley Leeds (Forthcoming, 2015) To Concede or To Resist? The Restraining Effect of Military Alliances. *International Organization* .
- Fordham, Benjamin O (2010) Trade and asymmetric alliances. *Journal of Peace Research* 47(6): 685–696.
- Fordham, Benjamin & Paul Poast (Forthcoming, 2015) All Alliances are Multilateral. *Journal of Conflict Resolution*.
- Fortna, Virginia Page (2004) *Peace time: Cease-fire agreements and the durability of peace*. Princeton: Princeton University Press.
- Gaddis, John Lewis (2006) *The Cold War: A New History*. London: Penguin Books.
- Gelpi, Christopher (1999). Alliances as Instruments of Intra-allied Control. In: Helga Haftendorn, Celeste Wallander & Robert Keohane (eds.) *Imperfect Unions: Security Institutions over Time and Space*, ed. Helga Haftendorn & Celeste Wallander and Robert Keohane. New York: Oxford University, 107–39.

- Gibler, Douglas M (2008) The Costs of Reneging Reputation and Alliance Formation. *Journal of Conflict Resolution* 52(3): 426–454.
- Gibler, Douglas M & Meredith Reid Sarkees (2004) Measuring alliances: The correlates of war formal interstate alliance dataset, 1816–2000. *Journal of Peace Research* 41(2): 211–222.
- Gibler, Douglas M & Scott Wolford (2006) Alliances, then democracy an examination of the relationship between regime type and alliance formation. *Journal of Conflict Resolution* 50(1): 129–153.
- Goertz, Gary & Paul F. Diehl (1993) Enduring rivalries: Theoretical constructs and empirical patterns. *International Studies Quarterly* 37(2): 147–171.
- Dotan Haim (2016) Alliance Networks and Trade: The Effect of Indirect Political Alliances on Bilateral Trade Flows. *Journal of Peace Research*.
- King, Gary & Langche Zeng (2001) Logistic Regression in Rare Events Data. *Political Analysis* 9(2): 137–163.
- Kinne, Brandon (2016) Agreeing to Arm: Bilateral Weapons Agreements and the Global Arms Trade. *Journal of Peace Research*.
- Lai, Brian & Dan Reiter (2000) Democracy, political similarity, and international alliances, 1816-1992. *Journal of Conflict Resolution* 44(2): 203–227.
- Lake, David A (1999) *Entangling relations: American foreign policy in its century*. Princeton: Princeton University Press.
- Leeds, Brett Ashley (2005) Alliances Treaty Obligations and Provisions (ATOP) Codebook. *Version 3.0*.
- URL:** <http://atop.rice.edu/download/ATOPcdbk.pdf>

- Leeds, Brett Ashley (1999) Domestic Political Institutions, Credible Commitments, and International Cooperation. *American Journal of Political Science* 43(4): 979–1002.
- Leeds, Brett Ashley & Burcu Savu (2007) Terminating alliances: Why do states abrogate agreements? *Journal of Politics* 69(4): 1118–1132.
- Leeds, Brett Ashley; Jeffrey M Ritter, Sara L Mitchell & Andrew Long (2002) Alliance Treaty Obligations and Provisions, 1815-1944. *International Interactions* 28(3): 237–260.
- Long, Andrew G; Timothy Nordstrom & Kyeonghi Baek (2007) Allying for peace: treaty obligations and conflict between allies. *Journal of Politics* 69(4): 1103–1117.
- Lupu, Yonatan & Vincent A Traag (2013) Trading communities, the networked structure of international relations, and the Kantian peace. *Journal of Conflict Resolution* 57(6): 10111042.
- Maoz, Zeev (2009) The effects of strategic and economic interdependence on international conflict across levels of analysis. *American Journal of Political Science* 53(1): 223240.
- Maoz, Zeev (2010) *Networks of Nations: The Evolution, Structure, and Impact of International Networks, 1816–2001*. New York: Cambridge University Press.
- Mattes, Michaela & Greg Vonnahme (2010) Contracting for Peace: Do Nonaggression Pacts Reduce Conflict? *The Journal of Politics* 72(4): 925–938.
- Michon, Georges (1969) *The Franco-Russian Alliance, 1891-1917*. London: Allen & Unwin.
- Morrow, James D (2000) Alliances: Why Write Them Down? *Annual Review of Political Science* 3(1): 63–83.
- Oneal, John & Bruce Russett (1997). The Classical Liberals Were Right: Democracy, Interdependence, and Conflict, 1950-1985. *International Studies Quarterly* 41(2): 267–293.

- Poast, Paul (2010) (Mis) Using Dyadic Data to Analyze Multilateral Events *Political Analysis* 18(4): 403–425.
- Pressman, Jeremy (2008) *Warring Friends: Alliance Restraint in International Politics*. Ithaca: Cornell University Press.
- Rasler, Karen; William R Thompson & Sumit Ganguly (2013) *How Rivalries End*. Philadelphia: University of Pennsylvania Press.
- Riker, William H (1962) *The Theory of Political Coalitions*. New Haven: Yale University Press.
- Signorino, Curtis S & Jeffrey M Ritter (1999) Tau-b or Not Tau-b: Measuring the Similarity of Foreign Policy Positions. *International Studies Quarterly* 43(1): 115–144.
- Singer, J David & Melvin Small (1982) *Resort to Arms*. Beverly Hills: Sage.
- Singer, J David; Stuart Bremer & John Stuckey (1972) Capability Distribution, Uncertainty, and Major Power War, 1820-1965. In: Bruce Russett (ed.) *Peace, War, and Numbers*., ed.. Beverly Hills: Sage, 19–48.
- Siverson, Randolph M & Juliann Emmons (1991) Birds of a Feather: Democratic Political Systems and Alliance Choices in the Twentieth Century. *Journal of Conflict Resolution* 35(2): 285–306.
- Smith, Alastair. (1995) Alliance formation and war. *International Studies Quarterly* 39(4): 405–425.
- Thompson, William R (2001) Identifying rivals and rivalries in world politics. *International Studies Quarterly* 45(4): 557–586.
- Walt, Stephen M (1987) *The Origins of Alliance*. Ithaca, NY: Cornell University Press.
- Waltz, Kenneth N (1979) *Theory of International Politics*. New York: McGraw-Hill.

Warren, T Camber (2016) Modeling the Co-Evolution of International and Domestic Institutions: Alliances, Democracy, and the Complex Path to Peace. *Journal of Peace Research*.

Wasserman, Stanley & Katherine Faust (1994) *Social Network Analysis: Methods and Applications*. New York: Cambridge University Press.

Weitsman, Patricia A (2004) *Dangerous Alliances: Proponents of Peace, Weapons of War*. Palo Alto: Stanford University Press.

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