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### Militants and Mixed Messages: The Effect of Sponsor Ambiguity on Insurgent Ideology and Networks

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## **Abstract**

While material resources have been the dominant focus of research on drivers of factional dynamics within insurgent movements, recent studies have shown that ideology also plays an important role. We address the interaction of material and ideological factors by theorizing and empirically investigating how state sponsorship impacts ideological diversity and patterns of cooperation and conflict in insurgent movements. When a movement relies upon a single state sponsor, conformance to the sponsor's preferences might be thought to render ideology irrelevant. However, we argue that when the state sponsor's position on an ideological dimension is ambiguous, then militant cooperation and conflict will be structured by ideological similarity (homophily) on that dimension. Conversely, sponsor clarity inhibits homophily. We test our theory on the Russia-backed insurgency in eastern Ukraine using an innovative empirical and methodological approach that combines an event and ideology database built from news articles and social media posts with signed network analysis. By analyzing an ideological dimension for which Russia's position was ambiguous and one for which it was clear, we find support for the hypothesized homophily-promoting and inhibiting effects of sponsor ambiguity and clarity, respectively.

# Introduction

State sponsors provide resources to insurgent groups, such as arms, funds, training, and safe havens, that greatly enhance their military capabilities. Scholars have shown that these resources shape militant infighting dynamics as material concerns affect patterns of conflict and cooperation (Bapat & Bond, 2012; Tamm, 2016; Popovic, 2018; Bakke, Cunningham, & Seymour, 2012; Christia, 2012). Yet we still know little about how sponsor ideology affects militant dynamics, despite recent work emphasizing the importance of ideology in understanding fragmented civil conflicts (Gade, Hafez, & Gabbay, 2019; Gade, Gabbay, Hafez, & Kelly, 2019). In conflicts where external support is pivotal, analysis guided by prevailing rationalist and materialist perspectives on insurgent behavior would overlook the potential importance of ideology for intergroup dynamics. Such thinking would hold that militant factionalism is driven by competition for the material advantages offered by state sponsor support. Ideology would at best serve as a rhetorical cloak of little import to insurgent decision making. Yet, in this article, we show that ideology does indeed shape militant factionalism in a sponsorship context where it would be least expected to do so — an insurgent movement critically dependent upon the support of a single state sponsor. In fact, for the case we consider, Eastern Ukraine, the dependence upon Russia was so deep that in addition to the flow of arms and money, key leaders of the insurgency had backgrounds in Russian intelligence services and, ultimately, Russia's direct military intervention was required to stave off the movement's defeat.

The single state sponsor context we treat here is a particular case within the broader research question of how state sponsorship and ideology interact to shape the dynamics between militant groups. The single state case is a hard test of whether and how ideology matters for fragmented insurgent movements (i.e. movements with multiple, independent groups). For ideology to matter in this case would be puzzling from the power-centric orientation that dominates research on fragmented movements. Important works emphasize the distribution of power and its implications for organizational survival (Christia, 2012; Bakke et al., 2012; Krause, 2017). This power-centric focus also is prevalent in works on state sponsorship in fragmented movements, which examine the ability of a state sponsor to selectively reward and punish insurgent factions in order to induce their cooperation or perhaps encourage fragmentation (Bapat & Bond, 2012; Tamm, 2016; Popovic, 2018).

Consistent with the materialist perspective on intrastate conflict, external sponsor-

ship has been shown to be a crucial factor in insurgencies and civil wars, extending their duration and increasing the likelihood of conflict recurrence (Byman, Chalk, Hoffman, Rosenau, & Brannan, 2001; Brandt, Mason, Gurses, Petrovsky, & Radin, 2008; Cunningham, 2010; Regan, 2002; Sawyer, Cunningham, & Reed, 2017; San Akca, 2016; Karlén, 2017). However, a growing body of scholarship has also shown the importance of ideology to a range of militant behaviors such as recruitment and attacks against civilians (Costalli & Ruggeri, 2015; Hirose, Imai, & Lyall, 2017; Leader Maynard, 2019). For fragmented movements in particular, recent work has shown that ideology shaped networks of cooperation and conflict among insurgent groups in the Syrian civil war (Gade, Gabbay, et al., 2019; Gade, Hafez, & Gabbay, 2019).

In this article, we present a theory for whether and how ideology structures patterns of insurgent conflict and cooperation when state sponsorship is crucial for group survival. We then test the theory for the case of a single state sponsor, the situation in which ideology would be thought least likely to matter. In this case, logic suggests that ideology should not shape the militant network as the only viable militant groups should be those whose stated ideology matches the positions of the external sponsor, therefore garnering material support and living to fight another day against either the state or their fellow rebels. However, we theorize that there is still room for a window of ideological variation in the single state sponsor case. We argue that, as ideology is multidimensional, if there are dimensions of ideology along which the external state sponsor is ambiguous, militant groups can differentiate themselves along those lines while still receiving external material support. Those ideological differences then shape patterns of intra-movement cooperation and conflict.

This paper makes theoretical, empirical, and methodological contributions to the literature on insurgencies and civil wars. Our theoretical explanation for how ideology can impact insurgent factional dynamics in the presence of an external state sponsor integrates ideological homophily, the disaggregation of ideology into separate components, and state sponsor ambiguity regarding an ideological component. Ideological homophily implies that ideologically similar groups will have higher rates of cooperation whereas ideologically dissimilar groups will have higher rates of conflict. The disaggregation of ideology considers how militants frame the conflict (which has been shown to be mobilizing in other post-Soviet conflicts; see Shesterinina (2016)), their idealized post-conflict

order for state and society, and their desired territorial domain. We argue that not all components of militant ideology will matter all the time. We theorize that, in the presence of a single external sponsor, the components of ideology about which the sponsor is ambiguous will matter most in structuring patterns of conflict and cooperation. When an external sponsor is clear about a component of militant ideology, then we expect that component will not generate homophily.

Empirically, we test our hypotheses using a network analysis of media reports about the conflict in Eastern Ukraine, with data from February 2014 to August 2017. We code these media reports for episodes of conflict or cooperation between militant actors, which we use to construct the network, as well as statements of ideology by the actors, which we use to code actor positions on the ideological components. The anti-government insurgents were actively supported from the early stages of the conflict by the Russian government, whose position was clear on the dimensions of ideology involving framing the conflict and sociopolitical order. But Russia was initially ambiguous about its designs concerning the territorial status of the regions under contention.

Methodologically, we use an innovative framework based upon signed networks. Signed networks provide an integrated representation of cooperation and conflict that has not previously been employed to analyze insurgent movements. Community structure algorithms are used to reveal clusters in networks, which for the signed network case are marked by increased intracommunity cooperation and increased intercommunity conflict. This structure can then be tested for significant statistical relationships with the ideological components. Additionally, we employ an analysis based on the network concept of assortativity, a measure of homophily. Random permutations of the signs of existing network ties produce a null distribution for comparison with the observed assortativity. The application of these community structure and assortativity analyses to signed networks is, to our knowledge, a novel contribution to the political science literature in general. Finally, we also apply exponential random graph modeling to the separate positive and negative tie networks.

We test for homophily in the Ukraine case along two ideological dimensions, one in which the state sponsor's position was ambiguous and one for which it was clear. The ambiguous dimension involved militant territorial aspirations, specifically the annexation or independence of Novorossiia, an idealized, largely Russian-speaking region that some

insurgents sought to break away from the Ukrainian state. We find that clustering in the combined cooperation-conflict network is indeed predicted by militant proximity with respect to the level of support for Novorossiia. This finding not only supports our theory but also, more generally, further demonstrates ideology's importance to insurgent factionalism.

The ideological dimension on which Russia expressed a clear position was its conflict frame of "Russia vs. the West". Our theoretical prediction that homophily will not be present along this unambiguous component is borne out empirically. Surprisingly, however, not only is homophily absent but its opposite is present, heterophily, a tendency for militants who are more distant along the conflict frame dimension to have better relationships. While this heterophily finding goes beyond our theoretical expectations, it is consistent with the theory's characterization of ideological components with clear sponsor positions as being rhetorical in nature as opposed to the actionable nature of sponsor-ambiguous components.

We proceed by first presenting our theory, which also encompasses cases when multiple state sponsors are present. We then discuss the insurgency in eastern Ukraine, focusing on militant and Russian ideological positions. Next, we describe the data and variables we use to construct militant network ties and ideological positions. Our community structure and assortativity analysis methods are then presented, followed by the empirical findings resulting from their application. The conclusion includes a sketch of potential similarities between Russia's support for eastern Ukrainian insurgents with the United States' support for the Contra rebels in Nicaragua in the 1980s.

## **Theorizing Sponsorship, Ideology, and Militant Structure**

External sponsors, particularly states, can dramatically improve the fighting ability of an insurgent group, and so it is not surprising that their importance to insurgent movements is well established in the literature. Recent work on this topic focuses on how an external sponsor may shape the behavior of an insurgent group, or why sponsors choose to back one group out of many possible options. Tamm (2016) argues that an external sponsor shapes behavior with the implicit threat of denying resources to an insurgent group it supports;

it can always punish undesirable behavior by insurgent leaders by re-allocating resources to the leaders' rivals within the insurgent movement or the group itself. This behavior is likely more pronounced when the movement has only one sponsor who is therefore free to search for and reward its ideal insurgent partners. Indeed, Sinno (2008, p. 248) argues that a single external sponsor will lead to a centrally controlled insurgent movement, while sponsorship from multiple sponsors is valuable to insurgent groups because it "shields the beneficiary organization from the abrupt cessation of aid if one sponsor decides to withhold support." Reaching a similar conclusion about multiple sponsors, Lidow (2016) argues that the presence of more than one external sponsor will increase the bargaining power of an insurgent group, which may explain why in Syria, a conflict with many external sponsors, sharing a state sponsor did not appear to make groups less prone to fight each other (Gade, Hafez, & Gabbay, 2019). This suggests that the capacity for a state sponsor to control its client groups is substantially diminished when other sponsors are present.

Material factors clearly matter in explaining intergroup dynamics in insurgencies such as infighting, cooperation, alliances, fragmentation, and organizational structure of groups within insurgent movements (Bakke et al., 2012; Christia, 2012; Krause, 2014; Staniland, 2014; Fjelde & Nilsson, 2018). Recent scholarship, however, has begun to temper this power-centric perspective, illuminating the important role played by ideology. Leader Maynard (2019) outlines the microfoundations to understanding how ideology and strategic interest overlap and work together to influence militant behavior. Other recent studies have shown the importance of ideology for explaining how group founders motivate fighters and supporters (Gutiérrez Sanín & Wood, 2014); whether fighters join a rebel group (Costalli & Ruggeri, 2015); the socialization of rebel group members (Ugarriza & Craig, 2013); how groups maintain cohesion (Oppenheim, Steele, Vargas, & Weintraub, 2015); and the distribution of violence against civilians (Hirose et al., 2017). What extant work has not yet resolved, however, is the effect of external state sponsorship on militant ideology and how it impacts group interactions.

We argue that ideological considerations play a role in external sponsors' decisions of which groups within a broad insurgent movement to support. External sponsors will attempt to back the group that best matches their preferences across ideology. In turn, militants will also seek out ideologically compatible sponsors. Consequently, the range of sponsor and militant ideological positions will determine the extent to which ideological

diversity can flourish. This diversity then provides space for ideological homophily to shape networks of insurgent behavior; those who are most similar in terms of ideology will cooperate with each other, while fighting against those who are ideologically dissimilar.

It is important to recognize that ideology is multidimensional and that some dimensions may exhibit homophily while others do not. We employ the framework of Gade, Gabbay, et al. (2019), which highlights three conceptually distinct components of insurgent ideology: (1) *conflict frame*, corresponding to the primary division into in- and out-groups in militant discourse; (2) *ideal polity*, the vision of sociopolitical order espoused by militants; and (3) *territorial aspiration*, the extent to which the domain militants seek to govern severs the territorial integrity of the state.

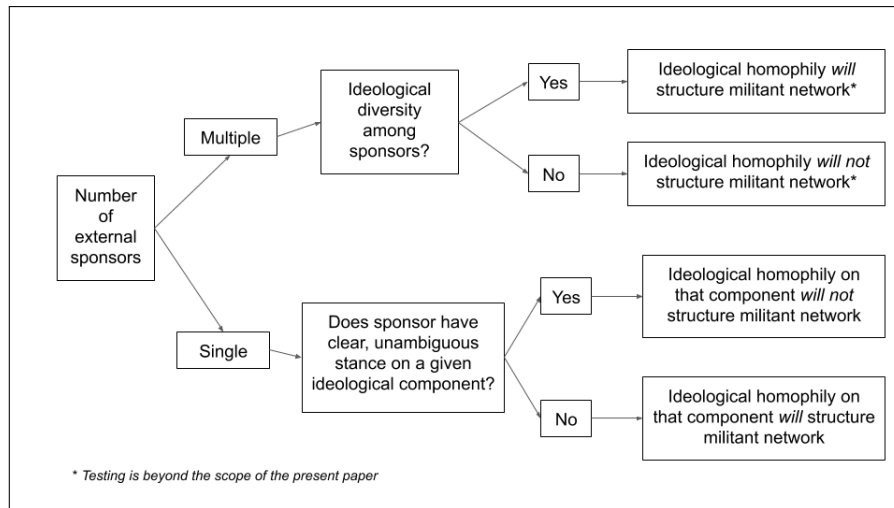


Figure 1: Theory of external sponsorship, ideology, and militant network structure

Our full theory considers the effect of the number of state sponsors and the diversity and clarity of their ideological positions on militant network homophily along ideological components. Figure 1 presents the theory graphically. We assume that state sponsorship is essential to the viability of insurgent groups (either in the fight against counterinsurgents or in competition with fellow militants who receive sponsor support), and so their leaders must take sponsor preferences into account. When there are multiple external state sponsors that disagree on component(s) of insurgent ideology, insurgents can either seek out sponsors with kindred ideological positions, or, more pragmatically, strategically position themselves as ideological partners of the sponsor. As the number of external sponsors and the disagreement among them grows, the potential for ideologically diversity to shape cooperation and conflict within a given anti-state movement also grows. An insurgency is most likely to be comprised of numerous, ideologically varied, powerful groups if

the insurgency has the backing of many different external sponsors that exhibit a great deal of variation in their own ideologies. In this situation, we should most expect to see ideological homophily shaping patterns of insurgent cooperation and conflict. The Syrian civil war serves as evidence in support of this prediction: there were at least five state sponsors of the opposition to the Assad regime, an opposition marked by both ideological diversity and attendant homophily (Gade, Hafez, & Gabbay, 2019; Gade, Gabbay, et al., 2019). In cases where the multiple sponsors have similar and clear ideological positions, we do not expect to observe homophily in the militant network.

But what about when there is only one external sponsor? First blush intuition would hold this as a hard case for ideology to affect conflict and cooperation; competition between militant groups along ideological lines should not be relevant as there is only one “correct” ideology that would earn external sponsor support. Indeed, we theorize that this intuition is warranted but with the caveat that the sponsor’s ideological position is clear; given strong sponsor preferences, only groups operating in a narrow ideological space will thrive. This situation is in line with the expectation from prior work that in a conflict with one external sponsor, that sponsor is free to reward and punish behavior by its client groups, ensuring behavior that is consistent with its preferences (Tamm, 2016; Sinno, 2008; Lidow, 2016; Salehyan, Gleditsch, & Cunningham, 2011). Consequently, a single external sponsor, demanding adherence along a given ideological component, will limit the possibility for this component to explain inter-group dynamics and generate homophily.

Furthermore, a sponsor’s clear position renders an ideological component largely rhetorical: even if its militant clients espouse deviations from this position, the sponsor is unlikely to allow any goals and other tangible implications associated with those deviations from being enacted on the ground if they are inconsistent with the sponsor’s line. The rhetorical nature of the component dampens the impetus for militant cooperation to be organized along ideological lines to reach shared goals. This further inhibits homophily beyond the ideological narrowing caused by the pressure to parrot the sponsor’s line.

The absence of homophily outcome is not inevitable, however, because external sponsors do not always have clear positions on all components of ideology. The existence of ideological dimensions along which the external sponsor is ambiguous opens up the potential for militant differentiation along those dimensions. An external sponsor may be genuinely undecided about a component due to ambivalence or internal factionalism.

Alternatively, it may deliberately project ambiguity for strategic reasons, creating useful uncertainty among its opponents. Regardless of the reason, this ambiguity will enable insurgent groups to embody different positions on the component. The differentiation allows militant groups to appeal to distinct pools of fighters, bases of popular support, or factions within the external state sponsor. Moreover, unlike sponsor clarity which makes ideological differences moot, sponsor ambiguity implies that differences in militant ideological positions are actionable in terms of ends and means. As a result, sponsor ambiguity not only opens up more space for insurgents to air their ideological differences, it also makes possible on-the-ground realization of these differences. The combined effect of a larger as well as actionable window of disagreement facilitates the operation of homophily along the sponsor-ambiguous component, encouraging joint action among ideological siblings to achieve similar goals and limiting counterproductive infighting. Conversely, insurgents with discordant ideological positions will be less likely to work together and more likely to clash.

Summarizing the above arguments leads to the two hypotheses, one positive and one negative with respect to homophily, that we test in this paper:

- **H1:** If the sole external sponsor is ambiguous about a given component of ideology, then militant cooperation and conflict will exhibit homophily along that component.
- **H2:** If the sole external sponsor is clear about a given component of ideology, then patterns of cooperation and conflict will not exhibit homophily along that component.

## The Case: Conflict in Eastern Ukraine

Given the presence of a sole external sponsor, Ukraine is a hard case of the more general theory presented in Figure 1. In Ukraine, we observe variation in the militant groups along ideological dimensions and evidence of conflict and cooperation between groups. Scholars note local recruitment of fighters based on ideological appeals, as well as contractual and material inducements (Kudelia, 2019). The case has a single-state sponsor, Russia, whose support was essential to the viability of the insurgency as a whole and for individual groups. The case also allows for both of the hypotheses stated above to be tested because Russia's position was ambiguous on one component of ideology but not on the others.

## Case Background

The conflict in Eastern Ukraine began in the spring of 2014, after a six-month period of almost continuous upheaval in Ukrainian politics, including the Maidan protests in Kyiv, the flight of then-President Viktor Yanukovich to Russia, and the Russian invasion of Crimea. What began as protests around government buildings in Donetsk and Luhansk oblasts (collectively referred to as the Donbas region) soon became an armed conflict, with anti-government fighters hoping to gain increased autonomy from Kyiv, to secede from Ukraine and become independent, or to join Russia. The conflict, especially the early phase, was characterized by numerous quasi-independent groups operating against Ukrainian military and volunteer forces. Many of the early leaders were originally from Russia, some with connections to Russian intelligence and security forces.

Insurgents eventually consolidated control in the eastern regions of Donetsk and Luhansk oblasts, though the militant groups remained markedly personalized. Two political units, the Donetsk People's Republic (DNR) and the Luhansk People's Republic (LNR),<sup>1</sup> were established after controversial referenda in May 2014 and are not recognized as sovereign states on the world stage. The LNR and DNR established legislative bodies, developed official military hierarchies, and held elections.

Russia's support for the insurgents is a clear factor in the ability of the LNR and DNR to continue to resist attempts by the Ukrainian government to re-integrate the two territories. Russia has provided military, financial, and political support, such as recognizing the 2014 referenda in the regions (Williams, 2014; Gall, 2018; Kramer & Gordon, 2014), providing advanced weaponry including the system used to shoot down Malaysia Airlines Flight 17 in July 2014 (Zaken, 2018), and sending troops to stop a Ukrainian advance in late summer 2014 (International Crisis Group, 2014, pp. 2-4). Insurgents were heavily dependent on Russian military, political, and logistical support, putting the Russian government in the position to heavily influence both the behavior and the ideological line of the insurgents.

Fighting between government forces and insurgents continued throughout summer 2014. On September 5, 2014, an initial ceasefire was agreed to, now referred to as Minsk I. A second ceasefire, Minsk II, was signed on February 12, 2015. A "line of contact" between the belligerents was established and more or less respected, although periodic

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<sup>1</sup>The abbreviations DNR and LNR are based on the transliteration of the Russian-language acronyms.

violations of the ceasefire in the form of exchanges of fire continued throughout the data collection period.

## **Novorossiya as Insurgent Ideology**

At various times and to various degrees, leaders in the DNR and LNR have used the word Novorossiya (New Russia) to describe a project that would combine their territorial units into one structure and dramatically expand territory controlled by the insurgents to include most of southeast Ukraine. Some individual insurgent leaders suggested that Novorossiya would eventually include much larger territory, or a federation of up to eight separate states. Attempts were made to combine insurgent combat forces into one body, the Novorossiya Armed Forces.

In our reading of ideological statements by insurgent actors, the main emphasis of the Novorossiya project was on the extent of territory that would be administered by non-Ukrainian powers (whether independently or as a part of Russia). Thus, statements in favor or against Novorossiya often relate to territorial ideological claims.

Analysts of the Ukrainian conflict identify differences regarding Novorossiya as a main cleavage within the insurgent movement (International Crisis Group, 2014) and also among the local population (O’Loughlin, Toal, & Kolosov, 2017). The International Crisis Group (2014) notes a split in 2014 between the pragmatists and hardliners, with the hardliners prepared to fight for an expanded Novorossiya and pragmatists willing to accept a slow, more peaceful integration into Russia or some independent configuration. The 2014 ICG report identifies Igor Strelkov, Pavel Gubarev, and Alexei Mozgovoï as hardliners. Insurgent government insiders, such as Alexander Zakharchenko, Andrei Purgin, and Denis Pushilin serve as examples of pragmatists.

## **Russian Ideological Positions**

Along two of the key components of ideology—conflict frame and ideal polity—we see a clear position on Russia’s part that signaled to insurgents the boundaries of acceptable positioning. With respect to conflict frame, Russia situated the fighting in Eastern Ukraine as part of its ongoing and escalating tensions with the West, broadly defined, including the United States, the European Union, and NATO. Russia defined the conflict in Ukraine as one in which the West was inserting itself where it did not belong, casting the Maidan

uprising as a Western-sponsored coup. The U.S. and E.U. objected to Russian military action in Ukraine, ultimately imposing heavy sanctions, and Russia responded with anti-Western rhetoric. Anti-Western narratives emanating from the Russian government and large Russian media companies are nothing new, but these narratives gained “particular vitriol” when framing the conflict in Eastern Ukraine (Hutchings & Szostek, 2016, p. 174). The objective of these narratives was to blunt and undermine U.S. criticism of Russian action in Ukraine, ascribing any criticisms to a Cold-War mentality in the West (Ambrosio, 2016). It would have been nearly impossible for anyone consuming Russian media during this period to miss this narrative; the Russian government position on conflict frame was obvious.

While the Russian government position on ideal polity was not as clearly stated as its position on the conflict frame, its position on this component of ideology was neither ambiguous nor ambivalent to insurgent fighters in Eastern Ukraine. If Novorossiia were to be annexed by Russia, visions of the restoration of either the Romanovs or the commissars would be distant dreams requiring the fall of Putin’s existing regime. If Novorossiia were to be independent, insurgents could look to examples of other regimes that Russia has supported in the post-Soviet space, namely South Ossetia, Abkhazia, and Transnistria. In all of these cases there are nominal democratic institutions that exist alongside corruption and limited democratic choice. In confirmation of the lack of viable options in terms of ideal polity, the LNR and DNR governments did indeed hold elections of questionable openness to fill parliaments of questionable power, much as in Russia.

Unlike conflict frame and ideal polity, the Russian government has sent ambiguous signals about the territorial aspiration that it would support, especially in the early days of the conflict (MacFarquhar, 2014; “East Ukraine separatists seek union with Russia”, 2014; Bowen, 2019; International Crisis Group, 2019). One way to track Russia’s ambiguity concerning territorial aspiration is to see how its position on the concept of Novorossiia has changed over time. Table 1 contains notable quotations about the Novorossiia project from both Russian political leaders and insurgents. Prior to May 2015, there were some encouraging signals from Russian officials about support for an independent Novorossiia, including an extended comment from Putin on the historical “correctness” of the endeavor. However, Russia tempered such comments with signals indicating less-than-wholehearted support for the Novorossiia project. Politically, the Russian reaction to the indepen-

dence referenda in the LNR and DNR fell short of full endorsement (MacFarquhar, 2014). Militarily, support on the ground was mixed for further territorial expansion and fell far short of full-scale invasion and occupation that occurred in Crimea. Notably, insurgent leader Igor Strelkov made comments criticizing Russia for refusing to offer more military support, which he seemed to believe would have helped avoid an embarrassing retreat from Ukrainian government forces. By May 2015, there were strong indications that the Novorossiya project was dead – Russia had ceased to be ambiguous about this component of ideology and had decided that the territorial provisions in Minsk II were acceptable. The two quotes from May 2015 in Table 1 demonstrate the Russian state decision, as part of Minsk II, that the territorial aspirations for Novorossiya no longer had Russian support and the acknowledgement from insurgents that the support for Minsk II meant the “freezing” of Novorossiya.

Table 1: Timeline of Support for Novorossiya from Russia

Date	Quote	Source	Position	
2014-04-17	I would like to remind you that what was called Novorossiya (New Russia) back in the tsarist days – Kharkov, Lugansk, Donetsk, Kherson, Nikolayev and Odessa – were not part of Ukraine back then. These territories were given to Ukraine in the 1920s by the Soviet government. Why? Who knows... Russia lost these territories for various reasons, but the people remained... we ought to do everything we can to help these people defend their rights and determine their fate on their own. This is what we will fight for. Let me remind you that the Federation Council of Russia gave the President the right to use the Armed Forces in Ukraine.	Russian President Vladimir Putin	Encouraging statements about Novorossiya	
2014-05-06	Favorable discussion of Federal Republic of Novorossiya	Former Ukrainian MP and Novorossiya leader Oleg Tsarev	Supportive of Novorossiya	
2014-05-22	Proclaimed foundation of Novorossiya	DNR ‘People’s Governor’ Pavel Gubarev	Proclaimed foundation of Novorossiya	
2015-05-19	“At all levels, through the mouth of the Russian president, in other formats we say that we want [DNR and LNR] to become part of Ukraine. They have now submitted their draft constitution. There they are talking exactly about the status provided for by the Minsk agreements: the republics will be part of Ukraine and the constitutional reform will continue to be consolidated on A permanent basis.”	Russian Minister Lavrov	Foreign Minister Sergey Lavrov	Statements completely incompatible with Novorossiya
2015-05-20	“The activity of Novorossia’s structures is frozen because... its existence contradicts the Minsk agreements.”	Former Ukrainian MP and Novorossiya leader Oleg Tsarev	Suspending official Novorossiya movement	

According to our theory, the ideological dimension(s) along which the external state sponsor is ambiguous should induce homophily in the patterns of conflict and cooperation between militant actors. In the case of the conflict in eastern Ukraine, Russia was initially ambiguous about the territorial aspiration component, as expressed in statements about

Novorossiia. Conversely, Russia's clarity regarding conflict frame and ideal polity implies that these components should not leave homophily signatures in the conflict-cooperation network.

## Data and Sources

To test the theory, we identified relevant actors, identified cooperative and conflictual events between these actors, and built measures of the actors' positions on relevant components of ideology. Our data sources were newspaper articles, media digests, and social media posts translated and made available by the U.S. government.<sup>2</sup> We then used a manual coding scheme to extract relevant events and ideological positions from a subset of the documents.

Based on named entity analysis of the entire translated document corpus, we identified documents with a high density of relevant actor names in the text. We then hand-coded 136 documents, which we believe account for roughly 20% of the total mentions of the key actors that are identified in our dataset, although this is likely a conservative estimate. Many documents were pulled into our dataset because the name of insurgent groups of actors were either common surnames or identical to place names. The Dnipro Battalion, for example, shares its name with the Dnipro River and the city Dnipro, capital of Dnipropetrovsk oblast. Similarly, some individuals who may have been connected to the conflict in some capacity, such as Ukrainian oligarch Rinat Akhmetov, were also frequently included in articles that are irrelevant to the conflict. Thus, we believe that the documents we coded represented an even higher percentage of relevant actor mentions. We next briefly describe how we determined our set of relevant actors, labeled events and event types, and our strategy for assigning actor ideology. A full discussion of our coding methodology is available in Appendices A and B.

## Actors

The universe of potentially relevant actors involved in the Ukrainian conflict is vast, with militia groups and commanders on both sides, as well as oligarchs and politicians with more murky ties to combat groups. For the purposes of this analysis, we focus on

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<sup>2</sup>In total, we collected 3,528 unique documents that contained at least one search term of interest from January 3, 2014 to August 1, 2017.

a subset of all actors: insurgent leaders. We focus on leaders, as opposed to specific battalions, because individuals were more often observed making ideological statements in this context (that is, we see more impassioned speeches on YouTube from individual commanders than manifestos for particular battalions).<sup>3</sup> Appendix A details our process of identifying leaders. In total, we collected data on 28 unique insurgent leaders.

## Event Types

An event in our database follows the structure of someone (the “from” actor) doing something (the event action) to someone else (the “to” actor). We only coded events where both the “from” and “to” actors were included in our list of actors to track. For each event, we also noted the time of the event and the published date of the source for the event.

When we encountered a report of cooperative or conflictual behavior, we coded as many different dyadic interactions as the event contained. Each dyad constitutes an event in our coding scheme, and each event was coded as either **conflict** or **cooperation**. For example, a report of two insurgents cooperating to attack another insurgent would contain three events: one cooperative and two conflictual.<sup>4</sup> In total, the coding yielded 171 total events involving relevant actors, of which 86 were instances of cooperation and 85 were conflict.

## Ideology

To construct a variable for conflict frame, we determined actor viewpoints, positive or negative, toward broad parties or social identities relevant to the conflict as either potential in-groups or out-groups. In particular, we coded actor statements with respect to the following conflict parties: Russian people; Russian state/military; Russian oligarchs; Ukrainian people; Ukrainian state/military; Ukrainian oligarchs; LNR/DNR people; LNR/DNR state/military; LNR/DNR oligarchs; the U.S./NATO/West; the Maidan movement; Cossacks identity, Orthodox Christianity identity; and an open-coding for

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<sup>3</sup>Where relevant we consolidated groups to individuals. Thus, for example, all references to the Vostok battalion were ultimately assigned to Alexander Khodakovsky, the group’s leader. When the leadership was unclear, or when it shifted over time, we did not consolidate a group to an individual.

<sup>4</sup>Cooperative (1): insurgent A cooperates with insurgent B to attack insurgent C. Conflictual (2): insurgent A attacks insurgent C; insurgent B attacks insurgent C. We further classify an event subtype for each act of cooperation or conflict as either rhetorical, violent, material/military, or relational. For information on the distribution of subtypes, see Appendix B.

“other” as appropriate. When these statements were positive or negative, we coded that statement as indicative of an ideological position for that actor towards a given party to the conflict, placing the party on one side of an us/them, in-group/out-group divide. A negative statement resulted in a -1 score for an actor towards a conflict party, indicating that the conflict party was framed as an out-group, while a positive statement resulted in a +1 score, indicating that the conflict party was framed as an in-group.

Exploratory factor analysis and the case history led us to conclude that the main axis for the conflict frame was **Russia vs. West**. Insurgent actors typically made statements indicating their opposition to either Ukraine/the West (the Ukrainian state/military, the U.S./NATO/West, and the Maidan movement) or support for Russia (Russian state/military, Russian people, and the LNR and DNR). This conflict frame is in keeping with research that has analyzed Russian rhetoric in the years leading up to and after the outbreak of war in Eastern Ukraine.

To determine actors’ preferences with respect to ideal polity, we coded for statements regarding the ways in which they sought to structure the relationship between the state and society. Specifically, we sought to operationalize the differences between “reds,” “whites,” and “browns” that Laruelle (2016) identifies as indications of striving towards a communist, imperial, and fascist polities. However, we found little meaningful variation in this variable, and Laruelle acknowledges that, in fact, there is considerable overlap among some of the actors to whom she ascribes these categories.

We construct our measure of territorial aspiration from statements in support of or opposition to the idea that **Novorossiya** should be independent or become part of Russia. Examples in support of Novorossiya include Igor Strelkov’s statement that, “I hope that Novorossiya will make it... as a new state allied with Russia” and Pavel Gubarev’s claim that the issue was one of “a matter of life” for Strelkov and himself. Statements coded as opposition include Khodakovsky’s advocacy for the regions to be reintegrated into Ukraine, but with greater autonomy. Because the official justification for abandoning the pursuit of Novorossiya was framed as a logical extension of the Minsk Agreements (as done by one-time Novorossiya leader Oleg Tsarev, see Table 1), we also considered statements in opposition to the Minsk process as being fundamentally about wanting to continue the fight and having greater territorial ambitions. Thus anti- and pro-Minsk statements are also included in the Novorossiya variable.

Ideology statements were less frequent in the documents we encountered than either cooperation or conflict events between actors. Our coding yielded 261 ideological statements that were associated with a total of 49 actors that appear in our events database. In coding for ideology, actors were assigned a zero for any ideological component for which no relevant statements were identified. Actors with zeros for all ideological components were dropped from the analysis. We normalize the raw scores so that each actor's scores on conflict frame and territorial aspiration are between -1 and 1.

An initial review of the range of scores for Russia vs. West and for Novorossiya show that there was, in fact, more ideological variation on the territorial aspiration variable than on the conflict frame variable. The values assigned to anti-government actors or groups on the conflict frame variable ranges from 0 to 1, meaning that we recorded no incidents of anti-government insurgents supporting a conflict frame that identified with the Ukrainian state in opposition to the Russian state. Insurgent actors either promoted a pro-Russia conflict frame or kept quiet on this front. The territorial aspiration variable, on the other hand, saw actors both in support of and in opposition to the idea of fighting for Novorossiya as a contiguous territory. The scores for anti-government insurgents ranged from -1 to 1 on this component of ideology. The fact that there was more variation on the territorial aspiration variable than on the conflict frame variable is in keeping with our expectations based on the initial ambiguity of Russia, the sole external sponsor for the insurgency, on territorial aspiration.

## Method

We test our hypotheses with social network analysis tools, which focus on tie formation (the presence of a given behavior, e.g., cooperation or conflict) between “nodes” (e.g., actors, individuals, groups, nations) and the predictors of those ties at the level of the node, dyad, or network. The application of social network analysis within political science and international relations has emerged over the past decade (Maoz, 2011; Minhas, Hoff, & Ward, 2016; Desmarais & Cranmer, 2017). It is an increasingly common strategy for analyzing militant dynamics given the proliferation of armed groups in civil wars (Metternich, Dorff, Gallop, Weschle, & Ward, 2013; Gade, Hafez, & Gabbay, 2019; Gade, Gabbay, et al., 2019; Dorff, Gallop, & Minhas, 2020).

Most network analyses in conflict studies focus on either the set of cooperative ties

or the set of conflictual ties, not both. In this study, we combine data on conflict and cooperation events to form a *signed network*, where cooperative ties are positive values and conflictual ties are negative. The complexity added to the data collection and analysis is warranted by the reality that decisions about cooperation and conflict are often inextricably linked. The adage “the enemy of my enemy is my friend” embodies this linkage and has been formalized in structural balance theory, the most prominent theory of signed social networks (Cartwright & Harary, 1956). Signed networks have not yet been widely adopted in political science although they have been used to investigate structural balance in the international system (Maoz, Terris, Kuperman, & Talmud, 2007).

To test the degree to which ideological homophily shapes the network, we employ community structure methods. Community structure refers to the tendency of networks to cluster into subgroups or “communities” where the nodes in each community have similar patterns of tie formation, both within and without the cluster. As clustering can arise due to preferential tie formation among nodes with like attributes, community structure is frequently generated by homophily processes. We use two methods for analyzing community structure: one is based on the “modularity” matrix whose elements assess the extent to which the observed dyadic tie value differs from that expected by chance; the other is based on the “adjacency” matrix whose elements are the dyadic tie values themselves. For our signed networks, the positive tie value is taken to be the number of cooperative events between the node pair and the negative tie value is the number of conflictual events (both taken without regard to the “from” and “to” direction). The signed adjacency matrix uses the net tie value, the difference between the numbers of cooperative and conflictual events in a dyad.

For simplicity, we describe the modularity matrix method in the context of unsigned networks, in which ties are only positive, and then we treat the signed case. For unsigned networks, the goal of community detection algorithms is to find subgroups of nodes with relatively dense ties within groups and sparse ties between groups. The modularity is a number that expresses the extent to which a candidate division of the network into different communities exhibits a level of intra-community linking exceeding that expected if the division were, in fact, arbitrary with no correspondence to behaviorally meaningful subgroups (Newman, 2006). The modularity matrix contains the potential contribution to the modularity from each dyad, realized if the nodes in the dyad are assigned to the

same community. The modularity matrix element for a dyad is the difference between their observed number of ties (that is, their adjacency matrix element) and the number of ties between them expected from a null model, which is taken to be proportional to the product of their respective degrees (total number of ties).<sup>5</sup>

The concept of modularity has been extended to signed networks (Traag & Bruggeman, 2009; Traag, Doreian, & Mrvar, 2020). Essentially, one seeks communities which have many positive and few negative ties within each community, with few positive ties and many negative ties between communities. The full modularity matrix is constructed as the difference between the separate positive-tie only and negative-tie only modularity matrices.<sup>6</sup>

The eigenvectors of the modularity matrix are useful for representing community structure (Newman, 2006). An eigenvector has a component for each node and distinct eigenvectors form independent directions which do not mix with each other under operation of the matrix.<sup>7</sup> Eigenvalues are ranked from greatest to least. A single eigenvector (typically, but not necessarily, the first) can be used to divide nodes into two communities: any node whose component in the eigenvector is positive is assigned to one community while nodes with negative eigenvector components are assigned to the other.

Eigenvector components can be used to test for homophily without the explicit assignment of nodes to communities, as homophily is closely linked to modularity (Newman, 2006).<sup>8</sup> If the homophily process is sufficiently strong, then it should be reflected in a highly-ranked eigenvector as indicated by a significant correlation between eigenvector and the node variable. Calculating the correlation with modularity matrix eigenvectors has previously been used to test the relationship between ideology and militant network structure in the unsigned case (Gade, Hafez, & Gabbay, 2019). We limit our analysis to the use of only the first two eigenvectors in our test for the presence of homophily among the ideology components in the next section. Although one could test correlations with each eigenvector in isolation, the optimal alignment of the variable with network

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<sup>5</sup>Mathematically, we let the adjacency matrix elements  $A_{ij}$  be the number of ties between nodes  $i$  and  $j$  in an undirected network ( $A_{ij} = A_{ji}$ ). The degree of a node is  $k_i = \sum_{j=1}^N A_{ij}$  and the total number of ties is  $m = \sum_i k_i$ . The elements of the modularity matrix  $\mathbf{B}$  are given by  $B_{ij} = A_{ij} - k_i k_j / 2m$ .

<sup>6</sup>Defining  $A_{ij}^+$ , and  $A_{ij}^-$  to be the number of positive and negative ties between  $i$  and  $j$  respectively, then the signed network modularity matrix  $\mathbf{B}$  is the difference of the positive and negative modularity matrices:  $\mathbf{B} = \mathbf{B}^+ - \mathbf{B}^-$ .

<sup>7</sup>Formally, the  $(\lambda_k, \mathbf{u}_k)$  eigenvalue-eigenvector pairs of the modularity matrix satisfy  $\mathbf{B}\mathbf{u}_k = \lambda_k \mathbf{u}_k$ .

<sup>8</sup>For signed networks, homophily connotes the tendency for preferential positive (negative) tie formation with similar (dissimilar) nodes.

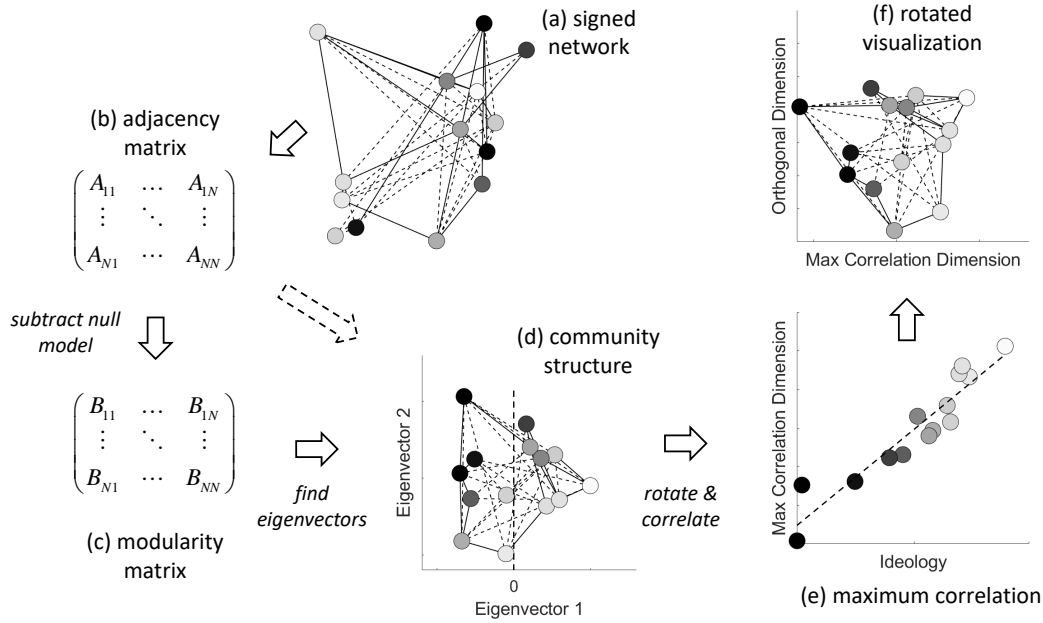


Figure 2: Overview of analysis procedure. (a) Signed network with  $N$  nodes (randomly placed). Cooperative (conflictual) ties shown as solid (dashed) links. Nodes shaded with respect to ideology component so that lighter nodes denote higher ideology values. (b) Adjacency matrix  $\mathbf{A}$  whose elements are tie values between nodes. (c) Modularity matrix  $\mathbf{B}$  formed by difference of positive and negative tie modularity elements in which null model is subtracted from observed tie values. (d) Eigenvector-based network visualization in which a node's coordinates are its components in the first two eigenvectors of  $\mathbf{B}$  (the alternative adjacency-based method uses eigenvectors of  $\mathbf{A}$  as indicated by dashed arrow). Community structure, given by the two communities of nodes left and right of the dashed vertical line, shows ideological clustering. (e) Eigenvector-based network is rotated to find the dimension along which the node positions maximally correlate with ideology. The homophily test is based on this correlation. (f) Rotated version of (d) showing the improved left-right ideological clustering obtained by using the maximum correlation dimension as the x-axis.

structure may not reside along a single eigenvector. To allow for this possibility, we will rotate the network in the two-dimensional space formed by these eigenvectors in order to find the maximum correlation. This rotation angle represents an additional parameter to be accounted for in statistical testing.<sup>9</sup> With respect to visualization, we plot the nodes in the (rotated) coordinate space formed by the first two eigenvectors, which depicts the network in a way that is inherently related to community structure. The analysis based on the adjacency matrix uses the eigenvectors of that matrix but is otherwise the same as the modularity-based method. Figure 2 schematically depicts the analysis procedure.

Beyond the above techniques exploiting community structure, we also employ a null process simulation to test for homophily conditional upon interaction. This test is effected by randomly permuting the signs of the ties present in the observed network in order to generate a null distribution of a measure of homophily which can then be compared with the observed value. In the null process, the observed set of ties is kept fixed (including multiple ties within dyads) along with the respective numbers of positive and negative ties and then the tie signs are randomly reassigned among ties. The measure of homophily

<sup>9</sup>Appendix D shows the results when correlations are made directly with the top two eigenvectors without rotation.

we use is the assortativity (which is closely related to modularity, Newman (2006)). In an unsigned network, assortativity is equivalent to correlating the values of the variable of interest (e.g., ideology) for connected dyads over all the ties in the network. For a signed network, we use the net assortativity formed by the difference between the separate positive and negative tie assortativities, where each is weighted by their respective fraction of the total ties.<sup>10</sup> Homophily is connoted by an observed assortativity greater than the mean assortativity of the null distribution whereas an observed assortativity less than the null mean connotes heterophily. Sign swapping over fixed tie locations has previously been used to generate null models in studies of structural balance (Leskovec, Huttenlocher, & Kleinberg, 2010; Kirkley, Cantwell, & Newman, 2019).

As an additional robustness check, we perform an exponential random graph model (ERGM) analysis (Desmarais & Cranmer, 2017) (see Appendix E). As the adaptation of ERGMs to signed networks remains nascent, our ERGM analysis treats the cooperative and conflictual networks separately.

## Analysis and Results

This section applies the two community structure network analysis methods to our data, followed by the assortativity analysis.

### Community Structure Analysis

Figure 3 shows the network for the full time duration of our data as represented in the space formed by the first two eigenvectors of the modularity matrix. Solid lines linking a pair of nodes indicate that the difference between the numbers of cooperative and conflictual events between them is positive and so their relationship is cooperative on net. If this difference is negative, then a dashed line is used indicating a net conflictual relationship. The nodes are shaded with respect to support for Novorossiya, our territorial aspiration variable, with lighter shades indicating higher support. The network has been rotated so that the horizontal axis represents the slice through the network along which the actor coordinates are best correlated with the Novorossiya variable (that the rotation

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<sup>10</sup>The assortativity for a scalar node variable  $x$  for the set of positive ties is defined by  $\alpha_+ = \sum_{i,j} B_{ij}^+ x_i x_j / (\sum_{i,j} A_{ij}^+ - k_i^+ k_j^+ x_i x_j / 2m_+)$ , where  $m_+$  is the total number of positive ties. The negative tie assortativity  $\alpha_-$  is defined analogously. The net assortativity is given by  $\alpha = (m_+ \alpha_+ - m_- \alpha_-) / (m_+ + m_-)$ .

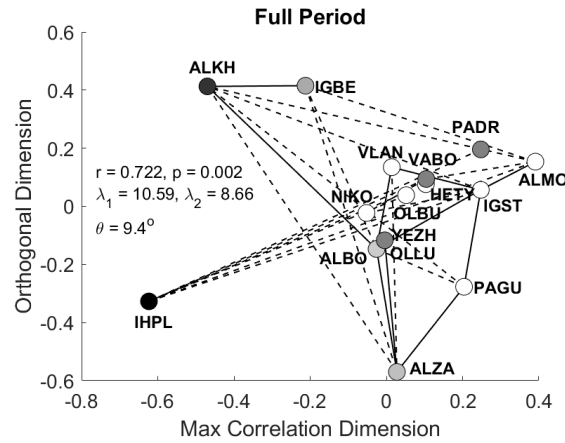


Figure 3: Modularity-based visualization of network for full time period. The network is rotated to maximize correlation with support for Novorossiia. Positive (net cooperative) and negative (net conflictual) ties shown by solid and dashed lines respectively. Nodes are shaded so that lighter shades correspond to more support for the Novorossiia.  $r$  is the correlation of the node coordinates along the maximum correlation dimension with the Novorossiia variable ( $p$  is the p-value).  $\lambda_1$  and  $\lambda_2$  denote the first and second most positive eigenvalues.  $\theta$  is the angle magnitude by which the eigenvector space must be rotated to achieve  $r$ .

angle is small,  $\theta = 9.4^\circ$ , indicates that the x-coordinates are approximately the same as the components of the first eigenvector).

Visual inspection of the network reveals that the darkest nodes are found on the extreme left whereas the extreme right is comprised primarily of lighter nodes — a pattern suggesting homophily. The right-hand community can be identified as ideologically pro-Novorossiia and three of the four rightmost nodes are ardent Novorossiia supporters, Alexei Mozgovoi (ALMO), Igor Strelkov (IGST), and Pavel Gubarev (PAGU). In contrast, the two leftmost actors, Ihor Plotnytskyi (IHPL) and Alexander Khodakovskiy (ALKH), are the softest on Novorossiia and the left side represents a more pragmatic perspective. This visual indication of homophily is backed up statistically: the correlation  $r$  between the Novorossiia variable and the node x-coordinates, shown in the figure and also listed in Table 2, is highly significant ( $r = .722$ ,  $p = .002$ ). This result supports our first hypothesis that state sponsor ambiguity over an ideology component, namely territorial aspiration (Novorossiia), allows that component to shape the network of militant relationships consistent with homophily; ideologically close actors tend to cooperate more and conflict less than do distant actors. The adjacency matrix method for the full time period, further confirms this hypothesis ( $r = .672$ ,  $p = .006$ , see Appendix C for visualization).

The same network as shown in Figure 3, just shown to be significantly related to territorial aspiration, can also be tested with respect to the conflict frame variable, Russia vs. the West. However, there is no rotation angle for which the correlation is ever significant as Table 2 lists a maximum correlation of  $r = .201$  ( $p = .47$ ). This lack of correlation is echoed by the adjacency-based analysis. These null findings support our

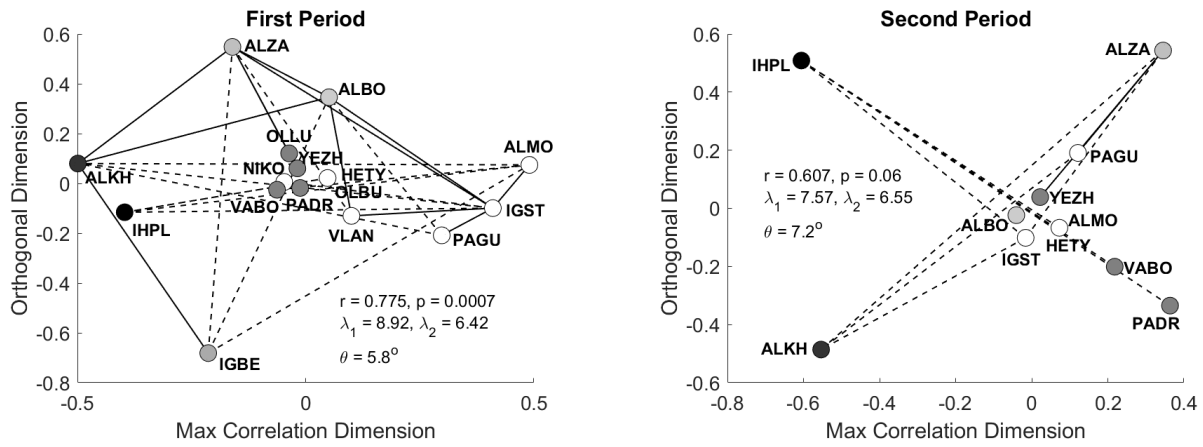


Figure 4: Modularity-based networks for pre and post May 19, 2015 time periods. Left: First time period. Right: Second time period.

second hypothesis, which states that when a sponsor’s stance on an ideological component is unambiguous, as the case for Russia regarding the conflict frame, then the network will not display homophily with respect to that component. The conflict frame story is actually more complex and the assortativity analysis below will decisively demonstrate its lack of homophily beyond a simple null finding.

While Russia’s conflict frame position was constant, its position on territorial aspiration did change during the span of our data. Accordingly, we divide our data into two time periods, before and after May 19, 2015 when Russia came down against formal secession in order to investigate whether the homophily effect regarding Novorossiia is present in the more limited data period when Russia’s position remained ambiguous. We can furthermore investigate whether the territorial aspiration homophily disappears or persists in the second period, after Russia’s position became clear. Although naive application of our second hypothesis would predict that homophily would be absent in this period, path-dependent effects may cause relational patterns and ideological positions forged during the initial phase of the conflict to endure for a transient period. Therefore, we do not take the second time period as a definitive test of the second hypothesis.

Figure 4 shows the modularity-based networks for the two time periods with node shadings representing support for Novorossiia. The first period displays homophily — in fact, the correlation is stronger the full period ( $r = .775$ ,  $p = .0007$ ). The adjacency method similarly shows highly significant correlation (Table 2 and Appendix C). The first period analysis therefore thereby confirms that the network homophily aligns with the span of Russian ambiguity.

Homophily is less evident in the second time period. While the most pragmatic actors

Table 2: Network Structure Correlations

	FULL PERIOD			FIRST PERIOD			SECOND PERIOD		
	<i>r</i>	<i>p</i>	$\theta$	<i>r</i>	<i>p</i>	$\theta$	<i>r</i>	<i>p</i>	$\theta$
IDEOLOGY COMPONENTS	$N = 16, m^+ = 65, m^- = 75$			$N = 16, m^+ = 59, m^- = 51$			$N = 11, m^+ = 6, m^- = 24$		
<b>Modularity</b>									
Novorossiia	.722**	.002	9.4	.775***	.0007	5.8	.607	.06	7.2
Russia vs. West	.201	.47	10.5	.149	.60	2.5	.160	.66	42.2
<b>Adjacency</b>									
Novorossiia	.672**	.006	5.8	.732**	.002	11.5	.585	.08	6.5
Russia vs. West	.206	.46	32.1	.236	.40	36.4	.211	.56	62.4

Notes:  $N$  is the number of actors in the network.  $m^+$  and  $m^-$  are the number of positive and negative ties.  $N$  includes only actors with at least one positive or negative tie.  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$

(IHPL, ALKH) are still on the far left, the most pro-Novorossiia actors are no longer found on the far right. Indeed, the correlation ( $r = .607$ ,  $p = .06$ ) does not quite attain the standard .05 level of significance. The adjacency-based correlation is also not quite significant ( $r = .585$ ,  $p = .08$ ). Given this near significance, which may reflect the relatively few ties during this period as compared with the first, we do not take the second period Novorossiia as supporting our second hypothesis concerning the lack of homophily when the sponsor is unambiguous. However, our primary test of the second hypothesis involved the conflict frame, for which Russia's position was always clear, and the first and second period correlations for Russia vs. the West remain insignificant (see Table 2) as in the full period analysis.

Finally, we note that the paucity of statements regarding ideal polity and their lack of variation prevented statistical testing against network structure. However, these problems themselves indicate that ideal polity was not salient, which again supports the second hypothesis, given the clear expectation that Russia would not countenance the institution of a radically different form of government in militant-ruled domains.

## Assortativity Analysis

In addition to the community structure analysis, summarized in Table 2, as a robustness test we performed the assortativity analysis based on generating a null distribution by randomly exchanging the signs of the ties in the observed network. The results are shown in Table 3. Statistically significant homophily with respect to Novorossiia is observed

Table 3: Assortativity Results

	$\alpha$	$\alpha_{null}$	$\sigma_{null}$	$p$
<b>FULL PERIOD</b>				
Novorossiya	.231 (+)**	.010	.069	.001
Russia vs. West	-.306 (-)***	-.030	.078	.0006
<b>FIRST PERIOD</b>				
Novorossiya	.284 (+)***	-.016	.070	<.0001
Russia vs. West	-.199 (-)*	.019	.099	.03
<b>SECOND PERIOD</b>				
Novorossiya	.278 (+)	.087	.119	.10
Russia vs. West	-.658 (-)	-.479	.085	.07

Notes:  $\alpha$  is the assortativity of the observed network where + (-) indicates  $\alpha$  greater (less) than  $\alpha_{null}$  thereby corresponding to homophily (heterophily);  $\alpha_{null}$  and  $\sigma_{null}$  are respectively the mean and standard deviation of the assortativity in the null simulation taken over 10,000 runs; the p-value is the (two-tailed) fraction of runs exceeding  $|\alpha - \alpha_{null}|$ . \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

in the full time period as indicated by an observed assortativity  $\alpha = .231$  that is more positive than the mean assortativity of the null distribution,  $\alpha_{null} = .01$ , and is over three standard deviations away. The first period shows even higher assortativity. These results match well with the initial community structure findings, providing strong confirmation of our first hypothesis: state sponsor ambiguity produces network homophily with respect to the ambiguous component.

With respect to the conflict frame of Russia vs. the West, the assortativity analysis fails to find homophily, in accordance with our hypothesis. In fact, it shows highly significant heterophily: the observed assortativity in the full period,  $\alpha = -.306$ , is 3.5 standard deviations less than the null assortativity,  $\alpha_{null} = -.03$ . We can also look for this heterophily with the community structure analysis by using the last two eigenvectors, i.e., those having the two most negative eigenvalues, instead of the first two as for homophily. The correlation between Russia vs. the West and the second most negative eigenvector of the modularity matrix is highly significant ( $r = .759$ ,  $p = .0007$ , see Appendix F for visualization) and so confirms the assortativity result.

This finding of heterophily goes beyond the mere absence of homophily as predicted by the second hypothesis. Its implication — that having more similar conflict frame positions tends to produce less cooperation and greater conflict — is strange and surprising, even more so given the relative lack of variation along Russia vs. the West as compared

with Novorossiya (see Data and Sources/Ideology). We offer a candidate explanation presently, but regardless of the ultimate explanation, the empirical finding that these two ideological components can have dramatically different effects on militant factional behavior (homophily for territorial aspiration and heterophily for conflict frame) points to the importance of disaggregating ideology into distinct dimensions rather than treating it as a single variable.

Our speculative explanation for the heterophily finding relies on the distinction made in our theory regarding the actionable nature of an ideological component for which the sponsor's position is ambiguous as opposed to the rhetorical nature of a component for which the sponsor's position is clear. In the Donbass case, the territorial aspiration component is actionable: a militant leader's position regarding Novorossiya has very concrete implications as to ends and means, such as whether to push for further territorial gains or to support the Minsk ceasefire agreements. Consequently, having similar Novorossiya positions served as a spur to joint action, such cooperation being the core impetus underlying ideological homophily in general. In contrast, the conflict frame was primarily rhetorical with little impact on militant actions. However, variation in militant leader positions along the Russia vs. the West frame could indicate differences in their constituencies among rank-and-file fighters, the populace, or the Russian government itself. Leaders with similar positions would therefore have similar constituencies, which could serve as a source of competition and conflict, thereby promoting heterophily.<sup>11</sup>

The ERGM analysis supports our hypotheses despite the limited statistical power associated with treating the cooperative and conflictual networks separately. While the cooperative network yields no statistical significance, the conflictual network results aligns with the analysis above, exhibiting significant homophily with respect to Novorossiya and heterophily with respect to Russia vs. the West in both the full and first time periods (see Appendix E).

## Conclusion

Understanding the dynamics of cooperation and conflict between groups in an insurgent movement is a critical task for the study of modern conflict. The last decade has seen an

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<sup>11</sup>The homophily effect of Novorossiya is a stronger driver of network structure than the heterophily of Russia vs. the West as its associated eigenvalue is of larger magnitude.

impressive growth in scholarship on this topic. We contribute by presenting a theoretical explanation of conflict and cooperation dynamics that emphasizes the role of external sponsorship and ideology. We argue that ideological homophily is impacted by the number and ideological stances of external sponsors. Central to this account, especially in the single sponsor case that we highlight, is the consideration of insurgent ideology in terms of three distinct dimensions — conflict frame, ideal polity, and territorial aspiration — rather than treating it as an aggregate variable. Employing this framework, we have argued that in the presence of a single external sponsor, ideological components along which the sponsor is ambiguous will shape militant networks.

We tested the theory in the case of Ukraine, where an insurgent conflict starting in early 2014 pitted militants backed by Russia against the Ukrainian state. This is a tough case for the claim that ideology matters in that one would expect little room for ideological variation in an insurgency backed by one powerful external sponsor. Contrary to these expectations, we showed that network homophily is indeed correlated with actors' positions on territorial aspiration (Novorossiia), the ideological component about which Russia initially sent ambiguous signals. Statistically significant homophily was found using all of our analysis methods — modularity and adjacency-based community structure analysis, assortativity, and ERGMs — for the full time period of our data as well as its restriction to just the time before Russia finally shed its ambiguity, coming down against formal secession from Ukraine.

We also showed that conflict frame, which according to our theory should not generate homophily in this case because Russia always exhibited a clear stance, indeed did not do so. In fact, going beyond the mere absence of a relationship with network structure, the conflict frame exhibited heterophily, a counterintuitive behavior for ideology, which we speculated stemmed from the rhetorical nature of sponsor-unambiguous ideological components. Regardless of the causal mechanism and whether such heterophily commonly occurs, its observation in the Ukraine case further speaks to the value of disaggregating ideology in that different components may actually behave in opposite ways.

Methodologically, our results show the promise of signed network analysis for the study of militant dynamics. Signed networks allow for an integrated analysis of cooperation and conflict, behaviors which are deeply intertwined. The community structure approach, whether adjacency or modularity-based, allows for the statistical analysis of the correlates

of network homophily and for meaningful visual representation of that structure. The assortativity analysis, which generates a null distribution by randomly exchanging signs among existing ties, tests homophily conditional upon actor interaction and therefore can directly show that homophily results from actor preferences rather than a lack of diversity in potential partners, unlike unsigned networks.

As our paper has been limited to a single, in-depth case study, further testing of our theory is warranted for both single and multiple-state sponsor cases. For additional cases, researchers might consider the proxy insurgent movements sponsored by the United States and the Soviet Union during the Cold War for evidence of the effects of state sponsor ambiguity over key militant ideological dimensions. One such case would be U.S. support for the Contra rebels that fought the Sandinista regime in Nicaragua from 1980-1989. After the fall of the Somoza government and establishment of the Sandinista government, ex-military exiles received logistic, financial, and material support from the U.S. government. Although other minor sponsors were present, they were essentially surrogates of the U.S., which effectively was the single state sponsor. In fact, U.S. support was so crucial to the Contras that, when it was removed due to scandal and changing U.S. political priorities, the Contras could not continue the fight and a negotiated settlement followed quickly (DeRouen & Heo, 2007, p. 553).

The Contras were not a monolithic bloc and were comprised of distinct groups such as military officers and capitalist economic elites affiliated with the deposed authoritarian regime, socialist-leaning former rebels who soured on the Sandinistas after they gained power; and indigenous populations agitating for greater political rights and power. Aside from being anti-Sandinista, the various groups fighting the government were at times either vague or at odds with each other on why they were motivated to fight or what a post-Sandinista Nicaragua would look like. These differences were wholly unimportant to the Reagan Administration, which was interested in undermining the Sandinista government and stamping out leftist politics in Central America, consistent with its Cold War strategy (Ronfeldt & Jenkins, 1989, p. 26). To that end, the U.S. had a clearly defined out-group conflict frame, which was a point of agreement among all parts of the Contra movement, but as to in-group or ideal polity, the U.S. government in the 1980s was often either disinterested or fragmented (Ronfeldt & Jenkins, 1989, pp. 15, 17-18), which, according to our theory, would allow the groups to exhibit diversity along these elements of ideology.

Further study could investigate whether the patterns of cooperation and conflict between the various Contra factions were predicted by variation on the ideological components of ideology about which the U.S. was ambiguous.

Although further empirical support for the generality of our theory must await such additional comparative analyses, our investigation of Eastern Ukraine has extended the scope of conflicts for which ideology should be treated as relevant to shaping militant conflict and cooperation, which previously had been observed only in the Syrian civil war networks (Gade, Hafez, & Gabbay, 2019; Gade, Gabbay, et al., 2019). In addition, we have put forth a broad theory of the interaction between external sponsorship, ideology, and militant network structure that we believe will spur future research. Our findings suggest that future researchers interested in the effects of ideology and state sponsorship should focus their attentions on ideological dimensions where either the single external state sponsor is ambiguous or where multiple sponsors disagree on ideological components.

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# Appendix

## A Actor list

Our initial actor list included all of the groups and individuals noted by Zhukov (2016) and Matveeva (2016). We then added all groups on the Wikipedia pages for the Donbass conflict.<sup>12</sup> As we began manually coding documents, we developed criteria for adding new actors. First, to be added to the actor list, an actor had to appear in more than one document. Second, actors who were solely political, with no apparent connection to militant activity, were excluded. A connection to militant activity could include financing a group or being rumored to be closely connected to a militant leader. We collected data on 28 unique insurgent leaders out of 258 groups and individuals that we identified as related to the conflict, not all of whom were insurgent leaders.

We assigned each actor in the list a unique four letter code. This code is generally the first two letters of an individual's first name plus the first two letters of their last name (unless that combination was already taken or unless a particular callsign or nickname was entered before we knew the actual actor name). For example, Igor Strelkov is represented in the network graphics as IGST, but Botsman is BOTS.

One challenge we faced was in different transliterations of names (often a Russian versus Ukrainian variant) and the widespread practice of militants using callsigns or nicknames. Igor Strelkov's real name, for example, is Igor Girkin. Strelkov is a nickname that comes from the Russian word for "shot" or "shooter." We linked his name and nickname to a range of alternative spellings noted in the documents, including: Igor Girkin, Ihor Strelkov, Ihor Girkin, Strelok, Ihor Hirkin, Ihor Hyrkin, and Strelkov-Hyrkin. We noted alternative spellings and callsigns and ensured that they were assigned to only one actor.

In order to reduce the number of actors in the network, where possible we consolidated groups to individuals. This reflected our observation that more often the

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<sup>12</sup>e.g. [https://en.wikipedia.org/wiki/War\\_in\\_Donbass](https://en.wikipedia.org/wiki/War_in_Donbass), [https://en.wikipedia.org/wiki/Separatist\\_forces\\_of\\_the\\_war\\_in\\_Donbass](https://en.wikipedia.org/wiki/Separatist_forces_of_the_war_in_Donbass), and [https://en.wikipedia.org/wiki/Ukrainian\\_volunteer\\_battalions\\_\(since\\_2014\)](https://en.wikipedia.org/wiki/Ukrainian_volunteer_battalions_(since_2014))

articles described individuals, as opposed to militant groups. Thus, for example, all references to the Vostok battalion were ultimately assigned to Alexander Khodakovsky, the group’s leader. When the leadership was unclear, or when it shifted over time, we did not consolidate a group to an individual. In the events database, after actor consolidation, we have 28 unique actors.<sup>13</sup> Table A1 shows all of the included actors, their network codes, and which specific side of the conflict the actor is on (LNR or DNR).

Table A1: Actors in the Network

Network Code	Name	Specific Side
ALBO	Aleksander Borodai	Donetsk
BATM	Alexander Bednov	Luhansk
ALKH	Alexander Khodakovsky	Donetsk
ALZA	Alexander Zakharchenko	
ALMO	Alexei Mozgovoi	Luhansk
ARPA	Arseny Pavlov	Donetsk
BOTS	Botsman	Donetsk
BURY	Buryat	
HETY	Hennadiy Tsypkalov	Luhansk
IGBE	Igor Bezler	Donetsk
IGST	Igor Strelkov	Donetsk
IHPL	Ihor Plotnytskyy	Luhansk
MITO	Mihail Tolstyh	Donetsk
NIKO	Nikolai Kozitsyn	Luhansk
OLBU	Oleh Buhrov	Luhansk
OLLU	Oleksandr Lukyanchenko	Donetsk
PAGU	Pavel Gubarev	Donetsk
PADR	Pavlo Dryomov	Luhansk
SEPE	Sergei Petrovskiy	
SEZD	Sergey Zdrylyuk	Donetsk
SELI	Serhiy Lytvyn	Luhansk
VABO	Valerii Bolotov	Luhansk
VLAN	Vladimir Antyufeyev	Donetsk
VLKO	Vladimir Kononov	Donetsk
VYPO	Vyacheslav Ponomaryov	Donetsk
YEZH	Yevgenyi Zhilin	Donetsk
YEIS	Yevhen Ishchenko	Luhansk
YEKL	Yevhen Klep	Donetsk

<sup>13</sup>These actors came from a larger list of 258 groups and individuals that we identified as being related to the conflict, but not all of whom are insurgent leaders.

## B Event Coding

An event in our database follows the structure of “someone (the “from” actor) doing something (the event action) to someone else (the “to” actor).” We only coded events where both the “from” and “to” actors were included in our list of actors to track. If an event description included more than one actor (either “from” or “to”), we coded each from-to pair as a separate event. For each event, we also noted the time of the event (to the day, if possible, or to the month or year if no more specific date was given) and the published date of the source for the event.

Each event was given three event type codes, at different levels of specificity. First is a general event type, either **conflict** or **cooperation**. A particular report of an event was coded for as many different dyadic interactions as the event contained. So, for example, a report of two insurgents cooperating to attack another insurgent group would contain three events; one cooperative and two conflictual.<sup>14</sup> We further classify an event subtype for each act of cooperation or conflict as either rhetorical, violent, material/military, or relational. **Rhetorical** events are those in which one actor is saying something about another actor. This can be praise (in which case the event is cooperation) or criticism (in which the event is conflict) or any other relevant type of statement. **Violent** events involved actual use of force of one actor against another actor (conflict) or actual use of force in which one actor is fighting alongside another actor (cooperation). **Material/military** events are those that involve one actor engaging in some action that is greater than mere rhetorical interaction with another actor but that does not fall under what has been described as a violent event. Promoting, financing, demoting, and protecting all count as material/military events. **Relational** events include any references to a relationship (cooperative or conflictual) between two actors. In this field we also tagged whether or not the event was being described by a “3rd party” source, meaning either that the source was describing something the author did not witness firsthand or that the source was not trustworthy (e.g., one commander claiming that two other commanders hated each other would be coded as a 3rd party rhetorical

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<sup>14</sup>Cooperative (1): insurgent A cooperates with insurgent B to attack insurgent C. Conflictual (2): insurgent A attacks insurgent C; insurgent B attacks insurgent C.

conflict between the two commanders supposedly at odds). Tables B1 and B2 show the number of events in each subtype.

Table B1: Cooperation Subtypes

Event Subtype	Count
material/military	37
relational	22
rhetorical	15
violent	12

Table B2: Conflict Subtypes

Event Subtype	Count
material/military	28
relational	2
rhetorical	38
violent	17

Since we were coding media reports, information that appeared in one story frequently appeared in another. To deal with the problem of double- or triple-coding the same event, we manually reviewed the events database for duplicate events and removed them. In total, coding the 136 documents yielded 171 total events involving relevant actors, of which 86 were instances of cooperation and 85 were conflict.

## C Adjacency-Based Visualizations

The figures show the networks obtained by rotating the eigenvectors of the adjacency matrix and parallel the modularity-based versions in the main text.

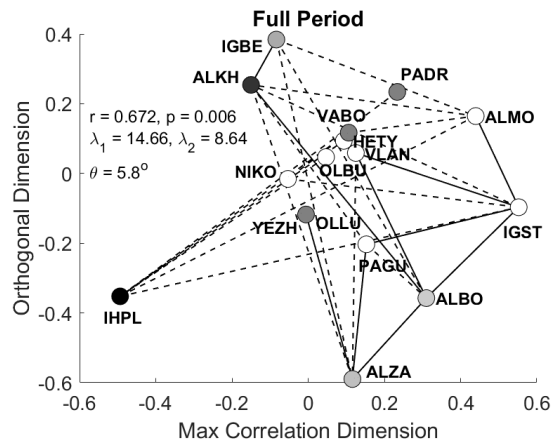


Figure 5: Adjacency-based visualization of network for full time period.

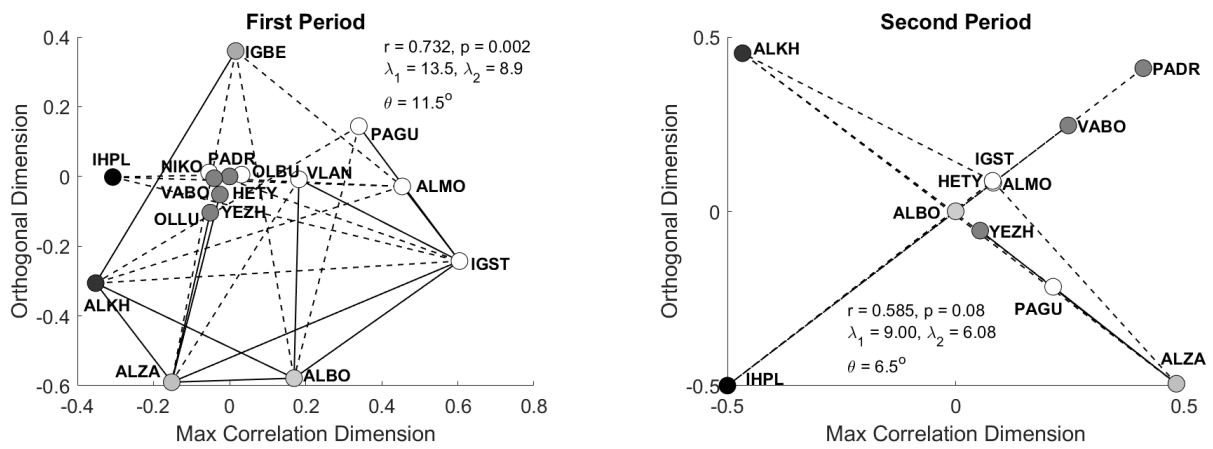


Figure 6: Network structure for pre and post May 19, 2015 time periods using adjacency matrix eigenvectors.

## D Analysis Results without Network Rotation

Table B3: Network Eigenvector Correlations without Rotation

	FULL PERIOD			FIRST PERIOD			SECOND PERIOD		
	<i>r</i>	<i>p</i>	<i>EV</i>	<i>r</i>	<i>p</i>	<i>EV</i>	<i>r</i>	<i>p</i>	<i>EV</i>
IDEOLOGY COMPONENTS	$N = 16, m^+ = 65, m^- = 75$			$N = 16, m^+ = 59, m^- = 51$			$N = 11, m^+ = 6, m^- = 24$		
<b>Modularity</b>									
Novorossiya	.705**	.002	1	.662**	.005	1	.439	.18	2
Russia vs. West	.143	.60	1	.145	.59	1	.146	.67	2
<b>Adjacency</b>									
Novorossiya	.569*	.02	1	.648**	.007	2	.41	.21	2
Russia vs. West	.191	.48	2	.188	.49	1	.157	.65	2

Notes: *EV* lists which of the first two eigenvectors correlates best with the ideology component. Other quantities as in main text. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

## E ERGM

### E.1 Full period analysis

	Model 1
edges	-1.05* (0.50)
<b>absdiff.pro_ru</b>	-2.27*** (0.69)
<b>absdiff.pro_novo</b>	1.16** (0.44)
AIC	87.98
BIC	95.51
Log Likelihood	-40.99

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Table B4: Full period conflict network

	Model 1
edges	-0.09 (0.56)
<b>absdiff.pro_ru</b>	-1.23 (0.76)
<b>absdiff.pro_novo</b>	-0.83 (0.62)
AIC	73.99
BIC	80.56
Log Likelihood	-34.00

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Table B5: Full period cooperation networks

## E.2 Period 1 analysis

	Model 1
edges	-1.15* (0.51)
<b>absdiff.pro_ru</b>	-2.10** (0.68)
<b>absdiff.pro_novo</b>	1.12* (0.44)
AIC	88.07
BIC	95.60
Log Likelihood	-41.03

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Table B6: Period 1 conflict networks

	Model 1
edges	-0.28 (0.56)
<b>absdiff.pro_ru</b>	-1.03 (0.76)
<b>absdiff.pro_novo</b>	-0.78 (0.62)
AIC	72.83
BIC	79.39
Log Likelihood	-33.41

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Table B7: Period 2 cooperation networks

### E.3 Period 2 analysis

	Model 1
edges	-2.22* (1.02)
<b>absdiff.pro_ru</b>	-2.68* (1.21)
<b>absdiff.pro_novo</b>	2.08* (0.84)
AIC	38.88
BIC	44.30
Log Likelihood	-16.44

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Table B8: Period 2 conflict networks

	Model 1
edges	-0.28 (1.45)
<b>absdiff.pro_ru</b>	0.27 (2.09)
<b>absdiff.pro_novo</b>	-0.41 (2.13)
AIC	19.40
BIC	20.31
Log Likelihood	-6.70

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

Table B9: Period 2 cooperation networks

## F Heterophily in Russia vs. the West

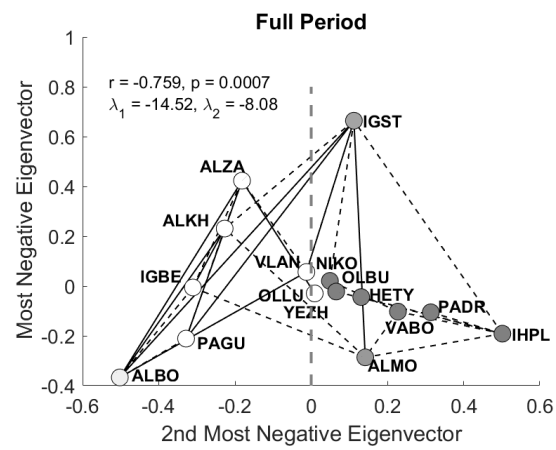


Figure 7: Visualization of network for full time period showing heterophily for the conflict frame. The visualization is based on the two lowest eigenvectors of the modularity matrix, i.e., those with the first and second most negative eigenvalues,  $\lambda_{1MN}$  and  $\lambda_{2MN}$  respectively. Lighter nodes indicate greater support for the Russia vs. the West frame.