

# Institutional Roots of International Alliances: Party Groupings and Position Similarity at Global Climate Negotiations\*

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## Abstract

A large literature in international relations explores the domestic origin of national positions at international organizations (IOs). Less researched is the institutional assembling within IOs, and how alliances formed around negotiation groups affect countries' positions. We explore this question in the context of the United Nations Framework Convention on Climate Change (UNFCCC), focusing on the role that institutional coalitions have on members' statement similarity. Our baseline expectation is that similar economic development is the main determinant of coalition-building, so more common preferences emerge among members of economically similar negotiation groups. At the same time, and in line with other institutionalist views, we hold that some coalitions reflect alternative cross-cutting dimensions of interdependence and that this may increase the position similarity of their members. In the case of climate cooperation, we suggest that a high level of shared environmental vulnerability in a group may also cluster countries' positions. We interrogate our expectations with new text-as-data measures that estimate associations of countries' statements at the UNFCCC between 2010 and 2016. We find that states in more economically homogenous negotiation blocs share more similar national statements. Additionally, similar themes emerge among more vulnerable countries, although these are only amplified in small and uniform negotiation groups. Our evidence has implications for global cooperation based on a North-South dialogue and for the effectiveness of institutionalized coalitions at international organizations.

**Keywords:** climate change politics; United Nations; institutions; negotiation groups; coalitions; text analysis.

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# 1 Introduction

International Relations (IR) scholars often argue that sustainable solutions to global problems require international organizations (IOs). This belief is based on the assumption that countries project national interests on IOs' agendas and try to achieve international cooperation through global institutions whilst addressing home audiences (Drezner, 2009; Keohane, 1984; Keohane and Victor, 2016; Milner and Tingley, 2011; Pevehouse, 2002). This view stresses the domestic roots of political stands at IOs, but leaves behind other complementary drivers of positions at international negotiations. In particular, it discounts the role played by negotiation groups, institutional alliances and other formal divisions – which one can refer to as *coalitions* – that exist within IOs.

Tackling these research themes, this paper empirically investigates the similarities between countries' positions as a function of coalitions inside IOs.<sup>1</sup> Mapping coalitions and exploring their effect on members' behavior are important to the study of IOs because they can shed important light on the meaning of international meetings. Evidently, countries' a priori interests are a primary reason for why states select themselves into coalitions. However, coalitions – just like an IO mission – can evolve. So, tracing if countries retain cohesiveness with coalition members is useful to understand how influential these groups are across years, and why other groups may form in an IO. Additionally, research on coalitions has important implications for how we understand IOs' effectiveness. It helps assess if and when international negotiations require coalitions with genuine cross-country affinity to reach cooperation (Baccini and Urpelainen, 2014; Dreher and Voigt, 2011). It can also suggest whether countries' national positions converge on collective decisions or if only certain groups can settle negotiations (Nielson and Tierney, 2003; Zürn, 2004). Yet, to date, the role that coalitions have on national positions and associations in IOs is still largely a matter of debate.

How do coalitions within IOs affect the elaboration of national interests? Does membership to a negotiation group systematically imply that in-members share *similar* positions, and why? According to classical IR theory, countries form alliances based on similar structural characteristics in

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<sup>1</sup>We refer here to coalitions as groups of countries that share some similar preferences and thus voluntarily ally in order to enhance their interests in a multilateral negotiation.

order to address common concerns about the global anarchic order (Mearsheimer, 1994). Countries with similar economic profiles, for example, care about similar outcomes that justify, or protect, their level of growth and development. Consequently, countries with similar economic structures form a coalition to raise similar issues and retain common economic goals (Keohane and Nye, 1973). This long-standing view, however, is questioned in recent empirical studies. Some research suggests that coalitions may not always foster position affinity among members. Similar countries in the same negotiation group may refer to *different* issues because they happen to grow apart, or because they purposefully want to direct attention to a broad set of topics (Häge, 2013). Alternately, negotiation groups may create a way for countries with non-obvious similarities to come together (Keohane and Martin, 1995). Hence, coalitions may give opportunities for diverse countries to push for an alternative political agenda (Bailer and Weiler, 2015; Panke, Lang, and Wiedemann, 2015).

We investigate the validity of these different arguments focusing on the effect of coalition groups in one specific IO: the United Nations Framework Convention on Climate Change (UNFCCC). Since the 1990s the UNFCCC has become one of the largest global forums, engaging thousands of participants and representing all UN parties (Blaxekjaer and Nielsen, 2015). For our purposes, the UNFCCC is an ideal case to evaluate the link between coalition composition and position similarity for a number of reasons. First, the UNFCCC features a large number of official groups where an analysis of coalitions can draw from. Importantly, since the late 2000s some specific groups have emerged within this IO, partly to subset older coalitions but also to bring attention to new salient issues (Klöck et al., 2021). Second, the study of national positions at the UNFCCC is increasingly of interest because it is assisted by the national statements presented at each annual meeting. A growing stream of empirical research has sought to capture the constellation of states' positions at the UNFCCC negotiations based on these texts (see, e.g., Castro, Hörnlein, and Michaelowa, 2014; Genovese, 2014; Bagozzi, 2015; Tobin et al., 2018).<sup>2</sup> Building on this work, we leverage seven years of recent statements to empirically assess why and how groups within the UNFCCC influence governments' take on climate cooperation. In particular, we ask under what circumstances they may drive the affinity of national positions, captured by statements' similarity.

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<sup>2</sup>Other complementing scholarship has studied 'club' approaches to global climate governance. See, for example, Hale, Held, and Young (2013); Hovi et al. (2017).

We first investigate a baseline hypothesis linked to classical IR theory, namely that UNFCCC position affinity is more likely among members of economically homogenous negotiation blocs. This hypothesis is simple but not obvious. According to some scholars, UNFCCC groups with ‘hybrid’ (i.e. developed and developing) parties should have more consolidated positions, because these need to effectively find commonalities before negotiating with the rest of the international community (Nordhaus, 2015; Stern, 2015). We think this view ignores that economically heterogenous groups face difficult political coordination (Falkner, 2016; Underdal, 2017). In the attempt to address many different domestic audiences, heterogenous groups may in fact be *less* likely to present a unified position or common themes. So, membership in these groups may not effectively streamline national positions, while structural homogeneity enables the presentation of a unified agenda. Along these lines, we conjecture that members of economically homogenous UNFCCC groups are more likely to retain a (long-term) common focus, and have more similar national statements than more economically heterogenous groups.<sup>3</sup>

But besides exploring economic structures as a source of coalition coherence, we also engage with the possibility that some negotiation groups could highlight common topics that cross economically diverse countries, and that could then increase position similarity. At the UNFCCC, one alternative dimension of cross-national economic concerns is *climate vulnerability*. Notably, the risk of being exposed to similar climate change-induced disasters is a relatively conventional source of synergies in international climate politics (Sprinz and Vaahtoranta, 1994). Recent research shows that climate vulnerability has indeed united diverse UNFCCC parties on a similar front (Johnson and Urpelainen, 2019; Genovese, 2020). So, while we argue that economic development remains a dominant group-level factor for why countries take similar positions, we also conjecture that UNFCCC subgroups that include many vulnerable countries may converge on similar issues to highlight common priorities. Thus, our second hypothesis is that, conditional on some level of structural economic homogeneity, vulnerability-focused groups may also present relatively similar

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<sup>3</sup>By similar statements we intend statements that touch on more similar topics, and therefore are more likely to suggest similar positions. Evidently, governments may choose to talk about the same topics in different veins, hence possibly indicating different positions. However, with the exception of extreme positions, it is often likely that supportive positions and salience are correlated (Veen, 2011). This correlation has been also documented at the UNFCCC (Genovese, 2014; Bailer and Weiler, 2015). Later in the paper, we come back to when and how our empirical measures of positions may be more likely to capture common salience rather than exact preferences.

statements.<sup>4</sup>

To test our two hypotheses, we leverage the 2010-2016 UNFCCC high-level segment statements and use text-as-data methods to estimate the patterns of similarities in these documents (Grimmer and Stewart, 2013; Le and Mikolov, 2014).<sup>5</sup> Specifically, we employ the unsupervised text-as-data approach of ‘word embeddings’ in order to map the relative positioning of countries’ statements. The machine learning algorithm generates dyadic similarity scores for all UNFCCC countries. We statistically interrogate these scores to evaluate if and how countries are clustered by institutional demarcations embedded at the UNFCCC, from the original Annex 1 separation to more refined formal groupings with different characteristics.

Our analyses yield results in line with our theoretical reasoning. First, we find that the foundational division of developed and developing countries in the Annex of the UNFCCC is heavily reflected in the way states discuss issues in the years under scrutiny. Annex 1 (industrialized countries) and Non-Annex 1 (developing countries) consistently speak about different themes. Notably, and in line with our first hypothesis, we observe that the statements of the developed countries’ group tend to be more similar to each other than the statements of the developing countries in the non-Annex 1 group, which are generally more sparse. At the same time, and consistent with our second hypothesis, we observe that highly vulnerable countries’ coalitions also present more consistent, overlapping national statements; however, this holds only for small developing countries’ groups. We find no evidence that shared levels of vulnerability increase the likelihood of similar statements in developed countries-only or in mixed (developed-developing country) groups. Hence, there is no evidence that groups that attempt North-South alliances present congruent position statements.

The findings have implications for global climate policy as well as broader IR debates. While the data indicate that institutional divisions historically embedded on economic development are

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<sup>4</sup>Note that we intend vulnerability as the tendency to be damaged by climate change and climate-related events, and thus not simply being exposed to potential climate risks. Resilience is the opposite of vulnerability, as it is the ability to resist or recover from damage.

<sup>5</sup>Evidently, we make assumptions about the data generating process behind the official statements at the heart of this paper. We assume that these statements reveal genuine information on the issues that are more pressing to the governments’ domestic audiences. So, they are not purely strategic, nor that they are pure posturing. This intuition is rooted in a growing literature that makes a similar assumption (Genovese, 2014; Tobin et al., 2018).

sticky and potentially damaging to a constructive debate of policy issues at the UNFCCC, conflicts also take subtle forms and emerge within and across other official negotiation groups. Because of the strong affinity of their positions, developed countries are still the credible agenda setters of the post-Copenhagen climate regime (Victor, 2011). At the same time, countries with mixed economic profiles but interlinked climate change sensitivity exist and operate in relevant subgroups. Their cross-cutting interests — possibly clustered, as we suggest, on issues of risk, environmental vulnerability and climate adaptation — should become a central focus of institutional attention if the international community seeks to bridge persistent global divides.

More broadly, our study informs on the role of formal coalitions in international politics. On the one hand, our paper confirms the continued relevance of North-South politics at global negotiations (Miller, 1995; Hurrell and Sengupta, 2012) and the difficulties of rich-poor alliances in finding a unified voice (Narlikar, 2003). On the other hand, it adds new insights into the role and prospects of smaller, more coherent and possibly more strategic groupings. Altogether, the findings suggest that scholars need to take the North-South divide as a serious and problematic institutional legacy that will continue constraining international cooperation (March and Olsen, 1998; Pierson, 2000). At the same time, by revealing the unifying role of topics around vulnerability, our study indicates the importance of unveiling networks based on alternative dimensions of cross-country affinity.

## **2 Theoretical Background**

### **2.1 Institutional Roots of National Positions at IOs**

The determinants of national preferences at IOs are a central piece of international relations scholarship. Much of this research focuses on the domestic determinants of these positions, which are universally assumed to be influential according to the seminal two-level game of international negotiations (Putnam, 1988). More controversial is the role that external forces play on national positions (Walt, 1987). On this front, several contemporary scholars have concentrated on the effect of transnational actors such as multinational firms or non-governmental civil groups, which are largely expected to shape positions through lobbying and other informal transactions (Betsill et al., 2015; Green, 2013; Meckling et al., 2015). Still, nation states constitute the center of international

regimes, and so do their alliances. So how do coalitions within IOs influence national positions? Do they consistently tighten countries on closer positions, and if not, why?

A number of scholars have attempted to answer these questions, but the debate is still ongoing. Some have argued that organizational subdivisions can streamline national positions because the ‘market of clubs’ requires that countries interested in coalition membership overcome preference dissimilarities (Davis and Wilf, 2017). Accordingly, negotiation groups reinforce the path to a common outcome (Jupille, Mattli, and Snidal, 2013). Others have been more skeptical about the utility of negotiation groups on levelling national stands and forging international unity. Some view the proliferation of bargaining divisions as a form of ‘organized hypocrisy’ (Drezner, 2009; Hurrell and Sengupta, 2012) that allows major powers to continue attracting the average policy position and dominate international affairs. Importantly, this side of the scholarship suggests that formal groupings tend to fractionalize the global order, give advantages to powerful countries, and leave other parties scattered and disharmonized (Ikenberry, 2011; Tierney, 2014).

Our theoretical framework builds on this distributional argument, and specifically the intuition that membership in formal negotiation groupings shapes national positions at IOs, but that coalition groups *do not equally influence all countries* and not in the same way. Our argument is two-fold. First, in line with classical institutionalist views (Mearsheimer, 1994; Abbott and Snidal, 1998), we maintain that the distributional politics of international negotiations tend to favour countries that organize following common structural characteristics, in particular similar economic profiles. As classical institutionalists suggest, economic homogeneity is one of the primary reasons countries have historically aggregated. Accordingly, common economic metrics remain a fundamental reason for common positions in a coalition. Similar levels of development and wealth suggest that countries agree on certain political priorities (e.g. mitigation over adaptation, or vice versa). So, long-standing groups whose members share basic economic interests may facilitate the identification of common political grounds, and may increase the likelihood that members also draft common negotiation points together. Empirically, this implies that, *the more homogeneous the negotiation group, the more similar the positions of the member states.*

At the same time, some negotiation groups may serve the very goal of bridging otherwise distant

countries towards common policies (Keohane and Martin, 1995). In the climate change regime, economic concerns are vital: levels of development have determined the origin of several coalition groups (Bailer and Weiler, 2015; Bhandary, 2017), and many of the older groups have formed around economic homogeneity. However, since the early 2000s a number of specific coalitions have emerged, sometimes with the intent to unite separate but geo-physically similar countries (e.g. small islands) or regional countries (Castro and Klöck, 2021). Groups with these countries could better influence the similarity of their members' positions on alternative topics that do not just fall under economic issues. On this, the transnational politics literature indicates that in recent years the growth of intergovernmental organizations on common trade and shared borders has slowed down, but more creative clubs based on 'unconventional' themes have burgeoned (Andonova, 2017). Consequently, 'heterogeneous' negotiation groups may still be purposeful in that they give a common voice to states on alternative yet salient issues. Empirically, this implies that *in groups whose members are only partially homogenous, positions may actually be similar if alternative characteristics are taken into account.*

To better contextualize these two propositions, we discuss formal divisions and the role of negotiation groups on national stands at the UNFCCC. The UNFCCC is a useful case for the study of coalition effects on position similarity because it is highly participatory but also features abundant institutional cleavages embodied by several official coalitions. Our discussion starts with describing the relevance of coalitions at the global climate negotiations since the 1990s, and then zooms in on the post-2010 negotiations where our empirical investigation concentrates.

## **2.2 UNFCCC Divisions, Party Groupings, and their Effect on Position Similarity at Global Climate Negotiations**

The literature on international climate governance has frequently highlighted the many divisions at the UNFCCC. Here we focus specifically on two types of groupings: 1) the historical separation of developed and developing countries embedded in the Annex 1 of the Convention; and 2) the smaller coalitions that progressively formed after the enforcement of the Kyoto Protocol. In what follows we concentrate on how these divisions and groups may have affected connections across national positions. We focus in particular on the effects of their internal composition on the similarity of



national statements that may (or may not) have lingered in recent UNFCCC negotiations.

The institutional divide between developed and developing countries is enshrined in the Annex 1 of the UNFCCC. At the first Conference of the Parties (COP) to the UNFCCC in 1995, the so-called Berlin Mandate specified that only industrialized countries would commit to quantitative emission reduction targets in what was meant to be the 1997 Kyoto Protocol. Many observers agree that this division between the Annex 1 (i.e. the industrialized countries bound to greenhouse gas targets) and the Non-Annex 1 (i.e. non-industrialized countries excluded from targets) turned out to be critical for the politics of the organization, not least because they are based on structural characteristics that delineate fundamental differences of international order (Russett, Oneal, and Davis, 1998). Accordingly, countries have consistently anchored their positions around either side of this division. On the non-Annex 1 side, developing countries have regularly insisted on retaining this distinction and opposed any commitments (Najam, 2005; Kasa, Gullberg, and Heggelund, 2008; Castro, Hörnlein, and Michaelowa, 2014). Similarly but with regards to the Annex 1, the vague terms of enforcement of the emission targets for these countries made the industrialized group a ‘privileged club’ (Gupta, 2014; Castro, Hörnlein, and Michaelowa, 2014). Belonging to the Annex 1 could have made member countries less likely to associate themselves to issues raised by Non-Annex 1 countries (Torstad and Saalen, 2018), and vice versa.<sup>6</sup>

As a consequence of this Annex separation, we assume that the statements of the members of each side of the Annex would presumably touch on similar topics and share relatively similar political visions. But also in line with our group composition argument, we recognize that these two groups are made up of different kinds of states. The Annex 1 is not only smaller but also more *uniform*, for it includes all countries with substantive levels of greenhouse gases as of 1995, hence with certain economic structures that tipped them over a certain threshold of industrialization (Roberts and Parks, 2007). By contrast, the non-Annex 1 encompasses the ‘residual’ countries, in some sense the ‘issue-takers’ of the UNFCCC (Victor, 2011), making it a much more *heterogenous* division. So, we expect Annex 1 countries to be more consistent to each other in formulating their positions, and thus to present more uniform statements than non-Annex 1 countries.

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<sup>6</sup>In a similar vein, Tobin et al. (2018) make inference on Paris pledge ambition based on manually selected clusters of member states that generally conform with Annex divisions.

Besides the Annex binary division, we focus on the effect of other coalition groups within the Annexes. As we mentioned before, historically coalitions at the UNFCCC have emerged from various considerations to pursue multifarious interests (Narlikar and Odell, 2006). At the UNFCCC, some groups reflect long-lasting economic similarities, while other coalitions encompass economically heterogeneous states, suggesting alternative common interests. How similar are the statements of these groups?

To answer this question, we consider specialized UNFCCC negotiation groups that formed following the adoption of the Kyoto Protocol. As mentioned, some of these groups are more economically uniform than others. For example, the **Umbrella Group**, formed in 1997, is one of the most mixed groupings, comprising of a loose bunch of non-EU developed countries that include Australia, Canada, Japan, Russia and the USA. Around the same time, 43 low-lying island nations in the Caribbean, Indian and Pacific ocean formed the equally diverse **Alliance of Small Island States**. The **Environmental Integrity Group** formed in 2000 comprises of Liechtenstein, Mexico, Monaco, South Korea and Switzerland. Poor countries collided as well: the **Least Developed Countries** (LDCs) was founded to include the most vulnerable countries in the world, largely overlapping with the African Group. Other smaller groups formed from 2010 onwards.<sup>7</sup>

According to several commentators, these groupings have deeply influenced UNFCCC politics. Many of these negotiating groupings emerged as sub-coalitions of Non-Annex 1 countries or mixed groups following a demand for more coordination points.<sup>8</sup> Furthermore, much like in other IOs (Hafner-Burton and Montgomery, 2006), these negotiation groups appeared to be a solution to an increasing fragmentation of the climate regime (Betzold, Castro, and Weiler, 2012; Tobin et al., 2018). At the 2015 Conference of the Parties (COP21), global climate change governance tried to turn away from the Annex division of the Kyoto regime in favor of these new coalitions (Bhandary, 2017; Bernstein and Hoffmann, 2018), and the Paris Agreement encourages new groups to come

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<sup>7</sup>These are: the Independent Alliance of Latin America and the Caribbean (AILAC) that includes Colombia, Costa Rica, Chile, Peru, Guatemala and Panama; the Bolivarian Alliance for the Peoples of our America (ALBA), which is made up of Venezuela, Ecuador, Bolivia, Nicaragua and Cuba; the Like-Minded Groups that represents China, India, Saudi Arabia, Malaysia and Iran; the Central Asia and the Caucuses, Albania and Moldova (CACAM); the Organization of the Petroleum Exporting Countries (OPEC) and the BASIC, which brings together the major emerging economies: Brazil, China, India and South Africa.

<sup>8</sup>For example, some negotiating groups have been critical to creating momentum for some issues, pushing to unexpected informal alliances, such as the small islands (AOSIS)-EU bloc.

forward to foster more synergies between the global North and global South.<sup>9</sup> Consistent with these views, we anticipate that these UNFCCC party groups also explain the consistency of national positions of their members, although we keep with the distinction that some groups may be more effective at fostering position similarity than others. Following our first hypothesis, we expect that the more economically homogenous the set of countries that are part of a negotiation group, the more cohesive the set of shared issues of that group.<sup>10</sup>

We have discussed how structural similarity in members of the compositionally uniform (e.g. economically homogeneous) groups at the UNFCCC would make countries form similar positions, while diversity may undermine consistency at the cost of dissimilar national positions (Narlikar, 2003; Castro, 2020). However, we also acknowledge that structural characteristics across countries can take other forms, and that alternate dimensions may also make national positions converge. The scholarship on international interdependence has long indicated that similar positions can emerge in subtle ways that are only transversally or indirectly related to economic links (Andonova, 2017; Hale, Held, and Young, 2013). While countries may unite in groups with other economically similar countries, similar fears of externalities and risks may also provide robust incentives for collision (Keohane, 1990).

Here, we focus specifically on *climate vulnerability* as an important dimension that, we argue, connects countries in certain IO groups. As some research has shown, climate risk links states with similar survival concerns (Betzold, Castro, and Weiler, 2012; Roger and Belliethathan, 2016; Watts and Depledge, 2018) and generates incentives to concentrate on the topic of vulnerability (Torstad and Saelen, 2018; Genovese, 2020). Accordingly, climate risk may not only be a relevant topic that is tangential to a wide array of different countries but – importantly for our investigation – it may also be a source of position clustering in groups that would otherwise seem inconsistent in terms of economic interests and alignment. This may be one explanation, for example, for the strong unity of the **Like Minded-Group of Developing Countries**.

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<sup>9</sup>Carbon Brief. 2015. ‘The UNFCCC negotiating alliances’. <https://www.carbonbrief.org/interactive-the-negotiating-alliances-at-the-paris-climate-conference>.

<sup>10</sup>This is supported by various anecdotes. For example, in the Umbrella Group, a coalition with only Annex 1 countries, Canada and Australia have had an easy time convincing coalition members on how to frame issues for the group based on similar policy demands. See <https://library.fes.de/pdf-files/iez/12689.pdf>.

Following this logic, our second hypothesis focuses on position similarity conditional on climate risk. We expect that, while UNFCCC groups made up by structurally (economically) similar countries are more likely to have convergent positions, similar levels of environmental vulnerability reflect shared concerns and responsibilities (Blaxekjaer and Nielsen, 2015). For example, sea-level rise and soil-based issues related to climate change have developed strong synergies in some UNFCCC groups (Bhandary, 2017). If similar levels of vulnerability generate similar rhetorics around climate politics, they may well explain similarity in national UNFCCC speeches.

Consequently, we expect climate vulnerability to explain the similarity of some of the least climate-resilient countries, which naturally tend to belong to the Non-Annex 1 group. At the same time, and in line with our main theory, we expect uniformity to still play an important role. Thus, we suspect that the more homogenous of the party groupings within the non-Annex 1 will concentrate on common climate vulnerability challenges and will more forcefully make this a convergent issue.<sup>11</sup>

### 3 Research Design

We now report how we proceeded with the operationalization and data gathering in order to test our expectations. To measure UNFCCC national positions, we first identified relevant national high-level statements that are presented at each annual Conference of the Parties (COP) and posted on the UNFCCC website. While a country’s true position on global climate issues cannot be discerned purely from official statements, analyzing these texts confers a number of advantages. For one, they are in a standard format, ensuring relevant comparisons across countries. Moreover, as others have shown (Genovese, 2014; Blaxekjaer and Nielsen, 2015; Tobin et al., 2018), they are highly visible and give a wide latitude for states to discuss what they want to discuss.<sup>12</sup> Last but not least, these

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<sup>11</sup>Evidently, we acknowledge that every country is out to further their own domestic interests based on a range of incentives that may not be captured by the institutional variables. It is thus reasonable to expect that conflicts at the climate negotiations extend to other broader concerns in international politics (Hovi et al., 2017). In the analyses we also incorporate covariates of speech similarity that may be systematically related to other international connections and constructions that are only indirectly feeding in the UNFCCC agenda. Shared geography (Weidmann, Kuse, and Gleditsch, 2010) and common historical patterns (Hochstetler and Viola, 2012; Vihma, 2011) could represent sources of common interest that materialize in speech similarity.

<sup>12</sup>While some scholars have shed some doubt of the usefulness of the high-level statements to study political patterns at the UNFCCC, it is still the case that these statements embody a political vision, even if partial, and are potentially more useful than the many other technical papers countries share at each COP. As the United Nations indicate, the high-level statements “provide a reasonable bell weather of the priorities of different states.”

texts are useful for our purposes because it is known that their release usually follows coalition meetings, so if these were to be meaningful the national statements would be adjusted accordingly.

The extraction of UNFCCC national positions and the identification of similarity was done with quantitative text-as-data methods. Applying text-as-data practices to the numerical measurement of national positions at the UNFCCC is increasingly popular (Weisser, 2014). A major advantage of this approach is the automatization of the mapping of large numbers of texts. These applications also allow for an efficient, unbiased and comprehensive overview of representative documents. While frequentist approaches have been used to provide indicators of relative positions of countries at the UNFCCC climate negotiations (see, e.g., Bagozzi, 2015), little systematic work has been proposed to explore similarities across countries' positions, i.e. as networks.<sup>13</sup> Furthermore, despite the interest in post-Copenhagen international climate politics, few studies have used these methods to document cross-national positions after the 2009 negotiations. This is what we propose in our measurement exercise, which we describe below.

### 3.1 Data on UNFCCC National Statements

We collected all the official high-level segment speeches at the seven annual UNFCCC conferences between 2010 (the earliest conference for which all countries' national statements are reported in readable format on the UNFCCC website) and 2016. We converted all the statements into English-language machine-readable texts, handling them as a corpus following common text-as-data practices (see Appendix for technical details). The result is 959 statements for 169 countries. Noticeably, this sample is representative of the whole community of UNFCCC members.<sup>14</sup>

A common computational way to handle this type of textual data is via extraction and classification strategies. These involve measuring and scaling known words from a vocabulary – the so-called bag-of-words approach.<sup>15</sup> While we engage with the family of bag-of-words methods for base-

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<sup>13</sup>Various empirical research relies on texts to code similar positions at the UNFCCC, such as Castro, Hörnlein, and Michaelowa (2014); Tobin et al. (2018). However, many of these works deductively hand code positions from texts (see, e.g., Blaxekjaer and Nielsen, 2015). Those that are more automatized (e.g. Castro, 2020) often focus on case studies that do not comprehend a universal sample of countries.

<sup>14</sup>All statements were retrieved from the UNFCCC website at [https://unfccc.int/submissions\\_and\\_statements](https://unfccc.int/submissions_and_statements).

<sup>15</sup>An example of a bag-of-words estimation processes is the Wordfish algorithm, which represents each text as a vector of word counts and then estimates document and word parameters by a Poisson process. This algorithm compares texts efficiently, but works well only under certain conditions – including a sufficient (but unknown) number of documents and unique words. Another simple type of bag-of-words approach is the Naive Bayes algorithm. For

line identification and alternate descriptions reported in the Appendix, we concentrate our main investigation on a second approach, called word embeddings (Mikolov et al., 2013). In contrast to the parametric and constrained strategies of many bag-of-words approaches, word embeddings use neural nets to create a numeric representation for each word in a corpus, and in effect they encode semantic relationships among words. Put simply, this algorithm learns the meaning of each word by their context.<sup>16</sup> Because our central motivation is to learn about *relative* positioning across UNFCCC members, we concentrate on the differences in these embeddings across countries to explore semantic distances in national statements.

A preliminary description of the collected statements provides some initial but relevant observations. On average, the national statements at the High-Level Segment of the UNFCCC are short (844 average words in length) but vary substantially (with a standard deviation of 360). A large majority of the UNFCCC member states present at least one statement in the course of the seven meeting identified in our study, but not all propose a statement every year. The countries with more frequent speeches (i.e. with more than 5 national statements out of 7 conferences) are 73, of which 39 are developed countries (Annex 1).

Substantively, the texts cover a large range of topics. A simple topic model analysis (Blei, Ng, and Jordan, 2003) indicates that these include issues of development (with top words such as ‘*growth*’, ‘*economic support*’), cooperation (‘*commitment*’, ‘*agreement*’), as well as specific concerns, e.g. ‘*land*’ and ‘*technology*’.<sup>17</sup> Importantly, there are slightly different patterns of topics if we split the texts following the institutional dividing lines at the UNFCCC. For example, the dominant topics in the Annex 1 countries’ texts are related to mitigation captured by top words such as ‘*carbon emissions*’ and ‘*finance*’. Vice versa, the topic models based on the non-Annex 1 texts show that these countries are more concerned with ‘*adaptation*’ and - importantly for our second hypothesis - ‘*damage*’ and ‘*vulnerability*’ – issues that we expect to be relevant for those coherent,

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an application of these methods to UNFCCC documents (specifically, the National Communications), see Genovese (2014).

<sup>16</sup>For example, a properly trained set of word vectors can produce a representation of words where the distance between ‘man’ and ‘king’ is the same as the distance between ‘woman’ and ‘queen’. For a more detailed description of the steps undertaken by the word embedding algorithm, see the Appendix.

<sup>17</sup>This model, which is based on a Latent Dirichlet Allocation, is reported in the Appendix. The identified topics in large part replicate the results already shown in other studies, e.g. Bagozzi (2015); Castro (2020).

low-income groups focused on loss and damage. These patterns may be interpreted as prima facie evidence of the ‘eco chamber’ phenomenon within developed and developing countries groups, and the important role of some salient issues (e.g. climate vulnerability) within some groups, to which we come back to later in the paper.

It is also noteworthy that the texts, which vary substantively across countries, do not vary much across time. For example, we find that several key terms (e.g. ‘*insurance*’, ‘*solidarity*’, ‘*ambition*’) are relatively steady and do not deviate from the average mentions across the years. More systematic analyses based on forecasting algorithms are reported in the Appendix further and show that the texts are ‘sticky’ on the time dimension.<sup>18</sup> This is interesting because it suggests that, despite occasional country-specific idiosyncratic speeches, for the most part countries focus on topics that are structurally pre-determined. In light of this, we collapse all the speeches from our yearly series into cross-sectional observations.

### 3.2 Outcome Variable: Similarity of UNFCCC Statements

The central outcome analyzed in this study is a score of similarity across all the countries presenting national statements at the High-Level Segment of the UNFCCC negotiations. To generate this score, we treated each country’s statement for the entire time period as a single document, because - as indicated earlier - the texts vary little across time. For our main analyses we include countries that participated in 5 or more meetings to limit the estimates to countries that are regularly involved in the negotiations while also including country texts that may not appear in all meetings, although the results do not vary qualitatively if we extend this threshold to countries that speak at 3 or 4 meetings (see Appendix).

Our word embedding algorithm operates on each country’s collapsed texts, which are represented numerically in one long vector (Le and Mikolov, 2014).<sup>19</sup> The model finds the corresponding vector for a document by maximizing the likelihood of the predicted words in the text. This way we calculate the measure *Similarity*, which captures the cosine similarity between each pair of country-

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<sup>18</sup>Namely, we used a set of training texts in earlier years to predict a test set of held-out texts in later years, and find that older texts have high forecasting capacity especially if the institutional variables central to our paper are included in the algorithm.

<sup>19</sup>We use the `doc2vec` algorithm to generate these vectors.

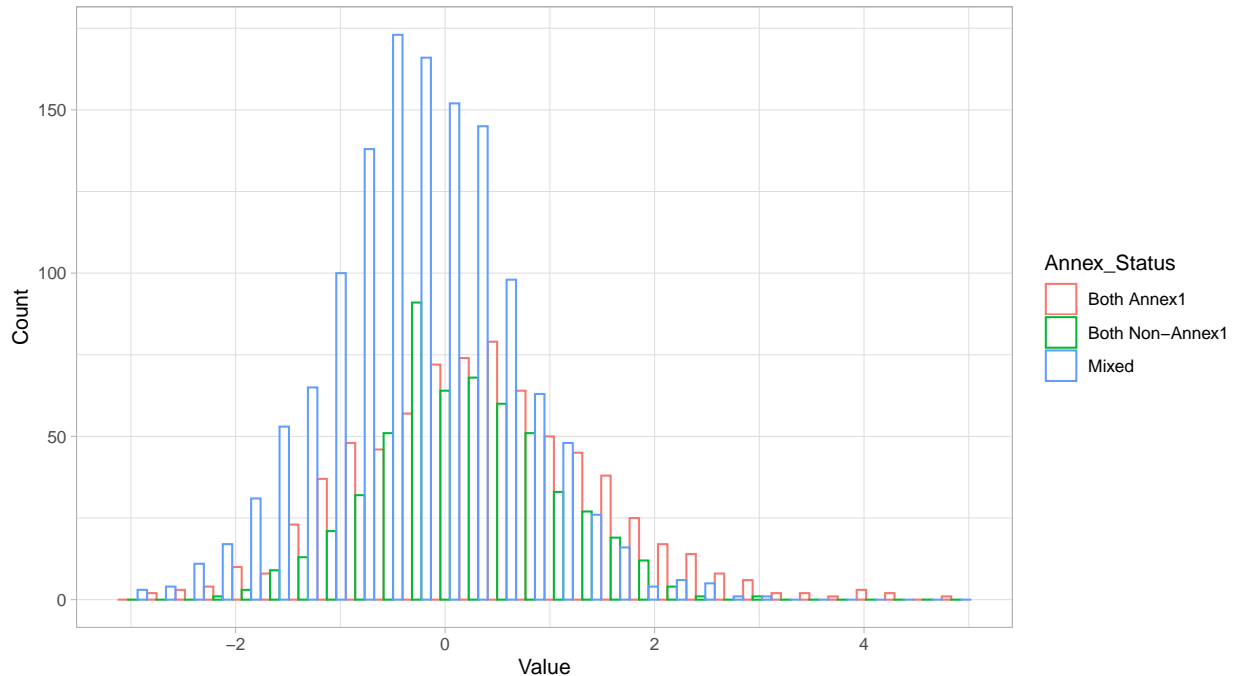


Figure 1: The histograms show the distribution of the standardized similarity scores computed from document vectors for each country’s statement (for all countries that presented at at least 5 UNFCCC meetings). We report the similarities by Annex 1 dyads, Non-Annex 1 dyads, and mixed dyads.

vectors. Higher similarity scores indicate more vectors that point in the same direction, and thus represent more similar UNFCCC statements. By calculation, our similarity scores represent dyadic measures.<sup>20</sup>

Figure 1 shows the distribution of these similarity scores after de-meaning the values and dividing them by their standard deviation (this transformation aids interpretation and is used in all the analyses in the paper). Overall there are several pairs of countries’ cumulative statements that have very little in common with each other. At the same time, there are some substantive connections across the texts. For example, there seems to be a more noticeable similarity among the texts of Annex 1 countries (red bars, with higher values) than Non-Annex 1 countries (green bars).

An analogous descriptive conclusion is drawn from Figure 2, which illustrates the similarity scores in a heatmap format, along with the country name and lines indicating the division between Annex 1 and Non-Annex 1 countries. This figure suggests that Annex 1 and Non-Annex 1 countries

<sup>20</sup>See the Appendix for more technical notes on cosine similarity.



are divided into two clusters, which are identified by the red dots grouping on the upper right triangle (i.e. the scores for dyads where both countries are in the Annex 1) and the lower left triangle (the scores for dyads where both countries are not in the Annex 1). Some ‘mixed pairs’ (mix of Annex 1/Non-Annex 1 countries) have similar statements, as shown by some red spots in the otherwise whiter square in the graph.<sup>21</sup> At the same time and importantly for the first part of our argument, the plot shows that the speeches of the Annex 1 countries are overall more similar than the Non-Annex 1 countries, suggesting a more cohesive group of similarly minded countries.

In light of these patterns, our question persists: are countries’ positions at the UNFCCC systematically more similar based on broad institutional divisions (e.g. the Annex 1) and the other negotiating groups? Does the composition of these coalitions matter for position similarity? We investigate these questions with the following analysis.

### 3.3 Explanatory Variables and Estimation Model

We analyze the country-pair similarity scores in a regression framework. Following our first hypothesis, we expect that Annex 1 states, which are mostly economically industrialized countries, hence more homogenous, have more similar scores. By contrast, the Non-Annex 1 includes a variety of states with different emission histories and development trajectories. Hence, we expect their statements to be on average less similar compared to the Annex 1 countries. For this test, our regression models include binary indicators for whether states in the dyad are *both Annex 1*, *both Non-Annex 1*, or whether the states are on separate sides of the Annex.

In a similar vein, we also expect UNFCCC party groupings to capture relevant variations in the statement data, especially among the more economically homogenous groups. To investigate this, we selected several of the main party groups represented at the UNFCCC in our time window, which are listed in Table 1. Our selection seeks to cover as many coalition groups as possible that are separate from the Annex 1 and Non-Annex 1 divide. For our purposes, we exclude some groups covered in other research (Klöck et al., 2021), for example the G77/China group (which almost

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<sup>21</sup>On the Annex 1 side, these pairs involve smaller European countries such as Czech Republic, Latvia and Cyprus. On the Non-Annex 1 side, the countries whose statements ‘cross border’ are richer ones such as Israel and Saudi Arabia but also emerging economies such India and the Philippines. For example, according to our estimates India’s statements are as similar to statements by Singapore and Namibia as to the speeches by Denmark and Switzerland.

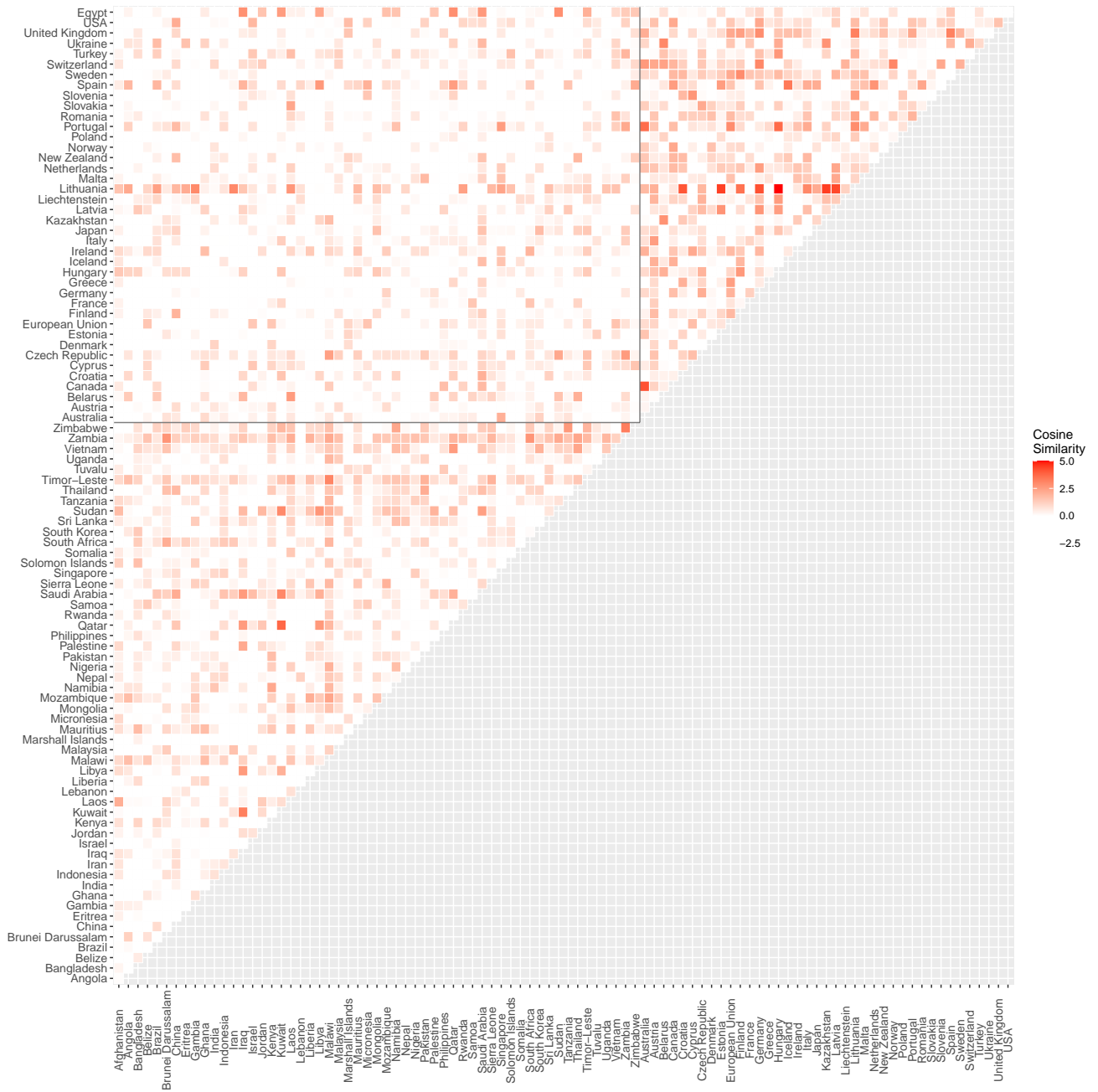


Figure 2: This heatmap shows the similarity scores (where a higher text similarity between two countries translates in higher values in the similarity score). Pairs of more similar statements are indicated by red, while less similar statements are indicated by white. The L-shaped lines demarcates the border between Annex 1 and Non-Annex 1 dyads. Dyads between Annex 1 and Non-Annex 1 countries are in the upper left square, and show lower similarity scores. The upper right triangle shows scores for dyads where both countries are in the Annex 1, and the lower left triangle shows scores for dyads where both countries are not in the Annex 1.

perfectly overlaps with most Non-Annex 1 countries) and the Arab and African Groups (which largely overlap with the OPEC and the LDC group, respectively).<sup>22</sup> We also exclude the Central Asia, Caucasus, Albania and Moldova Group (CACAM) group, which had become inactive by 2010, and the Cartagena Dialogue group, which only had an informal membership to the UNFCCC in the years of our time framework. Additional analyses show that introducing CACAM and Cartagena Dialogue as a homogenous group and a heterogenous group, respectively, does not change the broad meaning of our findings (the analysis, reported in the Appendix, indicate that (ex) CACAM countries have more similar statements, contrarily to the mixed Cartagena Dialogue members).

Table 1 describes the relevant characteristics of the ten coalition blocks chosen for our study. To denote the relative economic homogeneity of these groups, we highlight which groups share Annex 1 and Non-Annex 1 members as well as which have high- and low-income countries as measured via per capita World Bank GNI. We choose standard income metrics to distinguish these groups as income levels are one of the main determinants of climate preferences, and are also closely correlated with greenhouse gas emissions.

Five of the ten listed UNFCCC groupings include Non-Annex 1-only low-income nations, while the rest includes countries with more ‘mixed’ economic profiles. We create binary indicators that take the value of 1 if both states in a dyad are part of any of these specific UNFCCC groups, and 0 otherwise. We expect the countries sharing the membership of more homogenous groups to focus on more common themes and therefore have more similar statements, everything else constant.<sup>23</sup> We rely here on the party groupings as listed on the UNFCCC website.<sup>24</sup> We refrain from using more regional groups because, as the UNFCCC states, “these groups are not usually used to present

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<sup>22</sup>We realize the overlapping of members across these groups could be interesting to explore the complementarity and consistency of behavior across coalitions. However, including these groups in the fashion of dummy variables in a regression framework would induce collinearity. Exchanging these groups for the aforementioned ones does not qualitatively change our empirical results.

<sup>23</sup>Our classification of ‘homogenous’ and ‘mixed’ groups is based on the listed metrics, but other studies have considered some of these official groupings in slightly different ways. For example, Castro (2020) investigates the Like Minded Group (i.e. the Like-Minded Developing Countries coalition) as a heterogenous group, for it brings together emerging economies, oil-dependent monarchies and poor developing countries. In our coding we keep this as ‘homogenous’ because it includes only Non-Annex 1/developing countries *compared to other groups*, which Castro (2020) does not investigate. Other groups are however interpreted consistently to other literature, see for example the discussion about AILAC in Blaxekjaer and Nielsen (2015); Watts and Depledge (2018).

<sup>24</sup><https://unfccc.int/process-and-meetings/parties-non-party-stakeholders/parties-party-groupings> (last checked: 26 September 2020).

UNFCCC Negotiation Groups	<i>Annex I members</i>	<i>Non-Annex I members</i>	<i>Above mean world income members</i>	<i>Below mean world income members</i>
<i>Mixed groups:</i>				
Environmental Integrity Group (EIG)	yes	yes	yes	yes
Umbrella Group	yes	no	yes	yes
Alliance of Small Island States (AOSIS)	no	yes	yes	yes
Organization for the Petroleum Exporting Countries (OPEC)	no	yes	yes	yes
Bolivarian Alliance for the Peoples of America (ALBA)	no	yes	yes	yes
<i>Homogenous groups:</i>				
Least Developed Countries (LDC)	no	yes	no	yes
Brazil, South Africa, India and China (BASIC)	no	yes	no	yes
Coalition for Rainforest Nations (Rainforest)	no	yes	no	yes
Independent Association of Latin America & Caribbean (AILAC)	no	yes	no	yes
Like Minded Group (LMG)	no	yes	no	yes

Table 1: The table describes the main party groupings investigated in this paper. Information on the countries listed under each party grouping are available at the UNFCCC website. We exclude the African group because it is de facto included in the Like-Minded Group. Also, we exclude the Arab Group because it is overlapping with OPEC. “*Mean world income*” refers to 2015 (nominal) per capita GNI from the World Bank.

the substantive interests of Parties and several other groupings are more important for climate negotiations.” Our list of active groups also has some peculiarities to the coalitions listed in other UNFCCC studies, e.g. Castro and Klöck (2021). As we said earlier, it does not cover some more transversal informal groups, e.g. the Cartagena Dialogue. We also refrain from accounting for the European Union, which fosters members’ common negotiating positions but also itself is a Party to the Convention (in robustness checks we show that excluding the EU as a ‘party’ does not affect our estimates).

The dummy variables above capture the essence of our argument of structural conformity of negotiation groups. At the same time, it is evident that national positions may also converge on the basis of other factors that matter at the UNFCCC. Therefore, we consider other variables that may capture these dimensions. To start, and following our second hypothesis, we are interested in tracing the (conditional) effect of climate risk and vulnerability. Here we use the Climate Risk Index (CRI) (Kreft et al., 2013). This estimates each country’s vulnerability in terms of deaths and income losses to weather-related events (e.g. storms, floods, and heat waves). Due to the dyadic nature of our dataframe, we calculate the *CRI Difference* across the dyads of our dataset. This corresponds to the value of the difference between each country’s CRI score, standardized on a scale between -1 and 3. Choosing alternative measures of climate vulnerability, such as the

the ND-GAIN index, does not affect the substantive inference of our findings (as we report in the Appendix).

To improve our statistical estimates we also include other control variables, which capture other sources of international positions relevant in international climate politics. First is the similarity of ideology across incumbent governments, because one may expect countries that vote more similarly on generic international issues to also take more similar positions at specific IOs such as the UNFCCC. To capture this affinity, we use national votes in the essential UN decision-making chamber, the General Assembly. Specifically, we construct the variable *UN Ideal Point Difference*, which is the absolute value of the difference in the ideal points estimated from voting patterns at the United Nations General Assembly (Bailey, Strezhnev, and Voeten, 2017). Second, we control for the *Geographic Distance* among countries. Geographically proximate countries inhabit similar environments, so we expect them to also have more similar UNFCCC speeches. To capture geographic distance, we include the log of distance between capital cities (Weidmann, Kuse, and Gleditsch, 2010). Third, to parse the true effect of climate-specific concerns from general security concerns, we include a measure of national security interests as proxied by shared security alliances. To measure security alliances (including defense commitments and military treaties), we use the Correlates of War formal alliance dataset (Gibler and Sarkees, 2004). Our *Common Treaty* variable is a crude proxy of shared security interests and takes on a 1 if the two countries had any formal treaty during the entire time period. We also operationalize the *GDP per capita Difference* using metrics of GDP per capita from the World Bank Indicators. This variable proxies the difference in the economic development of each country, because we expect pairs of countries with more similarly developed economies to hold more similar positions at the UNFCCC. Finally, we control for whether the two countries in the dyad use different languages (for example, one country’s text was in English and the other had to be translated from Spanish), since the similarity scores may be driven these differences.

Following the discussion of our indicators, we collapse the time dimension and take the average of all non-missing values to produce a cross-section where the unit of analysis is the dyad. Both the similarity measures and the difference scores are standardized to aid interpretation. For our

analyses, we use OLS to estimate normal dyadic linear models with dyadic standard errors (i.e., errors calculated with a non-parametric robust variance estimator, as per Aronow, Samii, and Assenova, 2015).

## 4 Results

### 4.1 The Composition of Negotiation Groups Drives Countries' Position Similarity

In our first set of regressions we start by correlating the dummies of common Annex 1/Non-Annex 1 memberships with the similarity scores. The results of our estimations are in Table 2, where we present both a naive specification (Model 1) and the full specification with covariates (Model 2).

	<i>Dependent variable:</i>	
	Similarity Scores	
	(1)	(2)
Both Annex 1	0.623*** (0.090)	0.351*** (0.106)
Both non-Annex 1	0.130** (0.051)	0.058 (0.055)
CRI Difference		-0.016 (0.019)
UN Ideal Point Difference		-0.051** (0.023)
Geographic Distance		-0.227*** (0.033)
GDP Per Capita Difference		0.004 (0.017)
Treaty Indicator		0.015 (0.120)
Both Arabic		1.427*** (0.302)
Both French		-0.149 (0.128)
Both Spanish		1.162*** (0.393)
Observations	9,180	9,180
R <sup>2</sup>	0.024	0.077
Adjusted R <sup>2</sup>	0.024	0.076
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01	

Table 2: This table shows the results of OLS models where the dependent variable is the similarity score for each dyad. All continuous variables, including the dependent variable, are standardized. Dyadic standard errors are used.

Our first model highlights the importance of connections embedded in the old Annex divisions. We find that two countries belonging to the same group are significantly more likely to cover more similar topics and, thus, to have more similar speeches. Evidently, long-standing institutional separations made in the early 1990s have a strong effect on the international politics of climate change today. Our second model however shows that when controlling for alternate sources of position affinity the coefficient of the Non-Annex 1 countries loses precision. In other words, Annex 1 states seem to be on average more similar to each other than Non-Annex 1 states. These correlations corroborate the descriptive evidence highlighted earlier in the paper and are in line with our first hypothesis. In particular, this finding suggests that nations in the more coherent institutional group(s) coordinate their statements with regards to their in-group members – rather than seeking to bridge with more distant groups.

But recall that our argument does not apply only to the Annex 1 division. We expect that the effect of group composition on position statements extends to other negotiation coalitions. According to our theory, countries would also anchor their positions to these groups too. Consequently, we also run regressions where we investigate the effect that these more refined party groupings have on the similarity of countries' national statements at the UNFCCC.

Table 3 reports these estimations. In line with our expectations, we find that the statements of countries from more homogeneous groups – i.e., the parties that include either only Annex 1/high-income countries or Non-Annex 1/low-income countries – are consistently more similar. In fact, the coefficient of all 5 of these 'more homogenous' groups are positively and statistically significantly correlated with more similarity among countries that belong to them. Notably, mixed groups such as AOSIS (which includes all sorts of low-lying islands, from Singapore to Haiti) or the Environmental Integrity Group (which includes a range of countries from Switzerland to Georgia) do not accurately capture variation in the similarity scores. The same is true for OPEC, which the literature has long identified as a limited and somewhat dysfunctional group (Colgan, 2014). These results are particularly stable if we include the dummies for Annex 1/Non-Annex 1 countries and our other covariates.

	<i>Dependent variable:</i>		
	Similarity (Scaled)		
	(1)	(2)	(3)
<i>Mixed groups</i>			
EIG	0.692*** (0.255)	0.646** (0.273)	0.925 (0.566)
Umbrella Group	0.613*** (0.213)	0.181 (0.188)	0.385* (0.220)
AOSIS	0.268** (0.111)	0.276** (0.113)	-0.024 (0.140)
OPEC	0.163 (0.207)	0.171 (0.207)	0.019 (0.149)
ALBA	0.184 (0.191)	0.188 (0.192)	-0.209 (0.236)
<i>Homogenous groups</i>			
LDC	0.341*** (0.114)	0.350*** (0.114)	0.387*** (0.129)
BASIC	0.677*** (0.137)	0.684*** (0.139)	0.675*** (0.181)
Rainforest	0.101 (0.083)	0.110 (0.082)	0.153* (0.091)
AILAC	1.416*** (0.373)	1.423*** (0.374)	1.084*** (0.377)
LMG	0.353*** (0.110)	0.361*** (0.110)	0.344*** (0.120)
Both Annex 1		0.625*** (0.091)	0.306*** (0.102)
Both non-Annex 1		0.058 (0.043)	0.067 (0.056)
CRI Difference			-0.021 (0.018)
UN Ideal Point Difference			-0.040* (0.022)
Geographic Distance			-0.230*** (0.034)
Common Treaty			0.132 (0.116)
GDP Per Capita Difference			0.023 (0.018)
Different Language			-0.122** (0.054)
Observations	13,366	13,366	9,591
R <sup>2</sup>	0.015	0.034	0.079
Adjusted R <sup>2</sup>	0.015	0.034	0.077

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 3: This table shows the result of OLS models where the dependent variable is the similarity score for each dyad. Dyadic standard errors are used.



In sum, both the Kyoto Protocol-era Annex and the post-Kyoto UNFCCC negotiating groups seem to influence the way countries converge on common issues. In particular, developed countries – in terms of Annex 1 members – and nations in relatively homogeneous groups have the most similar and consistent position statements. These are intuitive yet theoretically important findings. The fact that the institutionalized divisions at the UNFCCC are strongly correlated with national positions clarifies that international disenfranchisement, at least in this IO, is hardly happening. Furthermore, the results confirm that global discussions at the UNFCCC are centered on interests and issues of countries that do not overlap much. This implies that an organization like the UNFCCC may suffer from ‘silo effects’ rather than representing a forum for fluid cross-group conversations. Groups within the UNFCCC seem relevant at coordinating national statements, but only if they are composed by similar states.

The quantitative results are corroborated by a qualitative review of the statements, which gives more credibility to our assumption that coalitions can influence positions (and not necessarily the other way around). The coordination power of homogenous coalitions is highlighted, for example, by issue convergence among BASIC countries at the 2013–2016 COPs, when all four members systematically called for developed countries to demonstrate more ambition. The Like-Minded Group also showed influence of association: as Iran’s representative mentioned in their brief speech at the Polish COP in 2013, “first and foremost, I would like to associate myself with the statements made on behalf of G77 and China as well as the positions delivered by the Like-Minded developing countries.” And most evidently, there is strong coordination among the developed (Annex 1) members. In our time window, Canada and Australia – two members also of the ‘mixed’ Umbrella Group – systematically propose similar positions.<sup>25</sup> This similarity does not translate to other Umbrella Group members; for example, the statements of Australia and Canada have little similarity with the statements of Belarus and Ukraine.

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<sup>25</sup>In Durban (2011), Canada said “our position has long been clear: we support a new international climate change agreement that includes commitments from all major emitters. That is the only way we are going to achieve real reductions and real results. We must be fair if we are to be effective.” Along the same lines, Australia said: “[our] position remains unchanged - we will be part of a second commitment period only if it is a part of a wider agreement covering all major emitters. We have this approach because we are committed to an environmentally effective outcome. The reality is that a second commitment period of the Kyoto Protocol may only cover 15 percent of global emissions. A more comprehensive agreement is fundamental for environmental effectiveness.”

## 4.2 The Conditional Impact of Climate Vulnerability on Negotiation Group Effects

Our previous analysis focused on the link between co-membership in a UNFCCC coalitions and the similarity between two states' national statements. However, other dimensions of group affinity may drive similarity of speeches, especially among some developing countries' groups that we identified to speak more cohesively than others.

Once again, we posited that some types of developing countries tend to converge on some coherent topics, in particular on issues of risk and sensitivity to climate change (Castro, 2020; Genovese, 2020). Along these lines, environmental vulnerability could be an especially relevant moderator of the effect of groups on similar positions. In order to systematically explore this hypothesis, we further operationalized the *CRI Difference* between pairs of countries to test if this has conditional effects for Annex 1 and non-Annex 1 dyads. We do so by interacting the *CRI Difference* variable with the dummy variable indicating if the dyad contains both Annex 1 countries or both non-Annex 1 countries. Our main expectation is that the interaction between the Non-Annex 1 dummy and *CRI Difference* will be more negative and meaningful than the equivalent interaction with the Annex 1 dummy, given the higher political salience that vulnerability plays in developing countries. Furthermore, we expect the interaction to be more significant for the more homogenous developing country-only subgroups.

The results from this other set of regressions are presented in Table 4. Model 1 shows that for Annex 1 dyads, there is no heterogeneous effect of the *CRI Difference* variable. In other words, two rich countries' positions do not present more similar statements as a function of whether they share more similar levels of climate vulnerability. By contrast, Model 2 shows that the effect of *CRI Difference* on the similarity scores is statistically smaller when both countries in the dyad are non-Annex 1 states, at least at the 10 percent statistical level. These results can be visualized in the plots in Figure 3. Here the Annex 1 plot shows that the interaction effects are all estimated above the zero line, while the Non-Annex 1 plot shows that the statement similarity is higher with smaller dyadic differences in climate risk.<sup>26</sup>

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<sup>26</sup>The p-value for the interaction between *CRI Difference* and non-Annex 1 dyad is 0.6 and suggests that there is a somewhat substantive relationship. Note also that confidence intervals in Figure 3 stop overlapping if calculated at that  $p < .10$  significance threshold.

	<i>Dependent variable:</i>	
	Similarity Scores	
	(1)	(2)
Both Annex 1	0.058 (0.055)	0.052 (0.054)
Both non-Annex 1	0.363*** (0.105)	0.348*** (0.105)
CRI Difference	-0.021 (0.019)	0.019 (0.026)
UN Ideal Point Difference	-0.053** (0.023)	-0.055** (0.023)
Geographic Distance	-0.229*** (0.033)	-0.229*** (0.033)
GDP Per Capita Difference	0.004 (0.017)	0.004 (0.017)
Treaty Indicator	0.012 (0.119)	0.010 (0.119)
Both Arabic	1.422*** (0.302)	1.416*** (0.303)
Both French	-0.149 (0.128)	-0.138 (0.128)
Both Spanish	1.158*** (0.393)	1.155*** (0.394)
CRI Difference * Both Annex 1	0.087 (0.076)	
CRI Difference * Both non-Annex 1		-0.060* (0.033)
Observations	9,180	9,180
R <sup>2</sup>	0.077	0.078
Adjusted R <sup>2</sup>	0.076	0.077

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 4: This table shows the result of OLS models where the dependent variable is the similarity score for each dyad. The *CRI Difference* variable is interacted with variable indicating if both countries non-Annex 1 for model (1), and if both countries are in Annex 1 for model (2). All continuous variables, including the dependent variable, are standardized. Dyadic standard errors are used.

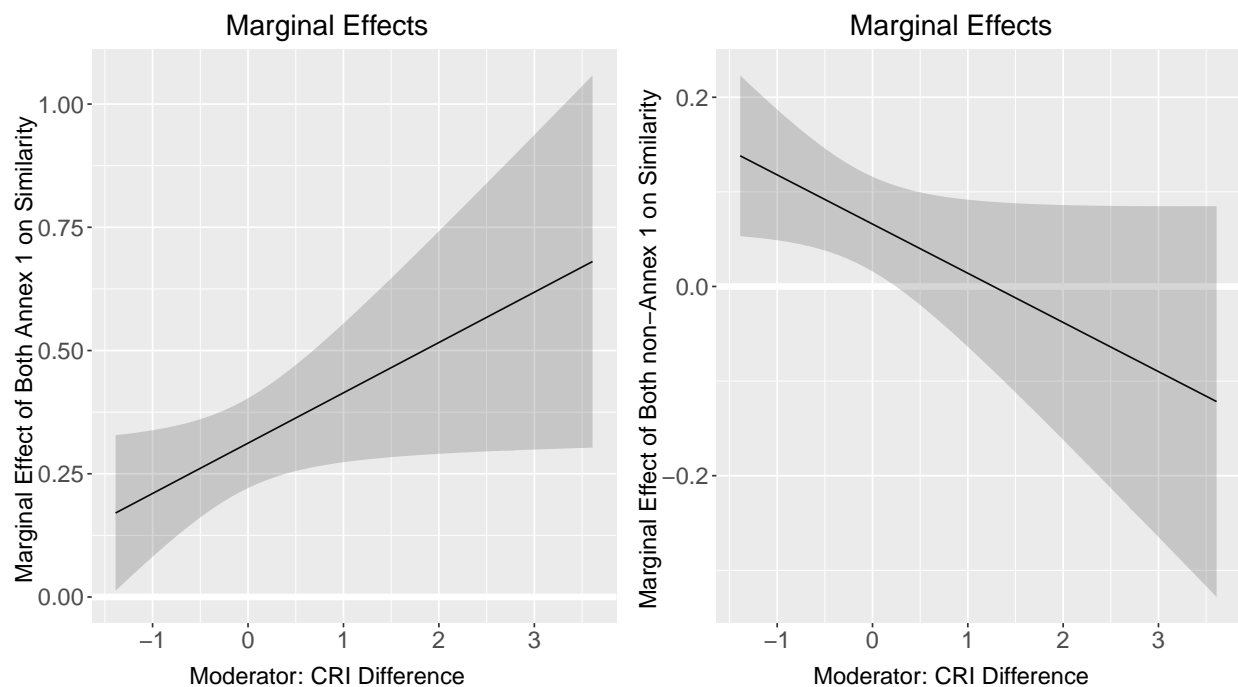


Figure 3: The effect of sharing Annex 1 (left) and Non-Annex 1 (right) groups on countries' position similarity as the climate risk difference increases. The models include all the covariates and are based on the estimates in Table 4. The grey bands indicate 95% confidence intervals.

The finding here is that vulnerability to climate change only drives the similarity in speeches for non-Annex 1 dyads, but has no effect on speeches for Annex 1 dyads. This is likely because vulnerable countries in the Non-Annex 1 more similarly tend to speak about resilience and disasters.<sup>27</sup> What about the role of institutional conformity in smaller groups? If the homogenous composition of institutional groups really matters, we would expect more structurally homogenous groups made up of developing (Non-Annex 1) countries to have more similar speeches, especially at low differences of climate vulnerability. In simpler words, the interaction term with *CRI Difference* should be negative and significant for the more homogenous UNFCCC groupings identified in the previous part of the paper.

To investigate this question, we estimate how party grouping predict position similarity as the difference between the CRI scores in a dyad changes. The results are in Table 5, which presents models where the main independent variables are interaction terms between the dyadic difference

<sup>27</sup>A strong clustering of adaptation and climate risk issues is also consistent with what separate topic models suggest (see Appendix).

in climate risk and each binary indicator for the UNFCCC party groupings.<sup>28</sup> We find that the interaction term for *CRI Difference* and the dummy indicators for the heterogeneous party groups is generally positive, but not statistically significant. In contrast, the coefficient of the interaction between the dyadic climate risk difference and the party indicators for the homogeneous groups is negative. In the second model that includes the covariates, this interaction is also statistically significant for some of the mixed groups. Importantly, the interaction is significant for the two groups that have most forcefully championed adaptation and resilience issues: the Like Minded Group and the Coalition for Rainforest Nations (Blaxekjaer and Nielsen, 2015).

The additional results suggest that shared vulnerability connects the statements of some countries, but mostly developing countries in coherent and economically homogenous groups. This finding matches a qualitative analysis of the high-level statements. In the Annex 1 camp, countries sporadically mention vulnerability and their level of climate risk does not affect their focal topics much. As for the developing countries, some nations consistently refer to their common climate risks (e.g. ‘cyclones’ are mentioned several times in the statements of LDC parties), but others do not. On this end, particularly relevant is the case of AOSIS members, which include nations such as Singapore, Tuvalu, and the Marshall Islands. According to our similarity measure, Singapore’s dyadic score with Tuvalu and the Marshall Islands is consistently below zero. Interestingly, across all the analyzed COPs Singapore never mentions the word ‘vulnerable’ (or ‘vulnerability’). By contrast, Tuvalu mentions ‘vulnerability’ 12 times. So, despite co-membership, these islands do not harmonize their statements on similar topics (e.g. climate risks).

In sum, our data points to two broad findings. On the one hand, we uncover the role of long-lived structural and economic divisions and the development-based politics in UNFCCC statements. Accordingly, the North-South separation seems to continue shaping the way countries at the UNFCCC choose and discuss topics. On the other hand, the data also suggest the influence of other sources of interdependence, and especially the role of discussions pivoted around vulnerability in recent years. Altogether, this evidence indicates that institutional alliances have major long-term implications for international organizations, but that bottom-up groups (which tend to be more homogenous

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<sup>28</sup>Models where we estimate each single interaction for each party grouping at a time do not change the qualitative inference of the results, as reported in the Appendix.

	<i>Dependent variable:</i>	
	Similarity (Scaled)	
	(1)	(2)
CRI Difference	-0.042*** (0.011)	-0.014 (0.011)
<i>Mixed groups</i>		
EIG	1.241* (0.635)	1.365** (0.617)
Umbrella	0.603*** (0.146)	0.398*** (0.145)
OPEC	0.138 (0.160)	0.021 (0.156)
ALBA	0.250 (0.315)	-0.258 (0.307)
EIG * CRI Difference	1.681 (1.029)	1.700* (0.999)
Umbrella * CRI Difference	0.035 (0.162)	0.052 (0.157)
OPEC * CRI Difference	0.288 (0.212)	0.177 (0.206)
ALBA * CRI Difference	0.235 (0.329)	0.387 (0.320)
<i>Homogenous groups</i>		
LDC	0.489*** (0.069)	0.408*** (0.070)
Rainforest	0.111*** (0.038)	0.138*** (0.038)
AILAC	1.325*** (0.249)	0.954*** (0.243)
LMG	0.370*** (0.078)	0.326*** (0.076)
LDC * CRI Difference	0.010 (0.077)	0.027 (0.074)
Rainforest * CRI Difference	-0.050 (0.040)	-0.074* (0.039)
AILAC * CRI Difference	-0.087 (0.310)	-0.188 (0.301)
LMG * CRI Difference	-0.076 (0.073)	-0.104* (0.071)
Both Annex 1		0.316*** (0.045)
Both non-Annex 1		0.048* (0.026)
Covariates		✓
Observations	9,591	9,591
R <sup>2</sup>	0.020	0.077
Adjusted R <sup>2</sup>	0.018	0.075

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 5: This table shows the result of OLS models where the dependent variable is the similarity score for each dyad. The *CRI difference* variable is interacted with variable indicating which negotiation groups countries belong to. All continuous variables, including the dependent variable, are standardized. Dyadic standard errors are used.

and focused) can foster more cooperation and position harmonization, hence potentially bridging some IO divisions.

## 5 Conclusion

It is often assumed that predicting conflict and agreements in IR requires a minute understanding of the domestic politics of national parties. However, we argue that investigating cooperation at IOs should equally pay attention to the institutional roots of national positions, which can be often found in the divisions and groups formed in the life of many IOs. In line with more classical views of international institutions, we argue that the group composition established in these divisions is critical to explain why their members may share interests and show similar positions. At the same time, we conjecture that these groups sometimes provide opportunities for linkages among otherwise dissimilar countries. We focused on the case of global climate cooperation to sharpen the expectations of our argument.

Understanding how climate cooperation positions are related and to what extent they overlap or diverge is critical to tackle the paramount issue of climate change, but is also insightful to explore the role of subgroup networks given the highly distributional nature of this issue. With the use of new text-as-data methods, we present new indicators of the similarity of national positions at the UNFCCC that allow us to investigate these patterns in years following the 2009 Copenhagen meeting. Our data confirms the strong power of group uniformity. Specifically, we show that the Annex 1/Non-Annex 1 categories strongly predict differences in national statements. At the same time, our empirical results also present subtle features of national positions that go beyond this old division, and are conditional on tangential themes of climate politics. In our case of climate negotiations, we focus specifically on the alternative patterns of similarity generated by climate vulnerability.

To the climate literature, our study suggests that past cross-national conflicts will continue to matter. The Annex 1 and Non-Annex 1 division continues to play a major role, as national positions reflect the traditional North-South divide over international climate policy. However, we also observe variation within and across these two groups that could lead the future of international

climate cooperation in different directions. Furthermore, negotiation groups vary in their coherence, with the most vulnerable countries and negotiation groups exhibiting higher within-group similarities than in other negotiation groups. Importantly, North-South negotiation groups have failed to achieve a high degree of similarity in their statements.

Future creative forms of the international climate regime will have to confront - and possibly exploit - this variation for the sake of reaching effective policies for decarbonization (Eckersley, 2012). For example, it may be worth focusing on specific countries whose positions are themselves mixed but have relatively high similarity scores across the spectrum of countries. These countries have the potential to act as bridges and connectors to reduce conflict and disagreement at global negotiations. To leverage the mixed positions of these countries for the common good, it will be critical to look into their domestic preferences, their internal economic structures, and assess how these could be catalyzed for global climate policy (Kammerer and Namhata, 2018).

To the IO literature, our paper sheds light on the depth of institutional roots of national positions and reinforces old arguments on the long-lasting implications of party groupings (March and Olsen, 1998; Pierson, 2000). More generally, our research contributes to a growing and productive research agenda for IR scholars interested in understanding how endogenous structures and institutions modify the coherence of international blocs and alliances in global negotiations (Baccini and Urpelainen, 2014; Häge, 2013; Tierney, 2014). By linking variation in domestic conditions to the behavior of international coalitions, future scholars can shed new light on complex yet relevant domestic-international interactions.



## 5.1 Data Availability

The data that support the findings of this study are available from the corresponding author upon request and will be publicly available, with supporting documentation and replication code, at a later date.

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