World Wide Web?
A closer look at the transnational online public discourse on climate change

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# Contents

Acknowledgments iii

Contents v

List of Figures vi

List of Tables vi

1 **Introduction**
   1.1 Transnationality of the online public discourse on climate change . . . . . . . . 2
   1.2 Role of online public discourse on climate change in the hybrid media system . . 4
   1.3 Methods to study transnational and multilingual public discourses on the web . 5
   1.4 Limitations and future research . . . . . . . . . . . . . . . . . . . . . . . . . . . 6

2 **Global climate change or national climate changes? An analysis of the performance of online issue publics in integrating global issues** 8
   2.1 Introduction . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 9
   2.2 Theoretical Considerations . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 10
      2.2.1 Issue Networks . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 10
      2.2.2 Degree and Scope of Transnationality . . . . . . . . . . . . . . . . . . . . 11
      2.2.3 Communicative Links: Hyperlinks and Referential Links . . . . . . . . . 12
   2.3 Data and Methods . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 13
      2.3.1 Case Selection . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 13
      2.3.2 Generating Issue Networks . . . . . . . . . . . . . . . . . . . . . . . . . . 14
      2.3.3 Extracting Referential Links . . . . . . . . . . . . . . . . . . . . . . . . . 16
      2.3.4 Measures . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 17
   2.4 Findings . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 18
      2.4.1 Degree of Transnationalization . . . . . . . . . . . . . . . . . . . . . . . 18
      2.4.2 Scope of Transnationalization . . . . . . . . . . . . . . . . . . . . . . . . 19
   2.5 Discussion . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 21
   2.6 Appendix . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 24

3 **Overcoming language barriers: Assessing the potential of machine translation and topic modeling for the comparative analysis of multilingual text corpora** 25
   3.1 Introduction . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 26
      3.1.1 Study 1: Robustness . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 27
      3.1.2 Study 2: Integrability . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 28
   3.2 Data and Method . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 30
      3.2.1 Web Scraping and Building of the Corpus . . . . . . . . . . . . . . . . . . 30
      3.2.2 Translation and Preprocessing . . . . . . . . . . . . . . . . . . . . . . . . . 31
      3.2.3 The Structural Topic Model . . . . . . . . . . . . . . . . . . . . . . . . . . 32
      3.2.4 Study 1: Robustness . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 35
      3.2.5 Study 2: Integrability . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 36
4 How climate change skeptics (try to) spread their ideas: Using computational methods to assess the resonance among skeptics’ and legacy media

4.1 Introduction ................................................. 51
4.1.1 Climate skeptics as political counter-movement .............. 52
4.1.2 Political counter-movements and mechanisms for media resonance ... 54
4.1.3 Political counter-movements and indicators for media resonance ... 55

4.2 Case selection, data, and methods ..................................... 58
4.2.1 Case selection .................................................. 58
4.2.2 Collecting data on the counter-movements’ communication .......... 58
4.2.3 Collecting data on mainstream debates in traditional media ........ 61
4.2.4 Measuring discursive resonance .................................. 61

4.3 Results .......................................................... 65
4.3.1 Continuous resonance .......................................... 67
4.3.2 Selective resonance ........................................... 69

4.4 Discussion ....................................................... 69

4.5 Supporting information .................................................. 73
4.5.1 S1 Appendix: Starting points for the snowball-sampling of websites .... 73
4.5.2 S2 Appendix: List of German legacy media ...................... 73
4.5.3 S3 Appendix: Topic labels and top words ....................... 74
4.5.4 S4 Appendix: Performance indicators for the semi-automated classifier .... 74

References ................................................. 88
List of Figures

2.1 Degrees of transnationalization (E-I index) across countries and link type. . . . 18
2.2 Scope of hyperlinks and referential links across countries. . . . . . . . . . . . . 20
3.1 Distributions of cosine similarity between documents per translation method pair. 37
3.2 Unique terms in the translated and preprocessed DTMs and their overlap. . . . 38
3.3 Matched topics. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 39
3.4 Cosine similarity of matched topics (first matches). . . . . . . . . . . . . . . . . 40
3.5 Topical prevalence correlations. . . . . . . . . . . . . . . . . . . . . . . . . . . . 41
3.6 Mean topic proportion (over all actors). . . . . . . . . . . . . . . . . . . . . . . 42
3.7 Relative frequency of topics as top topic. . . . . . . . . . . . . . . . . . . . . . . 43
4.1 Online sampling procedure. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 59
4.2 Salience of climate change (A) and resonance measures (B-F). . . . . . . . . . . . 66
4.3 Mean topic proportions in legacy media and on websites of climate skeptics. . . 68

List of Tables

2.1 Key figures of issue networks. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 16
2.2 Starting points for the snowball-sampling of websites. . . . . . . . . . . . . . . . . 24
3.1 Labels and top words of the multinational climate change model. . . . . . . . . . 34
3.2 Top words of matched topics describing climate change as lie. . . . . . . . . . . 35
3.3 Descriptive figures for topical prevalence correlations. . . . . . . . . . . . . . . . . 41
3.4 Starting points for the snowball-sampling of websites. . . . . . . . . . . . . . . . . 47
3.5 ANOVA results. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 48
3.6 Fisher’s Exact Test results. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 49
4.1 Types of discursive resonance. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 57
4.2 Key figures of the skeptics’ online sample. . . . . . . . . . . . . . . . . . . . . . . 60
4.3 Key figures of the offline sample. . . . . . . . . . . . . . . . . . . . . . . . . . . . . 61
4.4 Methods and techniques used to measure discursive resonance. . . . . . . . . . 62
4.5 Regression coefficients $\beta$ for resonance measures. . . . . . . . . . . . . . . . . 67
4.6 Starting points for the snowball-sampling of websites. . . . . . . . . . . . . . . . . 73
4.7 List of German legacy media. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 73
4.8 Topic labels and top words. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 74
4.9 Performance indicators for the semi-automated classifier. . . . . . . . . . . . . . . . 74
Chapter 1

Introduction

In 2009, the United Nations Framework Convention on Climate Change (UNFCCC) stated in the Copenhagen Accord that “climate change is one of the greatest challenges of our time” (UNFCCC, 2009, p. 1). It is such a challenge because a massive and coordinated effort is needed to “stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (UNFCCC, 1992, Art. 2). To avoid this, the UNFCCC aims for a temperature rise of less than 2°C relative to pre-industrial levels. However, achieving this goal has become increasingly difficult. The physics of the climate system are complex as is the implementation of effective solutions to tackle the growing number of social, political, and economic problems that result from climate change. This is due to what is known as the tragedy of the commons—a situation in which individual short-term interests are at odds with the long-term interests of the collective (Hardin, 1968). Because it may cause financial losses, it is unattractive for individuals (and states) to cut back on greenhouse gas emissions to limit climate change unless others do so. In addition, climate change is an abstract phenomenon whose causes and effects can only be connected with the help of scientific methods, not personal experience. All of this makes it a highly contested issue.

While responsible and constructive actors advocate—or at least accept—effective climate policies to reach the 2°C goal, obstructive actors try to block all legislation that could possibly entail costs and restrictions for them. In both camps there are actors as varied as governments, parliaments, politicians, political parties, scientists, non-governmental organizations, companies, media outlets, social movements, and individual citizens. It goes without saying that these actors have very different possibilities when it comes to asserting their interests. However, most of them need the support of the public at least sometimes (Kriesi, 2004). Therefore they must inform, convince, and mobilize the public. To this end, they have to communicate their views, arguments, critiques, endorsements, etc. in public statements. The resulting set of statements is what is usually considered public discourse.
Public discourses are often seen as national matters in political communication research as they produce public opinion and thus serve as intermediaries between the (national) public and the (national) government (cf. Gerhards & Neidhardt, 1990; Peters, 1994). However, the battle over climate change policies is fought not only at the national level but also in and across political arenas at all levels (Simonis, 2017). This multi-level system of climate governance generates a lot of public communication both at and across the different levels, given that actors need to be active in multiple arenas simultaneously to defend their interests effectively and that they (at least sometimes) require the support of the public to do so.

In addition to this practical aspect, which is important for the actors involved in climate politics, a transnational climate discourse is also desirable for more normative reasons. First, the burdens and responsibilities of climate change are unevenly distributed across the globe (IPCC, 2014). To become aware of this and possibly work out a coordinated response, transnational communication is essential. Second, exclusively national discourses are neither normatively legitimate nor politically efficient when it comes to global issues like climate change (Fraser, 2007; Habermas, 1998). This means that if national discourses are strictly separate, not all people affected by the changing climate can participate in the formation of public opinion. It also means that national institutions—which would be the only ones that could be addressed by an isolated national public—would not be able to respond effectively as the problem goes beyond their competencies. In order to be both normatively legitimate and politically effective, public discourses on global issues like climate change must be transnational. For this reason it is crucial that public communication about climate change is not only studied within the “bounded ‘container[s]’ of the Westphalian nation state” (Volkmer, 2019, p. 12) but also beyond.

Based on these considerations, I pursue three research objectives in this thesis: (1) to map how transnational the online public discourse on the global phenomenon of climate change is, (2) to understand the role of the (trans)nationalized online public discourses on climate change in today’s hybrid media system, and (3) to find, implement, and validate computational methods to study public discourses across different political and language spaces. In the following sections of this introduction, I show why these three objectives deserve our attention and how studying them contributes to the existing literature. I also show how each of the three articles included in the thesis help to achieve the objectives and summarize their findings. The final part of the introduction is devoted to the limitations of this thesis. Building on that, I conclude by discussing possible future research questions.

1.1 Transnationality of the online public discourse on climate change

The web has become an essential platform for many actors when it comes to public communication. This is because websites, blogs, and social media allow everyone the unfiltered distribution of
self-made content. In contrast to traditional mass media, actors can speak for themselves on the web. This does not mean, however, that actors necessarily get more attention when they communicate online (Koopmans & Zimmermann, 2010), but it does mean that the web provides them with a platform to participate in public discourse with relative ease. In addition, the web does not limit communication to a certain territory. This is one aspect that differentiates the web from traditional mass media, where the scope of a medium is often technically or logistically limited to a certain territory (e.g., to the area where you can listen to a radio program or subscribe to a newspaper). In this regard, the web is global. There are some exceptions to this claim, but in most countries, web content can be produced for any (foreign) audience and the audience can access any (foreign) content. In other words, there are no technical barriers on the web that would limit public discourses to national territories and publics. All (trans)transnational communication flows are thus the result of decisions and actions of the actors communicating online. This provides insight not only on how climate change is constructed as a public issue, but also where boundaries are drawn in the collective imagination (Halvais, 2000).

However, little is known about the transnationality of public discourses on the web—in particular climate change. This thesis seeks to reduce this research deficit by analyzing two mechanisms of discourse transnationality: convergence and integration. Convergence means the harmonization of public discourses on a certain issue in different countries over time. Complete convergence is reached when the same issue is debated by different (national) publics simultaneously using the same arguments (Eder & Kantner, 2000). This is the focus of the second study included in this thesis (chapter 3). In “Overcoming language barriers: Assessing the potential of machine translation and topic modeling for the comparative analysis of multilingual text corpora,” I compare how actors from Germany, the United Kingdom, and the United States discuss climate change on their websites and assess whether the online discourses on climate change in these countries converge.

In the first article (chapter 2), “Global climate change or national climate changes? An analysis of the performance of online issue publics in integrating global issues,” the focus is on transnational discourse integration. Integration means that foreign actors and their concerns are incorporated in a discourse of a (national) public (Gerhards, 1993; Koopmans & Erbe, 2004). Traditional mass media achieve this by giving foreign actors and their positions a platform in their coverage. The same can be done by all actors when it comes to content on their websites; there, actors can reference other actors, places, and issues. In addition, the web also provides the opportunity to reference actors and their web content via hyperlinks. As hyperlinks directly affect the visibility of content on the web (Park, 2003), this form of integration has a unique quality: it changes the structure of the online public sphere (Koopmans & Zimmermann, 2010). In the first article I therefore examine both link types—hyperlinks and referential links—side by side. Based on these links, I assess the degree and scope of transnational integration for climate change discourses on the web in Germany, Switzerland, the United Kingdom, and the United States.
The findings of the two studies show that the public discourse on climate change is transnationalized to a considerable degree. First, the same topics define the issue in the countries studied. However, some of the topics are of different importance to the actors in these countries. In the United States, the debate revolves largely around the question of whether climate change exists, while in European countries the discussion of possible coping strategies is prevalent. The discourses are therefore largely convergent in terms of the spectrum of what is discussed, but not in terms of the importance that the individual topics have for the actors in the different countries. Second, the discourses in the countries are shaped by both domestic and foreign actors. In the European countries, transnational links are even more frequent than domestic links, which indicates a high level of awareness for the transnational dimension of climate change. However, the scope of transnationalization is restricted to countries of the Global North, with a clear bias towards the United States. In the studied discourses of the Global North, the Global South is thus a blind spot. Communication on the web therefore blurs some boundaries but at the same time deepens others.

1.2 Role of online public discourse on climate change in the hybrid media system

The emergence of the web was a decisive moment in the evolution of the mediated public sphere as it marked not only the transition from a nationally bounded media system but also the transition from a linear and relatively exclusive to a multi-directional and inclusive regime of media discourse production. What we know about the world today we do not necessarily know from the mass media (cf. Luhmann, 1995). We might know it from Facebook, YouTube, Wikipedia, Telegram, a blog, a mailing list, or another online service. Alongside mass media, such online services have become important venues of public communication. Governments, businesses, organizations, groups, individuals, and even the mass media use them to put their messages forward to the public. As a consequence, the mediated public sphere has become more diverse, more inclusive, but also more complex and harder to understand for both citizens and researchers. Chadwick (2013) refers to this decentralization process as a hybridization of the media system.

Although the mass media have lost their unique gatekeeper position in the hybrid media system, their role in public discourse is still crucial: as aggregators of opinions and positions they offer counter-publics a possible gateway into mainstream discourse. Counter-publics are groups of actors who oppose the dominant public opinion and are therefore marginalized in mainstream discourse (Fraser, 1990). For such groups, the web is an ideal space to discuss and determine their position, define their identity and shape their agenda. However, if they want to gain social and political influence, they must also succeed in communicating their messages to people outside their community. This makes mass media coverage a valuable showcase to these groups. Despite this
critical function of mass media for (partly anti-democratic) counter-public spheres, surprisingly little is known about the resonance of their online communication in legacy media.

This is all the more important as there are no borders for counter-publics on the web. They can organize themselves transnationally and thus benefit from each other’s experience and resources in their public communication at all political levels. In the case of climate change, this seems to be particularly beneficial for the skeptics in Europe. They deny or talk down man-made climate change and reject any measures to prevent it. In most European countries these positions make them a counter-movement (Dunlap & McCright, 2015). The web, however, allows them to connect with actors in the United States, where skeptics are well funded and part of the mainstream (Brulle, 2014; Dunlap, McCright, & Yarosh, 2016). A transnational network thus benefits the skeptics in Europe in terms of professionally produced content (e.g., movies) and reputation. Whether this helps them to get into the European mass media and thus into mainstream discourse is examined in the third article included in this thesis (chapter 4). In "How climate change skeptics (try to) spread their ideas: Using computational methods to assess the resonance among skeptics’ and legacy media” we examine the discursive resonance of online climate change skepticism in traditional media in Germany. Using different computational methods and qualitative case studies, we study whether the transnational climate change skeptics’ counter-movement succeeds in using online communication to trigger either continuous or selective resonance in German mass media.

We found no evidence for continuous resonance. However, there were occasions of selective resonance when climate change skeptics manage to exploit specific events to push their perspectives and positions onto the mass media’s agenda. Other than in the United States, German skeptics have no allies among the conservative media. Although conservative media play down climate change by giving less space to the issue in their reporting, they do not provide skeptics with a platform in the mainstream discourse. The influence of the skeptical counter-movement on German mainstream discourse is therefore limited. Nevertheless, the transnational network represents a valuable resource from which skeptical actors in all countries can benefit when a window of opportunity opens.

### 1.3 Methods to study transnational and multilingual public discourses on the web

Despite the transnational reality of online public discourses and the growing importance of the international level in many policy fields, political communication research still tends to focus on the national level alone. This may be explained by the fact that most popular theories, like the Habermasian notion of the public sphere (Habermas, 1962), are based on the premise of a culturally homogeneous and politically sovereign nation state. Yet another factor is certainly that studies involving several countries have long been difficult and expensive (Livingstone, 2003).
This is especially true for studies that deal with communication in more than one language. Even today, when communication researchers have many computational methods at their disposal, most off-the-shelf tools are not suitable for multilingual analyses. However, the drastic increase in computational capacity, the availability of training data, and improved access to software have the potential to change things for the better.

Some efforts have been made in recent years to make topic models—an indispensable tool in the toolbox of every computational communication researcher (Boumans & Trilling, 2016)—suitable for the analysis of multilingual corpora (e.g., Lucas et al., 2015). With the second article of my dissertation (chapter 3), I contribute to these efforts. In “Overcoming language barriers: Assessing the potential of machine translation and topic modeling for the comparative analysis of multilingual text corpora” I show how topic models can be combined with machine translation to support comparative research across countries and languages. In the article, I assess the robustness of different translation methods and test the integrability of the approach into a comparative study design using a real world example: the analysis of transnational discourse convergence in the case of climate change. The results show that the combination of machine translation and topic models is a great option when it comes to the automated analysis of large multilingual corpora. Regardless of whether full texts or only the vocabulary of a corpus is translated, the approach produces reliable and robust results. Moreover, the analysis of transnational discourse convergence (see above) has shown that machine translation and topic models can also be used for comparative research.

This conclusion is supported by the third article included in this thesis (chapter 4). In this article, we used machine translation and topic models to assess the thematic resonance among climate change skeptics’ online communication and the reporting of German legacy media and have thereby shown that the approach can easily be integrating into a more complex analysis workflow. Overall, these studies provide the proof of concept that tools for the analysis of multilingual communication are available. So we should start using them to study communication in transnational and multilingual settings more often.

1.4 Limitations and future research

This dissertation sheds light on the geography of online public discourse on climate change, determines its resonance in legacy media, and proposes a methodological approach for its analysis across countries and languages. But it also has its blind spots and raises new questions. The first such question that must be highlighted is that of the motivation and communication strategy of the actors. Since the analyses in the articles are primarily aimed at identifying (trans)national communication patterns, little can be said about what drives the actors to produce these patterns. To gain a better understanding of their reasoning, either the computation of inferential network models (e.g., ERGMs) or a more qualitative approach is necessary. This could include a close
linguistic analysis of the websites or interviews with the actors involved. Both approaches would be helpful to improve our understanding of how public discourses work within the networked public sphere.

The second question relates to the diffusion of ideas on the web. The articles in this thesis are based on the assumption that transnational communication networks foster the transnational flow of knowledge, experiences, and ideas. The analysis of transnational discourse integration even provides evidence for this (see chapter 2). As diffusion is a process, however, it would also be worth looking at transnational information flows over time and in more detail (e.g., individual arguments). This could provide valuable insights into the communication dynamics of transnational counter-movements such as climate change skeptics.

Thinking beyond the web, it must be questioned how relevant the assumed linear flow of information from the web into mass media and eventually into politics in today’s hybrid media system still is. With their online communication, counter-movements may also succeed in getting their ideas onto the public agenda and into politics without the support of mass media. To identify the critical processes and mechanisms of the audience democracy (Kriesi, 2004) in the digital age, more research on the mutual interaction of the various arenas is needed.

The final question relates to the struggle for effective climate policies: Does a transnational discourse actually help to meet the 2°C goal? As mentioned above, a transnationalization of the discourse might be desirable from a theoretical point of view. In practice, however, transnationalization may first and foremost benefit climate change skeptics (as discussed in chapter 4). Thus, we should not only continue our efforts to make skeptics’ practices transparent but also spend more time thinking about how to handle the divergence of theoretical and political ideals. This would advance both theoretical and empirical communication research.
Chapter 2

Global climate change or national climate changes? An analysis of the performance of online issue publics in integrating global issues

Abstract: This paper analyzes how the complex global spatiality of climate change is integrated into online national public discourses. Although the Web is an important venue for public discourses, little is known about its capability to integrate transnational issues. By looking at two types of communicative links (hyperlinks and referential links), we assess the degree and the scope of transnational integration for the four cases of Germany, Switzerland, the United Kingdom, and the United States. The findings show that these national discourses are heavily transnationalized. However, the scope of transnationalization is restricted to countries of the Global North, with a clear focus on the United States. This leads to the conclusion that the Web’s capability to integrate transnational issues is limited.

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Chapter 3

Overcoming language barriers: Assessing the potential of machine translation and topic modeling for the comparative analysis of multilingual text corpora

Abstract: This study assesses the potential of topic models coupled with machine translation for comparative communication research across language barriers. From a methodological point of view, the robustness of a combined approach is examined. For this purpose the results of different machine translation services (Google Translate vs. DeepL) as well as methods (full-text vs. term-by-term) are compared. From a substantive point of view, the integrability of the approach into comparative study designs is tested. For this, the online discourses about climate change in Germany, the United Kingdom, and the United States are compared. First, the results show that the approach is relatively robust and second, that integration in comparative study designs is not a problem. It is concluded that this as well as the relatively moderate costs in terms of time and money makes the strategy to couple topic models with machine translation a valuable addition to the toolbox of comparative communication researchers.

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Chapter 4

How climate change skeptics (try to) spread their ideas: Using computational methods to assess the resonance among skeptics’ and legacy media

Abstract: We study the discursive resonance of online climate skepticism in traditional media in Germany, a country where climate skeptics lack public prestige and thus form a political counter-movement. We thereby differentiate two temporal dynamics: resonance can be continuous or selective, based on the exploitation of specific events. Beyond, we test whether such resonance is higher within the conservative media. We rely on news value theory to shed light on the mechanism facilitating or hindering such resonance and identify three indicators for resonance: frames, positions and actors. Using various computational methods as well as qualitative case studies, we examine the skeptical and traditional media discourses over a period of two years. Our analysis shows that there is no continuous resonance. However, our data reveal selective resonance: skeptics’ manage to exploit specific events pushing their frames and positions onto traditional media’s agenda. Thereby, conservative media did not give greater resonance to climate skeptical voices whereas they resort to downplaying the issue by allocating less space to it.

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Selbständigkeitserklärung


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