The Exit from Nuclear Energy in Germany
Explaining a Radical Policy Shift
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Abstract

In March 2011, only one week after the nuclear disaster in Fukushima, Germany saw a radical policy change towards the abandonment of nuclear energy. The term extension for nuclear energy use that had been adopted just some months before was withdrawn and a final exit date was set to the year 2022. Such a radical policy reversal calls for an explanation – but traditional theories from political science are not able to provide one. Only a discourse analytical perspective provides a plausible explanation.

In the article we use the method of discourse network analysis to analyze the stabilization of exit demands, based on the coding of newspaper articles from two German quality newspapers published between March and July 2011. We argue that the fast developing hegemony of the exit demand can be explained by looking at three factors: actor centrality, consistency and cohesion of discourse coalitions, and discursive weakness of the oppositional coalition.

Introduction

After severe conflicts within the governing CDU, the conservative liberal coalition in Germany decided in September 2010 to extend the term of nuclear energy use. This decision stood in clear opposition to the decision of the former red-green government from 2001 to limit the term of nuclear energy use to about 2022. Only half a year later, in March 2011, a sudden policy shift took place in the weeks following the nuclear accident in Fukushima. The term extension was cancelled and it was decided to phase-out nuclear energy use until 2022. Such radical policy shifts, which happened twice within

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a very short time period and which resulted in substantive legislative changes, call for explanation, especially because – according to most policy theories – radical policy shifts should not be possible in the German political system. The theory of the middle way (Schmidt 2007), ‘Tsebelis’ (2002) veto player approach, or the considerations on consensus democracies (Lijphart 1999) all predict that in the German system there is not enough political leeway for individual actors to make radical and/or minority positions dominant.

According to these theories, continuous changes in positions of several actors have to take place before political change is possible, and only after lengthy negotiations incremental political change is possible. According to these theories, there should have been substantial changes in the political constellation to explain the shift in German nuclear policy. Thus, it should be easy for researchers to find the relevant factors of such changes in the political landscape.

But in the concrete case no such major changes can be observed. In the period of the policy shift in the field of nuclear energy there were no changes in political power relations and also no major changes in the economy or in strategies of important economic actors. The simple assumption that the policy change would be an immediate effect of the nuclear accident in Fukushima is not feasible because the overwhelming majority of countries did not react to Fukushima with similar policy shifts. It may only be the county specific interpretation of the nuclear accident that explains the differing reactions – which leads us to the political discourse as the relevant level of analysis.

Because of other explanations fail, the shift in German nuclear policy is an excellent opportunity to show the value and potential of discourse analysis. We maintain that discourse analysis can not just add another factor to the variable oriented thinking of political science (Gofas and Hay 2010; Béland and Cox 2011). While the literature generally disagrees whether interpretative and discourse analytical research should pursue explanatory goals at all, this paper is the careful attempt to contribute to sow, how a discourse analytical explanation of political decisions could look like. Our aim is to answer the question, how the stabilization of a political claim – in our case the demand to phase out all nuclear power plants – comes about on the level of discourses. Our aim is it not to look at the single actors like Chancellor Angela Merkel and their role in, for example, initiating or forming the policy shift. We also do not address the motivations of individual actors.1

Our analysis focuses on the time period starting with the nuclear accident in Fukushima in March 2011 and ending with the German Bundestag decision on 30 June 2011 to

1 This article is based on our earlier work on the shift of nuclear energy policy in Germany, which was focused on the motivations of the participating actors (Nullmeier and Dietz 2012). Methodological questions of discourse oriented explanations are discussed in Nullmeier (2012). For the method of discourse network analysis see Leifeld/Haunss (2012).
phase-out nuclear energy. The method of discourse network analysis (Leifeld 2009; Leifeld and Haunss 2012), which combines political claims analysis (Koopmans and Statham 1999) and social network analysis, is used to analyze the discursive processes of the stabilization of claims in the field of nuclear and energy policies, based on the systematic coding of newspaper articles. The network analytical approach makes it possible to recognize how certain claims are initiated, established, or modified in a certain direction. Describing these discursive processes can help to explain the shift in the nuclear policy of Germany. The empirical results of our analysis show that there was no relevant opposition to the demands for a phase-out of nuclear energy. The exit-demands came up soon after the nuclear accident in Fukushima and were rapidly established. The network analysis reveals when and where actors positioned themselves in existing constellations of claims, how the scope and position of claims changed and how new claims opened new fields of discussion. By using discourse network analysis, it is possible to visualize the quickly shifting discourse coalitions. Beyond the concrete case, the method can illustrate the independent dynamic of discourses. They do not just mirror the preferences of actors neither are they expressions of stable positions. This paper is thus an attempt provide explanations by relying on a detailed analysis of the discursive process.

In the first part of the paper, we reconstruct the political history of nuclear energy policy in Germany (1.1). We then discuss the failure of traditional approaches of political science to explain the current development in German nuclear politics (1.2). In the second part of the paper, we present the method of discourse network analysis (2). The third part of the text describes the development of the German discourse on nuclear energy by separating it into eight periods and presenting several network analytical figures (3). Finally, the results are summed up and we discuss further opportunities to use the process analysis of discourses to create discursive explanations.

1. The Shift in German Nuclear Policy in 2011 and Classical Explanatory attempts

1.1 History

The term extension for nuclear power plants in autumn 2010 was the result of successful long lasting attempts to revise the decision of the red-green government under chancellor Schroeder from the years 2000-2002 to phase out nuclear energy. Shortly after coming to power in 1998, the government under Schroeder began to prepare the phase-out of nuclear energy, a project which part of the coalition treaty. In June 2000 the government signed a phase-out treaty with the big four energy companies E.on, RWE, EnBW and Vattenfall. In the public this treaty was called “Nuclear consensus”. It lim-
ited the average term of each nuclear power plant to 32 years. As a consequence, the last German nuclear power plant would have been shut down in 2022. This treaty between government and energy companies was followed by a revision of the nuclear energy law ("Atomgesetz") in 2002. The construction of new nuclear power plants was prohibited and the term of existing nuclear power plants was limited. The red-green government justified the decision to phase out nuclear energy with the low acceptance of this form of energy in the society and the risks of the technology. Shortly after the phase-out decision the first nuclear power plants were shut down – the nuclear power plant in Stade in 2003, the plant in Obrigheim in 2005. As a consequence, the amount of nuclear power plants in Germany decreased to 17. For a long time, one could have thought that this decision had ended a deep-rooted political and societal conflict on technology and environment (Feindt and Saretzki 2010) and meant a definitive – due to the long time horizon also generally accepted and realistic – end of nuclear energy in Germany. But with the change of the German government to a conservative-liberal coalition, the issue came back on the agenda, and the revision of the phase-out decision became part of political program of the new government. In a clever discursive intervention the term “bridging technology” was introduced to re-legitimize nuclear energy as a technology to bridge the gap between the current fossil energy technology and the future renewable energy infrastructure. In the coalition treaty of the conservative-liberal coalition this was stated as follows:

“Nuclear energy is a bridging technology until it can be reliably replaced by renewable energies. Otherwise we can’t achieve our aims in climate protection, acceptable energy prices, and safe energy supply. We want to extend the term of nuclear power plants by, of course, fulfilling the strict German and international security rules. We stick to the prohibition for building new nuclear power plants. As soon as possible we will come to an agreement with the energy companies about the conditions of term extension for nuclear power plants (regarding the duration of the term extension, the security level, the height of a compensation for the resulting profits, the use of these profits for researching renewable energies and energy storage technology, among others). This agreement should guarantee planning security for all actors involved.” (CDU, CSU, FDP 2009)

After the new government came to power, members of the conservative party CDU intensively struggled about the implementation of the energy policy plans of the coalition treaty. On September 28th the government presented a comprehensive concept on the

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2 For an overview of the development of German nuclear politics from 2000 to 2011 with additional information see Table 1.
future of energy supply in Germany. Based on this concept and a treaty between the
government and the energy companies from September 6th, the Bundestag revised the
nuclear energy law on October 28th. The term of German nuclear power plants was ex-
tended for several years. This exit from the exit from nuclear energy was justified with
arguments about energy security, energy costs, and climate protection. According to the
government, the term extension should save Germany from becoming dependent on en-
ergy supplies from foreign countries. Furthermore, the economy should profit from
cheap nuclear energy, and the low carbon emissions of nuclear power plants should help
to achieve the German climate goals. Apart from the term extension of nuclear plants,
the government introduced a tax on nuclear fuel as well as a climate and energy fund.
These measures were aimed at using a part of the additional profits of the energy com-
panies resulting from the term extension to support renewable energies. It was also de-
cided that security technology in the power plants should be updated. Despite the an-
nouncement of taking away profits from the energy companies, improving the security
level of the power plants, and presenting several arguments in favor of a term extension,
the plan and the decision of the government was controversially discussed in the public.
The opposition was strictly against the term extension, and the media published mostly
critical articles. The term extension plans of the government led to a revitalization of the
anti-nuclear movement, which organized huge demonstrations against the revision of
nuclear politics (Jahn and Korolczuk 2012).

Despite this debate, the strong opposition and the protests, the government implemented
its plans and decided to grant nuclear power plants built before 1980 an eight years term
extension and nuclear power plants built after 1980 received 14 more years.

On June 30th 2011, only little more than half a year after the term extension decision,
the government completely revised its position regarding nuclear energy. The arrange-
ments that allowed each nuclear power plant to produce a fixed amount of energy re-
placed by fixed shut down dates, which are more ambitious than the phase-out plans of
the red-green government from 2000-2002. Furthermore, eight nuclear power plants
were immediately shut down. This included the nuclear plant in Krümmel, which tem-
porarily was shut down in 2009 due to technical problems.

These decisions were rapid and radical political reactions to the nuclear accident in
Japan on March 11 2011. Only four days after this accident, the German government an-
nounced a three month moratorium on nuclear energy. In these three months, the nuclear
security commission was ordered to check the security of all German nuclear power
plants. The oldest eight nuclear power plants were preliminary shut down and an ethics
commission was created to inform the decision-making on the future use of nuclear en-
ergy in Germany. While the nuclear security commission found no new results on secu-
ritv deficits of German nuclear power plants resulting from the experience of
Fukushima, the ethics commission recommended to phase out nuclear energy as soon as possible. This recommendation was justified by arguing the the residual risk should be re-interpreted in light of the Fukushima accident. At the end of May 2011, the German government decided to permanently shut down the eight oldest nuclear power plants and to revise the term extension decision from autumn 2010. This decision was supported by the heads of the federal states, who met several times with chancellor Merkel and demanded the phase-out of nuclear energy (Bauchmüller 2010; Vitzthum 2011). At the end of June 2011 the government and huge parts of opposition voted for a revision of the nuclear energy law. The new regulations of the law require that all nuclear power plants have to be shut down until 2022. On the same day, the Bundestag voted for a law to accelerate the construction of an updated power-grid. At the beginning of the debates and shortly after the Fukushima accident, the German energy companies accepted a temporal shut-down of their oldest nuclear power plants. But after it became more and more likely that they would not be allowed to re-activate these power plants and that the term extension decision would be revised, the four biggest energy companies began to voice their criticism. They announced to sue the government and later indeed did this. 

The time period, in which these events took place and on which our analysis is focused (11 March 2011 – 1 July 2011) is located as follows in the development of German nuclear politics from 2000-2012:

**Table 1: Chronology of German nuclear energy policy 2000–2012**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.06.2000</td>
<td>Federal government signs agreement on nuclear phase-energy (&quot;nuclear consensus&quot;)</td>
</tr>
<tr>
<td>11.06.2001</td>
<td>Signing of the treaty on the nuclear phase-out between the red-green federal government and energy industry</td>
</tr>
<tr>
<td>22.04.2002</td>
<td>Bundestag decision to anchor the phase-out nuclear energy in the Atomic Energy Act</td>
</tr>
<tr>
<td>11.11.2003</td>
<td>Shutdown of the nuclear power plant Stade as a consequence of the exit decision</td>
</tr>
<tr>
<td>11.05.2005</td>
<td>Shutdown of the nuclear power plant Obrigheim as a consequence of the exit decision</td>
</tr>
<tr>
<td>02.12.2008</td>
<td>The CDU resolution on term extension without mentioning specific figures</td>
</tr>
<tr>
<td>17.05.2009</td>
<td>Decision about the FDP election program; demand for term extension for nuclear power plants without giving specific figures</td>
</tr>
<tr>
<td>02.10.2009</td>
<td>Executive committee decision of the German Association of Energy and Water Industry (BDEW) for a term extension</td>
</tr>
<tr>
<td>26.10.2009</td>
<td>Signing of the coalition treaty CDU/CSU/FDP, announcement of a term extension</td>
</tr>
<tr>
<td>06.09.2010</td>
<td>Signing of the treaty for a term extension between government and energy industry</td>
</tr>
<tr>
<td>28.09.2010</td>
<td>Decision of the federal government on a new energy concept (including a term extension)</td>
</tr>
<tr>
<td>28.10.2010</td>
<td>Bundestag decision to introduce a nuclear fuels tax by 1.1.2012</td>
</tr>
<tr>
<td>28.10.2010</td>
<td>Bundestag decision to anchor the term extension in the Atomic Energy Act</td>
</tr>
<tr>
<td>08.12.2010</td>
<td>Bundestag decision to create an energy and climate funds by 1.1.2012</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>11.03.2011</td>
<td>Nuclear accident in Fukushima</td>
</tr>
<tr>
<td>14.03.2011</td>
<td>Chancellor Merkel announces the nuclear energy moratorium I: a three month temporary suspension of the term extension for nuclear power plants</td>
</tr>
<tr>
<td>15.03.2011</td>
<td>Chancellor Merkel announces the nuclear energy moratorium II: shut-down of the eight oldest nuclear power plants during the moratorium (until 15.06.2011)</td>
</tr>
<tr>
<td>15.03.2011</td>
<td>Nuclear Safety Commission should check the security of nuclear power plants</td>
</tr>
<tr>
<td>22.03.2011</td>
<td>Establishment of the Ethics Commission for a Safe Energy Supply by chancellor Angela Merkel</td>
</tr>
<tr>
<td>08.04.2011</td>
<td>Nuclear phase-out decision of the BDEW</td>
</tr>
<tr>
<td>08.04.2011</td>
<td>Energy companies stop payments to the energy and climate fund</td>
</tr>
<tr>
<td>17.05.2011</td>
<td>Publication of the final report of the Nuclear Safety Commission</td>
</tr>
<tr>
<td>30.05.2011</td>
<td>Publication of the final report of the Ethics Commission</td>
</tr>
<tr>
<td>30.05.2011</td>
<td>Government decision to phase out nuclear power, and permanent shutdown of the eight oldest nuclear power plants (one should in this transitional period serve as a buffer and any possibly be powered up again)</td>
</tr>
<tr>
<td>30.06.2011</td>
<td>Bundestag decision to anchor the nuclear phase-out in the Atomic Energy Act</td>
</tr>
<tr>
<td>14.11.2011</td>
<td>Constitutional complaint by E.on against nuclear phase-out</td>
</tr>
<tr>
<td>21.12.2011</td>
<td>Start arbitration between Vattenfall and the federal government at the World Bank court (ICSID) for violation of international investment protection standards, Vattenfall requested 3.7 billion euros in damages</td>
</tr>
<tr>
<td>13.01.2012</td>
<td>Fiscal Court of Baden- Wuerttemberg holds fuel tax to be constitutional</td>
</tr>
<tr>
<td>13.06.2012</td>
<td>Constitutional complaint by RWE against nuclear phase-out</td>
</tr>
<tr>
<td>12.07.2012</td>
<td>Constitutional complaint by Vattenfall against nuclear phase-out</td>
</tr>
</tbody>
</table>

1.2. Traditional explanatory models

According to other publications (Pampel 2011; Davies 2012) the radical policy shift of the German government to the accident of Fukushima simply resulted from the dramatic character of the catastrophe in Japan. They interpret the behavior of the German government as a logical reaction to the scope of the catastrophe and the fact that it happened in a high technology country like Japan. But from a comparative perspective, this explanation as a “necessary reaction” doesn’t work. As shown in table 2, massive reactions on the nuclear accident in Japan only happened in Germany, Japan and Switzerland. At least minor reactions could be observed in Italy, Bulgaria and Belgium. In all other countries, national nuclear policies were not affected by the accident in Fukushima (World Energy Council 2011). Thus a simple explanation of the policy shift as a necessary consequence of an external shock can be ruled out. Also such a naturalistic explanation dubious from a methodological perspective.

Table 2: International Comparison of the political reactions to Fukushima

<table>
<thead>
<tr>
<th>Country</th>
<th>Exit decision?</th>
<th>Political reaction to Fukushima until the end of 2012</th>
<th># of active NPPs</th>
<th>Share of electricity production</th>
<th>NPPs under construction or planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Renewed exit decision in October 2011, projected term until 2025</td>
<td>2</td>
<td>51%</td>
<td>No</td>
</tr>
</tbody>
</table>
Bulgaria | No | Cancelation of the project in Belene in a seismic prone area and shift of the project to the Kozloduy. Opposition forces a referendum on the future of Belene (failed in early 2013) | 2 | 33% | Yes, 2x

Germany | Yes | Immediate shut-down of 8 NPPs, revision of the term extension, limitation of the term of nuclear power plants until 2021 | 9 (before: 17) | 16% (before: 28%) | No

Italy | Yes | Plans for new nuclear power plants stopped. Nuclear energy dismissed in referendum June 2011 | 0 | 0 | Yes

Japan | No | Abschaltung aller AKW zur Sicherheitsprüfung, Reduktion der Atomkraftnutzung 2011 und 2012, September 2012 Aussiegensankündigung bis ca. 2040, seit Regierungswechsel Ende 2012 neuer Pro-Atomkraftkurs | 54 | 29% | Yes, 5x

Switzerland | discussion of exit | One-year security check of swiss NPPs. New projects stopped. Term of existing nuclear power plants limited to 2034. | 5 | 38% | Yes

<table>
<thead>
<tr>
<th>Country</th>
<th>Exit Decision</th>
<th>Reason</th>
<th>Yes or No</th>
<th>Yes %</th>
<th>No %</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB</td>
<td>No</td>
<td>None</td>
<td>19</td>
<td>20%</td>
<td>Yes, 4x</td>
</tr>
<tr>
<td>China</td>
<td>No</td>
<td>Enhanced security requirements for new projects</td>
<td>14</td>
<td>2%</td>
<td>Yes, 78x</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>None</td>
<td>4</td>
<td>28%</td>
<td>Yes, 1x</td>
</tr>
<tr>
<td>France</td>
<td>No</td>
<td>None</td>
<td>58</td>
<td>74%</td>
<td>Yes, 2x</td>
</tr>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>Demand for a stress test for nuclear power plants in Europe and an exit in all countries</td>
<td>0</td>
<td>0</td>
<td>No</td>
</tr>
<tr>
<td>Russia</td>
<td>No</td>
<td>None</td>
<td>32</td>
<td>17%</td>
<td>Yes, 24x</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes, but canceled</td>
<td>None</td>
<td>8</td>
<td>21%</td>
<td>No</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>None</td>
<td>6</td>
<td>33%</td>
<td>Yes, 2x</td>
</tr>
<tr>
<td>Turkey</td>
<td>No</td>
<td>None</td>
<td>0</td>
<td>0</td>
<td>Yes, 4x</td>
</tr>
<tr>
<td>USA</td>
<td>No</td>
<td>None</td>
<td>104</td>
<td>20%</td>
<td>Yes, 5x</td>
</tr>
<tr>
<td>Poland</td>
<td>No</td>
<td>None</td>
<td>0</td>
<td>0</td>
<td>Yes, 6x</td>
</tr>
</tbody>
</table>

But also less naive explanatory models of the political sciences are not able to explain the sudden exit-decision of the government under chancellor Merkel. A political-institutional explanation would assume that changes in the institutional settings are necessary to cause such a radical policy shift. But neither for the institutional setting of the political system of Germany (amount of veto players, constitutional institutions, multi-level system of the EU) nor for institutions in the field of energy policy (ministries, change of competences among federal level and states) relevant changes in the analyzes time period can be observed.
The same is true for political economy approaches: Following these approaches, there should have been a change in the power relation between energy companies and the government in order to explain the shift in nuclear policy. But between autumn 2010 and spring 2011 the strong position of the big four energy companies was not questioned and did not change. The rise of regional energy companies already took place before summer 2010 and did not exhibit a special dynamic in 2011, which might explain the policy shift considering nuclear energy (Bauchmüller 2010). Besides, an analysis of the positions of the four big energy companies reveals that their preferences did not change in the analyzed time period.3 If we focus on the world economic system and its development instead of looking at single companies and their lobbying efforts, we would use a socio-economic explanatory approach. Following this approach, there should have been an economic crisis in autumn/winter 2010/2011 (or at least a significant change on the energy markets) to explain the shift of German energy policy. But, again, there was no such change (BDEW, Bundesverband der Energie- und Wassermarkt 2011).

The power resources approach explains policy shifts by looking at shifting power relations between work and capital and especially by the role of social democratic parties and labour unions. If the power of the latter is rising in parliament and companies, political decisions should become more left wing. But in the analyzed time period, no rise of the power of leftist parties or labour unions can be observed in Germany.

Approaches focused on political parties (‘parties matter’) explain policy changes by changes of the party landscape resulting from elections. After the liberal and conservative party won the Bundestag election in autumn 2009 and formed the government, the term extension of nuclear power plants was their joint project. In 2010, only in the state of North Rhine-Westphalia elections took place. In these elections, the conservatives lost over 10 percent and with that the head of the regional government. In the polls of the year 2010 the liberal party lost support in the population. But in reaction to these polls, the federal government didn’t change their policies, but accelerated their implementation. The regional election in Rhineland-Palatinate, Baden-Württemberg and Saxony-Anhalt in March 2011 might be taken to test a possible change in the power relations among the political parties, but they only took place after Fukushima and thus cannot count as a valid indicator for a party political power shifts that caused the shift in nuclear energy policies. Before March 2011 elections took place in Hamburg where the

3 After Fukushima they subjected to the exit requirements and thus the recognized the “primacy” of politics. But held on to their positions that nuclear power is safe, effective and necessary. In a press release in March 2012 the “Deutsche Atomforum” claims that nuclear power plant operators continue to be convinced of the highest level “of safety and effectiveness” of the German nuclear power plants and that nuclear power plays “an important part of the German energy mix and a stabilizing factor for our energy networks” (Deutsches Atomforum 2012). Similar ‘unapologetic’ statement come from the BDI: “Humanity can not afford the abandonment of individual energy technologies” (BDI, Bundesverband der Deutschen Industrie e.V. 2012).
black-green government in Hamburg had failed and early elections were scheduled. They resulted in huge losses for the conservatives (minus 20 percent), while the social democrats won the absolute majority. While the losses in Hamburg and state North Rhine-Westphalia were large, one should not conclude that the German party system changed significantly in this time. First, there is a general trend to punish the federal government in local elections. Second, the described elections were dominated by regional idiosyncrasies. Third, the candidates of the conservative party in these elections were quite weak. In General it should be noted that if regional elections would have a significant impact on the federal level, then we would have to see much more political change in the history of Germany. In the time period under study, there probably was a slight change in the German party system, but certainly not a severe change that would be sufficient to explain the radical shift in nuclear energy policies.

Nevertheless, one of the most popular and most plausible explanations of the political shift after Fukushima is a party based approach (Jahn and Korolczuk 2012: 16; Wittneben 2012: 1). According to these authors, the radical change in nuclear energy policy has been an attempt to influence the elections in Baden-Württemberg, a traditionally conservative state. This interpretation is only plausible if the leaders of the conservative party – among them Angela Merkel – have judged the elections in Baden-Württemberg to be extremely important. This condition must be fulfilled because the radical shift in nuclear policy took place on a completely different system level than the elections. The underlying assumption that the policy shift would be election-oriented with the aim to maximize the votes for the regional CDU makes only sense from the perspective of the regional politicians from Baden-Württemberg. Federal politicians belonging to CDU should have had other motives, because they were not directly dependent on the election result in a single state. Furthermore, politicians would have to have expected that the change in federal nuclear energy policy would influence the voting behavior of the people in Baden-Württemberg in a positive way. Chancellor Merkel and the leaders of the conservative party then would have to have expected that the change in nuclear energy policies would have such a huge impact on the regional level that it can turn the regional elections. But the polls in Baden-Württemberg actually predicted very bad results for the CDU due to the position of their local candidate in a protracted and highly contentious conflict about “Stuttgart 21”, the re-building of the central railroad station in Stuttgart (Male 2010; Stuttgarter Nachrichten 2011). Thus a massive impact would have been necessary to let CDU win the elections. Because there was only less than two weeks time between the decision for the nuclear moratorium and the local elections, there was no realistic chance to change the image of the candidate and the chances of the local CDU to win the election. It therefore is not convincing to take electoral and
party political motivations as being responsible for the change in German nuclear policy.

In a less demanding version it may be argued that a federal intervention in the local elections at least would have made possible a coalition between conservatives and greens. A weakened CDU then might have governed together with strong greens. Such a motivation might explain why the politicians in Berlin reacted so quickly to the nuclear accident in Japan. But a condition for this explanation is that the CDU must have been a realistic chance that the Greens would want to for a coalition with them. In the election program of the Greens in Baden-Württemberg from 2011 no coalition preference is stated. But there is strong criticism of the nuclear friendly positions of Stefan Mappus, the CDU candidate for Baden Württemberg. The greens wanted to participate in the local government, but did not formulate a preference for a specific coalition. There were for example also intensive conflicts with the social democrats about “Stuttgart 21”, and the leader of the local green party, Winfried Kretschmann, continuously hinted at a possible future cooperation with the conservative CDU. Therefore one might in principle assume that after elimination of the hurdle of nuclear politics, which was strongly connected to Stefan Mappus, a conservative-green coalition might have been possible. From this interpretation, the moratorium looks like a last attempt of the CDU to create a coalition option in the state traditionally governed by the conservatives and which was now shifting to the greens. I might have also been an attempt of some CDU politicians to overcome the party-internal resistance against green-black coalitions. If there were indeed such strategical, coalition oriented considerations which caused the shift in nuclear policy, the question arises, why such local and party focused issues should have had the power to revise fundamental, economic, societal and political decisions at the federal level. Why should nuclear friendly wings of the CDU and FDP, as well as business organizations and the large energy companies forgo their long lasting positions because of coalition political considerations of one party or even only a wing of a party? The party focused explanation might contribute an explanation for the motivations of some actors in the CDU, but it can’t explain the radical policy shift in German nuclear energy policy.

How then was it possible that the demands to shut down the oldest nuclear power plants rapidly gained momentum and ended with a decision to phase out nuclear energy completely despite important economic actors not changing their positions? From a perspective, which is focussing on discourse dynamics, we can make three plausible assumptions to explain the establishment of a demand or a bundle of demands:

(1) Actor centrality: For a claim to become dominant the actor who is making this claim has to get into a central position of the discourse and other central actors have to share this claim.
(2) **Consistency and unity:** A claim, which can be connected to other claims, is more likely to become dominant than an isolated claim. Frame analysis calls this process *frame bridging*. This refers to the ability of actors to build bridges between the own interpretational frame and the frames of possible coalition partners (Snow 2004).

(3) **Weakness of opposition:** The success chances of actors fulfilling the first two conditions should rise, if oppositional actors do not fulfill them. The fragmentation and marginality of oppositional claims makes it easier for the original claim to become central and/or dominant.

In order to show that a focus on discourse dynamics is more convincing in explaining the change in German nuclear policy after Fukushima than the approaches presented so far, we will now reconstruct the discursive process by using the method of discourse network analysis. Based on this analysis we will check, to which extent the three conditions for the establishment and dominance of demands can be found in the nuclear debate we are focussing on.

2. **Discourse Network Analysis**

Since traditional approaches can not explain the dynamics of the decision-making about nuclear phaseout in Germany after Fukushima, we here offer an approach that allows us to reconstruct the discourse and thus helps to explain the surprising rapid policy change. By retracing the changes of the discursive constellations of actors, arguments and claims we can describe how support for the nuclear phaseout emerged in the media discourse, and how the dynamics of the public debate created between March and June 2011 a window of opportunity for a radical policy change. The focus of such a process analysis must be on the relationship between actors and claims. Which actors made claims that echoed or contradicted previous claims by other actors? How do clusters of discursive proximity or distance of actors with similar or contradicting claims develop? And how does this affect the development and change of political actor coalitions?

To address these question we combine political claims analysis with social network analysis in a discourse network analysis. Discourse network analysis transfers methods and tools from social network analysis to the discursive realm. Network analytical approaches are now well established both in the social and natural sciences (Butts 2009). The epistemological core of network analytical approaches is that complex systems should not be understood as aggregates of isolated individual components, but that it is necessary to analyze the interaction between the elements in order to understand complex systems. This relational perspective is well suited for the analysis of discourses, because discourse are never just aggregated statements, but always consist of complex connections between actors, their statements, other actors and their claims. Discourse network analysis (Leifeld 2009; Leifeld and Haunss 2012) allows for the analysis of dis-
cursive interactions of large numbers of actors over time, taking into account the complexity of discursive events. The nodes of the discourse network actors and their statements – in our case, their claims. A discourse network thus consists of two classes of nodes, and thus belongs to the class of bipartite or 2-mode networks. Edges between these nodes are formed when actors utter demands or communicate decisions. Figure 1 illustrates this model.

Figure 1: Basic model of a discourse network

The affiliation network $G_{aff}^t$ connects actors $a_1, a_2, \ldots a_m$ with claims or concepts $c_1, c_2, \ldots, c_n$. In Figure 1 this relationship is illustrated by the solid lines connecting actors and claims. In 2-mode networks no direct connections exist between the different kinds of vertices, i.e. between vertices in one mode. In a discourse network connections are directed because actors choose claims and not the other way round. Also, the discourse network is dynamic. More precisely for every point in time $t$, an affiliation network $G_{aff}^t$ exists. And finally actors and claims are connected either positive (agreement) or negative (disagreement). An actor $a_j$ can, for example, agree with the claim to extend the term for nuclear power plants, while actor $a_2$ disagrees with this claim. In the network model this is represented by positive or negative edge-weights. The discourse network model is thus a directed, dynamic, weighted 2-mode network.

Based on this network, two derivative networks can be generated: The network of actors which are connected to each other because they share the same claims, or the network of claims which are connected because the come from the same actors. These two co-occurrence networks are undirected. In Figure 1 they are displayed as dashed lines. Finally, these image-networks can be generated for each time $t$ and thus allow for the analysis of the temporal development of the networks.
For networks as a whole and for each node, various metrics can be calculated. The most relevant for our purposes is the relative centrality of each node as a measure of the importance of individual actors or claims in the discourse. The most simple centrality measure is the degree centrality, which indicates the number of edges of a node. In 2-mode networks, this measure is not very meaningful, because it is nothing else than the number of claims of an actor in a given period or the number of actors who make a certain claim. More meaningful are centrality measures that take into account the neighborhood of a node. For example, an actor who makes only two or three claims, each shared by many other actors, may be more important for the discourse structure than an actor who makes five claims, of which none is shared by anyone else. A centrality measure that accounts for the neighborhood of a node is the hub centrality (Kleinberg 1999; Brandes and Wagner 2004). Since we are particularly interested in those processes that happen in the center of the discourse, we focus in this paper on network cores (n-cores or m-slices). An n-core is a maximal sub-network, where all nodes have at least the degree centrality n, an m-slice is a maximal sub-network whose edges have at least the weight m.

Our analysis is based on the evaluation of all claims which have been reported in two major German newspapers (Süddeutsche Zeitung and Die Welt) in the period between the earthquake in Japan (11.2.2011) and the Bundestag decision to phase out nuclear power (2.7.2011). The two newspapers were chosen to represent a broad political spectrum, since we are assumed that actors critical of nuclear power might be overrepresented in the liberal Süddeutsche Zeitung and advocates of nuclear power in conservative Die Welt. The coding started with a search in the full-text newspaper database Factiva with a search string containing the truncated keywords “(AKW OR Atom OR Nuclear) AND (Ausstieg OR Stilllegung OR Abschalten OR Laufzeit)”, including all flexions of the possible noun and verb forms.

Articles in the result set where then manually coded based on a modified coding scheme developed originally by Ruud Koopmans and his collaborators (Koopmans and Statham 1999; Koopmans 2002). While Koopmans et. al. operated with a very broad concept of claims, which includes evaluative statements, we have coded claims and evaluative statements separately. In our operationalization a claim is every demand or action of an actor in the relevant policy area. In an article one claim may include one or more sentences or sometimes just sentence parts. In addition to the claim, the following additional items were coded: actor or speaker with name, organization and party affiliation, endorsement (agreement) or rejection (disagreement) with the claim, and date of the claim. To give an example: The phrase “SPD und Grüne forderten außer der Rück-

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4 If not explicitly mentioned otherwise we assumed that the claim was made on the day before publication of the article.
nahme der Laufzeitverlängerung ein Abschalten der sieben ältesten und unsichersten Meiler [SPD and the Greens demanded apart from the withdrawal of term extension for nuclear power plants that the seven oldest and most insecure power plants should be switched off.]” (Brössler 2011 [Süddeutsche Zeitung, 14.3.2011]), was coded as a rejection of the claim “term extension” by the actors SPD and the Greens on 13.3.2011, and as endorsement of the claim “shutting down the oldest power plants” by the actors SPD and the Greens on 13.3.2011. Since each claim of each actor is coded separately, the sentence thus contains four claims. The phrase “die TU München hält dagegen die Sicherungssysteme für mehr als ausreichend [the Technical University Munich maintains that security systems are more than adequate]” (Süddeutsche Zeitung 2011), which in Koopmans' coding scheme would also count as a claim, was interpreted by us as an evaluative statement, and thus not coded as a claim. Over the whole period 398 relevant articles were published in both newspapers (Die Welt 159, SZ 239). This means we have found an average of 1.7 article per day in Die Welt and 2.5 per day in the Süddeutsche Zeitung. In these articles, 1.299 claims were coded (Die Welt 584, SZ 715). Over time, multiple waves of discursive activity can be identified (see Figure 2 and Table 3), corresponding to the event history of the debate on the phaseout of nuclear power in Germany. To be able to analyze temporal development of the discourse on the phaseout of nuclear power in Germany, we have divided the study period according to changes in the discourse intensity and in consideration of relevant events in eight phases (Table 1).

Table 3: Number of claims and phases of observation

<table>
<thead>
<tr>
<th>Phase</th>
<th>Period</th>
<th>Events</th>
<th># of Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11.–13.3.</td>
<td>The first two days immediately after the earthquake in Japan</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>14.–15.3.</td>
<td>Nuclear energy moratorium I (suspension of the term extension for nuclear power plants) and nuclear energy moratorium II (switch-off of the eight oldest nuclear power plants)</td>
<td>137</td>
</tr>
<tr>
<td>3</td>
<td>16.–22.3.</td>
<td>Period until the establishment of the ethic commission for safe energy supply</td>
<td>165</td>
</tr>
<tr>
<td>4</td>
<td>23.3.–8.4.</td>
<td>Period until the decision of the Federal Association of the Energy and Water Industry to demand the exit from nuclear power use</td>
<td>243</td>
</tr>
<tr>
<td>5</td>
<td>9.–28.4.</td>
<td>Period until the final report of the nuclear energy safety commission</td>
<td>179</td>
</tr>
<tr>
<td>6</td>
<td>29.4.–17.5.</td>
<td>Period until the decision of the Federal Association of the Energy and Water Industry to demand the exit from nuclear power use</td>
<td>136</td>
</tr>
<tr>
<td>7</td>
<td>18.–30.5.</td>
<td>Period until the decision of German government to exit from nuclear power use</td>
<td>181</td>
</tr>
<tr>
<td>8</td>
<td>31.5.–1.7.</td>
<td>Period until the decision of the German Parliament to exit from nuclear power use</td>
<td>208</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1299</td>
</tr>
</tbody>
</table>
The phases are constructed along relevant event and therefore have different durations and different numbers of statements. The long period between the 9 April and 17 May was divided into two parts because it contains two clearly distinguishable discourse waves (see Figure 2) with two local intensity maxima, indicating relevant changes in the discourse networks.

Figure 2: Claims per Day

3. Reconstructing the Discourse

The frequency distribution of claims per day in Figure 2 shows that the debate reached its maximum intensity directly after Fukushima in the first days of the week from 14 to 20 March 2011. How has the debate developed in those early days? Figures 3 and 4 show the 3- and 5-cores of the discourse networks of the first two periods. An \textit{n-core} of a network contains only nodes with a degree centrality of at least \( n \). In bipartite networks it is often useful to apply this criterion to only one of the two node categories. In our case we have chosen the cores in which claims have at least a degree centrality 3 and 5 respectively, thus including all actors connected to claims with a minimum degree of 3 or 5, irrespective of their degree.
Figure 3: Nuclear energy discourse, period 1: 11.–13.3.2011 (3-core)

Note: In this and the following networks circles symbolize actors, gray squares symbolize claims. A solid line represents a positive reference to the claim, a dashed line indicates the rejection of the claim. The size of the node is modeled according to its degree centrality taking into account the edge weights. The thickness of the lines is proportional to the edge weight, i.e. the frequency of repetition of the same claims by the same actor in the respective period.

Figure 3 shows that government actors react immediately after the earthquake and the nuclear accident in Fukushima, but at first only with a moderate call for a safety review of German nuclear power plants. In contrast, the opposition parties use the same the first few days to demand a quick phase-out of nuclear energy and the switch-off of the oldest nuclear power plants. The government coalition still rejects the claim for a quick exit (the dashed edges at the top right between the federal government, FDP and the claim “exit (quick)”). However, prominent environmental policy experts from CDU and CSU, Joseph Göppel and Norbert Röttgen, step already out of line and demand a review of the current nuclear energy policy and – in the case of Göppel – even the withdrawal of term extension.
Only two days later (Figure 4) the snapshot of the German nuclear energy discourse shows a very different picture. In the center of the debate are now the call for a moratorium and the (temporary) switch-off of the oldest nuclear power plants. It is in particular regional and state politicians from CDU and CSU, who are supporting the call for shutting down the oldest nuclear power plants. In this period, chancellor Angela Merkel clearly is in the driving seat of the discourse. She sets the government agenda and connects the claims for security check-ups, switch-off of the oldest nuclear power plants, and three months moratorium. The Greens and SPD support the call for shutdown of the oldest nuclear power plants, but reject the moratorium as insufficient and instead call for a return to the red-green exit strategy and a final decommissioning and not just temporary shutdown of the oldest nuclear power plants. The nuclear power plant operators also participate in the discussion and try – largely isolated – to defend the just recently successfully negotiated term extension. As already stated, the centrality of actors involved in the discourse not only depends on the number of statements or on the number of arguments. Rather, it is reasonable to assume that those players should be regarded as central, who support demands, which are also supported by many other actors – especially if the claims of these other actors are also shared by many others. A measure of this type of centrality is the hub-centrality (Kleinberg 1999; Brandes and Wagner 2004). In the discourse network of the second period Angela Merkel by far leads in terms of hub-centrality with a value of 10.18, with E.on (5.30), the Greens (5.18) and the SPD (5.18) following.

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Footnote: We calculated the hub centrality percentage, this means Angela Merkel possesses 10.18% of the overall hub-centrality to the entire network.
In the third period, between the 16th and 22nd March, the focus of the discourse shifts significantly. The oppositional demand for a quick exit gains centrality. It receives occasional support from politicians of the government coalition, who clearly reject the call for an immediate exit. Proponents of nuclear power defend the term extension no longer explicitly, but only indirectly by warning about “hasty action”. Explicit pro-nuclear positions remain marginal in the discourse. Angela Merkel is the actor making the highest number of claims, closely followed by her Environment Minister, the Greens, and the SPD. At the same time, Merkel differentiates her claims and addresses now, like the other three most central actors, five claims. With regard to hub centrality, Merkel is now with a value of 7.54 lower than the Greens (9.62) and higher than Röttgen (5.88) and the SPD (5.65). Merkel thus has lost at that time a part of her discursive centrality. The oppositional demands have come more to the fore. This changes back in the fourth period. Later, from mid-May, in the seventh and eighth period, the Greens have by far the highest hub centrality values. In the fifth period, the list of the most central actors is led SPD chairman Sigmar Gabriel, and in the sixth period the most central actors are the Bavarian Prime Minister and CSU chairman Horst Seehofer, followed by the CDU and FDP.
Figure 6 shows the fourth period between establishment of the “Ethics Commission for a Safe Energy Supply” and the vote of the German Federal Association of the Energy and Water Industry (BDEW) to support the nuclear power phase-out. During this period Environment Minister Norbert Röttgen (6.98) and Angela Merkel (4.89) have the highest hub-centrality values. In addition, two CSU politicians are located in the center of the discourse network, Peter Ramsauer and Horst Seehofer. The key government actors have at this time taken up the oppositional claim of the previous period a rapid phase-out nuclear power on its own and thus displace the oppositional parties from the center of the discourse. They, in turn, try to outbid the government, but only with limited resonance. The argumentative defense of the moratorium becomes, is in this period, a strategy of former nuclear power advocates, for whom the switch of key government actors in support of a phase-out of nuclear energy is coming too fast. It is noteworthy that already in this fourth period several politicians from the government parties voice demands for a concrete implementation of a renewable energy policy. At the beginning of April, not even a month after the nuclear disaster in Fukushima, relevant actors in the government coalition apparently assume that the “exit from the exit from the exit” will come and they start staking out economic claims in the struggle for the distribution of future funds to develop renewable energy supplies (or the expansion of fossil energy).
In the fifth and sixth period, the space of relevant claims remains constant. The discourse networks reflect a consensus shared by most relevant political actors at the federal level to shut down nuclear power plants faster than planned in the decision for a term extension. The distribution of claims stagnates, bringing neither a backlash nor a radicalization of the claims.

In the seventh period between the 18th and 30th May, between the publication of the final report of the Nuclear Safety Commission and the decision of the federal government to phase out nuclear power and permanently shutdown the oldest eight nuclear power plants, the claim for an exit with a set deadline is in the center of the discourse. For the first time the central demand in the discourse is highly contentious. Again, it is Angela Merkel and Norbert Röttgen and especially the CSU, who support the exit claim. The claim is attacked primarily from the FDP, but also from isolated CDU politicians who fight the commitment to a concrete exit date. A look at the hub centrality in this period shows the CSU with a value of 7.79 as a player with the second highest centrality value, slightly below the Greens (8.39) and above the FDP (6.62) and Angela Merkel (5.61).

In the final phase, the debate among the government parties cools down. After the government decision, the discourse in the final phase up to the parliamentary vote is clearly dominated by the conflict within the Green party and between the Greens and parts of the anti-nuclear movement and environmental organizations about correct course. In its core the debate is limited to a debate about the speed of the exit.
The claim of the nuclear power plants operators for compensation in the event of a reversal of the term extension finds little resonance. The small group actors who warn against hasty action is still present, but remains peripheral. In the eighth phase less than half of all claims (48.1%) directly address the exit from nuclear energy or the safety of nuclear power plants. 51.9% of the claim address future energy policies after the end of nuclear power (31.6%) and procedural issues (20.3%). In the second phase, in contrast, 77.8% of the claims have addressed exit and safety issues and only 22.2% energy policy and procedures.

The dramatic change of the discourse that the analysis of the affiliation networks reveals becomes even more apparent in an analysis of the actor networks in the early phase of the debate.

Figure 8: 2-slices of the actor congruence networks in the first four phases

Figure 8 shows the 2-slices of the actor congruence networks of the first four periods. These networks contain the actors-pairs who share at least two claims, for example, the claim for a development of renewable energies and the claim for a rapid phase-out of nuclear energy. The figure clearly shows that the oppositional parties shared several claims from the beginning and thus immediately showed discursive coherence. Among politicians from the governing parties, discursive coherence has developed only over time. In the third period, the until then separated discursive camps merge and after 23 March the group of government actors who share several claims is growing quickly and pushed the still recognizable separate oppositional cluster out from the center of the discourse. Undoubtedly Angela Merkel dominates the discourse with the moratorium deci-
sions on 14 and 15 March the latest. In Figure 4 she thus occupies the central position in the network. A coherent discourse coalition of government actors formed only about 12 days after Fukushima. Against the background of the recently advocated pro nuclear energy term extension, the speed of the formation of this anti-nuclear coalition among government actors is impressive. It runs against the assumptions of the relative stability of policy coalitions in much of the policy networks and advocacy coalition literature (Sabatier and Weible 2007).

Clearly visible in the actor networks is also that at no time a relevant discourse coalition developed in support of the term extension. This is remarkable because the term extension was part of the coalition agreement of the CDU/CSU/FDP coalition and had been implemented only some month earlier, and therefore must have had strong advocates in the government camp. They were, however, in March 2011, unable and/or unwilling to intervene jointly in the nuclear energy debate. The weakness of the advocates of nuclear power is illustrated in the claims-network shown in Figure 9. This network shows those claims that have been mentioned in the fourth period at least six times and used by at least two actors. The image of the network shows a coherent cluster of claims about the exit from nuclear energy and the transition to renewable energy production. Then, there is a small otherwise unconnected cluster, consisting of the claims of energy companies for compensation and for the retention of the term extension. The discursive weakness of the pro nuclear energy camp shows not only in their small numbers, but is also expressed in the fact that these players fail to connect their claims to the main discourse.

Figure 9: Claims network, period 4: 23.3-8.4.2011 (6,2-core)

Overall the discourse networks provide a detailed image of the intense political debate in the time between the nuclear accident at Fukushima and the adoption of a phase-out
decision by a large majority in the German parliament. The results of the analysis can be summarized as follows:

• With the call for a moratorium, German Chancellor Angela Merkel reacts very quickly to the event in Japan. She is supported from the beginning on by other actors in the government camp. In the crucial early phase Merkel has a high hub-centrality in the discourse network and thus determines the main direction of the discourse development. Other actors with high centrality values are critical of the moratorium but do not support the term extension. On the contrary, they make more radical exit claims. These further claims for a quicker phase-out of nuclear power and the switch-off the oldest nuclear power plants are gaining centrality in the debate and thus determine the outcome of the discourse.

• Only two weeks after the nuclear accident, and after a short initial period of uncertainty, important government actors are able to formulate a differentiated set of claims to phase out nuclear power and reform energy policy. The fact that the various claims are shared by a large number of actors is a sign of their discursive coherence. The high number of discursively connected claims offer a variety of connection points for state and federal politicians as well as civil society actors and economic stakeholders.

• Opposition to the exit claim remains marginal over the whole period. Apart from the four nuclear operator companies RWE, E.on, Vattenfall and EnBW other actors join only occasionally the coalition for long-term adherence to nuclear power. The fact that the pro-nuclear coalition is caching their claim as a warning against hasty action is an expression of the discursive weakness of this coalition. Trade associations, representatives of the term extension in the government parties, and the energy companies never achieve centrality values comparable to the advocates of an exit from nuclear energy.

• Noteworthy is the early adoption of a “revisionist” policy within CDU and CSU, and the growing support from state level politicians of these parties for exit claim. Immediately after the earthquake in Japan and the looming nuclear disaster, the government first tried to stick to their pro-nuclear policy by only demanding further security checks. At this time not only politicians from oppositional parties but also CSU environmental politician expert Josef Göppel immediately demand the withdrawal of the term extension. In this situation, Chancellor Merkel quickly receives support for the moratorium and the provisional shutdown of the oldest nuclear power plants from CDU and CSU. This pushes for a radicalization of the demands among government actors. The strongest support for the government course comes from the CSU in Bavaria, where several times individual CSU politicians go well beyond the government position and call for a quicker end to nuclear power use in Germany.
4. Conclusions

From a discourse analytical perspective the rapid and radical policy change in the German nuclear policy after Fukushima is less surprising than from the perspective of established political science approaches. While discourse network analysis can not explain, why Angela Merkel has decided to break so quickly and so strongly with her hitherto pursued pro-nuclear position, it may well explain why the claim for a faster exit and the switch-off of the oldest nuclear power plants has become hegemonic within such a short time. The exit claim was able to dominate the discourse,

(1) because its proponents succeeded in occupying central positions in the discourse network,

(2) because they have been able to quickly establish a coherent bundle of claims, provided discursive access points for many other political actors with different positions and interests, and

(3) because the proponents of the term extension neither managed to occupy central positions in the discourse network nor developed a coherent bundle of claims.

The dynamic towards the exit option was further reinforced by the constellation that the oppositional parties rejected the government claims as insufficient, but did not construct their own claims as a true counter-pole to the positions of core government actors. Their claims rather radicalized the government actors’ claims and thus prevented a polarization of the debate. This helped to channel the originally rather vague calls for a security review and for a moratorium toward more substantial claims for a nuclear phase-out with a fixed exit date.

The discourse network analysis on which this article builds is limited because we divided the overall discourse in eight phases and thus have aggregated the many discursive events within each phase to meta-events. Strictly speaking, this partial aggregation of discourse allows only a comparatively static reconstruction of the discourse dynamics. But on the basis of the data collected, it is in principle also possible to divide the entire network into daily slices and to obtain a finer resolution of the discourse dynamics. Such an analysis could extended our results by indentifying discursive turning points as displacements of the network structure based on the analysis of the discourse development. However, the downside of such a strategy would be a for the reader less comprehensible description of the temporal discourse dynamic. Regardless of the chosen level of aggregation discourse network analysis provides an extended approach to analyze the development of constellations of actors and discursive elements (claims). This approach should therefore continue to be further developed and tested.
References


