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Strategic framing in the BP crisis: A semantic network analysis of associative frames

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ABSTRACT

This paper contributes to the analysis of the interplay of public relations and news in crisis situations, and the conceptualization of strategic framing by introducing the idea of associative frames and the method of semantic network analysis to the PR research field. By building on a more advanced understanding of communication as process of social meaning construction that is embedded in networks of differential relations between different actors, it contributes to extend the perspective of first- and second-order agenda building towards a kind of "third order" or "network agenda building". Via an automated content analysis of more than 3700 articles we examine agenda- and frame-differences between public relations, UK and US news in the BP crisis. The study documents that BP successfully applied a decoupling strategy: It dissociated itself from being responsible for the cause and at the same time presented itself as solvent of the crisis. It shows that in crises, associative frames in PR resonate partly to associative frames in news. Especially the US news followed BP and did not succeed in presenting political actors as solution providers.

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1. Purpose of the study

Research in the field of public relations (PR) focuses on analyzing the interplay between PR, news and publics. PR tends to be regarded as successful when the content and framing of press releases resonates as intended in the news and hereby effects also stakeholders' perceptions of and reactions towards organizations. Whereas several studies focus on the effect of strategies and contents of corporate communications, especially strategic framing processes and the interplay with news in this context has not yet been analyzed. This paper contributes to fill a research gap in the field of PR and crisis research by analyzing associations between agenda building and strategic framing in PR and news, and by applying a more complex understanding of frames as "associative frames" – as complex, semantic networks of mutually associated issues, actors and attributions such as causes, consequences, and solutions.

We study frame building processes especially in a crisis situation, because crises threaten an organization's high priority goals (Seeger, Sellnow, & Ulmer, 1998) and result in high media attention and corporate attempts to communicatively repair organizational legitimacy (Pattriotta, Gond, & Schultz, in press). We take the BP oil spill as an example because it led to a huge amount of media attention and a spread of the crisis discourse from a corporate into a political arena. Moreover, it dramatically affected the financial foundations of the corporation. The pre-crisis phase of the BP oil spill already began mid of February 2010, when the Deepwater Horizon drilling rig, owned by Transocean, began drilling on the Macondo Prospect. In spite of damages at the blowout preventer and internal concerns on the quality of the cement of the well, BP cancelled a recommended cement bond log test for reasons of delay and costs. At April 20th, 9:45 pm, gas, oil and concrete exploded up

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the wellbore onto the deck, caught fire and killed 11 platform workers. After having burned for 36 h, the Deepwater Horizon sank at the 22nd of April. The described event triggered a huge debate, which first concentrated on the clean-up costs and led to dramatic falls of shares. The debate increasingly spilled into the political and media arena when Obama, as a sign of political interest and control, flew to Louisiana at the 3rd of May 2010. In the following weeks, several attempts were made to evaluate the damage on the environment, the cause and the consequences, and to solve the problem. In the discourse BP announced a range of different solutions (for e.g., "top kill", "marine riser cap system", "new cap", "a whale", "static kill"), until the leak was permanently closed at the 19th of September 2010.

We describe processes of strategic framing and apply our understanding of associative frames by comparing PR and news in this BP crisis based on an automated content analysis of more than 3700 news articles from US and UK news, and 126 press releases, which were produced between 20th of April and 27th of August.

2. Literature review

Coming from organization-centered and recipient-focused perspectives, research in the field of public relations started only recently to empirically analyze the interplay of corporate communications, news and perceptions of corporations (e.g., reputation) on a more elaborated level. First studies investigated, for example, the influence of PR-activities on news (e.g., Curtin, 1999; Kiousis, Popescu, & Mitrook, 2007), the effects of news on the public (Carroll, 2004; Kleinnijenhuis, Van Hoof, Oegema, & De Ridder, 2007; Meijer & Kleinnijenhuis, 2006) or the mediating role of news in the effect of public relations on public perceptions (Carroll, 2010; Kleinnijenhuis, Utz, Schultz, & Oegema, 2011). Few studies applied established concepts from the field of political and mass communication, such as agenda setting (McCombs, 1997; Kiousis & Strömbäck, 2010; Kiousis, Popescu, & Mitrook, 2007), priming (Iyengar & Kinder, 1987), or framing (Scheufele, 1999; Scheufele & Tewksbury, 2007). In particular processes of strategic framing (Xenos & Foot, 2006; Entman, 2007), that are intensively discussed in research on social movements (Benford & Snow, 2000; Gamson & Lasch, 1983) and management research (Gioia & Chittipeddi, 1991), have not been analyzed and fully conceptualized for this field so far.

A lack of complex analyses on the interactive and inter-organizational negotiation of reality by affected organizations and stakeholders over time can especially be observed for research on crisis situations. Coming from a symbolic approach (Coombs & Holladay, 1996) that regards communication as symbolic resource (Benoit, 1995; Coombs, 1998), public relations research discusses crises mainly with regard to the effects of image restoration strategies (Benoit, 1995) or response strategies (e.g., apology, denial) on public perceptions (e.g., reputation). Concepts such as Benoit's (1995) speculative 14 image restauration strategies, ranging from simple denial and blame shifting over attack, compensation, corrective action and mortification, were empirically tested and re-conceptualized in the Situational Crisis Communication Theory (SCCT) by Coombs (2007), without overcoming the underlying organization-centered perspective (Schultz & Raupp, 2010). Research on crisis communication focuses on recipient's direct crisis reactions (Coombs & Holladay, 2007, 2008, 2009) and, with the development of social media, their communicative reactions (e.g., Schultz, Utz, & Göritz, 2011), but to a smaller extent the interplay of PR, news and publics. The first contribution of this paper lies in overcoming this research deficit by analyzing associations between agenda building and strategic framing in corporate crisis communications and news. It takes the BP crisis as an example and hereby extends prior organization-centered research on the oil spill (Harlow et al., 2011).

Research on agendas discusses the interplay of media, public and organizational agendas. The term agenda refers to the set of issues, actors or objects that are prominently discussed by each source. Whereas research on agenda "setting" analyzes the influence of news on the public (media effects), agenda "building" and frame building refers to macroscopic mechanisms of message constructions and analyzes the influence of communicators such as corporations on the news (e.g., Scheufele & Tewksbury, 2007). It observes these effects of agendas on different levels. "First-order" agenda building and setting analyzes to what extent the salience of issues and actors is crucial for the effect of public relations on news and news on public (e.g., McCombs, 1997), whereas "second-order" agenda building and setting focuses on the effect not only of major issues or objects, but their attributions (e.g., evaluations) in each context (see for e.g., McCombs, Shaw, & Weaver, 1997; Carroll, 2011; Kiousis et al., 2007; Meijer & Kleinnijenhuis, 2006). It refers to how the media or public thinks about an issue. "As certain perspectives and frames are employed in news coverage, they can draw public attention to certain attributes and away from others." (McCombs et al., 1997, p. 29) Also framing, which is often regarded as refined version of second-order agenda setting (see Scheufele, 1999), is rooted in thoughts about the effects of media content, such as stereotypes (Lasswell, 1960), and only partly applied to PR (Hallahan, 1999). Frames can be defined as "schemata of interpretation" that enable individuals to "locate, perceive, identify and label" occurrences within their life space and the world at large (Benford & Snow, 2000, p. 614, building on Goffman, 1974, p. 21), or as constructed realities, in which events or issues are described in a way that allows the receiver to understand them (Benford & Snow, 2000; Entman, 2007). Accordingly, framing is often regarded as cognitive structure building (e.g., Entman, 1993; Gamson & Modigliani, 1989) that does not only organize experiences, but strategically aims at mobilizing adherents and demobilizing antagonists (Snow & Benford, 1988). Entman (1993, p. 52), for example, defines it as process "to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation". Frames hereby serve to "introduce or raise the salience or apparent importance of certain ideas, activating schemas that encourage target audiences to think, feel, and decide in a particular way" (Entman, 2007, p. 164; see also Kim, Scheufele, & Shanahan, 2002; Price, Tewksbury, & Powers, 1997).

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Although both concepts, agenda and frame, are intensively applied, their distinction remains often unclear. Framing is by some authors regarded as theoretically vague concept that is distinctive from second-order agenda setting (Scheufele, 1999). Additionally to this popular critique, we argue that especially higher order agenda building could analyze not only how actors or issues are reciprocally attributed, but instead how they are mutually related to each other. The second contribution of this paper therefore lies in offering an extended model of framing as "associative frames", and contributing to the conceptualization of third-order or network agenda building.

3. Theoretical framework

3.1. Studying associative frames via the asymmetric conditional probabilities approach

In our study we follow the symbol-constructivist perspective of thinkers such as Cassirer (1944), Geertz (1973) and Eco (1979), who already argued that the meaning of objects or concepts derives from their multiple relations and integration in meaning networks. This idea, that meaning derives from its multiple relations, was radicalized by postmodern linguists and philosophers who argued that each try to grasp the language and symbols by which actors construct their world semantically leads into an infinitive regress, because signs only relate to other signs as their reference and exist in a network of differential relations (Derrida, 1990; Saussure, 1967). For example, the word terrorism itself receives its meaning from its multiple connections to other terms such as fundamentalism. When starting to think about terrorism a person might proceeds with thoughts about the Islam, since the number of terrorist attacks is limited and a fair share of recent attacks were performed by Islamic fundamentalists. Also, the meaning of an issue in a crisis derives not only from whether and how often it is regarded as solution of a problem, but moreover from whether and how often political or corporate actors are regarded as being responsible for it, and whether and how often it is in the communicator's mind seen as a consequence or cause for a crisis.

Based on this idea of meaning networks it can be argued that besides the attention for issues and actors (first-order agenda building) and the bilateral connections between issues or actors by their evaluations (second-order agenda building), the multiple, non-hierarchical connections between any kinds of "concepts" such as issues, actors and evaluations and their quality need to be taken into account, which may be labelled as "third-order" agenda building (Guo & McCombs, 2011). Accordingly, we consider frames as complex patterns of non-hierarchical relations or associations between different concepts. Such "associative frames" are semantic networks, in which concepts such as actors, issues, or evaluations as causes, consequences and solutions are mutually associated with each other. We specifically build on the idea of "associative framing" (Ruigrok and van Atteveldt, 2007), which is rooted in the cognitive paradigm (D'Angelo, 2002) and links to the frame semantics tradition in linguistics (e.g., Fillmore, 1982), which regards frames as structured semantic representations of associated contextual and cultural information (e.g., Cornelissen and Werner, in press). To summarize the proposed model herewith extends the perspective of first- and second-order agenda building and points to a higher level of analysis, which has in conference papers recently been described as "third-order agenda setting" and "building" or "network agenda setting" (Guo & McCombs, 2011; Schultz, Kleinnijenhuis, Oegema, Utz, & van Attefeldt, 2011). Whereas first-order agenda building refers to the salience of actors and issues, and second-order agenda building on the attributions of actors or issues, our understanding of associative frames refers to the multiple connections between several concepts, such as issues, actors and attributions.

To analyze semantic networks, we apply a specific approach which to our knowledge has not been applied to PR research so far, but is closely related to framing and higher order agenda setting (see Ruigrok and van Atteveldt, 2007): the "asymmetric conditional probability approach". It builds on the logic of Tversky (1977), who showed that similarity judgments, and therefore associations, are asymmetrical. As discussed, a person may for example often proceed with thoughts about the Islam when starting to think about terrorism. However, when the person thinks about the Islam he or she may not think at all about terrorism, because the Islam has many aspects and many believers, most of them not connected with terror. To put it differently, whether a person associates a with b, is a conditional probability: the probability of b given a amounts to $p(b|a) = p(b \cap a)/p(a)$, and conditional probabilities are only symmetrical if p(a) = p(b). The measurement of semantic networks is therefore based on asymmetric conditional probabilities derived from occurrences and co-occurrences of concepts (p formula) per time (e.g., days, weeks, months). Based on the developed model of frame, we now concretize our understanding of strategic framing as not only the strategic selection of concepts such as issues and actors (agenda) and their evaluation, but also of their mutual associations (frames).

3.2. Agendas and associative frames in the BP crisis

We contribute to enrich research on strategic framing and crisis communication by analyzing agendas and associative frames in the BP crisis. Our main research question is: How does BP's agenda and associative frame associate with the US news and UK news agendas and associative frames? To answer this question, we first look at the agenda (what) and at the associative frames (how) in public relations messages. Agenda hereby refers to actors such as BP, political actors or protest actors, and on issues such as causes, consequences and solutions, which subsume issues such as moratorium, pollution or fisherman. Frame hereby refers to the associations between these agendas.

As recent studies point out, routine narratives of organizations are often disrupted by crisis narratives (Willihngaz, Hart, & Leichty, 2004), and organizations try to restore the narrative of control by communicating mainly about solutions of the

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crisis (Heath, 2004, p. 168). Research on the direct aftermath of the oil spill crisis confirms that also BP focuses on the solution for the problem and the compensation of victims, but only indirectly takes responsibility for the damage or cause, and that it did not use blaming as a strategy (Harlow, Brantley, & Harlow, 2011). We assume, that BP followed this strategy also over a longer period of time, and develop the following hypothesis:

H1. The salience of BP's agenda focuses on solutions and some actors, but less on causes, the problem itself, consequences or political, legal and protest actors.

As mentioned, a more detailed analysis of associative frames over a longer period of time is still outstanding. We therefore develop a simple research question.

RQ1: Which associative frame is applied in BP's press releases?

In our view, the meaning of agendas and frames is also relational and cannot be grasped by only looking at PR, but by comparing PR to news. On the one hand, it can be argued that the agenda of press releases is to some degree reflected in the media (Kiousis et al., 2007), and that journalists build also in crises on traditional sources (PR). On the other hand corporate crisis narrations and justifications often differ from narrations of news, political and other actors narrations in crisis situations (Schultz & Raupp, 2010; Pattriotta et al., in press). By building on news values theory (Schulz, 1976; Staab, 1990), arguing that negativism and conflict lead to more publicity, it could, for example, be expected that news focus more on causes and consequences than corporate press releases, and that corporations try to keep control on their field of action through ignoring crisis constructions of other actors. This can also be expected for the BP crisis. It could for example be that BP gives solutions relatively higher attention than the news and tried to avoid that other political actors solve the crisis, whereas the news might emphasize a clearer link between political actors and the crisis solution. Also, it could be argued that the UK news gives attention to other actors and issues, and frame the crisis completely different than the US news, because the British corporation produces an environmental crisis at the US coast and hereby political tensions. Because this is to our knowledge the first semantic network analysis in the field of public relations, we develop the following research question:

RQ2: How do the agenda and associative frame in BP's press releases associate with the agenda and associative frame in the US and UK media?

4. Method

Our empirical study illustrates the theoretical framework via an automated content analysis of 126 press releases issued by BP, 1376 news articles issued by three US-American newspapers and 2355 news articles issued by three UK media (see Table 1). The evaluated documents were published between April 20th and August 27th 2010. All BP press releases were sourced directly from the web sites of BP. The news articles were selected from LexisNexis by applying the search string "BP". For both countries, a financial newspaper, an elite newspaper and a more popular newspaper were selected in order to get a broad impression on the discourse. For the US newspapers, these were The Wall-Street Journal (available in form of abstracts), The New York Times and USA Today; for the UK we selected The Financial Times, The Times and The Sunday Times. The unit of analysis for the conditional probabilities and the hits for actors and issues were articles, implying that theoretically also all combinations of all actors and issues can be present in one article and that each article can contain more than one frame.

To analyze the main differences and changes in actors, issues and their relation in the BP crisis several techniques were applied. First, we measured the amount of media coverage and press releases, and developed a chronology of the key events. Two of the authors read a smaller sample of news articles to get insight into the crisis development and involved actors and issues. Based on this procedure and on earlier studies (Pattriotta et al., in press; Schultz & Raupp, 2010), we second developed a keyword list with descriptors and concrete search strings (see Appendix A). The list was reworked via a frequency analysis to select the most important descriptors of issues and actors. An iterative test of these descriptors based on samples of news helped to filter out mistakes of the first degree (text elements wrongly taken as a 'hit') and second degree (text elements wrongly skipped as a 'hit'). In the selection of main actors of the crisis discourse we concentrated on the four most relevant

Table 1 Overview units of analysis.

Source	Detail	Documents		
BP	Press Releases	126		
USA	New York Times	758		
	USA Today	248		
	Wall Street Journal (Abstracts)	370		
	Total	1376		
UK	Sunday Times	315		
	Times	1106		
	Financial Times	934		
	Total	2355		

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in addition to "BP", which were the "White House", "politics" (political actors other than White House), the "court" and "environmental protest actors". Furthermore, we selected key issues of the discourse via the described process (e.g., "oil spill", "static kill", "moratorium"). According to previous research on diagnostic and prognostic framing, we clustered these issues in the categories "cause", "solution" and "consequence" (Benford & Snow, 2000) as well as the "oil spill problem" itself. Appendix A presents the final set of search strings that were used to find instantiations in texts of the framing concepts on which this article rests.

We conducted the automated content analysis via AmCat (Amsterdam Content Analysis Toolkit), which consists of the AmCAT navigator and database, (van Atteveldt, 2008). AmCAT is a document database and management system that can be used to manage content analysis projects, but also to conduct keyword-based (exploratory) analyses, to assign documents to coders for manual coding, and to launch programs to conduct linguistic preprocessing and automatic coding. We used it to measure the attention for actors and issues, but also to estimate and visualize the semantic networks based on asymmetric conditional probabilities derived from occurrences and co-occurrences of concepts (*p* formula) per unit (e.g., days, weeks, months). Appendix B gives a cross-table of conditional probabilities that the main concepts in the discourse about BP were associated with each other. We visualize the associative framing, i.e., the conditional probabilities, of the crisis in a figure, in which actors were plotted in dotted boxes, and issues in ellipses with solid frontiers. An arrow from concept *a* to concept *b* is drawn if *a* is framed in terms of *b*, in other words, if the conditional probability that *b* will be discussed once *a* is discussed, is very high. The thickness of an arrow represents the strength of the conditional probability. To reduce the complexity of network arrows and give focused, qualitative interpretations, the visualization depends on the strongest conditional probabilities. We did not visualize weaker conditional probabilities and draw arrows only in case that in 75% or more of the press releases or articles about a concept *b* is mentioned as well. To simplify the figures, BP was left out. In case BP was framed strongly in terms of a specific concept, we visualized this with circular arrows pointing to the concept itself.

5. Results

5.1. Agenda building and associative framing in BP public relations

To analyze agenda building, Table 2 gives an overview on the attention for the concepts issues and actors. It can be seen that BP paid high attention to the oil spill itself (74%), but little to the causes (1%). Furthermore, causes were probably not certain in the beginning of the crisis, so that further investigations were conducted. BP discussed solution strategies (66%) indeed to a higher amount than consequences (56%). With regard to actors, it can be seen that the White House, including president Obama (26%), played the biggest role, whereas other political actors (2%), the court (2%) and environmental groups (6%) were only seldom mentioned. BP reacted mainly to Obama, as for example after his critical speech on the oil spill at the 16th of June, when the crisis discourse reached its highest peak. BP confirmed in the press release "that the Company will be meeting with the President this morning [...] to discuss his proposal for arrangements to ensure that all legitimate claims in respect in the Gulf of Mexico oil spill are paid out in a fair and timely manner" (BP, 2010a). Shortly after that, BP agreed on the 20 billion dollar escrow compensation fund to compensate for the crisis damages. Overall, Hypothesis 1, stating that BP's agenda focuses on solutions, but less on causes, the problem itself, consequences or political, legal and protest actors, could therefore be confirmed.

The frame associations and relations between the concepts, as worked out via semantic network analysis, are documented in Fig. 1 and based on the measurement of asymmetric conditional probabilities (see Appendix B).

As Fig. 1 documents the BP press releases do not express a strong concern of BP with the oil spill problem. BP does not acknowledge fully that the consequence (pollution, costs, etc.) is directly a result of the oil spill. Appendix B shows that the probability that a consequence is mentioned in a press release that mentions the oil spill p(Consequence|Oil Spill Problem) is 0.58. And it documents, that BP partly tries to ignore in the communication, that the consequence is the result of the corporation's behavior (p(Consequence|BP) = 0.51). BP emphasizes reversely that the nature of the consequences asks for concern about the oil spill problem (p(Oil Spill Problem|Consequence) = 0.75, p(BP|Consequence) = 0.98). It argues mainly that

Table 2Overview actors and issues.

		BP		US News			UK News			
		Articles	Hits	%	Articles	Hits	%	Articles	Hits	%
Actors	BP	125	1083	100	1376	7916	100	2355	16021	100
	White House	33	87	26	774	3608	56	873	2996	37
	Court	2	3	2	248	752	18	283	739	12
	Politics	3	3	2	459	2144	33	627	2905	27
	Environmental Protest	8	16	6	286	685	21	253	426	11
Issues	Oil Spill	93	375	74	1091	4071	79	1492	4496	63
	Causes	1	1	1	161	511	12	98	164	4
	Consequences	71	333	56	1005	7294	73	1837	9451	78
	Solutions	83	477	66	871	4235	63	1243	3993	53
N (# items with BP included)	Total Actors	126			1376			2355		

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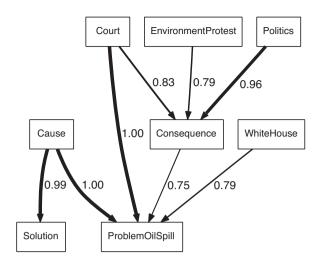


Fig. 1. Associative frame in BP press releases.

the politics and environmental protest actors are only concerned about the consequences (p(Consequence|Politics) = 0.96, p(Consequence|Environmental Protest Actors) = 0.79), but mentions to a smaller amount that they are concerned about the oil spill itself (p(Oil Spill Problem|Politics) = 0.56, p(Oil Spill Problem|Environmental Protest Actors) = 0.73). The White House in turn is mainly related to the oil spill, but not so much to the detailed consequences (e.g., on fisherman and tourism) and solutions (p(Oil Spill Problem|White House) = 0.79, p(Consequence|White House) = 0.56). BP sponsors mainly a "technological" solution, i.e., a solution that is inspired only by the cause of the oil spill, but completely distracts that from the problem itself as well as from the consequences. In the overall picture, neither the White House (Obama) nor others are associated with an appropriate solution (p(Solution|Cause) = 0.99). In a press release from the 2nd of May a BP spokesperson relates the White House, for example, on a very general level to the oil spill, but neither to concrete causes, consequences or solutions. "The US government leadership here has been excellent since day one. I agree with the President that the top priority right now is to stop the leak and mitigate the damage. I reiterated my commitment to the White House today that BP will do anything and everything we can to stop the leak, attack the spill off shore, and protect the shorelines of the Gulf Coast" (BP, 2010b).

5.2. Agenda building and associative framing of BP in comparison to UK and US news

A clearer picture evolves by comparing the BP press releases to the UK and US news. With regard to the agenda building process indeed huge differences can be observed. As can be seen in Table 2, US media paid far more attention to the US-actors that were involved in the oil spill crisis than UK media. The role of the White House, including president Obama, is a more dominant story line in US newspapers (56%), but also in UK newspapers (37%) compared to press releases (26%). The role of other political actors and the court is in the US news (33%, 18%) and in the UK news (27%, 12%) much larger than in BP press releases (2%, 2%). An explanation might for example be that during the crisis many lawyers raised judicial issues, which received considerable attention in the New York Times, the USA Today and the British Sunday Times.

Fundamental differences can also be observed in the attention for the problem itself as well as the usage of causes, consequences and solutions. Interestingly, the US news (79%) paid nearly the same attention to the oil spill as BP (74%). The attention for the precise causes of the oil spill in turn was in general remarkably small (US media 12%, UK media 4%; compared to 1% BP press releases). The comparison shows, that the news attention for the consequences of the oil spill was especially high compared to the causes and the BP press releases (73% in US press, 78% in UK press, only 56% in BP's PR), whereas the attention for solutions was in the US press (63%) lower than in the BP press releases (66%), and much lower in the UK press (53%).

With regard to the frames it can be seen that the US media frames the BP crisis partly in line with the BP press releases (Fig. 2). There is acknowledgement of the consequences of the crisis in the US media (cf. Appendix B, p(Consequence|Oil Spill Problem) = 0.75), but it is also emphasized that the oil spill is important because of the nature of its consequences (p(Oil Spill Problem|Consequence) = 0.78). Although other actors such as the court and environmental protest actors are mentioned in the US media, they are not regarded as solvent and not related to the problem, but to the consequence p(Consequence|Environment Protest Actors) = 0.89), p(Consequence|Court) = 0.84). Only the consequence itself is not portrayed consistently as the result of the oil spill, for which BP could be blamed, but as a problem of its own or discussed as consequence of the solutions themselves.

Another picture evolves in the UK news. This frame differs fundamentally from the other two frames (see Fig. 3), especially because the consequences are presented as result of the oil spill (cf. Appendix B, p(Oil Spill S

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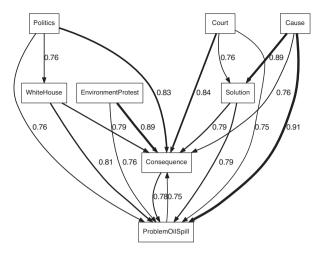


Fig. 2. Associative frame in US News.

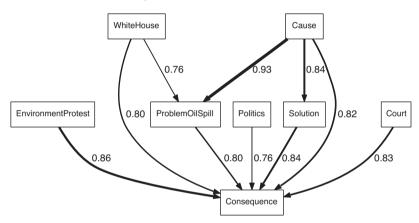


Fig. 3. Associative frame in UK News.

Problem|Consequence) = 0.60, p(Consequence|Oil Spill Problem) = 0.80. All three aspects—the oil spill problem, the consequence and the solution—are here much more regarded as result from the cause directly (p(Consequence|Cause) = 0.82, p(Oil Spill Problem|Cause) = 0.93, p(Solution|Cause) = 0.84). Similar to the other frames, other actors than the White House are concerned about the consequences, but less interested in the cause or the solution, and not related to the oil spill itself (p(Consequence|White House) = 0.80, p(Consequence|Politics) = 0.76, p(Consequence|Court) = 0.83, p(Consequence|Environmental Protest Actors) = 0.86). At the second high peak of attention at 31st of May the UK news reported, for example: "With the failure of its latest attempt to stem the massive oil leak in the Gulf of Mexico, BP was running out of time, money and friends yesterday as it prepared another, even riskier, plan of attack. [...]. BP will try to keep some of the oil out of the water by rerouting it into a tanker. [...] News of the "top kill" failure [...] crushed the hopes of Gulf Coast residents, who face economic disaster." (The Times, 2010).

6. Conclusion

The aim of this study was to analyze the agenda and associative frames applied by BP in the oil spill crisis, and its differences to US news and UK news via an automatic content and semantic network analysis based on more than 3700 news articles and 126 press releases. This is to our knowledge the first semantic network analysis in the field of public relations and crisis communication.

The study documents that BP framed the crisis as an event with external causes and put little attention to these causes, presumably to avoid responsibility attributions in the press and in the judiciary or because news snippets about technological flaws in the design of the oil drill machinery or man-made errors in its operation did not mount up to a convincing story. The corporation did not mention first the problem, and based on that then consequences, solutions and finally solvents, as could have been expected. Instead, BP dissociated the consequence from the oil spill problem to avoid getting blamed, and invented a variety of ways to suggest a number of different solutions that were associated very strongly with the original, technical problem. BP time and again brought new technological solutions with symbolic and impressive names ("top kill", "static kill") to the fore that could help to stop the oil spill. By that, and by not relating other actors (e.g., the White House) to the cause and

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problem itself, BP avoided that they could become solution providers. This strategy of decoupling the problem from the corporation's activities, from the solutions, and furthermore from solution providers, can be described as a "decoupling strategy".

The comparison between media and PR documented further how this frame resonated in the media. On the one hand the study shows remarkable differences in the attention for issues and actors as well as the complexity and quality of frames between public relations, US news and UK news. The PR frame is less complex than the two news frames, which contains more actors, issues and associative framing relationships. BP gave in its press releases more attention to the problem of the oil spill itself as well as to solutions than US and UK media, whereas the US and UK media mentioned consequences of the crisis more often than BP press releases. At the same time, the PR frame is partly associated with media frames: Surprisingly, in the news, BP, but not the politics, court, environmental protest actors or the White House was regarded as being responsible for the crisis and therefore also for the solution. Although political actors have the natural desire to be framed as provider of the solution, they were not attributed with responsibility, for example for the technological solution of the crisis. Also, the solution was only in UK news, but not in US media and BP press releases related to the oil spill problem. The specific political constellation might have contributed to this decentralization of responsibilities, in which political conflicts played an increasing role. Based on these observations it can be assumed, that BP achieved that especially the US media took partly over its agenda and frame.

With these results the study contributes to prior research and theoretical frameworks in several ways. First it extends crisis communication research on the BP crisis and in general. By analyzing a high amount of news and PR articles over a longer period of time and by applying semantic network analysis it confirms insights from organization centered studies on the BP crisis (Harlow et al., 2010) arguing that BP concentrated on the solution and did not take responsibility for the cause. On the contrary, it documents that BP's Image Repair Strategy and performance with a series of new and unknown technological solutions was not a poor or non-successful strategy, but a clever game to keep control over the solution. A practical implication of the study is the insight, that solution decoupling is a successful framing strategy. Although the paper argues in line with prior conceptualizations of crisis response strategies (Benoit, 1995; Coombs, 2007) that BP used compensation and partly apology or mortification, it could make a strategy called "decoupling strategy" visible by applying for the first time semantic network analyses to this research field. The paper herewith supports also prior studies (e.g., Curtin, 1999; Kiousis, Popescu, & Mitrook, 2007; Carroll, 2004; Meijer & Kleinnijenhuis, 2006), that already began to overcome the organization-centrism of public relations and more specifically crisis communication research by empirically analyzing agenda and framing processes in the interplay of corporate communications and news in crisis situations.

Second, the study contributes to the theoretical frameworks of agenda building and framing as applied in the field of political and mass communication (Entman, 1993; Benford & Snow, 2000; Scheufele, 1999), but seldom in corporate communications. It helps to overcome the theoretically and empirically vagueness (Scheufele, 1999) and the lack of complexity of framing and contributes to the idea of agenda building by enfolding the idea of "associative frames" (Ruigrok and van Atteveldt, 2007). As discussed, associative frames are constructs of higher complexity and associations between issues, actors, attributes etc., which can be measured as semantic networks via asymmetric conditional probabilities. The study shows that in crisis situations, the salience of semantic networks in press releases partly associates with the salience of semantic networks in the media. It hereby extends the perspective of first- and second-order agenda building and points to a higher level of analysis, which can be called "third-order agenda building" (Guo & McCombs, 2011; Schultz, Kleinnijenhuis, et al., 2011). This third-order agenda building focuses on the effects of semantic networks. Because future research could also integrate the dimension of social networks, we would propose to use the more easier to understand term "network agenda building" (see also Guo & McCombs, 2011).

Third, the study introduces new tools of automated content analysis that stimulate the quantitative analysis in crises communication and public relations research, but also in research on mass and political communication. The used asymmetric conditional probability approach has only recently been applied to the latter (Ruigrok and van Atteveldt, 2007), and could be used to analyze also political PR.

And fourth, the study helps to conceptualize the vague but intensively discussed idea of strategic framing (Benford & Snow, 2000; Entman, 2007; Gamson & Lasch, 1983; Xenos & Foot, 2006) as process, in which actors do not only strategically select concepts (issues and actors), but also their relations.

7. Discussion

Despite the theoretical and methodological contributions, the study also faces some limitations. It analyses associative frames on the aggregated level over a longer period of time, but does not quantify their mutual impact in a process dimension. A phases-based, qualitative descriptions of the underlying narratives, but also regression and time-series analyses could in future research better document the mutual changes and influences with regard to frame-complexity, frame-shifts and frame-blending. It would give further proof for the assumption that PR can dominate the discourse (Kiousis et al., 2007), and could more generally also contribute to better explain how crises are socially co-constructed and social order reestablished in the interplay of public relations and different news.

Besides that, the idea of network agenda building, which refers to semantic and social networks, needs to be further explored. To settle the proposed concept integrated analyses of semantic and social networks in the field of corporate but also political PR would be helpful. Also, future research needs to conduct comparisons on which level of analysis (first, second

media have in crisis situations.

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or third-order) results in strongest effects (e.g., drives the agenda most), and which impacts do associative frames social

Appendix A. Lucene search strings to operationalize framing concepts

Actors

BP#BP "British Petroleum" Hayward Dudley subcontractor* Transocean Halliburton "Repair groups" Shareholders Exxon Shell Texaco Conoco "American Petroleum Institute" API White House# "White House" Obama "Interior Department" Salazar "department justice"~3 "department energy"~3 "department defense"~3 "department state"~3 "Coast Guard" "Mine Safety AND Health Administration" MSHA OSHA "Occupational Safety and Health Administration" "Federal Emergency Management Agency" FEMA "Minerals Management Service" MMS "Ocean Energy Management" "Environment Subcommittee" ES "Environmental Protection Agency" EPA "Environmental Research Institute" ERI "Flow Rate Technical Group" "House Committee on Energy and Commerce" "Safety and Health Administration" "US Geological Survey" "Marine Board of Investigation" Court# "in court" "federal court" "supreme court" attorney lawyer lawyers lawsuit* Politics#congress* senate senator republic* democrat* "Senate Environment Committee" "House Energy Subcommittee" ("commission oil/BP/Deepwater"-5 AND "national commission") Cameron "tea party" "tea parties" EnvironmentProtest#" Environmental organizations" "National Wildlife Federation" NWF Greenpeace "Robin Hood" "Environmental actors" "Environmental organizations" boycot* demonstrations protesters "public/resident*/citizen*/voter* protest/anger/angry/concern*/frustrat*"~5 citizen citizens inhabitant* resident* voter voters "public/resident*/citizen*/voter* mood/opinion/interest*"~5

Issues (categorized)

ProblemOilSpill# "oil spill/spew*/leak*/plume/pour*/gush*"~5 "blow out" "Macondo blowout" "oil rig explosion" "Deepwater Horizon" barrels barrel quantit* gallon* Cause#"Security culture" "Technical/engine*/mechan* fault*/mistake*/fail*"~10 "cancel* test*"~10 "bond log" "blowout prevent*"~5 nitrogen "equipment unreliab*/reliab*"~5 Consequence#costs dollar dollars money profit profits "share* price/dollar/cent/rise/fell/plung*"~5 penalty penalties fines environment* wildlife sanctuar* fish fishes dolphin* whale* turtle* bird* pelican* albatross* mammal* predator* shrimp* oyster* crab* plankton* pollut* contaminat* toxic* "stain* oil*"~5 oiled economic economy energy "addict* oil/energy"~5 fisherman fishermen fisher tourist* tourism ((health* unhealthy) NOT (healthcare OR "health mine/care/reform"~5)) "kill*/death/deepwater/horizon 11/eleven"~10 seafood food Solution#repair* reparation Robot Containment "Wide riser" "riser package" "stop*/kill*/seal* leak*/spill/well*"~5 "Top hat" "fitting cap" "Junk shor" "Top kill" "slici*/cut* pipe*"~5 "Static kill" "drilling mud" "clean-up operation" Skimm* "floating/containment booms"~5 "anchored/sand barrier*/barricade*"~5 "burn* off/oil"~3 Corexit chemical chemicals dispersant* (rule* NOT "rule* out") legislation law regulation* standard standards (bill NOT "bill sen/senator/siegel/smith/gates/gradison/mckibben/ofca"~4) "drill* ban"~5 moratorium

Appendix B. Conditional probabilities

	BP	White House	Court	Politics	Environmental protest actors	Oil spill problem	Cause	Consequence	Solution
BP Press Releases									
BP	-	0.99	1.00	1.00	1.00	0.99	1.00	0.98	0.97
White House	0.22	-	0.00	0.23	0.08	0.26	0.00	0.24	0.23
Court	0.01	0.00	-	0.00	0.08	0.02	0.00	0.02	0.01
Politics	0.02	0.02	0.00	_	0.00	0.01	0.00	0.03	0.00
Environmental protest actors	0.05	0.02	0.30	0.00	-	0.06	0.00	0.08	0.02
Oil spill problem	0.68	0.79	1.00	0.56	0.73	-	1.00	0.75	0.70
Cause	0.01	0.00	0.00	0.00	0.00	0.01	-	0.00	0.01
Consequence	0.51	0.56	0.83	0.96	0.79	0.58	0.00	-	0.47
Solution	0.60	0.63	0.40	0.00	0.29	0.63	0.99	0.55	-
US News									
BP	-	0.92	0.93	0.92	0.92	0.92	0.98	0.92	0.93
White House	0.52	-	0.66	0.76	0.65	0.58	0.69	0.59	0.64
Court	0.16	0.20	-	0.24	0.27	0.16	0.20	0.19	0.20
Politics	0.30	0.45	0.46	-	0.46	0.32	0.40	0.36	0.38
Environmental protest actors	0.17	0.22	0.30	0.27	-	0.18	0.13	0.22	0.21
Oil spill problem	0.71	0.81	0.75	0.76	0.76	-	0.91	0.78	0.79
Cause	0.11	0.13	0.13	0.13	0.07	0.13	-	0.11	0.15
Consequence	0.69	0.79	0.84	0.83	0.89	0.75	0.76	-	0.79
Solution	0.60	0.74	0.76	0.75	0.71	0.65	0.89	0.68	-
UK News									
BP	-	0.95	0.94	0.93	0.93	0.94	0.98	0.92	0.94
White House	0.34	-	0.47	0.59	0.60	0.45	0.66	0.36	0.47
Court	0.10	0.14	-	0.13	0.18	0.12	0.20	0.11	0.14
Politics	0.24	0.44	0.31	-	0.41	0.28	0.32	0.25	0.31
Environmental protest actors	0.09	0.16	0.15	0.15	-	0.11	0.15	0.10	0.12
Oil spill problem	0.56	0.76	0.67	0.64	0.71	-	0.93	0.60	0.70
Cause	0.04	0.07	0.07	0.05	0.06	0.06	-	0.04	0.06
Consequence	0.73	0.80	0.83	0.76	0.86	0.80	0.82	-	0.84
Solution	0.47	0.66	0.67	0.60	0.63	0.59	0.84	0.53	-

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