



Gift im Bier: A Context-Sensitive Analysis of Culturally-Rooted Messages and Humor in Risk Communication on Glyphosate in Germany

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ABSTRACT

Glyphosate is the world's most used and controversially debated herbicide. Its approval in the European Union (EU) is expiring in 2022. At the time of its last approval procedures in the EU in 2016/2017, there was a heated public debate in Germany about the carcinogenic risk of glyphosate. In this context, the Munich Environmental Institute published a study which concluded there were chemical residues of glyphosate in the 14 most-popular German beers. In this article, I analyze the "Gift im Bier" (poison in beer) case by examining central stakeholders' reactions using a message-centered approach for risk communication and reflect on culturally-rooted messages, including the use of humor, within risk communication. Ultimately, I will argue for a context-sensitive and message-centered approach to risk communication analysis.

KEYWORDS: message convergence theory, culturally-rooted messages, humor, glyphosate, Germany

Public risk perception is strongly influenced by the cultural context (Beck, 2016). Hence, within risk communication, culturally-rooted arguments, wording, and humor are strong instruments for mitigating or reinforcing public risk perception. Even though the dependency of culture and risk perception seem indisputable in risk communication research, "there is surprisingly little

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research that takes into account the broader cultural and historical context of risk communication” (Meißner, 2019, p. 4). This article seeks to deepen the understanding of the use of culturally-rooted messages and, especially, culturally-shaped humor within public risk communication. While there is a relatively large body of literature on humor and persuasion, there are only a few studies on humor and risk communication. In order to understand more about the dependency and dynamics of culturally-rooted messages and humor in risk communication, a case study about the *Glyphosate Beer Study* in Germany will be conducted.

Following the current call for a broader analytical scope regarding stakeholders of risk communication (Diers-Lawson & Meißner, 2021, p. 169), this paper goes beyond an organizational and “how-to” perspective. Instead, risk messages from different types of stakeholders (yet about the same topic) will be examined. That way, a detailed understanding of the use and variants of culturally-rooted messages and humor within risk communication should be evident. The analytical framework for this analysis is based on literature about culture and humor in risk communication. The scope of this paper is to give a deeper understanding of how the cultural background serves as a resource for mitigating or reinforcing risk messages and how culturally-rooted messages and humor interconnect within risk communication. Eventually, this article seeks to identify, differentiate, and discuss different types of humor and their cultural relatedness in risk communication.

Risk, Cultural Context, and Humor

As Ulrich Beck states in *Risk Society*, risks are subject to public dispute and the classification of a specific risk is a matter of argumentation (Beck, 2016). Risks are not a stable, objective, and clear-cut entity, but, rather, a subjective matter (Reamer, 2015; Renn, 2008). The perception and definition of a risk is, therefore, not only dependent on its public debate, but on individual evaluations. In other words, a

risk does not exist “out there,” independent of our minds and cultures, waiting to be measured. Instead, human beings have invented the concept risk to help them understand and cope with the dangers and

uncertainties of life. Although these dangers are real, there is no such thing as “real risk” or “objective risk.” (Slovic, 1999, p. 690, emphasis in original)

Recognizing the controversial and dynamic construction and definition of a risk, the importance of language in the *process* of risk classification becomes evident: “Speakers’ verbal styles also influence how messages are perceived” (Sellnow et al., 2009, p. 41). Stylistic devices are of importance due to the fact that a risk is referring to an entity that is likely to happen, but has not yet occurred (Heath & O’Hair, 2009). Vagueness is communicated with verbal expression. Thus, the question as to how perception and evaluation of the risk is influenced by this verbally expressed vagueness is significant on a personal and societal level.

Heath and O’Hair (2009) sketch two dominant perspectives in the study of risks: the first refers to the “scientific methodologies and probabilistic predictions” (p. 14), whereas the second is linked to social and cultural theories of risk (p. 15). This article uses the second approach and analyzes cultural aspects within the German debate surrounding the *Glyphosate Beer Study*. Therefore, language use and messages are understood as central dimensions in risk communication. Following this notion, the present paper uses the message convergence theory (Anthony et al., 2013) to analyze opposing yet converging messages in the previously mentioned debate. Sellnow et al. (2009, p. 10) understand “risk communication as a process of interacting arguments.” The concept of interacting arguments recognizes that in most risk discourses, there is, to a certain extent, convergence of arguments, as Sellnow et al. argue. According to the message convergence theory, competing and even supposedly conflicting arguments show some degree of agreement between the arguments involved. “Convergence is seen as a potentially persuasive condition arising from the interaction of arguments” (Anthony et al., 2013, p. 350). Sellnow et al. (2009, p. 5) acknowledge the importance of argumentation in risk communication when they say “risk communication, by its nature, involves multiple and often competing messages.” Herovic et al. (2014) also argue from a rhetorical point of view and use

Perelman's and Olbrechts-Tyteca's (1969) *New Rhetoric* approach. This approach, as Herovic et al. argue, values the pluralism of opinions.

Risk communication is, by its nature, characterized by uncertainty and a variety of opinions (Post & Maier, 2016). When an individual is exposed to a new and controversial topic, information seeking becomes especially crucial. Following the uncertainty reduction theory, as postulated by Berger and Calabrese, individuals seek information in the service of predicting, explaining, and taking action (Berger, 2011). However, motivation to reduce uncertainty is influenced by various factors such as non-awareness of uncertainty or different levels of tolerance of uncertainty. Further, individuals may use stereotypes and similar classification systems for minimizing uncertainty, even though these stereotypes might be inaccurate or damaging (Kramer, 1999). Two crucial factors for reducing uncertainty are cultural similarity and trust. Through cultural stories, culture creates meaning for its members and ultimately reduces uncertainty (Kramer, 1999). Within risk communication, cultural aspects become visible within the language used, the discourse, and communicated values (Aldoory, 2009). The cultural perspective reinforces a "communicative and rhetoric rationale for risk dialogue" (Heath & O' Hair, 2009, p. 22). Culture is understood as "a resource that is exploited, mobilized, engaged, and disputed" (Sorrels, 2010, p. 179).

Next to the use of language, humor is a strong and culturally-rooted tool for risk communicators. While there is a relatively large body of literature on humor and persuasion, there are only a few studies on humor and crisis or risk communication (Fraustino & Ma, 2015, p. 227; Moyer-Gusé et al., 2011, p. 766). Nonetheless, some studies have explored the use and effects of humor in risk and crisis communication in different media settings. These studies draw an ambiguous picture regarding the effectiveness, benefits, and pitfalls of humor in risk and crisis communication. Further, most studies on humor and crisis or risk communication analyze the use and effects of humor without providing a detailed definition of the precise type of humor. One exception is the theoretical paper of humor in health and risk messaging by Meyer and Venette (2017). The authors distinguish three theoretical traditions

to explain humor, namely physiological relief, psychological superiority, and cognitive incongruity. In general, humor works due to “violations of a pattern referred to as an expected moral order” (Meyer & Venette, 2017, p. 5). Naturally, the violation as well as the reference pattern have to be perceived by the receiver, and the responses to such vary. In the context of risks, humor is a way to deal with them in a more flexible, playful way than in a merely inflexible, pessimistic way (Meyer & Venette, 2017, p. 6). Sarcasm, as a specific type of humor, is associated with an attitude of sharp criticism and constructions of superiority (Kreuz & Glucksberg, 1989, p. 374). The use of sarcasm is insofar daring, as the receiver might feel put down for the sake of a joke and, eventually, oppose the sarcastic message (Meyer & Venette, 2017, pp. 16–17). Whether irony is to be recommended in crisis communication is the central question in Vigsø’s (2013) study. Following Vigsø (2013, p. 128), irony is understood as a figure of style that implies the contrary of what is being said. Although “no textbook in crisis communication recommends the use of humor or irony” (Vigsø, 2013, p. 131), irony could actually work as an instrument to restore the image of an organization whose reputation is damaged. Vigsø analyzes the use of self-irony in crisis communication and finds that the potential as an instrument to restore one’s image seems to be especially high when employing self-irony. To sum up, different types of humor have a broad spectrum of efficacy within crisis and risk communication, ranging from daring messages to powerful instruments.

Besides the type of humor, the media context influences the effectiveness of humor in crisis and risk communication. Austin et al. (2012, p. 198) found that in social media, humor appeal is a reason for using media during crises. However, for some users, the opposite is true. They avoid social media with humorous content during crises. In the context of health communication, humor may reduce counterarguing, but, at the same time, it may trivialize the importance of the respective issue (Moyer-Gusé et al., 2011, p. 772). In an experimental study about the use of social media and humor in the context of a risk campaign, Fraustino and Ma (2015, pp. 235–236) conclude that humorous risk-messaging produced significantly lower risk-awareness behavior and caused

significantly weaker intentions to seek additional information in comparison to non-humorous risk messaging. Hence, humorous messaging can catch public attention and put campaign messages on the public agenda; yet it also might minimize perceived importance of the relevant risk among audiences (Fraustino & Ma, 2015, p. 237). In the context of a statewide health emergency, Meadows et al. (2019) analyzed the emotional tone in tweets. They found that humor/sarcasm is much more frequent in messages on Twitter in the initial stage of a crisis, while the expression of humor/sarcasm decreases significantly during the course of the crisis (Meadows et al., 2019, p. 464).

To sum up, humor can be used to mitigate high levels of fear, capture attention, or enhance relationships, depending on the type of humor and depending on the audience. Humor can also serve as an instrument to build or restore the image of an organization or speaker (Vigsø, 2013). However, the use of humor in risk communication is a balancing act, as humor often communicates multiple meanings and can be understood in multiple ways: “It can also spell a failure to communicate as shared values and social expectations are not evident at the attempt humor” (Meyer & Venette, 2017, p. 15). Nevertheless, the cultural context can be used as a resource for mobilization within risk communication. Risk communicators who are aware of this potential have greater chances of conveying their messages into a certain discourse and influencing other agents in that discourse (Sellnow et al., 2009). Against this theoretical background, the proposed research questions are:

RQ1: In which communicative ways do risk communicators make use of cultural resources?

RQ2: How are culturally-rooted risk messages and the use of humor interconnected?

RQ3: Which different types of culturally-rooted humor can be found in risk messages and what are their possible potential and pitfalls?

Analytical Framework: A Qualitative Case Study

As an attempt to reconcile some of the desiderata referred to earlier, and to answer the research questions, this article uses a case study approach. A case study is an “in-depth study of a single unit,”

where the scholar seeks to understand a larger class of similar units (Gerring, 2004, p. 341). Typically, case studies are descriptive and exploratory in orientation (Gerring, 2004, p. 346). Further, “the closeness of the case study to real-life situations” and a rather dense description of the concrete context are at the heart of case studies (Flyvbjerg, 2006, p. 223). As mentioned earlier, there are few studies that provide a detailed description of the dynamics between culturally-rooted messages and humor in risk communication. To allow a deeper understanding of these dynamics, a case study about the so-called *Glyphosate Beer Study* and related risk messages from relevant stakeholders in Germany will be conducted.

The Glyphosate Beer Study

The *Glyphosate Beer Study* was published by the Munich Environmental Institute. The Munich Environmental Institute is a registered citizen-based organization (CBO), also known as a non-governmental organization (NGO). Its objective is to investigate and reduce environmental pollution. Its main financial resources come from more than 2,000 individual donors. Additionally, specific projects are financed by the City of Munich. The institute claims to be independent (Umweltinstitut München, 2021). In its *Glyphosate Beer Study*, the Munich Environmental Institute detected chemical residues of glyphosate in the 14 most-sold beers in Germany (Guttenberger & Bär, 2016).

The *Glyphosate Beer Study* has been selected as the key message for this case study, because its topic and risk message are clearly motivated by cultural factors and values. First of all, food and culture are closely connected. Any risk connected to food is likely to trigger high public concerns, because food is important to all humans (Pechan, 2011). So, public interest and fear regarding food contamination seem high, because food affects everyone. Slovic et al.’s (Kasperson et al., 1988; Slovic & Peters, 2006) work on risk perception, probability, and magnitude explain why the public response to a risk might be high, even though the probability of its event or the magnitude of its consequences is contested. Risk understood as a feeling refers to intuitive reactions to danger, which might lead to strong emotions or overreactions (Slovic &

Peters, 2006). Kasperson et al. (1988, 178–179) argue that “risk events interact with psychological, social, and cultural processes in ways that can heighten or attenuate public perceptions of risk and related risk behavior.” Due to the undeniable importance of food for every human, any threat to its safety will likely lead to people’s fears and emotional public reactions. Furthermore, environmental challenges and the need to provide food supplies for a growing global population increase the vulnerability of food safety and protection (Sellnow et al., 2009). In this context, pesticides are a central issue where environmental aspects, human health, and food supply are addressed at the same time (Hunka et al., 2013).

Beyond the general connection of food and culture, beer has a particularly high value in the German context. Beer is one of the most popular drinks in Germany. According to a survey by Allensbach Media Market Analysis, in 2020 beer was the most popular alcoholic beverage in Germany (Institut für Demoskopie Allensbach, 2020). It seems obvious that Germans have a global reputation for producing and drinking beer and, also, the German Beer Purity Law is known beyond its borders, maybe even worldwide. This law was introduced in 1516 by Wilhelm IV, Duke of Bavaria, at the meeting of the Bavarian Estates Conference (German: “Bayerischer Landständetag”). This regulation stipulates that no ingredients other than barley, hops, and water shall be used for brewing beer. Today, the law is still in effect, although it now allows hops, malt, yeast, and water for making beer. Dating back to 1516, the German Beer Purity Law is the oldest food law in the world (Deutscher Brauer Bund e. V., 2021). The popularity of beer, the strict regulations considering its quality and the history of brewing, show the importance of beer, not only as a beverage, but also as a part of cultural heritage in Germany. With this in mind, any threat to the purity of beer might be considered a threat to beer as a cultural heritage. Such a case was disclosed in 2016, when the Munich Environmental Institute published the *Glyphosate Beer Study*.

The *Glyphosate Beer Study* is a case in point for a highly culturally-rooted line of argumentation against the use of glyphosate. Therefore, the analysis of this study and related risk messages by other stakeholders promise to provide fruitful insights for a

deeper understanding of culturally-rooted messages and their interactions in risk communication.

Stakeholders' Responses

In addition to the original *Glyphosate Beer Study*, three responses from three distinctly different types of stakeholders will be analyzed. These stakeholders have been selected for analysis because they are central agents in the discourse related to the *Glyphosate Beer Study* and, further, each one represents one societal field that is involved in and shapes the critical discourse. According to these criteria, messages from the following stakeholders will be analyzed: first, the German Federal Minister of Food and Agriculture (at that time), Christian Schmidt (of the Christian Social Union, the Bavarian sister party of the Christian Democratic Union); second, the German branch of the NGO Greenpeace; and third, *SPIEGEL online* journalist Nina Weber. These stakeholders were central voices in the relevant discourse, because Christian Schmidt was the minister responsible, Greenpeace is a well-known NGO in the context of environmental issues, and Nina Weber is a frequent author for topics regarding science in the online version of the leading German weekly newsmagazine, *SPIEGEL*. All three stakeholders used the *Glyphosate Beer Study* to support their risk communication about glyphosate.

Since this article seeks to provide a deeper understanding of culturally-rooted arguments and different types of humor in risk communication, the analysis focuses on these responses and analyzes them in a context-sensitive and detailed mode, rather than collecting more responses and analyzing more data in a broader manner. Ultimately, the detailed descriptions and analyses of the given messages are to serve as paradigmatic examples for other case studies. Thus, a bounded but detailed analysis, as suggested by Flyvbjerg (2006, p. 241) seems appropriate. In terms of the message convergence theory, the analysis will examine how the *Glyphosate Beer Study* and the three stakeholders oppose each other, how their messages and use of humor compete with the others, and which points of convergence can be observed. In this way, the persuasive potential as well as possible pitfalls of the different

messages and the related humorous notes will be discussed. Before the analysis is presented, a short overview of the context and the heated discourse on glyphosate in Germany will be given.

The Context of the Case: The Discourse on Glyphosate in Germany

In Germany, glyphosate is applied to 40% of agriculturally-cultivated land (*Spiegel*, 2016). Globally, the use of glyphosate is rising (Benbrook, 2016, p. 1). The use of glyphosate is approved in the European Union until December 15, 2022. A key assessment for the current approval of glyphosate in the EU was the evaluation conducted by the Committee of Risk Assessment (RAC) of the European Chemicals Agency (ECHA). The committee concluded “that the available scientific evidence did not meet the criteria to classify glyphosate as a carcinogen, as a mutagen or as toxic for reproduction” (ECHA, 2017). Ultimately, this conclusion led to the current approval of glyphosate in the EU (European Commission, 2021). Yet, other organizations neither share this assessment nor this conclusion. The International Agency for Research on Cancer (IARC), which is a subsidiary of the World Health Organization (WHO), classifies glyphosate as “probably carcinogenic to humans” (IARC, 2017).

In 2016/2017 in the European Union, there was a time of heated debates in parliaments, the media, and on the streets; all were fueled by contradicting assessments of glyphosate by different agencies and organizations (Johnston, 2017). These voices in the debate on glyphosate are paradigmatic for its controversiality. As Sellnow et al. (2009, p. 15) argue, “many bodies of knowledge” typically contribute to risk communication. Regarding the given case of glyphosate, some parties assume a certain risk to human health, but less recognize a carcinogenic risk. Hence, the evaluation of glyphosate as a health risk is convergent to a certain degree, but not entirely, because the different parties assume different severities regarding health risks. However, classifying glyphosate as carcinogenic is the most controversial evaluation and, at the same time, relevant for the questionable re-approval of glyphosate in the European Union. In such a heated context, a study

like the *Glyphosate Beer Study* activates public interest. Residues of pesticides in beer is a particularly explosive issue in Germany, especially when considering beer as part of cultural heritage in the German context.

Analysis

The Glyphosate Beer Study—A Culturally-Motivated Argument

In February 2016, the Munich Environmental Institute published its *Glyphosate Beer Study*. In this study, the NGO concluded that all beers tested showed residues above the maximum permitted concentration for glyphosate in drinking water. (Since there is no limit value for residues of glyphosate in beer, the institute used the limit value for drinking water.) The highest level was 29.74 micrograms per liter ($\mu\text{g/l}$), which is more than 300 times above the limit value for drinking water (0,1 $\mu\text{g/l}$). The lowest level was approximately five times above the limit level for glyphosate in drinking water. The institute's critical perspective on these findings is evident, because it classifies these findings as "alarming; terrifying" (German: "erschreckend"; Guttenberger & Bär, 2016, p. 2). The findings were published in a five-page report, which is freely available on the institute's web page. The institute framed its study with an emphasis on cultural aspects: Culturally-rooted symbols and arguments are made explicit on the title page of the report when it refers to the German Beer Purity Law and to a common German saying which means "there's no hope; something is a dead loss" (German: "Da ist Hopfen und Malz verloren").



FIGURE 1 Title Page of the Report of the Munich Environmental Institute (Guttenberger & Bär, 2016)

The title is placed in a bottle cap and reads, “Brewed In Accordance with the German Purity Law” (German: “Gebraut nach dem deutschen Reinheitsgebot.”). The title can be interpreted as sarcastic humor, because it refers to the fact that even though all tested beers are brewed according to the purity law, they show residues of glyphosate. This seems like a contradiction, and within the context of the institute’s criticism about residues of glyphosate in beer, the tone becomes sarcastic. The second line adds a German idiom, “Hopfen und Malz verloren?”; which poses the question, “Is there hope left?” This question is significant, because it ridicules the tested beers, and is simultaneously linked to a common German metaphorical saying which literally and lexically refers to hops and malt. The original German idiom is phrased as a statement and is used to characterize a person or a situation as a lost or hopeless case (German: “Da sind Hopfen und Malz verloren”; literal translation: “hops and malt are lost on it.” This means it is a waste

of hops and malt for an inferior result). This metaphorical idiom was employed in the second line of the *Glyphosate Beer Study* title page asking “Is there hope left?” The institute’s rephrasing of the idiom into a question lessens the negative force and leaves room for hope. Nonetheless, the criticism is evident. Eventually, the last line clarifies the content and message of the report: “Glyphosate residues in German beer” (German: “Glyphosat-Rückstände im deutschen Bier”).

As an interim conclusion, the title page of the *Glyphosate Beer Study* works with and communicates different cultural clues and values. Not only does the choice of analyzing specifically beer for possible residues of glyphosate seem driven by the popularity and importance of beer in Germany, but also the verbal style and the sarcastic tone of the title page are built upon cultural aspects.

Stakeholders’ Responses

After its publication, the study was used as a source in public debate to underpin as well as to relativize the risk of glyphosate. As proposed earlier, messages from three central stakeholders from three different societal spheres will be analyzed in detail and serve as illustrative cases of culturally-rooted risk communication. First, the German Federal Minister of Food and Agriculture’s response to the *Glyphosate Beer Study* will be analyzed; second, Greenpeace’s response; and third, the *SPIEGEL* journalist’s response will be examined.

The German Federal Minister of Food and Agriculture, Christian Schmidt’s Response: Culturally-Rooted Self-Irony

The German Federal Minister of Food and Agriculture, Christian Schmidt (from the Christian Social Union, the Bavarian sister party of the Christian Democratic Union), framed the figures presented by the Munich Environmental Institute as an unrealistic risk to human health: “As far as I know, you would have to drink about 1000 liters of beer per day in order to reach a level that puts your health at risk. Even Bavarians can’t manage that” (German original: “Nach dem was mir bisher vorliegt müssten Sie, um in den gesundheitlich bedenklichen Bereich zu kommen, ungefähr

tausend Liter Bier pro Tag trinken. Selbst die Bayern schaffen das nicht,” *Münchener Abendzeitung*, 2016). The last sentence is significant for a culturally-sensitive analysis, because the minister himself is a representative of the Bavarian state. Moreover, he refers to the stereotype that, amongst Germans, Bavaria is especially famous for being the homeland of many popular beers and breweries; note that the German Beer Purity Law was first introduced in Bavaria.

The minister neither follows the argumentation of the Munich Environmental Institute, nor does he deny it completely. Rather, he opens a new perspective. He questions the amount of beer a person would need to drink in order to be subject to a health risk deriving from glyphosate in beer. In doing so, he recognizes there is a risk deriving from glyphosate residues in beer. However, at the same time, he puts that risk into perspective and ultimately frames the risk as actually quite unlikely. Furthermore, the minister has a humorous tone in his statement. The statement, “Even Bavarians can’t manage that,” adds a humorous note to the debate. Following Meyer and Venette (2017), humor in risk communication can be used to mitigate high levels of fear. Schmidt’s statement can be interpreted as a shrewd use of humor, because he is making fun of Bavarians, including himself. Knowing that Christian Schmidt is a Bavarian, this phrase can be interpreted as self-irony. As argued earlier, self-irony and a personal note might be effective instruments for image work within risk communication. In combination with the broader perspective Schmidt provides, this humorous tone reduces the graveness and, thus, the risk evaluation of the *Glyphosate Beer Study*. However, other voices within the debate do agree with the critical perspective of the Munich Environmental Institute. Such a voice is the NGO Greenpeace, which is also an opponent of glyphosate.

Greenpeace’s Response: Culturally-Rooted Puns and Sarcasm

In several articles, statements, and so forth, Greenpeace cites the *Glyphosate Beer Study* and uses it as an argument against glyphosate. Next to verbal argumentation, Greenpeace uses visual elements in its risk communication on glyphosate. With reference to

the beer study, Greenpeace uses the following figure (Storchenbier, 2016):



FIGURE 2 Greenpeace Visual on the *Glyphosate Beer Study* (Retrieved from Storchenbier, 2016)

The headline of this figure reads, “Friesisch herbizid,” which means “Frisian herbicide.” Frisia is a region in northwestern Germany and home to a popular German beer brand, Jever. Moreover, this headline refers to the slogan of Jever, which originally reads “Friesisch herb,” meaning “Frisian tart” (Radeberger, 2021). Greenpeace makes use of the lexical and phonetic similarity of the German “tart” (German: “herb”) and “herbicide” (German: “herbizid”). In this context, it is important to consider that Jever, according to the *Glyphosate Beer Study*, was the beer with the second highest level of glyphosate residues (Guttenberger & Bär, 2016, p. 5). The icon in Figure 2 shows a six-pack of beer, which is labeled “Roundup”; similar to the product from Bayer (formerly Monsanto); and “Glypho-Bräu” (English: “Glypho-Brew”), the latter being a neologism, which refers to a range of German beers that are called “Brew.” Eventually, the recipient can read “. . . well then,

cheers!” on the iconic six-pack (German: “. . . na dann Prost!”). This figure is to be understood along with Greenpeace’s opposition to the use of glyphosate. The figure works in this context as an eye-catcher and a more nonchalant device in the line of argument of Greenpeace, because it has a critical and a sarcastic tone; as shown by the references to popular beers, puns, and the ironic-sarcastic use of saying “cheers.” Such an iconic figure has persuasive potential. Pictures are more-easily perceived than verbal information and, when combined with text, they reinforce the arguments in a multimodal setting when text and visual elements are communicated coherently (Kress & van Leeuwen, 2001).

Generally, this figure captures one’s attention and might trigger emotions, such as fear regarding chemicals in beer. Considering the sarcastic tone, this figure seems more likely to be embraced by other opponents of glyphosate, whereas recipients with no clear attitude toward glyphosate might be irritated or even repelled by such an aggressive style. As Austin et al. (2012) argue, humor has an ambiguous appeal to the public within risk communication. Sarcasm appeal seems even more ambiguous, thus, a daring tool in the context of risk communication. Not surprisingly, the message mediated by Greenpeace affirms the original risk message framed by the Munich Environmental Institute. In both lines of argumentation, the herbicidal residues provide the basis for criticism and there is no relativization regarding this criticism. Further, both nongovernmental organizations use a sarcastic type of humor to frame their criticism and risk message.

The SPIEGEL ONLINE Journalist, Nina Weber’s Response: Culturally-Rooted Proverbs and a Subtle Style of Humor

Journalist Nina Weber discusses the *Glyphosate Beer Study* on *SPIEGEL online* (Weber, 2016). Her commentary, titled “Sip!” (deck line: “glyphosate in beer”), reasons that, in the end, alcohol is always a health risk—with or without residues of glyphosate. She refers explicitly to the cultural acceptance of beer. That said, she argues that despite its risk to health, alcohol is widely consumed. She suggests that one reason for this might be its cultural value. She goes on to argue that there are no restrictions for adults

when it comes to the consumption of alcohol in Germany, but only recommendations on maximum consumption. Although she does not completely follow the reasoning of the Munich Environmental Institute, her argument does overlap with it. She doesn't deny a health risk attributed to glyphosate, but she puts the beer study into a broader perspective, while discussing the general health risks of alcohol. This reasoning relativizes the risk of glyphosate. In this regard, her message shows a significant convergence with Minister Schmidt's reasoning. Both relativize the risk of glyphosate, which can be interpreted as a way of moderating the audience's risk perceptions.

As with the minister's statement and the icon used by Greenpeace, Weber's argumentation has traces of humor. Her humorous tone becomes eventually evident at the end of her commentary. As Weber closes her article, she assumes the reader does not care about the general health risks of alcohol, and, in the very last line of her article, she asks a rhetorical question regarding the general health risks of alcohol: "What? You don't give a hang?" (German: "Was, das ist Ihnen Wurst?"). She frames her question using a common German proverb, which should be understood in a humorous way by German speakers (literal translation: "What, you don't give a sausage?"). Unlike the icon used by Greenpeace, her humor is less sarcastic, and subtler. Hence, her message is not as divisive as Greenpeace's message. Her message, thus, might attract a broader audience, and, again, might soothe the audience's reactions and emotions. Moreover, by addressing the readers with this question, she might strengthen the readers' motivation to learn more about the risks of alcohol and glyphosate at the same time. By activating the readers' thinking with a question, she might motivate them to reduce uncertainty regarding these topics.

Results

Research Question 1: In which communicative ways do risk communicators make use of cultural resources?

The *Glyphosate Beer Study* as well as the three stakeholders refer to cultural aspects within their lines of argumentation and use these to support their overall messages. The three stakeholders

exploit the original *Glyphosate Beer Study* and incorporate it into their arguments. Saying that, all stakeholders use the popularity of beer in the given German context as the basis for their messages and develop their lines of argumentation based on images and values of this cultural popularity. The cultural touch is, however, not only evident regarding the topic of beer. Cultural aspects are incorporated in verbal allusions and hints; coded in puns, common sayings, stereotypes and, most of all, the use of humorous notes. Hence, cultural knowledge and values can be interpreted as the main resource for risk messages in this case study.

Research Question 2: How are culturally-rooted risk messages and the use of humor interconnected?

Likewise, the *Glyphosate Beer Study* and the stakeholders use humor within their culturally-rooted messages. The original *Glyphosate Beer Study* uses a sarcastic type of humor to emphasize its criticism regarding glyphosate residues in beer. This sarcasm is built on a twist of a common German proverb. Thus, the sarcasm can only be understood with certain cultural knowledge. The German Federal Minister of Food and Agriculture puts the study into perspective and qualifies its findings with a humorous tone. By referring to Bavaria in a self-ironical way, he emphasizes the cultural frame in his argumentation. Greenpeace's communication, on the other hand, shows a high level of agreement with the Munich Environmental Institute. Greenpeace uses an iconic figure which supports a critical message in a more sarcastic way. This icon refers to different aspects embedded within the sociocultural context. These elements combined might attract the audience's attention and reinforce its risk perception regarding glyphosate. It seems likely that other opponents of glyphosate would be particularly attracted by this icon. Assuming this, this icon seems to have a particularly strong potential for mobilizing other critical voices. Eventually, the journalist of *SPIEGEL online* uses culturally-rooted proverbs and a subtle style of humor. In her commentary, the journalist was rather balanced when it came to glyphosate. In that regard, her message shows high convergence with the minister's reasoning, as both relativize the risk of glyphosate.

Research Question 3: Which different types of culturally-rooted humor can be found in risk messages and what are their possible potential and pitfalls?

All three stakeholders' responses show some degree of stylistic convergence, as they all have a humorous tone. Yet, the stakeholders use different types of humor. The Munich Environmental Institute and Greenpeace use sarcasm to emphasize their risk messages. Thus, both nongovernmental organizations use a rather fierce and provocative type of humor. It's very likely that this type of humor will lead to rather mixed reactions in the audience. Opponents of the topic in question will be more likely to be attracted by these sarcastic messages than non-partisan individuals. The minister, Christian Schmidt, uses self-irony, and the journalist, Nina Weber, exploits an understated style of humor. Self-irony and a restrained style of humor presumably have a higher potential of resonating within a broader audience, as these messages leave more room for a balanced risk interpretation of the relevant issue.

Eventually, all different kinds of humor—sarcasm, self-irony, and an understated style of humor—leave room for different interpretations and reactions. Thus, all three messages make use of equivocation within their humor. Regarding the audience, this potential equivocation could lead to a wide range of message convergence, dependent on the individual reading of the humorous features. Therefore, message convergence can be simultaneously enhanced and weakened by the use of ambiguous wording, especially with the use of humorous tones. Communicators should be aware of this potential and ponder which different types of audiences they seek to address and potentially affect in terms of risk perception.

Limitations

The objective of this qualitative case study is to detect the cultural embedding and dynamics of message convergence in the public discourse on glyphosate in Germany. As inherent in case studies, the results are limited to the specific data and case, so generalizations cannot be generated. This choice of data was driven by theoretical sampling. Furthermore, the discussed impact of the

relevant study and that of the other voices presented in this paper are unknown, since neither a media-resonance analysis nor an audience poll has been carried out.

Conclusion

The essay underpins both the importance of context-sensitive risk communication and analysis with an emphasis on culturally-rooted messages and humor in risk communication. The culturally-based choice of key topics and arguments, words, and humor were key elements in the messages analyzed in this paper. Both the concrete wording and humor are strong instruments for mitigating or reinforcing risk perception. The cultural context is a rich resource for persuasive risk messages and humorous tones in risk communication. At the same time, culturally-shaped humor can be a daring tool in risk communication. Its persuasiveness depends on different factors; of which the concrete type of humor and its appropriate use in a concrete context are two.

The types of humor in this case study range from sarcasm to self-irony to a subtler type of humor. These different types of humor leave room for equivocation, which moderates the perception of message convergence and, ultimately, risk perceptions. Equivocation has yet to be fully studied within the message convergence theory. Further research should analyze the potential and dynamics of equivocation and how audience members perceive it within risk communication. Communicators within risk discourses need to be aware of the potential and pitfalls of humor in risk communication. They must weigh the possibilities of differing message-convergence perceptions, depending on the audiences and their reading and interpretations of these messages. While humor is not yet an established tool in risk communication (see Vigsø, 2013), risk communicators cannot ignore humor as a possible strategy in their risk communication toolbox. However, as emphasized before, its use has to be carefully weighed, with attention to the relevant cultural context.

Eventually, the cultural background as a resource mobilizes and engages humans, in addition to organizations, to participate

in risk communication. In order to reach discursive potential, it is important that different parties and multiple messages are present within risk communication. Ultimately, risks are constructed within public debate and are culturally embedded. Neglecting the cultural context within risk communication leads to blind spots in understanding how risk communication works and how it might be improved.

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