



Risk as Discourse: Interdisciplinary Perspectives

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Abstract

This article introduces the special issue ‘risk as discourse’ which is based on contributions at a session at the CADAAD 2008 conference in Hertfordshire, UK. The aim of the session and this special issue is to trigger cross-disciplinary work which connects risk sociology and corpus linguistics research strategies to advance our understanding of societal risk phenomena.

Even though in academic and public debate ‘risk’ has become a core concept, in particular after WWII, there is still limited empirically proven knowledge about the historical development of increasing ‘risk communication’. I argue that more cross-disciplinary work which links sociological research interests with corpus linguistics research tools could significantly improve our understanding of how and why the risk semantic entered the social realm so successfully.

In the following, I show that linguistic analysis of the usage of ‘risk’ could enrich sociological analysis of risk phenomena which often focuses only on specific aspects of the risk semantic. There is evidence revealed by linguistic work that sociological analyses tend to use artificially constructed examples instead of real life examples, which then weakens the analysis. Furthermore, I will suggest perspectives for further research by preliminary analysis of the historical change of the usage of ‘risk’ and related semantics in the news-coverage of the New York Times. The increasingly available digitised text data such, as newspaper archives, are a valuable source for all kinds of (historical) analysis (not only) on ‘risk’ and related semantics, to improve our understanding of cross-cultural differences and social changes in particular.

1. Introduction

The concept of ‘risk’ has gained significance in public and academic debates in particular after WWII. This is documented by a growing number of scholarly publications, for example, in medicine, social work, psychology, sociology, criminology, media studies, and elsewhere. It is also reflected in the growing usage of the term ‘risk’ in the coverage of leading newspapers in the US and the UK such as the *New York Times*, *The Washington Post* and the *London Times* (compare Figure 2 and 3). This ubiquitous increase in societal ‘risk-communication’¹ is surprising, in particular when contrasted with the overall rise of life expectancy (compare OECD Health Data 2010). ‘Risk’ seems not to be a phenomenon which mainly rests on the objective state of current societies

but is an expression of how we think about uncertain futures and possible harms. Institutional and socio-cultural contexts and the language we are using are tightly connected. For example, Niklas Luhmann (2002: 10) argued regarding the introduction and increasing importance of 'risk' in the Middle Ages that

since the existing language has words for danger, venture, chance, luck, courage, fear, adventure (aventure) etc. at its disposal, we may assume that a new term comes into use to indicate a problem situation that cannot be expressed precisely enough with the vocabulary available.

As a result, the changing framing of 'risk' and the shifting semantic of 'risk' can be seen as both a sociological and socio-linguistic research object. Despite this insight, attempts to cross disciplinary boundaries between sociology and linguistics to advance understanding of the societal risk phenomena have been scarce. This special issue is an attempt to trigger research and debates on *risk* across sociology and linguistics, where recent developments in *corpus linguistics* open exciting possibilities for cross-disciplinary research.

At the Critical Approaches to Discourse Analysis Across Disciplines conference (CADAAD'08) at the University of Hertfordshire, UK, a session stream on 'Risk as Discourse' brought together a number of sociologists and linguists to discuss different approaches to risk. The contributions to this special issue show different possibilities of further interdisciplinary research from both perspectives. The first four contributions use mainly analytical tools from corpus linguistics which can be applied to analyse discourses on climate change (Grundmann and Krishnamurthy 2010) and health (Marko 2010) and can be used to identify emerging risks (Sándor 2010) while the last two contributions originate from a sociological perspective and develop arguments for the need to examine the communication of 'text' regarding extreme weather conditions (Smith and Kain 2010) and the terrorist threat (Jore and Njå 2010).

In the following I will argue that combining *corpus linguistics* instruments with *sociological* risk research can help to advance significantly the understanding of societal risk phenomena. Corpus linguistics can help to improve our definition of the concept of risk by giving empirically founded insights into the discursive usage of 'risk' in the media as well as in everyday life. The tools of corpus linguistics also open the possibility to examine or even 'test' hypothesis of sociological risk theories and could become a starting point for a new stream of (historical) sociological analyses to better understand the complex links between socio-cultural and institutional changes and how this is reflected in our language.

2. Approaches to Risk

Since the 1980s sociologists have been explaining the increasing significance of 'risk' and growing 'risk communication' by fundamental societal changes. In particular Mary Douglas (Douglas and Wildavsky 1982) sees the shift towards risk awareness being caused by a growing emphasis of individualist values while Ulrich Beck (1986, 1992) interprets increasing risk awareness as

a result of new risks which seem unmanageable by common approaches (mainly by science and insurance) and are potentially of catastrophic character (e.g. nuclear power or climate change). This so called *risk society thesis* (Beck 1992, 1995a/b, 1999) has had an extraordinary impact on the risk discourse even though it has been contested ever since its introduction (e.g. Alexander 1996; Dingwall 1999; Elliott 2002; Mythen 2005).

Today, a number of approaches address issues of the societal management of risks but emphasise different aspects such as values (Douglas 1992), power relations (in the tradition of Foucault 1978, 1991, compare for an early overview Dean 1999), complexity and functional differentiation (Luhmann 1989, 1993), and emotions (Lyng 1990, 2005). All these theoretical traditions were followed by a growing volume of research on risk culture (Lupton 1999; Tulloch and Lupton 2003), risk in governmentality (Ewald 1986; Dean 1999; Rose 1999; O'Malley 2004), systems theory (Japp 1996, 2000), edgework and voluntary risk taking (Lyng 2005) or risk in social policy (Taylor-Gooby 2004).

Apart from societal approaches, risk research has been concerned with the organisational management of risk documented by the work of Charles Perrow on Normal Accidents (1984), Brian Turner on Man-made disasters (1978; Turner and Pidgeon 1997), or, for example, the case study of Diane Vaughan on the Challenger launch decision (1996).

Dominated by a psychological perspective, risk perception research developed into the psychometric paradigm (Slovic 2000). Later on, the the Social Amplification of Risk Framework (Kasperson et al. 1988; Pidgeon et al. 2003) and further research tried to understand the dynamics of risk communication (Bennett and Calman 1999, Flynn et al. 2001).

While there is ample research in the risk perception and risk communication tradition on risk and the media, the link between the sociology of risk and media research has been neglected for quite a while (Kitzinger 1999; Kitzinger and Reilly 1997; Wilkinson 2001) but there is growing interest in the area and there is a growing number of publications on risk and the media (Alan 2002; Stallings 1990). Among others a recent special issue of the *Journal of Risk Research* (volume 13, number 1, 2010) attempted to make some advances on the issue.

Compared to the growing amount of literature on risk it is surprising that there is hardly any publication which crosses the disciplinary boundaries of risk sociology and linguistics to take advantage of new developments in *corpus linguistics* for the analysis of risk frames, semantics and discourses. Even very fundamental work on the understanding of risk which might have been able to contribute to a better understanding and definition of risk and alleviate the controversies surrounding it, is mainly ignored in social science debates on risk and in risk analysis (cf. Aven and Renn 2009, 2010; Rosa 2010).

3. The Definition of 'Risk'

There is ongoing concern about the definition of risk and conceptual weaknesses (e.g. Luhmann 1993; Bonß 1995) in risk sociology. Some authors have emphasised the blurred character of the object of research (Althaus

2008) culminating in the claim of arbitrariness in usage (Garland 2003). Even though the term is used inconsistently, already in the work of Beck (1992) for example, as harm (objective harm) as well as expectations regarding the future (expected harm, whether scientifically calculated or not), other authors argue that the conceptual framework isn't as blurred and unclear as often claimed (e.g. Bonß 1995: 30). There is a limited number of meanings and concepts that define the word 'risk' such as *statistic probabilistic calculation, decision making or a worldview of the manageability of the future* (Zinn 2009) or different perspectives can be distinguished, for example, into *formal-normative, psychological-cognitive and cultural-sociological* approaches (Bechmann 1993).

In general, sociological work on risk challenges the technical definition of risk as product of the probability of an event and the potential damage of that event (Adams 1995: 7f.). Instead, sociological work emphasises the subjective perception and social construction of risk and accentuates controversies and debates on risk.

While 'risk' in the risk society perspective (Beck 1992) is seen as both, a real risk and a social construction of possible harm, in modern systems theory risks are understood as being constructed by attributing (expected or observed) negative outcomes to decisions. This approach focuses on the distinction of 'risk' and 'danger'. While 'Risk' is interpreted as harm, which can be linked to a decision, such an attribution is not made in the case of 'danger' (Luhmann 1993). In a governmentality perspective scholars such as Ewald (1991: 199) formulated that

Nothing is a risk in itself; there is no risk in reality. But on the other hand, anything can be a risk; it all depends on how one analyses the danger, considers the event.

For many scholars in this tradition an event becomes a risk in so far as it is part of a statistic probabilistic calculation (such as in the context of the insurance industry). In the cultural perspective risk is the way in which real risks are politicised and negotiated (Douglas 1990: 8) and depends on the socio-structural positioning of a group in the centre or at the boundaries of a society.

Every sociological approach defines risk in a specific theoretical perspective but there is rarely a systematic analysis how the term 'risk' is actually used in practice. In socio-cultural research the subjective interpretation of risk is analysed. Therefore, some issues are highlighted, such as that risk taking has a negative *and* a positive connotation (Lupton and Tulloch 2002). However, this is not accompanied by a systematic analysis of the usage of the term 'risk' itself (Tulloch and Lupton 2003; Lupton 1999).

Often it is taken for granted that there is an observable shift towards an increasing concern regarding the future framed in terms of risk (Lupton 1999: 8ff.). But there is hardly any systematic historical analysis of a change in the usage and understanding of the risk semantic.

Similarly, in recent debates about the definition of risk in a risk assessment and risk regulation perspective a nominalist position is dominant. Different scholars argue for the inclusion of different dimensions and a different

phrasing of the definition of risk while there is hardly any recognition of the hidden normativity in these debates, for example, whether risk should be defined only scientifically or publicly. The long standing debate in risk communication research might have had an impact in so far as recently Aven and Renn focused on the question of how systematic uncertainties in knowledge and valuation of risk can be integrated in the definition of risk:

Risk refers to uncertainty about and severity of the events and consequences (or outcomes) of an activity with respect to something that humans value. (Aven and Renn 2009: 6)

This suggestion reflects a substantial change in the 'risk communication' paradigm on risk in the last 50 years. This is the shift from a priority of technical definitions of risk towards a complementary approach which accepts the relevance of uncertainty in risk calculation as well as the public perception of risk (Fischhoff 1998).

However, this did not lead to a careful analysis of the meaning of the 'risk' semantic itself but how danger and harm is perceived in the public. This omits the chance to analyse the complexity of the semantic frame and different related understandings and applications of 'risk'.

4. The Meaning of 'Risk'

Social science debates about the definition of risk do not refer to systematic linguistic work on the term. More than a decade ago Fillmore and Atkins defined risk on the basis of their frame analysis as *the possibility of an unwelcome outcome such as 'harm'* (1992, 79). More important than its similarity to the recently discussed definition above is Fillmore and Atkins' analysis of the *'risk'-frame* on the basis of a 25 million word American corpus. Frames specify the possible contexts, interpretations and possible applications of a certain concept such as risk. According to van Dijk, 'frames are ... knowledge units organized "around" a certain concept' (1981: 219).

Fillmore and Atkins' analysis of the risk frame identifies and distinguishes most of the issues referred to in different risk theories and helps to understand the different dimensions and aspects theoretical concepts highlight and to which expert and public risk communication refers. While they identified two sub-frames of risk: chance and harm; they also differentiate a number of valence description categories for 'risk' such as chance, harm, victim, valued object, (risky) situation, deed (or act), actor, (intended) gain, purpose, beneficiary and motivation (Fillmore and Atkins 1992: 81-4).

In the linguistic analysis it is clearer than in the recent suggestion of Aven and Renn that risks in practice have always something to do with decisions made by someone (or a social entity) and the victims or the people who are affected by such decisions. This point of reference is usually excluded from the risk assessment definition of risk. The linguistic analysis made it clear also that in practice risk can be used in quite a rudimentary way leaving out the actor and the potentially affected. It can also be quite detailed referring to 'the situation', 'a decision maker' and 'the affected'. But indeed, obscuring some

relevant dimensions of risk such as who will be affected and who might gain from a risky action, and who defines a risk, are central for understanding how particular risks are defined and managed.

Corpus linguistics is not so much interested in the general definition of words but in their practical usage in all kinds of contexts (books, newspaper coverage, television, everyday life). The idea is to set up a huge language corpus which will then allow examination in detail to determine how words are used and understood and in which contexts. The figure below shows a 0.17 percent sample of all occurrences of the word risk from the coverage of the New York Times in 2008.

Figure 1: Usage of ‘risk’ in the New York Times in 2008. A 0.17 percent sample of all occurrences

... depression leads to physical inactivity, and lack of exercise increases the **risk** for heart disease. The study appears ... (health)

... but only if the drug agency had considered the particular **risk** before approving the label. Given the justices' interest ... (law)

... Since few senators of either party would **risk** voting for the cuts without a deal in place with the Assembly ... (politics)

... in unregulated labor markets, workers typically face greater health and safety **risks**. ... (economics)

... had not been warned by his bank that his investment -- all his savings -- bore a **risk**. The fallout has extended to the political stage, ... (economics)

... Gymnasts under 16, an age limit that seeks to protect young athletes from health **risks** like the incessant pounding that can take a toll on a developing body. (health)

... at the University of San Diego and author of “Infectious Greed: How Deceit and **Risk** Corrupted the Financial Markets.” ... (economics)

... And whatever gains have been made against the most abject poverty, they **risk** being undone by the rising price of food. Speaking to the United Nation ... (politics)

... advent of the cellphone as a conveyor of music globally takes away a lot of the **risk**.” With other new forms of distribution like Sony's PlayStation ... (economics)

... he suggested, the government should have the chance to minimize the **risk** of failure. (Since March, Fed officials themselves have inched toward ... (politics)

... necessary risk. But the capriciousness of the fire adds another level of **risk**. Crews working by hand to cut firebreaks are in danger if they forget to ... (natural disaster)

... leads to political interference from both sides of the aisle. We need a **risk**-based approach to homeland security that allocates our limited resources ... (politics)

... little regard for consequences. When we join them, these gnarly German **risk** fiends are in Yosemite National Park trying to break the speed-climbing ... (health)

... have been missteps. In October, for example, the Fed said “the upside risks to inflation” had to be balanced against “the downside **risks** to growth.” ... (economics)

... experts have complained about the flagging efforts for years and warned of the **risks**. “Nobody was listening,” said Thomas Lumpkin, director general ... (economics)

... he said the Fed would examine several issues related to their solvency and **risk** management. “Clearly, we're looking at asset quality and capital,” ... (economics)

... In any case, at current levels of volatility, options trading becomes **riskier**, and therefore more expensive -- too expensive for many farmers ... (economics)

... untamed beasts, a thrill ride for a world full of bored cubicle Joes who take **risks** when they change their screensavers. ... (media)

... obviously ditched that script, and rightly so, assuming that his judgment of the **risks** to the financial system is correct. ... (economics)

... lethal, likely harmful combination of agents,” she said. “They all had a **risk** of sedation, and by combining all these medications, the sedation was ... (health)

... group. But, she said, “when you balance that against the risk -- it's too **risky** to consume for really almost anyone.” The center released a report ... (health)

... recoding the method; learning a new vernacular of murder. It also increases the **risk** of detection: an out-of-towner is more likely to be remembered from a crime ... (media)

... discrimination, such skeletal defects would not be associated with an increased **risk** of death in East Smithfield. ... (health)

On the basis of a corpus such as all newspaper coverage of the New York Times the tools of corpus linguistics can help to analyse the practical usage of a term ‘risk’. We can specify in which areas and contexts risk mainly appears and whether this has shifted historically. We can see in this sample (figure 1) that ‘risk’ is a term which dominantly used in the context of economics and health.

We can see that even though risk is mainly used as a noun it has often an active reference (‘bore a risk’, ‘take risks’) or risks increase. Even though ‘risk’ mainly used in a negative or neutral context in some respects it is even used rather positively when risks are taken away or that there is a chance to minimize risks.

We can also identify whether specific events might have had an impact of the usage of the semantic or whether ‘risk’ is connected to specific key events such as the disaster of Chernobyl or the beginning of the Iraq war (compare section five below on historical changes in ‘risk’).

As far as I know there is only one publication which reports on the usage of the term risk in a *corpus linguistics* perspective to criticize sociological interpretations and assumptions about the everyday life usage of risk. Hamilton et al. (2007) have observed that scholars often make claims about the meaning of ‘risk’ but without sufficient empirical evidence. A careful linguistic analysis on the basis of a broad language corpus could provide a much more solid basis for such claims (Hamilton et al. 2007: 165). Their analysis is particularly helpful as it introduces some of the possibilities of corpus linguistics research strategies for analysing risk.

Hamilton et al. (2007) question, for example, the claim made by Lupton (1999: 8-9) that ‘in everyday lay people’s language, risk tends to be used to refer almost exclusively to a threat, hazard, danger or harm’. Even when it can be shown that risk in the context of health and illness has almost always a negative connotation; in other areas, such as everyday life, politics or

economics, this meaning can be neutral or even positive, such as ‘a risk, worth taking’ (Hamilton et al. 2007).

Furthermore, Hamilton et al. argue that the examples given by Lupton for an everyday life usage of ‘risk’ ‘risk our life savings’ or ‘put our marriage at risk’ seem to be rather artificially constructed. Even though they are possible in theory they haven’t been found in practice in the British National Corpus (BNC) which contains 100 million words. They therefore argue that examples should rather be taken from real life to provide evidence rather than constructing examples which actually (almost) never occur in practice.

A further application of statistics, such as the t-score-statistic can help to identify the likelihood that a word occurs close to ‘risk’ in a specific (spoken or written) text. This can help to identify whether risk occurs in the context of health or economics or whether a specific incident or risk (e.g. cancer, terror) is connected to the usage of ‘risk’ (Hamilton et al. 2007: 169).

Concordances, collocations, word lists, t-score (or other) statistics and further tools from corpus linguistics can be used to identify systematic differences in the usage and understanding of words and their contexts in a comparative perspective. Grundmann and Krishnamurthy (2010) have demonstrated by the semantic of ‘climate change’ how a cross-national comparison could be done. Similarly a historical comparison could give insights in the long term changes of word use and understanding. The even greater relevance of this method for sociology might be the possibility of using it for a more sociological analysis of the link between semantic change and discourses. Presently discourse studies remain very much in the realm of qualitative analysis *whereas* media texts are mainly examined by quantitative content analysis where the number of word occurrences is counted, such as in the example of Grundmann and Krishnamurthy (2010) or Marko (2010). For more complex analysis better tools are available which allow the analysis of discursive patterns (Sándor 2010).

There are more possibilities for mixed methods applications which could combine the need for in depth qualitative analysis of discourses and discursive patterns with standardised methods of finding and analysing their occurrence in huge data sets. Qualitatively identified patterns can be transformed into a standardised search algorithm to find similar patterns in a corpus (compare Sándor 2010). Furthermore, quantitatively identified patterns can inform the selection and in-depth analysis of the meaning of such patterns in their context (a specific newspaper articles, for example).

5. Historical Changes in ‘Risk’

Neither in linguistics nor in sociology is there a systematic reconstruction of the historical development of the semantic of risk in recent history. Main contributions are from Hacking (1991) and Bernstein (1997) which focus on ‘risk’ as part of a *history of statistics* and Bonß (1995) on the *history of ideas* regarding uncertainty and risk. There is also a lot of reference to etymological work on the term risk (Luhmann 1993; Giddens 2000; Wilkinson 2010) such as etymological lexica (Skeat 1910; Ayto 1990). All these approaches tend to have a longer time horizon from the Antique or Middle Ages to Modernity. As

a result most of them lack an explanation for recent changes in risk communication after WWII (exception: Bonß 1995).

The only work in Anglophone literature which engages with a better understanding of the post-WWII period has been provided by Strydom (2002). He focuses on technological and environmental risks and argues how the nuclear power debate moved from an internal debate on risk assessment to a public debate and further on informed about the general increase in risk awareness. His analysis, however, is not based on systematic linguistic analysis about the actual usage of the risk semantic. Since it follows a specific perspective on environmental issues it does not consider that the growing risk awareness and public usage of risk might be linked to changes in the governing of societies in general as the governmentality approach suggests (Dean 1999).

There are a number of common assumptions in risk research which can be examined with some preliminary analyses to demonstrate the usefulness of historical semantic analysis as well as perspectives for further research. The digitised databases of common newspapers can be used for first explorations. Such databases are provided, e.g. by Lexis Nexis or similar databases available at most university libraries.

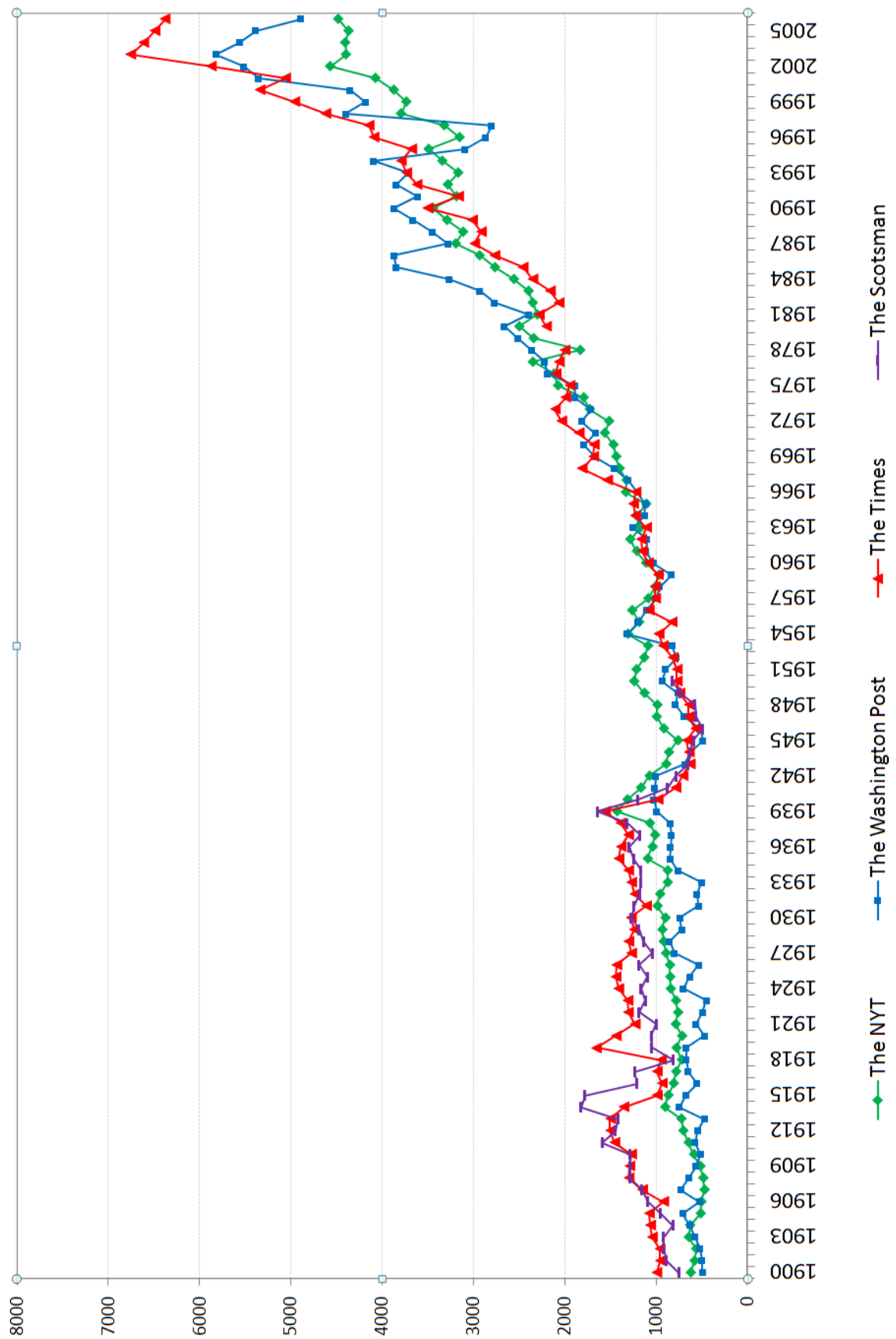
A central claim of the risk society hypothesis is the growing relevance of risk after WWII. However, Beck uses the term risk inconsistently as a semantic as well as an objective entity addressed by a number of other semantics as well such as harm, danger or threat. The reason for this is his ambivalent epistemological understanding of risk. Much more consistently argue both Douglas (1990, 1992) and Luhmann (1993) who explicitly claim that the importance of the risk *semantic* increases. If we assume that newspaper coverage at least partly reflects a general societal change of a semantic rather than just a change in news reporting, an analysis of the language corpus of the New York Times or other newspapers might be the appropriate way to test such a claim.

In the following figure (no. 2) the number of articles where risk is at least mentioned once is counted for a number of newspapers.

The trend for all newspapers is clear² and it also shows, when we compare, for example, the New York Times and the Washington Post that a common trend is observable in the usage of risk in all of these newspapers. Growing usage of risk in newspaper coverage is not just an expression of a specific stance of a single newspaper but must be an indication of a more general development.

When we have a closer look at the historical development of the usage of the 'risk' semantic through the example of the New York Times, we can see that during WWII the number of articles with risk is decreasing with a relative low at the end of the war. However, afterwards there is a relatively continuous increase of 'risk communication'.

Figure 2: Number of articles where 'risk' is used at least once 1900-2008



When Chernobyl happened in 1986 this event was not so much the trigger of a new historical time of 'risk communication' but part of an ongoing process of increasing usage of the risk semantic in media coverage. At this time a significant change in risk awareness seems to have already taken place. While articles with the term 'disaster' peaked in the year of these incidents, risk communication increased afterwards. Therefore, the awareness of possible future disasters impacted upon the media coverage which followed these incidents. If we compare these incidents and the semantic responses with the earth quake of San Francisco or the disaster of the Titanic, which also caused a similar peak in 'disaster', they were not followed by a similar increase in articles with 'risk'. This indicates a different social response to these disasters at the beginning of the 20th century.

It is also interesting to see that from 1997 there is an ongoing increase in 'risk' articles during the Presidency of Bill Clinton long before G. Bush junior became President of the US in January 2001 and the terror attack of September 11 took place later on in the year. This increasing use of the risk semantic indicates a longer ongoing change in social self awareness before the political change to a conservative government and the terrorist attack took place.

A general change of social self-awareness after the terror attack of September 11th and the accompanying policies is indicated by a reverse of a parallel development of the semantics 'chance' and 'security'. While 'chance' stands for the possible positive outcome of risk taking 'security' rather indicates a securing of a state which is seen as being in danger. With the terrorist attack on 9/11 the semantics went in opposite directions. A still increasing number of articles refer to 'security' while 'chance' follows an ongoing downwards trend.

Within the risk debate much reference is made to 'uncertainty'. As a semantic 'uncertainty' showed only a relatively strong increase during the Great Depression. The other terms in this semantic space show much clearer behaviour in the period after WWII.

In the debates about risk there is little awareness about how the discourse seems to be fundamentally linked to the semantics 'security' and 'chance'. While 'chance' indicates a long standing discourse which was already dominant at the end of the 19th century the significance of 'security' is obviously a development mainly observable between WWI and WWII. Its relevance started to increase historically much earlier than the risk discourse. 'Security' became most central prior to and during the Great Depression. It peaked at the beginning of the Korean War and the Iraq War. Both were preceded by an increasing number of articles referring to 'security'.

A semantic which is not particularly considered in the debate about risk is 'threat'. We might presume that the terrorist threat has had an overall impact on the usage of the term as found in the data. However, the significant increase was experienced by this semantic during the Great Depression. Since then, the number of articles where this semantic occurs remains high until today. But interestingly, the overall quantitative usage of this term was not significantly influenced by the developments after WWII. Only 9/11 and the Iraq war seem to have influenced the number of its occurrence for a comparatively short period of time.

Another observation can be made regarding Luhmann's and Douglas's hypothesis that the word 'risk' would increasingly supplant 'danger'. The data shows clearly that in absolute numbers as well as in relative numbers the usage of the term danger is decreasing. What is important is the decoupling of the increasing trend of the risk semantic. The number of articles using the term 'danger' already started to decrease before WWI while the growing importance of risk took place mainly after WWII.

For a better understanding of socio-cultural and institutional change it seems important to see semantics such as 'risk' not isolated but as part of a semantic space where 'risk' is related to other words with similar or complementary connotations. That might help to understand that WWI has not led to a significant change in the semantic space dominated by 'chance' and 'danger'. With the Great Depression 'security' and 'threat' have become much more important for describing our societal experiences. Indeed, seen in this context, the increasing importance of 'risk' is a relatively late development in media coverage. Historical semantic analysis can show that the recent concerns about our future are not just a result of recent developments. They were preceded by earlier experiences such as the Great Depression which significantly eroded trust in the social realm and contributed a new semantic 'threat' to our everyday language before we started speaking about our future in terms of 'risk'.

There is much more research needed to understand how this semantic space of risk, security, danger, threat etc. developed and how it is linked to events and changes in the institutional constitution of society as well as socio-cultural changes.

There is clear evidence of a fundamental change in how the social realm is regulated and governed. As part of this institutional change 'risk' entered the professional practice in social work (Webb 2006), crime (O'Malley 1998), health (Alaszewski 1998; Gabe 1995) or more generally the governing of organisations (for the UK: Power 2004).

How changes in the 'risk' semantic, its usage and framing, are linked to these institutional changes is not yet systematically examined. Therefore it remains unclear whether the increasing usage of the word 'risk' is mainly a result of new risks (risk society), a change of social regulation and governance (governmentality), or of a socio-cultural preference towards individualist values (risk culture) or a mutual linking of all these developments.

These are only first hints but they are open to a research program which goes much further and could significantly contribute to a better understanding of social changes in historical perspectives. In this context the application of

linguistics empirical tools to analyse sociological issues could become a fruitful enterprise for further research.

6. Overview of Special Issue

The contributions to this special issue provide early perspectives for further research. How the tools of corpus linguistics can be used are demonstrated in the contributions by Grundmann and Krishnamurthy (2010), Marko (2010) and Sándor (2010). In particular Sándor shows how more complex tools of discourse analysis can be applied to identify developing risks at an early stage. The other contributions by Smith and Kain (2010) and Jore and Njå (2010) remain in a more sociological perspective and develop sociological arguments for a more detailed analysis of the public communication of 'text' regarding extreme weather conditions or construction and perception of terrorist threat.

Grundmann and Krishnamurthy (2010) show how a corpus linguistics approach can be used for comparative research of media coverage of four countries and to test hypotheses as well as examining different media reporting styles. In their explorative study on discourses of climate change they examined a number of hypotheses. They found, for example, some evidence for the hypothesis that US press would follow a norm of balanced reporting (Boykoff and Boykoff 2004) with the result that 'US journalists gave fringe scientists quite prominent coverage ... that prevented accurate reporting on this issue'. In contrast France and the other European countries framed climate change more politically. They were also able to show that France and Germany are using a much more moral framing in climate change reporting than the US and UK.

Marko (2010) engages in a corpus-linguistics based approach to critical discourse analysis when he examines the construction of lifestyle risks in popular health discourse. He mainly argues that there is a tendency for a one sided approach to health and disease in public discourse which frames it mainly as a medical problem and as an individual responsibility. He sets up a self-help books corpus to show how this perspective is developed in discourse on cardiovascular diseases. While he shows that the advantage of this approach lies in the possibility of linking linguistic detailed analysis with socio-cultural significance he sees as problematic the need for distinct categories in the quantitative analysis. It is more difficult to take into account that the human mind allows taking into account blurry boundaries and multicategory-memberships of words.

Sándor (2010) reports from linguistics research which is informed by a risk analysis perspective. She integrated software to identify possibly harmful events into an early warning system. On the basis of a scenario model, specific characteristics of early signals for a risk are identified and used for analysis of huge amounts of text data to identify early warnings of harmful events or entity constellations. The value of this tool is its broad applicability. The ability to identify patterns within text can be used in mixed methods approaches for analysing media discourses. On the basis of qualitatively identified discourse characteristics discourses can be identified in larger data sets which are too big for a fully qualitative analysis and can also be used for

quantitative analysis. Therefore it could become a valuable tool, e.g. for the analysis of discursive changes in media reporting even within a historical time perspective.

While the former approaches focus on text and 'written discourses', Smith and Kain (2010) approach risk perception in a 'risk communication' perspective. They focus on the difference between risk communication and how lay-people make sense of risks by the example of extreme weather conditions such as Hurricanes. They show how a number of different actors (governmental emergency managers, public information professionals and residents) engage in communicating 'text' and make sense of these communicated texts in different ways.

Jore and Njå (2010) refer to the tension of objective risk and social construction as well when they discuss different approaches to terrorism risk assessment. They argue for an approach which is able to integrate the uncertainties of risks such as terrorism and suggest a Bayesian approach which is founded on openness, transparency and debate in the management process. Interpreting risk calculation as a social process requires the recognition of social dimensions such as power as being part of this process. Consequently they suggest investigating the discursive construction of perception and responses to terrorist threat. Discourse is understood in a sociological rather than a linguistics perspective even though one could think about the application of corpus linguistics strategies to examine discourses on the level of framing as well as in the sociological qualitative analysis of meaning.

Many of these contributions show perspectives for further research rather than well developed solutions for combining corpus linguistics instruments research tools with sociological research interests. However, they provide innovative perspectives for further research.

7. Perspectives

Most risk sociologists agree that the social realm has significantly changed during the last centuries and in particular after WWII. In the sociology of risk and uncertainty a number of developments are made responsible for these changes in societal understanding, management and communication of risk and uncertainty. The fundamental shift towards a modern society is characterised by a new worldview of enlightenment indicated by a shift from beliefs in fate and god to the belief in a rational manageability of the world in principle (Weber 1948). Phrasing the future in terms of decision-making was accompanied by the insight 'that certain advantages are to be gained only if something is at stake' (Luhmann 2002: 11). The 'risk' semantic could be seen as an expression of this change. The development of statistics has had a huge impact on this process (Hacking 1990; Bernstein 1997) of growing human self-confidence in managing an uncertain future.

The more recent changes towards 'risk' have been explained by a 'crisis' or significant change within modernization (Beck 1992) a growing preference for individualist values (Douglas 1992) and a change in governing societies (Dean 1999). There is some systematic work on the recent history of *risk discourse*

(Strydom 2002) and a *history of ideas* (Bonß 1995) in particular after WWII to understand these processes. However, these approaches so far are limited as they do not explain the observable increase of usage of the risk semantic and its change in different societal contexts.

There is ample evidence for an increasing relevance of the risk framework for the regulation of societies and there is some support for other hypotheses such as that new risks or a growing dominance of individualist values would significantly impact on how we speak and think about our lives. There is, however, not yet a systematic analysis, which could base common assumptions on systematic empirical analysis. There is still a need for more detailed analysis for a better understanding of cultural, historical and area specific differences and changes in the understanding and management of risk.

I have argued that with the increasingly available digitised text data archives new possibilities for research are occurring. For analysing these new data sources the corpus linguistics research tools (Baker 2006) can be used, modified and can be combined with qualitative approaches to gain new insights from comparative and longitudinal research.

Notes

- ¹ This expression refers to the communication or usage of the term 'risk' while in scholarly debates 'risk communication' is mainly identified with a specific paradigm which focuses on strategies how best to communicate risks to the public.
- ² The number of articles in a newspaper has obviously an impact on the absolute numbers. However, the relative usage of 'risk' compared with related terms is also increasing. Hence, the observed increase is independent from the number of articles published in a newspaper. It remains an open question to what extent the changes in the usage of terms such as 'risk' in media-coverage indicates mainly a change in media culture in contrast to the social realm. It might be more reasonable to interpret a shift in news-reporting as part of a more general change in societal self-awareness.

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