LINGUISTIC REPRESENTATIONS OF AGENCY IN DISCOURSE ON THE FUKUSHIMA NUCLEAR DISASTER

by

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Abstract

This Modular PhD thesis argues for a more detailed treatment of agency than has previously been employed in critical linguistics. I present a framework for analysing four aspects of the linguistic representation of agency. The framework classifies the strengths of the different possible representations of agency in each of these four aspects. This framework is then applied to three areas of discourse concerning the 2011 Fukushima nuclear disaster. First, I compare domestic and foreign reporting of the disaster, and argue the less critical stance of domestic reporting is due to a greater emphasis on technological rather than human agency. I then examine representations of responsibility in three official reports into the causes of the Fukushima disaster, and argue that each report diffuses responsibility in different ways, according to their institutional aims. Finally, I look at the kinds of agency attributed to Fukushima in pro and anti-nuclear media opinion pieces, and argue these reflect an interpretation of the disaster as a unique event in pro-nuclear arguments, and as evidence of the inherent danger of nuclear power in anti-nuclear arguments.

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Contents

List of Figures

List of tables

Appendices

1. INTRODUCTION

1.1: Thesis aims

My goal on this PhD is to develop a framework for analysing how linguistic representations of action express different degrees of agency. In Module one I looked at a number of approaches to classifying the linguistic representation of action, in order to see how they might help in the development of this kind of framework. I found Van Leeuwen's (2008) sociosemantic approach to be the most useful, because it is a flexible analytic system that identifies how social meanings can have multiple linguistic realisations. I argued that this is appropriate for measuring a concept such as agency, because agency is not tied to specific linguistic forms. In Module two I then applied Van Leeuwen's sociosemantic framework to two texts in order to evaluate its effectiveness. I concluded the framework was useful in identifying different kinds of action and explaining how actions encompass differing levels of power. However, I also found the need for more clarification of the underlying theory, and the need to supplement the framework with ways to measure other aspects of agency. Based on this groundwork in Modules one and two, in this thesis I present a framework for analysing the level of agency in linguistic representations of action. I show how this framework can be used to investigate agency in a contentious topic. As I explained in Module two, my area of interest is nuclear power. In this thesis I focus on representations of agency in different areas of discourse concerning the 2011 Fukushima nuclear disaster.

The objectives I have outlined show that my work can be considered part of Critical Discourse Analysis (CDA). Generally speaking, CDA tries to link a specific social practice such as a text or communicative act to the larger social structures and forces that it is part of. It acknowledges the dialectical relationship between language and social structures, and is concerned with how social actors produce representations of social practices (Fairclough, 2001, p. 204). Work falling under the scope of CDA includes numerous different theoretical and analytical approaches, and is not defined by any singular methodology (Wodak, 1999, p.186). The commonality is using a systematic approach to analysing language in order to make claims about representations in discourse. For Van Leeuwen, CDA should focus on "discourse as the instrument of the social construction of reality" (1993, p. 193). Central to this construction of reality is the representation of action. Van Leeuwen emphasises that language is a recontextualisation of social practice, or what people 'do', and at the core of this is action (2016, p. 140). For a discipline concerned with power relations expressed in language, and with action central to this, a key theoretical concern should be representation of the *power* of actions.

Much CDA work to date has analysed the power of actions by looking at agency (e.g., Fairclough, 1989; Stubbs, 1996; Janks, 1997: Oteiza and Pinto, 2008; Seo, 2013). While this work has been useful, it has taken a somewhat limited view of the concept of agency, and taken a limited view of the linguistic manifestations of agency. In this thesis I argue for the benefit of a more multifaceted approach. I present a framework for analysing different aspects of agency and for classifying different levels of agency of action. By

applying the framework I demonstrate what it can reveal about agency. The theoretical aim of this thesis, then, is to offer a more detailed linguistic analysis of agency.

Research in CDA should seek to provide a better understanding of social concerns or problems (Van Dijk, 1990, p. 10). As I shall discuss in the next chapter, the Fukushima disaster was, and still is, an important social issue, and one in which the representation of agency is central. There is a fair amount of academic literature on the topic of Fukushima. Some of it is scientific, concerning technical aspects of the disaster and the study of radiation (e.g., Holt *et al.*, 2012; Ryu and Meshkati, 2014; Ochiai, 2015). Some addresses political and policy implications of, or responses to, the disaster (e.g., Butler *et al*., 2011; Jorant, 2011; Wittneben, 2011). Some analyses the overall cultural impact of the disaster (e.g., Furukawa and Denison, 2014; Pizziconi, 2015; Morris-Suzuki, 2017). Very little, however, is specific linguistic analysis. The literature which does address discourse on Fukushima is overwhelmingly based on impressions of texts, as opposed to systematic analysis (e.g., Hamblin, 2012; Downer, 2013; Tollefson, 2014). There is little investigation of how portrayals of the event may have affected its interpretation. With the work in this thesis I therefore add to an understanding of discourse concerning Fukushima. I investigate how representations of agency contribute to differing interpretations of the crisis. I show how these representations construe blame, responsibility and the need for future action in different ways. The analytical aim of this thesis is thus to provide a detailed linguistic study of discursive responses to the disaster.

1.2: Thesis structure

In chapters two, three and four I set the groundwork for the analysis. In chapter two I discuss the topic of Fukushima. I explain why it is a suitable issue for CDA, and in particular why it lends itself well to an examination of agency. I also provide background information on the incident itself. In chapter three I address the concept of agency in CDA. I discuss how it has previously been approached. I argue that the concept is underdeveloped and used in a vague manner, and argue the need for a more nuanced understanding. I explain how I will approach the measurement of agency, based around different facets of the 'power' of an action. In chapter four I introduce a four-part framework for measuring the agency of linguistic representations of action. Each part covers a different aspect of agency, and identifies different levels of agency. I exemplify the different categories in the framework and discuss how they embody different levels of agency.

In chapters five, six and seven I use the framework to address this overall question:

- What does the investigation of agency reveal about ideological differences in the representation of the Fukushima disaster?

Each chapter looks at a different area of discourse related to the Fukushima disaster, each involving a different struggle over agency. The chapters move chronologically from initial media reporting, to later official investigations into the causes of the disaster, and then on to the representation of Fukushima in the debate over whether or not to use nuclear power. Covering these three areas allows me to apply, test, and demonstrate the

framework on different areas of discourse, and for different analytical goals.

In chapter five I compare initial reporting of the disaster in a Japanese and a non-Japanese news source. I use the framework to look at overall trends in reporting. This chapter asks:

- How do representations of agency reflect a more neutral or critical reporting stance?

I investigate the claim that Japanese reporting was not sufficiently critical of the situation at the Fukushima nuclear plant and the potential danger it posed. I argue that Japanese reporting was more descriptive and neutral, whereas foreign reporting was more evaluative and critical. I attribute the comparatively less critical tone of domestic reporting to a focus on technical rather than human agency.

In chapter six I look at official reports into the causes of the disaster. I use the framework for a close reading of the forewords to these reports. The issue here is how responsibility for the disaster is represented. This chapter asks:

- What is the relationship between representations of agency and attribution of responsibility for the Fukushima disaster?

I show the different ways in which each report obfuscates responsibility for the disaster, and I show how the agency attributed to different actors reflects the institutional purposes of each report. I discuss why this diffusion of responsibility is problematic.

In chapter seven I look at the agency of the Fukushima disaster in media opinion pieces about nuclear power. I examine how representations of agency by pro and anti-nuclear

power articles contribute to different interpretations of the disaster. This chapter asks:

- How does the agency attributed to Fukushima in media opinion pieces reflect pro and anti-nuclear arguments?

I show how each side of the debate allocates different levels of each aspect of agency. I link these trends to how pro-nuclear articles take a more 'objective view' of Fukushima as a lesson for improvements, compared with how anti-nuclear articles take a more 'common sense view' about the unacceptable scale of the disaster.

For reasons of space chapters five, six and seven focus on analysis, and I discuss the implications of these results in more detail when concluding in chapter eight. This chapter brings together my findings and discusses how they relate to other literature on Fukushima and on nuclear power in general. It then evaluates the framework, explaining what it can offer CDA, and assessing the strengths and limitations I found in the course of my research. It finishes by discussing the wider implications of my study of Fukushima. I argue that my work shows the benefits of an approach which treats agency as a multifaceted phenomenon and which distinguishes different levels of agency.

2. THE FUKUSHIMA NUCLEAR DISASTER

In this chapter I provide background information in order to contextualise my analysis of discourse on Fukushima in chapters five, six and seven. I begin by explaining why nuclear power and Fukushima lend themselves to CDA investigation. I then give a brief history of nuclear power in Japan, to show how the strength of the nuclear power lobby created conditions in which a disaster became more likely. Following this I explain what exactly happened in the Fukushima disaster and what the effects have been, to emphasise the importance of responsibility for what occurred. I finish by discussing the man-made nature of the disaster and why responsibility is contested, to underline why this topic is suitable for my aim of testing out a framework for analysing agency in language. My central point is that although Fukushima was caused by humans, this was not immediately apparent, and thus representations of agency have significant potential to influence interpretations of the disaster.

2.1: Nuclear power and Fukushima as CDA topics

Much early CDA work provided important insights into major sociocultural fields of tension, such as racism, sexism, or other forms of discrimination. Many studies investigated power imbalances and ideological manipulation (e.g., Fowler *et al.*, 1979; Fairclough, 1989; Wodak, 1991; Hoey, 1996; Van Dijk, 1996). In general, these addressed issues on which there is a consensus that they are problematic, and which involve fairly clear relations between powerful and less powerful social groups. This is undoubtedly

valuable, but it somewhat limits the topics of investigation. As Blommaert argues, CDA should be about not just power abuses but about power 'effects' (2005, p. 1-2). With this in mind, one way of demonstrating the continued relevance of CDA is by looking at other areas of discourse (Billig, 2008, p. 832; Luke, 2002, p. 98). In particular, this can be done by addressing issues in which the power relationships involved are not so clearly one-sided, or issues which are not clearly divided along traditional political lines (Merkl-Davies and Koller, 2012).

Nuclear power fits the criteria of being a more nuanced discursive phenomenon. Pollock *et al.* argue that it is a complex issue without ideological history, and so is not easily tied to traditional political values (1993, p. 31). Similarly, Stoutenborough *et al.* explain that "The complexities of nuclear power suggest that attitudes cannot be easily summarized in terms of partisanship and/or political ideology" (2013, p. 177). The topic is multi-dimensional in that the debate over nuclear power involves different views on, among others things, environmentalism, economics, energy security, and safety. The University of Birmingham Policy Commission on the future of nuclear energy in the UK notes that there are "large variations in opinion on nuclear issues according to gender, age and socio-economic group" (2012, p. 41), and describes nuclear energy as "a very politically sensitive issue at the best of times" (2012, p. 13). It is a topic in which the interplay of power interests and ideological positions is more complex than many traditional CDA concerns, and which cannot be easily reduced to an oppositional relationship of the powerful against the powerless. Finally, as I argued in Module two, nuclear power has

not received much attention in CDA literature and so I feel there is something to contribute here.

From a practical perspective, nuclear power is particularly important at the present moment. Alongside growing awareness of the catastrophic dangers of global warming, there is the approaching end of fossil fuel supplies, meaning alternative sources of energy are urgently required. Climate change is one of the most pressing global issues, so environmentally friendly fuel sources (of which nuclear power claims to be) are increasingly necessary. Nuclear power accounts for about 13.5% of global electricity production (Joskow and Parsons, 2012). It involves massive initial financial investment, as plants are designed to last a long time. This means policy makers that opt for nuclear are committing to it for a sustained period of time. As a consequence, nuclear power increasingly requires active public support rather than passive acceptance.

The Fukushima disaster itself is important because it is the second most serious nuclear accident in history. As the following background will show, it had major human, economic and environmental consequences, and there was a struggle over defining responsibility for the incident. One reason it seemed so shocking was because it had been many years since the nuclear disaster at Chernobyl in 1986. Another reason is that it happened in Japan, a country with a reputation for safety and technological expertise. This meant that the excuses or explanations that could be made for previous disasters were less feasible. Attributing failure to outdated technology (as happened in Chernobyl

and Three Mile Island) was not an option in the case of Fukushima, and neither was blaming it on the deficiencies of a foreign enemy power (as happened for Chernobyl). In this sense Fukushima is the most significant recent challenge to the use of nuclear power. Pizziconi argues that it constitutes an instance of a "critical discourse moment" (2015, p. 162). Such moments shake the current beliefs of language users, and make previously taken-for-granted discourse visible and susceptible to re-evaluation. Butler *et al.* also describe Fukushima as a "critical discourse moment", arguing it is an event in which the culture, frames, and interpretative packages of nuclear power became visible (2011, p. 11). The competing interpretations surrounding the disaster provide a prism for examining attitudes to nuclear power. The Fukushima disaster occurred in 2011, so a sufficient period of time has now passed to look back and evaluate discursive responses.

2.2: Nuclear power and the nuclear industry in Japan

2.2.1: The establishment of nuclear power

To properly understand how the Fukushima disaster came to pass, it is necessary to understand the history and culture of the nuclear energy industry in Japan. The first Japanese nuclear power plant was built in 1966. Despite initial public resistance to nuclear power due to its association with Hiroshima and Nagasaki, politicians, businessmen, and scientists argued that commercial nuclear reactors would facilitate the technological advancement and industrial restructuring necessary to maintain rising national income and living standards in the Japanese postwar recovery (Kelly, 2015). Since then 10 different energy companies have constructed plants, with a total of 55 in operation.

Although there was local resistance to building new plants, power company advertising and government promotion of nuclear power in the mass media helped to win over opposition, as did significant government subsidies for areas accepting plants (Hara, 2013), which are predominantly in poorer rural locations. In an analysis of Japanese newspaper coverage of nuclear issues in the 1970's and 1980's, Jones *et al.* (2013) found the press portrayed the shift to nuclear energy as an inevitable process, and coverage suggested that local residents seemed comfortable with the safety measures in place. Questions of national economic growth and energy independence remained the political and media focus of the period.

After its establishment, nuclear power enjoyed a relatively uncontested status in Japan. Opposition took the form of citizen groups rather than party political action, and centred on environmental concerns rather than safety issues (Fujigaki, 2015). An interesting point about the relationship between nuclear power and national culture is made by Kelly (2015), who explains that the increasing Japanese acceptance of nuclear power, if used for peaceful purposes, was seen as fitting with the deep-rooted Japanese ideology of techno-nationalism. In other words, mastery of scientific and technical matters is seen as a national characteristic and source of pride. From a more practical perspective, Japan was until recently the second largest economy in the world, but suffers from a paucity of domestic energy supplies, meaning energy requirements are large and energy security is small. Hermwille neatly describes the dominant Japanese attitude to nuclear power prior to Fukushima thus: "Japan is a densely populated, relatively isolated island group and has

no appreciable fossil resources of its own. Nuclear power is the only means to secure energy supply" (2016, p. 241). Nuclear power, then, slowly and surely became entrenched in Japan.

Prior to Fukushima Japan had the third largest number of operational nuclear power plants in the world (after the U. S. and France), producing about 30% of Japan's electricity (World Nuclear Association, 2017). The Figure overleaf gives an indication of the scale of nuclear power generation in Japan. It shows the sites of major reactors in relation to the 2011 earthquake epicenter.

Figure 1: Nuclear plant locations in Japan (Holt *et al*., 2012, p. 3)

The Figure emphasises the large number of reactors Japan had in operation at the time and their coastal locations. Plants are situated in coastal areas because of the huge water requirements for cooling nuclear reactors, which means it is cost-efficient to have ready access to seawater.

2.2.2: The Japanese 'nuclear village'

An essential concept for understanding the causes of the Fukushima disaster is the Japanese term *'Genryoku Mura'* (meaning 'nuclear village'). The term refers to a

widespread group of institutional and individual pro-nuclear advocates. These include power utilities, nuclear vendors, the bureaucracy, the Diet (Japan's parliament), the financial sector, the media, and academia (Kingston, 2012). The nuclear village has long been a major force in Japanese institutional culture, one that Kelly describes as "extremely powerful and deeply entrenched within Japanese society" (2015, p. 61). It maintained a firm commitment to nuclear power in Japan. Moreover, its depth and size has previously been enough to insulate pro-nuclear policies from changing public opinion and ensure continuing institutional support for nuclear power (Hymans, 2011). The various elements of the nuclear village constitute a mutually supportive group with a shared interest.

Perhaps inevitably, the strength of the nuclear village's interconnections became problematic. One manifestation of the insidious effect of such a close-knit group is the long established practice in Japan of '*amakuradai'* ('ascent to heaven'), in which government officials retire to lucrative jobs within the industry sectors they have previously been responsible for. For instance, for five decades the director of the government agency in charge of energy was usually hired as a vice president of Tokyo Electric Power Company upon retiring (Noboyuki, 2011, p. 6). There was not sufficient distance between the regulators and the regulated, and those doing the regulating had an interest in maintaining cosy relationships in order to secure a highly-paid position in the future. This phenomenon is termed 'regulatory capture', by which regulators charged with promoting the public interest defer to the wishes of the industry they ostensibly

control and instead advance the industry's own agenda. This had long been the case in Japan (Ramsayer, 2012). Such regulatory capture is the most obvious example of how close collusion among the nuclear village produced structural weaknesses.

What is more, the nuclear industry in Japan has a somewhat patchy record on safety. While different in scale, Fukushima is far from an anomaly in the history of nuclear power generation in Japan. Carpenter (2012) notes numerous covered-up accidents, and argues these resulted from a misguided assumption of Japanese technological superiority. For instance, prior to Fukushima there were 14 lawsuits brought by private citizens claiming that nuclear companies had ignored safety risks (Downer, 2013). The most prominent incident was the Tokai accident of 1999, named after the area of Japan in which it occurred. This involved an accidental release of radioactive smoke, which required families living near the plant to be temporarily evacuated and a further 300,000 people to stay indoors. At the time this was the third most serious nuclear accident in history after Three Mile Island and Chernobyl. To give another example, in 2007 the government reported that seven Japanese utilities had falsified safety records for thirty years (Hirakawa and Shirabe, 2015). In short, the industry had previously exhibited disturbing weaknesses with safety and transparency.

Despite all this, one reason for the lack of challenge to the nuclear village is that there is a long history of nuclear power companies advertising in mass media, and the government promoting nuclear energy in the mass media (Hara, 2013). Up until the Fukushima

disaster, stories about the benefits of nuclear power and advertisements for nuclear power companies regularly appeared in national newspapers (Kinefuchi, 2015). This meant that media companies reliant on advertising revenue from the nuclear industry were disincentivised from promoting a strident anti-nuclear line, for fear of losing this financial support. What is more, there has been extraordinary political continuity in Japan. The ruling Liberal Democratic Party has been in almost uninterrupted power since the Second World War. Noboyuki explains how the Liberal Democratic Party and the electrical industry gradually "forged an unbreakable bond over the decades, by sharing the benefits of the easy money made in monopolized nuclear energy projects" (2011, p. 5). Business and government assisted each other: the government by creating favourable economic conditions for the nuclear industry, and the industry by providing financial support and political backing in return.

To sum up, persuasion by elites overcame resistance to nuclear power, and Japan came to rely upon it heavily. The nuclear village developed as a group of pro-nuclear advocates covering numerous public spheres, with significant power, and with an investment in the continuation of nuclear power. This was not an ideal situation to encourage the rigorous scrutiny and safety protocol necessary for such a technology, and it set the stage for the Fukushima disaster.

2.3: How the Fukushima disaster unfolded

On March the 11th 2011 Japan suffered what was termed the 'triple disaster' of an

earthquake, tsunami and nuclear meltdown. This was the largest disaster in Japan since World War II, with an overall death toll estimated at 15,849 (National Police Agency of Japan, 2016). It began when a magnitude 9 undersea earthquake occurred off the northeastern coast of Japan (as seen in Figure 1). The bulk of the devastation came from the resulting tsunami, which was higher than the sea walls built to protect coastal towns. The third aspect of this triple disaster occurred in Fukushima, a largely rural prefecture about 160 miles north of Tokyo. It took place at *Fukushima Daiichi* ('Fukushima number one'), a site hosting six nuclear reactors constructed in the 1970s, and operated by the Tokyo Electric Power Company (TEPCO). As will become apparent, TEPCO is a major part of the story of the Fukushima disaster.

The plant is located on the coast and relatively close to the earthquake epicenter, so suffered the full brunt of the tsunami. When the tsunami hit land it was fifteen metres in height, taller than the six metre protective seawall installed to guard the plant. Three of the six reactors were in operation at the time. In line with standard safety protocol, these reactors automatically went into shutdown when the earthquake hit. This shutdown involves the insertion of control rods which halt the chain reaction which sustains power generation. These control rods require constant cooling, as do the spent nuclear fuel pods in a separate structure at the plant. Cooling requires a consistent power supply from the electricity grid, or if this fails from the backup power generators at the plant. The problem for the Fukushima plant was that the earthquake and tsunami damaged the external power supplies and almost all the internal power supplies. Furthermore, the tsunami inundated

the backup diesel generators and washed away the fuel tanks in the reactors. Consequently, there was no means of cooling the radioactive material (Hasegawa, 2012). This is a worst-case scenario for a nuclear plant, as without cooling meltdown occurs. Meltdown means that the heat from continuing radioactivity is enough to convert the cores of nuclear reactors into liquid, which then melts. As a result, radioactivity escapes into the outside environment. This is what happened at Fukushima.

Four hours after the government became aware of the situation, they declared a nuclear emergency and issued an evacuation order to people within a one mile radius of the plant. This was later extended to six miles and then twelve miles, with those living between twelve and eighteen miles urged to stay indoors or evacuate voluntarily. Two days later, on March the 13th, TEPCO began pumping in seawater to cool the reactors, which had begun melting. Stabilising the plant proved difficult because the lack of power supply hampered relief operations, and because radiation levels at the plant were such that repair workers could only safely operate for limited periods. TEPCO struggled to provide sufficient water to cool the cores, and the radiation releases continued. The disaster was eventually classified as a Level 7 nuclear accident by the International Atomic Energy Agency, a level equal to that of Chernobyl. This is the highest level on the scale, and is used for disasters involving significant environmental releases of radiation.

2.4: Effects of the Fukushima disaster

In terms of human effects, two workers were killed during the disaster itself after being

trapped in a building and drowning. Furthermore, in the process of evacuating a hospital

inside the radiation zone twenty one patients died of dehydration or hypothermia. On a

wider scale, according to prefectural authorities and local police 1,656 people in

Fukushima Prefecture have died from stress-related illnesses and other maladies brought

on by the Fukushima disaster (more than died in the earthquake and tsunami). Another

434 have died in neighbouring Iwate Prefecture and 879 in Miyagi Prefecture (The Japan

Times, 2014). As regards the effect of radiation, this is a disputed topic. Some studies

indicate a slightly increased risk of thyroid cancer for children in the area (Ochiai, 2015).

For the most part, fortunately, it seems the radiation release has not had the dangerous

effects that some predicted. Both the World Health Organization and the United Nations

Scientific Committee on the Effects of Atomic Radiation concluded that radiation

releases from Fukushima did not pose a threat to the Japanese population (Perrow, 2013).

Although Fukushima Prefecture is largely rural, a sizable population lived within the

evacuation zone, or close enough to feel concerned about the danger of radiation and so

relocate. Figure 2 on the next page shows major towns relative to the Fukushima plant

and the enforced evacuation zone.

Figure 2: Evacuation zone and surrounding urban areas (CNN, 2011)
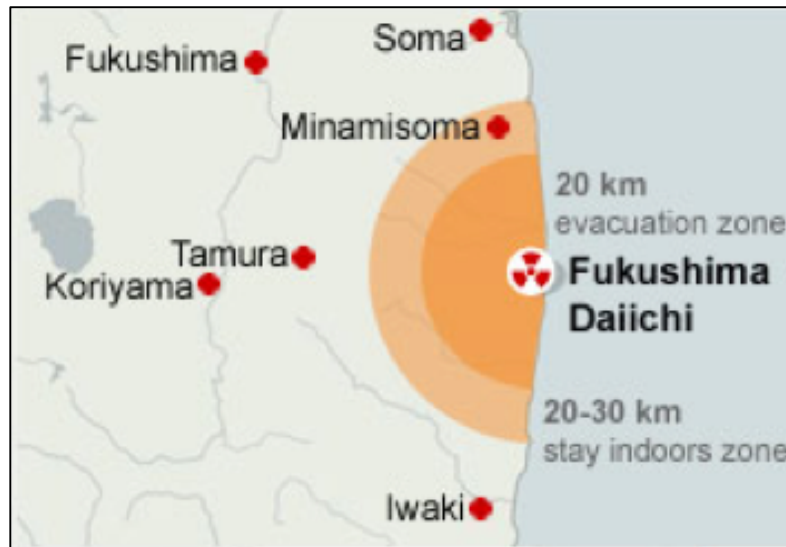
There were an estimated 150,000 evacuees (Stoop, 2015). Many of these still cannot return because their homes lie in contaminated areas, and others do not wish to return because they see no future livelihood in the area. Struggles for financial compensation for this upheaval are ongoing, and some evacuees faced stigma and suspicion as 'nuclear refugees'.

In financial terms, the Japanese Government reports the costs of decommissioning the damaged reactors at 4.5 trillion yen (Hosoe and Tanaka, 2012). The Japan Center for Economic Research estimates the economic losses resulting from Fukushima to be between 520 to 650 billion dollars (Downer, 2013). Other estimates put the entire cost of the disaster at 40-50 trillion yen (McNeill, 2012). TEPCO, the power company responsible for the plant, lost 81.2% of its market capitalisation, and had to be nationalised in June 2012 through a trillion yen injection of public capital (DeWit, 2016).

Radiation also had a harmful impact on agriculture, as the water used to cool the reactors became radioactive and leaked into the surrounding land and the Pacific Ocean. This affected farming in the agricultural prefectures surrounding Fukushima and fishing in nearby areas of the Pacific, as produce from these areas was unsafe for consumption.

Efforts to stabilise the stricken reactors have been ongoing. Over a period of months TEPCO got to grips with cooling the reactors and reducing radiation leakage. All reactor units at the site were declared to be in cold shutdown (meaning below 100 degrees Celsius) by December the 16th, 2011. As of writing, the current measure in place is a wall of ice around the site, which is engineered to prevent radioactive ground water running off into the surrounding environment. The decontamination process continues, and it is not certain when it will be complete. Estimates suggest the environmental cleanup will take 40 years (Joskow and Parsons, 2012).

2.5: The extent of human responsibility for Fukushima

A key theme in the analysis chapters to come is the level of human agency involved in discourse on Fukushima, so it is essential to understand the degree to which the disaster was man-made. The nuclear village culture detailed above has been widely identified as allowing the conditions in which a disaster could have occurred. Multiple sources attest to the human factors that lead to the plant being inadequately prepared for an event of this sort. For example, the Atomic Energy Society of Japan concludes the root causes of the disaster were mainly organisational issues (2015). The Independent Investigation

Commission on the Fukushima Nuclear Accident describe a plethora of causes, including weaknesses with Japan's nuclear regulation and its paper tiger status, lax assumptions that plant power would never be lost, a failure to improve nuclear facilities after Chernobyl, fear by industry workers of speaking out on safety problems, TEPCO's lax attitude towards safety, structural collusion between power companies and the government, and links between power companies and the media. It calls these examples of the "corrosive power" of the nuclear village in Japan (2014, xi). The potential effects of a natural disaster were neither unknown nor unforeseeable. Years before the disaster scientific studies identified the possibility of a large earthquake and a resulting major tsunami of sixteen metres at the Fukushima site. Neither TEPCO, government regulators, nor the Japanese Nuclear and Industrial Safety Agency took this seriously.

Decisions taken by TEPCO made it more likely that Fukushima would occur. TEPCO had been aware since 2006 that the Fukushima Daiichi plant could face a station blackout if flooded (World Nuclear Association, 2017). In the 2012 Fukushima enquiry Japan's Trade Minister testified that the Japanese nuclear regulator had rejected global standards for disaster response out of fear that implementing them "would undermine public trust" (cited in Kubota, 2012a). TEPCO President Hirose Naomi acknowledged the utility was aware of necessary safety improvements long before the disaster, but failed to act because they feared the political, economic and legal consequences of implementing new measures (Lukner & Sakaki, 2013, p. 16). Ramsayer (2012) explains how TEPCO greatly underplayed the risk of a large earthquake and tsunami, and argues that it did so to avoid

financial obligations. TEPCO conducted in-house research in 2008 which indicated Fukushima was vulnerable to a massive tsunami, but decided against building a higher seawall because it was deemed too expensive. However, TEPCO withheld this knowledge from the Nuclear and Industrial Safety Agency until March 7, 2011 (Investigation Committee on the Accident at the Fukushima Nuclear Power Stations of TEPCO, 2012, p. 6-7).

The impact of financial considerations stretches back to the construction of the plant. The Fukushima site was originally on a bluff, which was demolished during construction to allow cheaper and easier transportation of building material by sea (Ladkin *et al.*, 2013). Were this bluff still there it would have absorbed the impact of the tsunami and left the plant intact. Another way to illustrate failures at Fukushima is by comparison to other nuclear reactor sites. The Onagawa nuclear plant is located closer to the earthquake epicenter than Fukushima (as can be seen in Figure 1), and so was subjected to stronger seismic shocks and a higher tsunami. However, safety measures worked as planned and Onagawa experienced no problems. This plant is run by a different energy company that implemented stricter safety procedures (Ryu & Meshkati, 2014). Put simply, the company responsible for the Fukushima plant made economic decisions on safety issues that created the conditions for a disaster such as Fukushima.

In addition to a lack of prior protection, the response to the disaster was inadequate. Funabashi and Kitazawa explain that those involved:

"were thoroughly unprepared on almost every level for the cascading nuclear disaster. This lack of preparation was caused, in part, by a public myth of 'absolute safety' that nuclear power proponents had nurtured over decades and was aggravated by dysfunction within and between government agencies and TEPCO, particularly in regard to political leadership and crisis management." (2012, p. 12)

TEPCO's lack of readiness for station blackout was further compounded by their lack of planning and training for severe accident mitigation (World Nuclear Association, 2017). There was no plan in place to deal with a total loss of power, so they had to improvise a reaction on the spot. The governmental response was also deemed insufficient. Lacking a protocol for the situation at hand, the government initially allowed TEPCO control over the management of the crisis, but later the Prime Minister Naoto Kan become frustrated at a lack of information and stepped in to take direct control. Transparency in information sharing was widely criticised. In particular, the period of March the 14th to 16th became known as "the darkest hours of the crisis", when knowledge of radiation leaks emerged but the potential scale of harm remained uncertain. At this time the government privately considered a worst-case scenario of ordering Tokyo to be evacuated (Funabashi, 2012). Official information about radiation was seen as confusing and inconsistent, which led to public mistrust of official sources (Brumfell and Fuyuno, 2012). Some have argued that the government deliberately sought to play down danger, while others have attributed the disorganised response and confusing statements about the situation at the plant to a lack of central crisis control and to genuine uncertainty about radiation levels (Simone, 2014). Regardless of the reason, the point here is that as well as failing to *prevent* a disaster, there was a failure to *plan for* the event of a disaster.

2.6: The importance of agency in discourse on the Fukushima disaster

The Independent Investigation Commission on the Fukushima Nuclear Accident states that "There were numerous – often conflicting – reports on what went wrong and what went right, who did what, and who did not" (2014, p. ix). Similarly, Hamblin comments that "The weeks and months that followed the Fukushima nuclear crisis were marked by hasty and opportunistic moves to assign or avoid blame for the unfolding disaster" (2012, p. 1-2). In the case of Fukushima allocation of agency is a complex topic because numerous factors contributed to the disaster. Although blame on the part of the nuclear village has been clearly established, it is muddied by the sheer extent of the nuclear village. This made (and still makes) defining the level of culpability for the disaster challenging, and indeed this spread of responsibility will emerge as a theme in the analysis to come.

The implications of the representation of agency and responsibility are important for a number of areas. One is the size of financial compensation for evacuees and those whose livelihoods depend on agriculture and fishing. This is relevant in chapter six when I discuss TEPCO's investigation into the disaster. Although lawyers for TEPCO argued in court that the company was not responsible for the damage from radioactive materials because TEPCO did not own the radioactive materials (!), they lost and have had to pay compensation to those affected (Jones, 2013). Besides this, however, in terms of holding those in power to account there have been few repercussions. Hopson writes that "Beyond the ritual removal of TEPCO's CEO and some populist media outrage, there has been little attempt to address the issue of human responsibility" (2013). A citizen's group

brought a legal case against three ex-TEPCO chairmen, who pleaded innocent to charges of professional negligence resulting in death and injury (Kikuchi, 2017). As of writing, this case in ongoing. In terms of political responsibility, in 2017 a district court in Tokyo ruled that government negligence contributed to Fukushima because the government had failed to take adequate regulatory measures to prevent the disaster (McCurry, 2017). However, this case was a private compensation claim for 137 people who had to evacuate their homes, and thus had no governmental implications. For the most part there was little chance for wider political repercussions as those in charge of the response to Fukushima were soon out of office: the Prime Minister resigned in August 2011 and the Democratic Party of Japan (who were the ruling party at the time of the disaster) lost power in the 2012 round of national elections.

In a wider sense there are also implications for Japan, in that the institutional failings that led to Fukushima are a challenge to trust in authority. The representation of the severity or otherwise of these failings could affect a change in public mood. This is relevant when I analyse domestic and foreign media reporting of the crisis in chapter five, and when I analyse official reports into the disaster in chapter six. What is more, in the longer term the issue of responsibility is important for the future of the nuclear industry and the energy debate. The question is how much the disaster undermines public and political faith in nuclear energy. According to Pidgeon *et al.* (2008) the public will accept nuclear power as the least bad of a number of bad options as long as it is considered safe. Representation of the scale of the disaster and the degree of corporate responsibility for it are key to this

public support. This is relevant to chapter seven, which looks at how Fukushima has been portrayed in the media debate over the use of nuclear power.

To conclude, Fukushima is a disaster with major human costs, and with major human causes. I have explained why agency is a significant and contested issue for these events, and why this makes the portrayal of agency important. Having now established the background to the disaster, in the next chapter I move on to the theoretical background of my analytical approach.

3. TOWARDS A FRAMEWORK FOR ANALYSING AGENCY

In this chapter I discuss the treatment of agency in Critical Discourse Analysis. I stress its importance in the discipline to underline why a specific framework for the concept would be useful. I then discuss the approach to agency in CDA, showing how it has usually been equated with the grammatically-based idea of causation. I argue that a more expanded view of linguistic manifestations of agency would be beneficial, as would a more multifaceted treatment of the phenomenon. I propose moving from a view of agency as 'where the cause of action resides' (as it is often used in CDA) to a wider concept as 'power to influence the world'. Based on my overview of the limitations of existing approaches, I finish by outlining the requirements of a framework for capturing linguistic representations of agency. By the end of this chapter I will have shown why the study of agency is important, how it has been studied, the limitations of previous approaches, and how the study of agency can be improved on. This will contextualise the following chapter, in which I present a framework for the classification of representations of agency.

3.1: The centrality of agency for CDA

A central concept in social science is the idea of 'power', and as Wodak and Meyer explain "there is almost no social theory that does not contain, suggest or imply a specific notion of power" (2016, p. 9). They go on to state that a defining feature of CDA is a "concern with power as a central condition in social life, and its efforts to develop a theory of language that incorporates this phenomenon as a major premise" (2016, p. 12). There

is frequently a focus on experiential aspects of language, because these tend to be viewed as constructions of reality. Central to such representation is action, as action is the core of experiential meaning. Agency and action are thus fundamental concerns, and Van Leeuwen states simply that "Agency…as a sociological concept, is of major and classic importance in critical discourse analysis" (2008, p. 23). For instance, the effect of different representations of the agency of an action could highlight or background an action, make an action seem powerful or weak, dramaticise or downplay an action, or increase or decrease the clarity of responsibility for an action. In turn, these effects could represent 'in' and 'out' groups as stronger or weaker, could represent certain actors as guilty or innocent, or could assign credit or blame for actions. Changing levels of agency might contribute to the maintenance or change of power relationships. In short, agency is central to struggles over the definition of events and the representation of actors, which are mainstays of CDA work.

3.2: The CDA approach to agency

Looking at how CDA has investigated agency, what is perhaps the first treatment is the pioneering *Language and Control* (Fowler, Hodge, Kress, and Trew, 1979). In this, Trew explains that his process of analysis is to use Halliday's Systemic Functional Linguistics to analyse clauses for agency. He argues "we need a way of systematically applying to a text or discourse a theory like Halliday's which analyses clauses in terms of how they present agency and transaction". He describes the first part of his analytic process as involving "a sorting of the terms of a text into categories of process and participant and

then using this as a basis for abstracting the distribution of agency and interaction amongst participants" (1979, p. 123). He presents a matrix of actors and actions in a text in order to map transitivity. Basically, Functional Grammar provides the theoretical and analytical base. With this in mind then, it is useful to find a specific Functional Grammar explanation of agency. Halliday (1985) and Halliday and Matthiessen (2004) seem to use the term without a definition, but treat it for all intents and purposes as causation and as expressed through the transitivity system. A slightly more concrete definition is provided in Thompson's *Introducing Functional Grammar*, referring to agency as "representation of participation in processes" (2004, p. 138).

From here, the treatment of agency appears to have developed along these functional lines. In one of the formative and most influential CDA works, *Language and Power*, Fairclough presents a framework of ten questions to apply in text analysis. Under the 'Grammar' section of the framework, one question is "Is agency unclear?" (1989, p. 11). He links this question to causality, responsibility, and to the grammatical categories of active/passive and nominalisation. Fairclough states that "One should be sensitive to possible ideologically motivated obfuscation of agency, causality and responsibility" (1989, p. 124). So here agency is viewed as a grammatical phenomenon, and is part of the experiential metafunction. An example of a thorough and systematic analysis along these lines is Stubbs (1996, Chapter 6). He compares a corpus of two textbooks on environmental issues, finding that the textbook with an explicitly 'environmental' stance allocates greater agency to forces responsible for environmental destruction, whereas the

'standard' textbook includes less representation of agency when describing environmental destruction. Stubbs also treats agency as a grammatical phenomenon, connected with verb forms, akin to causality: for him it is "causality, agency, responsibility and blame" (1996, p. 123).

Numerous CDA studies have used the concept of transitivity to look at the representation of responsibility (see among others Janks, 1997; Li, 2010; Seo, 2013; Reyes, 2011; Machin and Mayr, 2013; Rajandran, 2013). Indeed, this has been something of a mainstay. More recently, there have been practically oriented guidebooks aimed at summarising CDA techniques for new practitioners. One representative guide to what might be considered common approaches is Machin and Mayr's *How to do critical discourse analysis: A multimodal introduction* (2012). In this they comment that "transitivity patterns, especially in the manipulation of agency at the grammatical level, can be significant in terms of language and power" and "there is a theoretical assumption … that the levels of an actor's agency are directly correlated to material process types and that individuals or groups not involved in such processes are presented as being weak agents" (2012, p. 111). All this would suggest that the functionally-influenced theoretical approach has stuck.

There are, however, some examples of a more nuanced approach. One such study is Galasinski and Marley (1998), who compare representations of agency in British and Polish newspaper reporting on foreign countries. They discuss patterns in reporting on

countries perceived as 'elite' or 'non-elite', and comment on how transitivity and agent inclusion or omission represent countries with greater or lesser agency. The contribution they make is to acknowledge that agency is about degrees rather than simply presence or absence, but unfortunately they do not provide any specific guidelines for determining what these degrees might be. A more systematic approach is Stamou (2001), who analyses the representation of different social groups in Greek newspaper reporting of protests. Stamou identifies 27 different combinations of transitivity and actor presence or absence, ranking these for the clarity of causation (2001, p. 670-671). This is a detailed and comprehensive treatment of a classic CDA concern – how verb form can highlight or background responsibility. A more recent paper taking a similar approach is Dreyfus, who argues that "one of the ways the extent to which people take responsibility for their past actions can be explored is ideationally through the system of voice and agency" (2017, p. 374). The useful innovation she makes is to organise possible representations along a cline of responsibility, based on agency in material clauses (2017, p. 379). She applies this to six example situations to discuss how and why different degrees of agency were used. As with Galasinski and Marley, however, the analysis of agency is limited to transitivity.

The strength of these three approaches is that they attempt to distinguish between levels of agency. The limitation is that they do not extend to other, more metaphorical, representations of action. One study which does cover more linguistic ground is Merkl-Davies and Koller (2012), who analyse corporate documents on arms sales. They show

how impersonalisation absolves corporate management in the arms business of the outcomes of their decisions. They argue that the different ways "obfuscation of agency" is achieved are through the linguistic features of 'Impersonalisation', which include the sub-types of referential vagueness, passivation, grammatical metaphor and conceptual metaphor (2012, p. 182). While this approach has a wide linguistic scope, a limitation is that their analysis only identifies the absence of agency, rather than any kind of scale of its presence. In addition, what constitutes their four categories is not defined, and there is no sense of how much or how little these linguistic features may obscure agency. Nevertheless, this study points the way forward in that it recognises agency as a more complex feature of texts.

3.3: Assessing the analysis of agency in CDA

The strength of the approach to agency in CDA is that it is systematic, as a Functional Grammar analysis is based on clear and replicable criteria. Undoubtedly, the work described so far has been effective in showing the ideological purposes and effects of texts. However, I believe there are two areas of concern. The first is simply the lack of a definition of agency in the literature. Indeed, the more I searched for a definition the more noticeable this absence became. The closest I could find is in Baker and Ellece's *Key Terms in Discourse Analysis*, which for the entry under 'agency' states "Linguistic agency refers to how characters or objects are represented in relation to each other" (2001, p. 4-5). It is noteworthy that none of the CDA work which investigates agency feels a need to define what agency *is*. It is unproblematically taken for granted as being (or

seeming to be) causation. This is not necessarily bad, but it somewhat begs the question

of why not use the term 'causation' if this is what is really being investigated.

The conceptual and linguistic views of agency as causation seem to have been mutually

reinforcing. However, the possibilities of a broader view can be seen by its treatment in

other disciplines. For instance, in Sociology debates over agency concern the locus of

individual agency and its relationship to wider social forces, and questions concern the

limit of free will and the ability to make individual change (Archer, 1982; Sewell, 1992;

Hays, 1994). This view of agency, then, tends towards the *ability* of an individual to *exert*

their will. Alternatively, in Philosophy the treatment of agency concerns whether agency

exists if an act does not change anything in the environment, whether there is more agency

if there is more change as a result of an action, and whether agency exists if the prior

intention of an action and the resulting change bear no resemblance to each other

(Frankfurt, 1978; Fuchs, 2001; Paul, 2012). This view of agency might be described as

conscious volition. These two approaches suggest ways in which the concept could be

expanded in CDA.

The second concern is the limitations of the dominant Functional Grammar approach. If

agency is akin to causation and only resides in clause structures there is only so far this

can take us. As has been pointed out, sociological agency does not always correspond to

linguistic agency (Van Leeuwen, 1995, p. 87; Ahearn, 2001, p. 123; Farrelly, 2014, p.

53). Focusing on transitivity treats agency as a process of actors working on each other

in explicit 'lines of causation'. As Goatly (1996) explains, the transitivity system assumes a binary opposition between the existence of one agent or no agent, and between clearly identifiable causes which are either included or excluded. Thibault calls this "the billiard ball model of physics" and argues that while it makes the world easy for us to process and understand, it does not reflect the more complex interaction of forces in reality (1993, p. 136). Cause and effect are not always so simple in real life. Another problem is, as Bednarek points out, the systemic view assumes a system of choices in which if one thing is present then another is absent. This may not capture the subtleties and multiplicities of meaning, or the interplay between words, and thus a more comprehensive view of the different effects of language might grasp more of its meaning (2006, p. 216). I do not mean to argue that the functional linguistic approach is invalid, and indeed I draw on it myself, as the following chapter will show. The point, however, is that it is only one of the available choices, and a more comprehensive analysis of agency would be beneficial.

3.4: Requirements of a framework for measuring agency

The aforementioned theoretical vagueness is somewhat inevitable considering that agency is itself an abstract concept. It can be problematic, though, if one wishes to make specific claims about where agency exists and where it does not exist, or make claims about varying degrees of agency. In developing a framework I therefore need to set the boundaries with more clarity.

In their explanation of the underlying principles of CDA, Chouliaraki and Fairclough

(1999) argue that a dialectical view of language is necessary to account for the interaction of structure and agency, and to allow for the way in which discursive practices may reinforce or subvert relationships of power. They explain that social practices have an irreducible reflexive dimension, in which people produce representations of what they do. Agency therefore "entails reflexivity", and they emphasise that people can consciously pursue strategies in discourse (1999, p. 15). In this sense agency is an active power with an inherently discursive aspect, and from an analytical standpoint it is necessary to consider the different ways in which it may be manifested. The anthropologist Ahearn argues that agency is multifaceted and we must consider how agency is constituted by the norms, practices, institutions, and discourses through which it is made available. She makes the simple point that words which have taken on new meanings in academic discourse need more precise definitions, and proposes this: "Agency refers to the socioculturally mediated capacity to act" (2011, p. 112). I move from this social anthropological slant to a CDA style conception of "the linguistically mediated power of action".

My approach is thus to move from a view of agency as the *source of action* to agency as *power to affect the world*. Of course, the phrase 'power to affect the world' is itself imprecise, and begs the question why not simply use the term 'power' instead of 'agency'. However, from the above survey of how agency has been studied it seems that the term has been used to identify different varieties of the power of action. This would therefore seem to be a suitable entry point. Power is also a good starting point because, as I argued

above, CDA is concerned with the manifestation of social power relations in language. The discussion so far suggests the utility of a multifaceted conception of agency, in which there are a number of factors comprising this 'power'. The advantage of this approach is that it allows CDA practitioners to go beyond a binary conception of agency, in which agency is present or absent, or in which representation of agency is simply a question of transparency versus mystification. So practically speaking, traditionally agency has equated to responsibility and the questions have been something like 'does agency *exist*?' or 'does a use of language *obscure* agency?' It is perhaps more useful to ask 'what *kind* of agency is represented?' and 'what *level* of agency is represented?' Such an approach does not preclude the classic CDA concern with mystification, but expands upon it.

Having argued the benefit of a broader conception of agency in language, I shall now detail the requirements of an analytic framework to effectively measure the agency of actions. These requirements fall under three areas. First, it should recognise different types of agency. As I explain further in the next chapter, I propose four aspects of agency that can be studied:

1. 'Coreness'. The action may be more or less clear, and the connection between the actor and the action may be foregrounded or backgrounded.
2. 'Effect'. The action may have a more or less powerful physical effect on the world.
3. 'Intensity'. The action may be more, or less, intense.
4. 'Freedom/Constraint'. The action may be a freedom to act as one wishes or to influence others to act as one wishes. Conversely, it may be a constraint on one's actions from an internal or external source.

These four aspects are independent of one another. For example, an action may be extremely congruent but may have little force. To give an (invented) example:

A)   The woman whispered in the man's ear.

The verbal representation 'whispered' is congruent and straight-forward. It is easy to understand what exactly happened and who is responsible. On the other hand, the action 'whispered' is not a powerful one. It does not have a significant effect on the world and is markedly less forceful than other forms of communication such as 'shout'. To take another case, an action may show the freedom to act as one wishes, and may have a strong effect on the physical world, but may be represented vaguely. For example (invented):

B)   The woman's comments forced the man to commit suicide.

Here the woman is represented with the power to influence the man to act. The effect is a significant physical action by the man. The precise nature of the woman's action is less obvious, however, as the nominalisation 'comments' does not show the length, number, or nature of the comments. These two brief examples illustrate the independence of different types of agency. One goal of a framework is to capture this interplay of different kinds of power.

Second, a framework should not approach agency as a binary concept whereby it either exists or does not. Rather, it should allow for levels of agency, and attempt to explain why one representation may be more or less agentive than another. For instance (invented):

C)   The criminal punched the victim.

D)   An attack occurred.

E)   The criminal behaved aggressively.

Examples C, D and E could all refer to the same action, but they give different impressions. In C the action is connected closely to an agent (the criminal), and the link between the 'criminal' and the 'punch' is clear. The action 'punch' can be clearly envisaged. In D the connection between agent and action has to be inferred, and the representation of action is the nominalisation 'attack', which makes the exact nature of the action less clear. In E the action is a neutral term 'behaved', with the ideational content mainly supplied by the adverb of manner 'aggressively'. This kind of detailed textual analysis and commentary is a classic part of CDA, but the idea of identifying levels of difference has seldom been an orienting principle behind analysis.

Third, a framework should allow that agency is not a linguistic concept. As such, it may not directly translate into linguistic realisations. A framework should not assume a one to one relationship between form and function. It should be flexible enough to encompass the different possible representations of each aspect of agency. For example (invented):

F)   She was able to complete the job on time.
G)   She managed to complete the job on time.
H)   She successfully completed the job on time.

Examples F, G and H all express the idea that the 'completion' was in doubt but that it nevertheless occurred. They all show the ability to do an action. The objective should not be to focus on one linguistic form that can embody agency, but to cast a wide net that captures as many manifestations as possible.

To conclude, in this chapter I have argued that while agency is a core issue in CDA, the conception of agency is unclear and its treatment is somewhat limited in scope. I have argued for the benefit of a more expanded view. In the next chapter I build on this by presenting a framework which addresses the three requirements I have just described: covering multiple aspects of agency, measuring levels of agency, and encompassing different linguistic representations of agency.

4. AN ACTION-AGENCY FRAMEWORK

In this chapter I present a framework for analysing agency in representations of action. The framework covers multiple aspects of agency and links linguistic representations of an action to the levels of agency they give this action. I begin by describing the theoretical basis for my approach, introducing the framework, and explaining the key decisions in its design. I then go through the four sections of the framework in turn. I explain what aspect of agency each section measures. I present a table organising the categories in each section according to level of agency. I define each category, and discuss why these categories have different amounts of agency. Examples from my research on discourse on Fukushima are used to illustrate categories. Following this is a master chart bringing together these four sections and the categories within them to form a complete network for the classification of representations of agency. I finish by discussing some more complex categorisations that emerged in the course of my research.

I hope that this chapter provides a toolkit for others who wish to investigate agency. As the framework is a detailed treatment of the topic there is a good deal of information to present here. It is important to sufficiently describe and exemplify the theory before proceeding to application. However, I am conscious of the amount of new material, and with this in mind try to keep it as simple as possible. My aim is to give an understanding of what each part of the framework measures, and then demonstrate this further in the analysis chapters that follow.

4.1: The sociosemantic approach

As I argued in the previous chapter, measuring agency requires a flexible framework that does not assume a one-to-one relationship between form and function, and that allows room for interpretation. In my first Module I reviewed different linguistic approaches to studying action, and I identified Van Leeuwen's (2008) sociosemantic approach as suitable for analysing agency because of its flexibility. This approach identifies critical, sociosemantic categories and links these to grammatical and rhetorical realisations. The advantage of this is, as Van Leeuwen explains:

> "There is no neat fit between sociological and linguistic categories, and if Critical Discourse Analysis, in investigating for instance the representation of agency, ties itself in too closely to specific linguistic operations or categories, many relevant instances of agency might be overlooked. One cannot, it seems, have it both ways with language. Either theory and method are formally neat but semantically messy (as in the dictionary: one form, many meanings), or they are semantically neat but formally messy (as in the thesaurus: one concept, many possible realisations)." (2008, p. 24)

This recognises the difficulty of tying communicative effects to linguistic forms, and takes a 'critical' approach by prioritising sociological categories. As Wenniger explains, the strength of Van Leeuwen's work is that it focuses on sociological agency and provides a network of different choices for its expression (2010, p. 596). While my framework draws upon a range of linguistic concepts, then, the underlying approach is the idea of mapping 'agentive level' onto 'linguistic form'. For example, the framework has a category of 'Ability', which means the outcome of action was in doubt but the actor was able to successfully do it. The multiple ways that this can be expressed are all included in

this category of 'Ability'.

4.2: Framework overview

The framework has four sections, each covering a different aspect of agency. Each section consists of different categories. These categories convey differing degrees of agency, from more to less. A representation of action may fall under multiple sections of the framework, or may only fall under one. However, it can only belong to one category in each section. Potentially, then, an action can have anything from one level of one kind of agency, up to four different levels of four different kinds of agency (although this is rarely the case). This does not mean that the more sections an action falls under, the more agentive it is, it simply means that an action is potentially analysable in terms of these four phenomena. The four sections of the framework are:

1. **Coreness**
2. **Effect**
3. **Intensity**
4. **Freedom/Constraint**

This order corresponds to how commonly this feature of agency is represented in a text. In other words, instances of Coreness are most frequent, Effect less so, and so on.

The level of detail for analysing agency is potentially vast. However, as Van Dijk argues, it is important that CDA tools are accessible to as wide a range of practitioners as possible (2001, p. 97). I have therefore tried to identify a workable number of categories for analysis that capture the key differences in agency without making application of the

framework cumbersome. I have also tried to avoid new terminology, which can be off-putting for potential users (Fairclough, 1999, p. 207; Martinez, 2007, p. 126). With this in mind I use familiar terminology wherever possible and explain my interpretation of these concepts. Where I have adapted an already established term I use the original terminology. The points mentioned here are broader considerations informing the framework design. Having explained these wider theoretical issues, I now move on to the specifics.

4.3: Coreness

4.3.1: Overview of Coreness

Coreness is about how clearly an action is represented as an active process (as an 'action') and how clearly this is linked to the agent of the action. It addresses how word form and clause positioning affect the salience, prominence, or clarity of a linguistic representation of action. As the review of agency in CDA in the previous chapter showed, this has been a traditional concern because it is about responsibility; if an action is central then the actor is clearly agentive in being responsible for the action. Coreness answers the question "To what degree is the action clear and connected to the actor?", or "To what degree is responsibility for actions foregrounded or backgrounded?"

Figure 4.3 overleaf shows the different categories within Coreness. The table is organised hierarchically to reflect different degrees of agency. The higher the category the more agency it conveys, with strongest at the top and weakest at the bottom.

Figure 4.3: Categories of Coreness
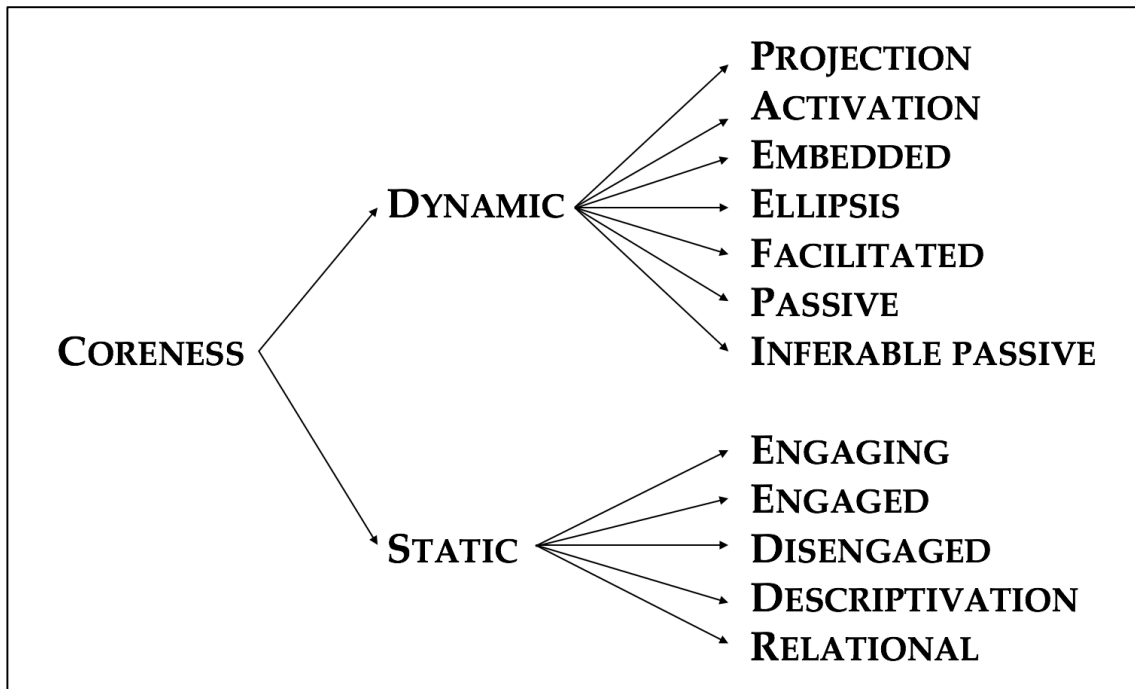
As the Figure shows, Coreness involves a basic division between Dynamic and Static action, and further categories within this. I now describe and exemplify the categories, beginning with the strongest level of agency (Projection) and finishing with the weakest (Relational).

4.3.2: Coreness categories

<u>Dynamic categories</u>

Dynamic categories represent the action as a process, whereas Static categories represent the action as an artifact or quality. Dynamic action is construed in verbs and Static action in non-verbal representations (with the exception of the Relational category of Static action). This distinction is analytically important because Dynamic action is more congruent and thus foregrounds the actor as the one responsible for the action. A verb

represents an action as a process in motion that is directly connected to the actor. Furthermore, a verb can be modified according to tense and aspect, so it appears more under the actor's control and subject to the actor's decision making. Another reason Dynamic action is more agentive than Static action is because every clause requires a process at its core, whereas Static action is more peripheral to the clause. The underlying principle here is that the transitive clause is prior ontogenetically (Schleppegrell, 1997, p. 246) and ideational metaphor downranks information (Halliday, 1985, p. 693). It is easier to attribute responsibility to a concrete action than an abstract one; knowing exactly what happened means knowing exactly what the actor is responsible for. All Dynamic categories are representations as active processes, but the different grammatical permutations highlight the connection to the actor to different degrees.

Projection

Projection is when the action is construed as a verb which frames the rest of the message. It is often verbs of communication and thought, which present further content as the 'domain' of the actor. These are akin to Projecting clauses in Functional Grammar (Halliday and Matthiessen, 2004, p. 441). For example (in red):

1. Edano said the figure was observed before the explosion. (Asahi Shimbun, 2011a)
2. I believe that Chris Huhne's commitment to Lib Dem green nonsense makes him a menace as the Government's minister responsible for energy. (Hastings, 2011)

Projection has the strongest Coreness because the action is foregrounded – this communication or view controls the following information. Caldas-Coulthard explains that the power of this kind of embedding is how it allows the text producer to mold,

control or manipulate the presentation of events (1996, p. 259).

<u>Activation</u>

This is when the action is construed as the main verb in a clause. For instance:

3. The earthquake and tsunami have killed more than 10,000 people. (Windridge, 2011)

4. The six targeted reactors have been safely producing about 40 terawatt-hours of zero-carbon-emissions electricity per year (one terawatt-hour equals 1 billion kilowatt-hours). (Bryce, 2016)

Activation has a high level of Coreness because the representation is a pattern that would be considered unmarked. This congruent grammatical formulation places the action at the centre of the clause and conforms to our 'expected' information pattern.

<u>Embedded</u>

This is when the action is construed as a verb in a noun phrase. For example:

5. This is the reality of the Fukushima disaster, the result of a protection system that allows nuclear operators to pay only a tiny fraction of the costs of an accident, forcing the public to pay the rest. (Naidoo, 2013)

6. For all the extensive detail it provides, what this report cannot fully convey – especially to a global audience – is the mindset that supported the negligence behind this disaster. (The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission, 2012)

Although this is a Dynamic representation in the same way as Projection and Activation, it is slightly less foregrounded by being downranked in the clause. It is a step back from communicative centrality. Projection, Activation and Embedded are all verbs in active voice, but the salience is slightly different for each one.

Ellipsis

Ellipsis is a kind of catch-all category for grammatical constructions which in some way increase the number of actions in the sentence, but in doing so ellipt the link between actor and action. The action is construed as a verbal form, but without direct attachment to the actor. For example:

7. However, the Liberal Democratic Party (LDP)-led government that was launched in late 2012 retracted the previous administration's strategy, and adopted a policy of maintaining nuclear power while aiming to decrease Japan's reliance on atomic energy for power generation. (Yamada, 2016)

8. The goal must be to learn from this disaster, and reflect deeply on its fundamental causes, in order to ensure that it is never repeated. (The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission, 2012)

In example 7 'while' adds more action but in doing so also slightly weakens the link between the Liberal Democratic Party and the action 'aiming to decrease'. In example 8 the phrase 'in order to' adds the action 'ensure' into the sentence while also distancing it from the actor (the implied actor here being a universal 'we'). The category of Ellipsis covers the numerous cases where the action itself is clear and congruent but the connection to the actor is slightly less clear. A certain 'mental leap' is required that reduces the strength of the link between actor and action.

Facilitated

This is when the action is construed as a dynamic verbal process, but there is another actor involved in causing or facilitating the process. For instance (actors underlined):

9. The government later instructed the prefecture to expand the area of evacuation to a 20-kilometer radius of the Fukushima No. 1 plant. (Asahi Shimbun, 2011a)

10. I would like <u>those pretending that such a place is going to be decided on soon</u> to end such thinking, and those talking as if the nuclear fuel cycle will be completely established soon to stop their lies. (Yamada, 2016)

In 9 'the prefecture' is ultimately responsible for doing the action of 'expanding', but it is not represented as entirely their own action – it is initiated by the government. In 10 the writer 'I' is making a claim on the actions of others, so the action 'to end' is encouraged, urged, or suggested by an outside force. In a Facilitated representation the action is Dynamic, but the link between actor and action is downgraded by virtue of the previous actor instigating the action. The term I use – 'Facilitated' – comes from Wenniger, who argues that Activation/Passivation as a binary is too narrow. She argues that cases such as "The government helped them to build new homes" constitute a separate category, which she terms 'facilitated agency' (2010, p. 610). In a similar vein, Mulderrig uses a sociosemantic-inspired category of 'Managing Action'. This involves a cline of coercion, in which two actors are conflated as responsible for the action. She explains how such hypotactic expansion of verbal groups presents multiple actions as one action, thereby taking a step back in agency "both grammatically and socially" (2011, p. 50). This category can thus be thought of as a middle ground between active and passive.

<u>Passivation</u>

This is when the action is construed as a passive verb with the actor stated. For instance:

11. Such energy sprawl has resulted in a backlash in numerous states, including Maine, Vermont and New York, where proposed wind projects are being opposed by local governments and environmental groups. (Bryce, 2016)

12. In addition, studies show that when nuclear energy facilities close prematurely, they

are more often replaced by natural gas-fueled power plants, not other clean energy sources. (Kirk & Whitman, 2016)

The passive structure reverses the unmarked word order, and thus the connection between actor and action is weaker than when the verb is in active voice. This is a downranking of the salience of the actor, and thus the clarity of their responsibility.

Inferable passive

This is when the action is construed as a passive verb and the actor is not stated, but can be inferred. For instance:

13.   After 4 p.m., TEPCO reported that high levels of radioactivity were detected near the No. 1 reactor, at 1,015 microsieverts per hour. (Asahi Shimbun, 2011a)

14.   A powerful explosion has hit a nuclear power station in north-eastern Japan which was badly damaged in Friday's devastating earthquake and tsunami. A building housing a reactor was destroyed, but authorities said the reactor itself was intact. (Asahi Shimbun, 2011b)

In 13 it is clear from context that TEPCO are reporting their own action of 'detecting' radioactivity. In 14 it can be inferred that the 'explosion' in the first sentence is the actor responsible for 'destroying' the 'building' in the second sentence. An inferable passive is less salient simply because the actor is not directly mentioned. The connection between actor and action is filled in by the reader rather than by the text. The use of passives without an agent as a way of backgrounding responsibility is a classic CDA concern.

Static categories

Static categories represent an action in ways other than a verbal process (with the exception of the final category Relational), or by what is referred to as grammatical

metaphor (Halliday, 1985; Halliday and Matthiessen, 2004). Static actions are less agentive than Dynamic ones because they are less directly connected to the actor, less easily modifiable, and because their reification makes them seem less under the control of the actor.

The first three categories are Engaging, Engaged and Disengaged. The linguistic form for these three categories is nominalisation. However, not every nominalisation is necessarily an 'action'. As Halliday and Matthiessen explain, nominalisations can be verbal nominalisation (such as changing 'press' to 'pressure') and adjectival nominalisation (such as changing 'hot' to 'heat'), and these ideational metaphors present processes and qualities as if they were entities (2004, p. 637). For my purposes, if a nominalisation (whether from verb or adjective) can be traced back to a representation of an action then it can be classified under the framework.

<u>Engaging</u>

This is when a representation of action is construed as the actor responsible for another action. For instance (in red):

15.   Venting of mildly radioactive steam continued at reactors 2 and 3, and officials warned that an explosion was possible in reactor 3's building. (BBC, 2011a)

In example 15 'venting' is the actor responsible for 'continuing'. Engaging is also when the representation of action is the Identified in a Relational process (Halliday and Matthiessen, 2004, p. 231). For instance:

16.   There are two dangerous assumptions currently parading themselves as fact in the midst

of the ongoing nuclear crisis. The first assumption is that nuclear energy is safe. (Naidoo, 2011)

In 16 the action of 'assuming' is prominent in the clause in the sense that the clause is 'about' this action. Engaging has the highest agency of the Static categories because of its cognitive salience.

Engaged

This is when the representation of action is construed as being acted upon by another actor. For instance:

17.   The towering explosions at the nuclear plant in Fukushima have seized the world's attention more than any other aspect of Japan's tsunami tragedy. (Hastings, 2011)

In example 17 the action of the world's 'paying attention' is acted upon ('seized') by the 'explosions'. Engaged is also when the representation is the Identifier in a Relational process (Halliday and Matthiessen, 2004; 234). For instance:

18.   Uncounted among the casualties so far, but having unquestionably sustained critical damage, is the already shaky confidence of the world in nuclear power. (The New Zealand Herald, 2011)

In 18 the action of 'being confident' is acted upon in the sense of being 'uncounted'. The category Engaged is less agentive than Engaging because the clausal positioning as 'acted upon' makes it less prominent.

Disengaged

This is when the representation of action is construed as neither doing an action nor directly affected by an action, but as extra action in the clause. It is not directly involved

in a process. For instance:

19. These are a stark reminder of the risks involved in nuclear generation. (The Financial Times, 2011)

20. Adding insult to the social injury of dislocation, hardship and the mounting "atomic divorces" of families on the edge, the public is being forced to pay for the clean up – a clear failure of the law to hold the nuclear industry liable for its disasters. (Naidoo, 2013)

In examples 19 and 20 the action is included in the clause but is not represented as causing or being subject to any process. The category Disengaged is less agentive than Engaging and Engaged because it has a further layer of distance from the core of the clause – it is providing extra information. In this kind of representation the actor is "functionally decentred" from the activity (Machin and Mayr, 2012, p. 113). It increases the experiential density of a sentence while deflecting the arguability of the action (Eggins, 1994, p. 318). In simple terms, the action is less central to the clause and less connected to an actor, and these features make it less agentive in terms of Coreness.

As may be clear, the categories of Engaging, Engaged and Disengaged are somewhat similar to the Functional Grammar concepts of Actor, Goal and Circumstance. However, they are identified on pragmatic (sociosemantic) rather than systemic grounds, hence the different nomenclature. The difference is that Engaging, Engaged and Disengaged refer to the relationship to other actions in the clause, and the terms reflect these levels of salience. Nominalisation has been an important, but debated, issue in CDA. For instance, on the one hand, noun phrases are an economical way of packaging information to represent what text producers feel is relevant and interesting, thereby reflecting their

values and beliefs (Caldas-Coulthard and Moon, 2010, p. 110). This effects of this could be to remove responsibility, present things as simply occurring, remove any sense of time, or allow classification and description of the action (Machin and Mayr, 2012). A representation which makes an action an object downranks it in order to prioritise something else, such as the sequencing of action, showing if the action is obligatory or optional, adding modality, adding purpose or legitimations, connecting processes, or making causal links (Van Leeuwen, 2008, p. 94). On the other hand, it is important not to automatically equate the powerful effects of nominalisation with manipulation. Billig (2008) points out that nominalisation is a wide term covering a variety of mental transformations, and Martin (2008) cautions that nominalisation is often used for rhetorical purposes that are not inherently sinister.

Descriptivation

This is when the action is construed as a feature or quality of the actor. The term Descriptivation comes from Van Leeuwen's sociosemantic categories of action (2008, Chapter 3), on which this category is based. Descriptivation is perhaps the broadest of all the categories of Coreness because there are numerous ways to represent an action as a feature or quality. It can be adjectives, such as the Epithet to an Attribute in a Relational Attributive process type (Halliday and Matthiessen, 2004, p. 216). For example:

21.   Nuclear energy is an expensive and deadly distraction from the real solutions. (Naidoo, 2011)

Halliday and Matthiessen classify Epithets into 'experiential', an objective property of the thing itself, or 'interpersonal', an expression of the speaker's attitude towards the

thing (2004, p. 318-319). It is the experiential type which have the capacity to show action.

Another kind of Descriptivation is pre-modifying adjectives in gerund form. For instance:

22. Within a few years it became clear that nuke plants would be more expensive than coal- and oil-fueled generation; by then an international juggernaut had been launched, spurred by U.S. trade credits to sell American-made reactors overseas and by manufacturers such as GE and Westinghouse offering domestic utilities power reactors at loss-leader prices. (Hiltzik, 2014)

In 22 the action of 'offering' is reduced from a Dynamic action to a characteristic of the companies 'GE' and 'Westinghouse'. Similarly, Descriptivation can also be when the action is an ellipted embedded. For instance:

23. Even plants located in areas with low and moderate seismic activity are designed for safety in the event of such a disaster. (Moore, 2011)

Without the full verbal expression '*that are* located' the action is distilled to a descriptive quality of 'plants'. Finally, Descriptivation may be in the form of adverbs. Halliday distinguishes nine kinds of adverb, one of which he terms 'Quality', that refers to how the action is done (1985, p. 65). For instance:

24. Handled safely and properly, nuclear generation could be relatively "green." (Hiltzik, 2014)

Here 'safely' refers to the nature of the action. It adds to the meaning of 'handled', for example by indicating more care, a slower pace, or with greater planning. Adverbs of this kind are relatively frequent. Martin and White argue that such 'circumstances of manner' are different to other kinds of circumstance because there is no inherent way in which a process can occur, meaning that these adverbs modify the process (2005, p. 146). This is the sense in which they have the capacity to represent action.

The representations included under Descriptivation have not traditionally been classed as 'actions' in CDA. However, this is precisely the point – they are less 'core'. The Descriptivation is based on an action, in the sense that it comes from how an actor acts. As Halliday puts it, "some part of the experiential structure of the clause is being downgraded to function as Epithet or Classifier" (1985, p. 322). As a category of agency, Descriptivation is less Core than the Engaging, Engaged and Disengaged categories because the action is distilled to the point it is not a participant in any process. A nominalisation has the grammatical potential to act, whereas Descriptivation is divested of this ability to act. Therefore, as a more abstract representation of action, with Descriptivation the link between actor and action is less clear, and this is reflected in the lower level of Coreness.

Relational

This is when the action is construed as a thing that simply exists. This category is intended to reflect a kind of 'zero agency' in which there is little Coreness because there is no actual action taking place. The term 'Relational' reflects the fact that most instances are akin to Halliday and Matthiessen's (2004) idea of relational process types. They can be Attributive types where the Attribute is not a representation of action. For example:

25.   In the 25 years since the Chernobyl disaster, the nuclear industry's safety record has been generally good. (The Financial Times, 2011)

In 25 the verb 'has been' does not represent any sense of action, and instead sets up the evaluative 'good' as a characteristic of the nuclear industry's safety record. As well as descriptions and features, Relational also includes verbs that signify existence. They can

be the verb in an Identifying type process. For example:

26.   Japan's worst previous earthquake was of 8.3 magnitude and killed 143,000 people in Kanto in 1923. (BBC, 2011d)

They can also be Relational processes of existence. For example:

27.   Although the explosion on March 12 did not compromise the pressure vessel or the containment vessel of the No. 1 reactor, there were still concerns that an explosion could rupture the No. 3 reactor's containment vessel, releasing a large quantity of radioactive substances into the air. (Asahi Shimbun, 2011d)

Relational is classed as Static action because these verbal representations are qualitatively different from those in the Dynamic categories. They are not actions in any Dynamic sense of something taking place. Relational has the least amount of agency because it is represented not as part of any process but simply as something that exists: there is little Coreness because there is not really an action taking place. From one point of view Relational actions are not actions in any sense of a representation of a process. However, the category is necessary to measure the agency of 'existing' rather than 'participating': identifying a lack of Coreness is equally important as identifying a high level of Coreness.

To sum Coreness up, this feature of agency is important because it is an intrinsic feature of texts and instances of it are frequent (as reflected by the numerous categories). Coreness is about the power of 'owning' an action: the more congruent the representation of action and the more central the representation in the clause, the clearer and more salient the connection between the action and actor. It is about defining an actor through 'action as behaviour' (Dynamic) or through 'action as characteristics' (Static). Coreness is often at issue in an analysis of agency, and the kind of backgrounding and foregrounding it

measures is a classic CDA concern.

4.4: Effect

4.4.1: Overview of Effect

Effect is about the nature of actions, specifically with regard to the change in the world that an action represents. This aspect of agency is the power to make a physical effect on the world: it is the sense of 'acting on' the world rather than 'responding to' the world. This section of the framework is influenced by the Functional Grammar concept of process types (Halliday and Matthiessen, 2004: Chapter 5), which from the experiential perspective are the core of the clause (Thompson, 2004, p. 87). What it does is to organise and somewhat modify the idea of process types to classify a specific aspect of agency. Effect answers the question "How much effect do actions have on the world?".

The Figure on the next page shows the seven categories of Effect, from most agency at the top to least at the bottom.

Figure 4.4: Categories of Effect
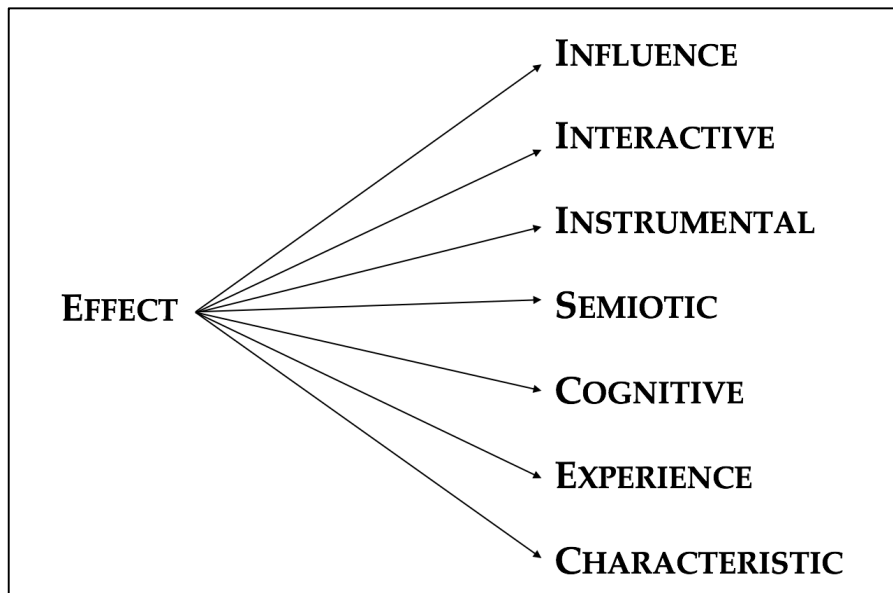
I now go through each of these categories in turn.

4.4.2: Effect Categories

Influence

This is when the action results in a change in another actor. The key point with Influence is that the action is not just doing something 'to' another actor, but making another actor 'do' something or 'change' something. Influence can be causing another actor to act. For example (actor underlined, representation of action in red):

28. These are a stark reminder of the risks involved in nuclear generation. They have led some critics to call for the world to scale back or abandon civil nuclear generation altogether – even before the final outcome at Fukushima is known. (The Financial Times, 2011)

In example 28 'the risks of nuclear generation' result in 'some critics' calling for a reduction or halt of nuclear generation. In addition, Influence can also be causing a change of state. For example:

29. Communities for miles around Fukushima have been rendered uninhabitable for decades to come. (Hiltzik, 2014)

In 29 the change occurs in 'communities' around Fukushima (the actor here can be inferred as the Fukushima disaster). Influence has the most Effect agency because it affects a change in action or state. The idea of causation is a powerful psychological concept, and in *Metaphors We Live By* Lakoff and Johnson argue that it is "one of the concepts most often used by people to organize their physical and cultural realities" (1980, p. 69). There can be considerable social power involved in affecting another actor, and so a specific analytic category to capture this can prove useful.

Interactive

This is a physical action when the effect is represented as extending to another person or thing. In other words, something else is acted upon. For instance:

30. But if we continue to use more electricity to power cars, trains and other vehicles, demand for electrical power will probably soar. (Myhrvold, 2011)
31. Part of the issue is that the marketplace doesn't value one of nuclear's greatest attractions: It reliably produces a lot of electricity without producing carbon dioxide emissions. (The Washington Post, 2011)

In example 30 'we' act on 'electricity', and in example 31 'nuclear' acts to make 'electricity'. Interactive actions have a high degree of Effect agency because they are physical actions with an observable effect on something else in the world.

Instrumental

This a physical action, but there is no representation of what is affected. Instrumental

actions are physical and can be observed, so have an effect on the world, but they are limited to the actors themselves rather than extending to an external actor. For instance:

32.   Those <u>systems</u>, which should begin operating when water levels within the reactor core fall, are critical to the safety of the reactors. (Asahi Shimbun, 2011b)

In example 32 this process of 'starting operation' is represented as affecting only the systems themselves. Instrumental action can also represent a change in state or situation. In this case the change is represented as a physical manifestation that comes about by means of the actor itself. For example:

33.   The spent nuclear fuel that comes from nuclear plants is nothing but a burden, and the same is true of the plutonium at research facilities. This <u>burden</u> grows and grows, and so not even a final place to store high-level radioactive waste can be decided upon. (Yamada, 2016)

In example 33 the 'burden' is represented as acting on itself. Instrumental action is agentive because it is a physical action and thus an observable material process. However, there is less agency than Interactive because nothing is represented as affected by the action. The difference between Interactive and Instrumental reflects the difference between transitive and non-transitive action.

The two categories of Interactive and Instrumental are both physical actions, akin to Material processes (Halliday and Matthiessen, 2004, Chapter 5). The terms 'Interactive' and 'Instrumental' are adapted from Van Leeuwen (2008, Chapter 3). From a critical perspective the key difference is that, as Van Leeuwen emphasises, the power to act on other things implies a sociological power that acting on oneself does not (2008, p. 90).

Semiotic

This is when the action is a communicative event. It is akin to the idea of Verbal process types (Halliday and Matthiessen, 2004, Chapter 5). It may be an actual speech act. For instance:

34.	Last December, <u>a senior US State Department official</u> also said nuclear companies will "find it difficult" to take part in India's nuclear industry when they are exposed "to the risk of significant financial penalty." (Naidoo, 2013)

It can also be a method of communicating or conveying a message:

35.	In fact, <u>the disaster</u> shows how safe nuclear reactors actually are. (Windridge, 2011)

As there is no physical action and thus no demonstrable effect on the world, Semiotic is less agentive than Interactive and Instrumental. However, Semiotic action is agentive in that it projects a message outwards. As Searle (1976) argues in his theory of speech acts, communicative acts perform social functions. This assumes another participant that is affected, or at least the intention of affecting another actor, and in this sense communication has an effect on the world.

Cognitive

This action is one of 'thinking'. It corresponds to the Cognitive sub-type of Mental process types (Halliday and Matthiessen, 2004, p. 208). For instance:

36.	<u>I</u> believe that Chris Huhne's commitment to Lib Dem green nonsense makes him a menace as the Government's minister responsible for energy. (Hastings, 2011)

37.	Experience now shows that nuclear power generation is both unsafe and unnecessary - not to mention the disturbing fact that <u>no one</u> has yet come up with a solution to the ongoing dilemma of what to do with the thousands of tons of long-lasting, highly radioactive "spent fuel" - aka nuclear waste - still piled up at reactors all over the world, including of course, at the still volatile Fukushima site. (O'Connor, 2012)

Cognitive acts are representations of psychological processes, so have less agency because they are internal changes that affect the actor concerned but not the physical world.

Experience

This is an internal psychological process of experience. It does not imply conscious volition or deliberation on the part of the actor. It is akin to the Perceptive, Desiderative and Emotive sub-types of Mental processes (Halliday and Matthiessen, 2004, p. 208). For example:

38. Bailout is a nasty word and <u>Washington politicians</u> won't like providing loads of cash to companies like Exelon (market capitalization: about $30 billion). Nevertheless, if keeping domestic carbon-dioxide emissions in check is really a priority, representatives and senators will have to act. (Bryce, 2016)

39. <u>I</u> visited the Fukushima Daiichi plant a few months after the accident and saw for myself the powerful and destructive impact of the tsunami. (International Atomic Energy Agency, 2015)

Taken together, the categories of Cognitive and Experience are both internal processes that are not observable or verifiable. In this sense they have less Effect because they are psychological actions contained in the actor. Although Functional Grammar classes these both together as Mental processes, for my purposes they are different. Cognitive acts imply an active process of reflection or consideration, and this sense of conscious intent gives them a stronger degree of agency. Experience does not convey this controlled or volitional thinking: it is something that happens 'to' the actor. In this sense the actor is not changing their internal world, their internal world is being changed.

Characteristic

This is when the action signifies the existence of a feature or possession of the actor. These actions have the least agency because there is no potential for change in the actor or wider world. Broadly speaking, they correspond to Existential and Relational processes (Halliday and Matthiessen, 2004, p. Chapter 5). They can show the existence of something. For example:

40. Fukushima had pumps to do that, but the earthquake knocked out their power supply. (The Independent, 2011)

In 40 the action 'had' is the fact that these 'pumps' existed. Characteristics can also be a simple expression of being. For example:

41. We may not live in an earthquake zone on a geological fault line, but plants such as Sellafield are on the coast. (The Independent, 2011)

Example 41 shows the location of 'plants such as Sellafield'. Characteristics can also show an evaluation. For instance:

42. So far the releases from Fukushima have been relatively low, but continual monitoring is essential. (Windridge, 2011)

Characteristic can also be a Relational type characteristic with no 'physical' potential. For example:

43. The implications of all this for the rest of us remain unclear. (The Independent, 2011)

This category of Characteristic, then, has no action in the sense of a process that occurs. The purpose of this category is similar to the Coreness category of Relational described above, in that it is 'zero agency'. It measures the absence of agency to affect the world: having no effect is as critically important as having an effect. This is important because a lack of Effect agency means the actor is being defined by what they *are* rather than what

they *do*. Much CDA work has made good use of analysing process types, but leaves out relational and existential representations, or treats them as separate from other processes. Including this Characteristic category therefore allows a comparison between activity and inactivity, which is an important element of the amount of effect that an actor has on the world.

To summarise Effect, the ideas here are not theoretically revolutionary, but they fit the concept of process types to a specific analytical purpose. Verbs are an obligatory component of the clause, and all verbs have a level of Effect. The agency encompassed in this fundamental core can be very revealing.

4.5: Intensity

4.5.1: Overview of Intensity

Intensity is when the power of an action is increased or decreased. It addresses how an action may be comparatively more intense or less intense. Intensity answers the question "Which actions are made stronger or weaker?"

This section of the framework is inspired by Martin and White's Appraisal Theory (2005). Appraisal Theory is compatible with my overall approach because it maps forms onto functions, classifying the various linguistic means by which a communicative objective can be achieved. Martin and White detail the ways in which the intensity of processes and qualities can be scaled up and down (2005, p. 135-152), which they term 'Force'. Their

classifications of increases in intensity apply to all qualities and verbal processes (2005, p. 148), but I alter this in two ways. I reduce this scope. I include all processes, but only include qualities that can refer to an action, as qualities that do not refer to an action are outside my area of concern. I also expand the scope. As well as qualities and verbal processes I include nominalisations that can refer to an action (as exemplified when I discussed Coreness).

Unlike the previous two sections of the framework, Intensity does not apply to all representations of action. Intensity is either present or not present in an action, meaning it is a case of *if* it occurs. The different degrees of agency are shown in Figure 4.5.

Figure 4.5: Categories of Intensity
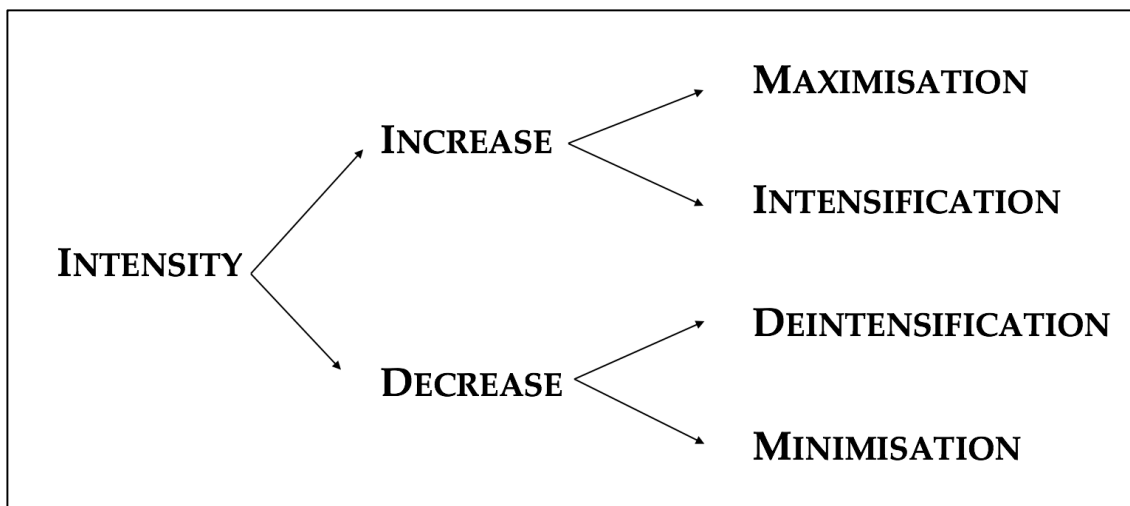
The basic division is between Increases and Decreases. Instances of Intensity Increases are more common than Intensity Decreases. As the terms imply, Maximisation and Minimisation are opposite concepts, as are Intensification and Deintensification.

4.5.2: Intensity Categories

Expressions of Intensity stem from two basic principles. Either the nature of the action itself is comparatively more or less powerful, or the action is made more or less powerful by surrounding linguistic modifications. In the first case the word may be intrinsically (semantically) strong or weak. In the second case an extra word or words may be added to increase or decrease the power of the action. There are many possible manifestations of each category of Intensity, but these two basic principles apply to all of the four categories.

Increase categories

Maximisation

The action is represented with the maximum possible power. This can be through added words which modify the action. For instance (actors <u>underlined</u> and Maximisation in red):

44.   <u>Its successors</u> are radically different in how they work, as is the regulatory framework, which sets astonishing new benchmarks for the care and quality required at every stage of the process. (Freer, 2012)

The word 'radically' makes the difference in 'working' as high as it could be. Maximisation can also be words which indicate the end of a scale. This is most prototypically with adjectives that are not modifiable with terms like 'very' or 'slightly'.

For example:

45.   But hundreds of millions of people live near the world's 436 reactors and <u>a disaster</u> at any one of these reactors could be catastrophic. (Naidoo, 2013)

Here 'catastrophic' connotes a maximal level of damage or harm.

<u>Intensification</u>

The power of the action is increased from a 'neutral' or 'unmarked' level. I will provide

more examples for Intensification because it is the most frequently occurring category of

Intensity, but the principles here apply to all other categories. Intensification may be when

an extra word increases the intensity of the action. For example:

46.   According to NISA officials, the <u>pressure</u> within the No. 1 reactor's containment vessel at
       the No. 1 plant sharply fell after the explosion was heard. (Asahi Shimbun, 2011c)

The action 'fall' is modified by 'sharply', and thus given more intensity. This is a common

form of Intensification because, as Martin and White explain, many verbal processes,

especially those of motion, cannot be modified by grammatical terms such as 'very' and

are instead modified by adverbs of vigour (2005, p. 146). Intensification may also occur

because certain words have a stronger prosody compared to more 'neutral' words. For

instance:

47.   The towering <u>explosions</u> at the nuclear plant in Fukushima have seized the world's
       attention more than any other aspect of Japan's tsunami tragedy. (Hastings, 2011)

This is another common form of Intensification, simply because of the huge lexical

resources language offers. Intensification can also occur through comparisons. For

example:

48.   Compared with other sources of energy, <u>nuclear power</u> is one of the safest. (Windridge,
       2011)

The level of 'safety' of nuclear power is increased by comparison with other sources of

energy. Another kind of Intensification is through repetition of vocabulary. For instance:

49.   Japan's only option is to get away from nuclear power. The spent nuclear fuel that comes
       from nuclear plants is nothing but a burden, and the same is true of the plutonium at
       research facilities. This <u>burden</u> grows and grows, and so not even a final place to store

high-level radioactive waste can be decided upon. (Yamada, 2016)

The action 'grow' is made more powerful by repetitive emphasis. There are also

metaphorical or figurative ways to increase the force of an action. For instance:

50.   Environment groups are beginning to feature Fukushima in their energy communications
      - and whatever actually happens at the site, <u>it</u> is likely to become a major card in
      campaigns to promote renewable energy above nuclear. (BBC, 2011b)

Here the phrase 'a major card' stresses how the Fukushima crisis will play a big role in

energy debates.

Decrease categories

Deintensification

The power of the action is decreased. For example:

51.   About the falling radiation levels, Edano said: "<u>We</u> are slightly relieved. The situation is not
      one of highly concentrated radioactive materials being continuously emitted from the No.
      4 reactor. (Asahi Shimbun, 2011e)

Here the addition of 'slightly' reduces the Intensity of the 'relief' compared with an

unmarked level. More metaphorical expressions are ones such as:

52.   However, Edano noted that insufficient <u>cooling</u> of the core may have caused excess
      hydrogen to accumulate in the building that houses the core containment vessel. (Asahi
      Shimbun, 2011c)

Here the cooling is reduced in quality by being 'insufficient'. I interpret this as a

description of the force of the cooling, meaning that it is not strong enough.

Minimisation

The action has no power at all. It is nonexistent and the minimum possible. For instance:

53.   <u>It</u> contributes nothing to climate change and lacks some of the more obvious drawbacks

of fossil fuel generation--no atmospheric pollution, no acid rain. (Hiltzik, 2014)

Here the action of 'contributing' is zero. To give another example:

54.   While concerns grew over a possible nuclear meltdown, Chief Cabinet Secretary Yukio Edano said Saturday night the explosion damaged only the reactor's outer building and did not affect the inner containment vessel. "The reactor core's containment vessel was not affected at all, he said. (Asahi Shimbun, 2011a)

Again, here the 'affect' is nothing. With cases of Minimisation the action is negated and thus in some sense not an action at all. However, from a critical perspective the negation of the action is important. It is represented as nonexistent to emphasise the lack of agency, and so it has a specific rhetorical purpose.

In summary, Intensity is more 'semantic' and less 'grammatical' than the previous Coreness and Effect sections. Instances of Intensity are less common because Intensity is not tied to the necessary grammatical components of a clause. Using Intensity is a decision to emphasise or de-emphasise certain actions, and this is what makes it relevant: identifying this aspect of agency can help to show the concerns of the text producer. It is important to include Intensity as an analytical concept because its somewhat abstract or semantic nature means it is overlooked by more formalist approaches, and also because it helps with my goal of treating agency as a gradable rather than binary phenomenon.

4.6: Freedom/Constraint

4.6.1: Overview of Freedom/Constraint

Freedom/Constraint is about possibilities for action and limitations on action. Freedom

exists when an actor is represented as being able to act as they wish, or able to make others act as they wish. Constraint exists when an actor is represented as being unable to act as they wish, or as having their actions limited by others. In other words, Freedom is about applying the actor's will or objectives, and Constraint is about limitations on the actor's will or objectives. This part of the framework is not tied to any single theoretical work, but combines previously disparate linguistic concepts for a specific purpose. Figure 4.6 shows the categories in this section.

Figure 4.6: Categories of Freedom/Constraint
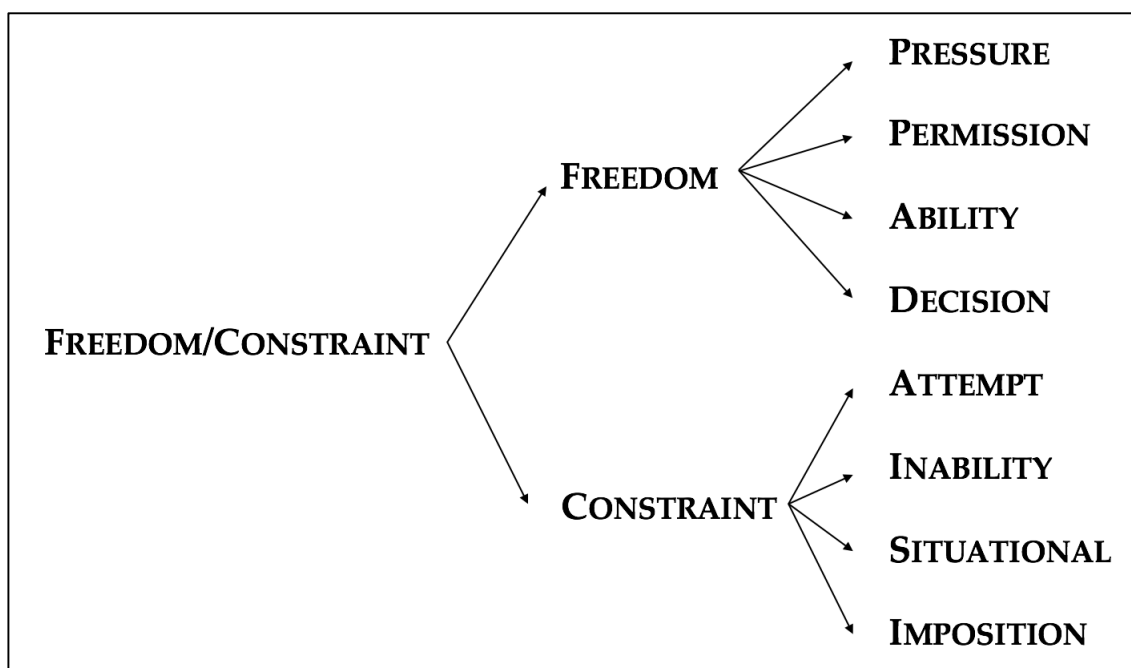
The basic division is between Freedom and Constraint. This is the presence or absence of agency. Constraints are a *lack* of agency, meaning that Imposition is a stronger lack of agency and Attempt is the least severe lack of agency.

4.6.2: Freedom/Constraint Categories

Freedom categories

Pressure

Pressure is when the actor is able to impose their will on someone else, by making or encouraging them to do something. The most obvious example is what Halliday and Matthiessen term the high and medium varieties of 'enhancing modulation' causative verbs (2004, p. 513). For instance (actor <u>underlined</u> and lexis indicating Pressure in red):

55.   This is the reality of the Fukushima disaster, the result of <u>a protection system</u> that allows nuclear operators to pay only a tiny fraction of the costs of an accident, forcing the public to pay the rest. (Naidoo, 2013)

In example 55 the 'protection system' makes the 'public' pay. More metaphorical representations of Pressure are through lexis which shows control. For instance:

56.   Noda claims Japan can not maintain its current living standards without nuclear power and that <u>national security</u> dictates the country not rely too heavily on imported oil and natural gas. (O'Connor, 2012)

Here the word 'dictates' shows that 'national security' forces the country to be self-sufficient. Pressure is highly agentive because it is the imposition of an action on another actor.

Permission

Permission is when the actor allows or enables another actor to act as they wish. Permission includes what Halliday and Matthiessen term 'low enhancing modulation causatives' (2004, p. 513). For instance:

57.   Its central thesis is that <u>we</u> have allowed economics to overtake philosophy, religion and morality as the dominant ideological force in our world. (Shukman, 2011)

In example 57 'we' have the power to allow 'economics' to 'overtake'. The examples in my research are all formal, but a more metaphorical representation would be something like (invented):

58.   They okayed his going.

Both Pressure and Permission involve power over another actor. The difference in agency is that with Pressure the desire for the action to occur resides in the actor, whereas with Permission the desire for the action to occur resides in another actor. In other words, the power to make others carry out one's wishes is a greater Freedom than the power to allow others to carry out their own wishes.

The categories Pressure and Permission are external, in that the actor's agency affects another actor. These are more agentive because the ability to influence another actor is an interactive, or social, power. The next categories of Ability and Decision are internal, as they refer to the actor itself. They may imply, but do not require, such social power.

Ability

Ability is the freedom to manifest one's will. This is often lexis indicating ability and success. It includes the sense of Dynamic modality as the ability to do something (Palmer, 2001), or "an ascription of a capacity to the subject-participant of the clause" (Nuyts, 2006, p. 3). For example:

59.   Millions of people in the developing world still live in poverty, which access to energy can alleviate. (Windridge, 2011)

An example of a more metaphorical representation is:

60. At the same time, Edano said, "While the earthquake itself may have lasted but an instant, the response thereafter was conducted under a certain level of control and, at the present time, the situation is moving in a direction of stability. (Asahi Shimbun, 2011d)

Here the 'level of control' connotes an ability (to control the situation). Ability also involves being free from an outside influence, or resisting obligations. For example:

61. Tokyo Electric Power, which runs the plant, said the reactor's containment vessel had resisted the impact. (BBC, 2011c)

In this example I interpret 'resisted' as overcoming the potential influence of the 'impact'. The agency in an Ability is thus the capacity to act as one wishes or to act free from potential constraint.

Decision

Decision is the freedom to exercise one's will by choosing how to act. The most straight-forward cases are a relatively fixed set of verb-plus-infinitive or gerund constructions that indicate the actor's volition. For example:

62. In 2011 came the Fukushima disaster and the German government's decision not to replace existing nuclear reactors when they reach the end of their working life. (Barnham, 2014)

It also includes more metaphorical lexis showing that the actor could choose their course of action. For instance:

63. Water levels were now falling at reactor 2, which is to be doused with sea water, said government spokesman Yukio Edano. (Asahi Shimbun, 2012b)

In example 63 the phrase 'is to be' shows that the actor in charge of the situation at Fukushima has the power to make plans for how to deal with this situation.

I rank Decision as less agentive than Ability because a Decision represents the power to choose how to act, but Ability represents the power to *manifest* the act. It reflects a difference in the nature of the Freedom, between a volitional sense and an actionable sense. Although not as strong as the other senses of agency in Freedom, Decision is nonetheless important. Presenting oneself as choosing a course of action is one way to stress one's own agency (Whittle and Mueller, 2016).

Constraint categories

Constraint is when the actor cannot impose their will, either because they are unable to do so or because an external force prevents them from doing so.

Attempt

This is when the success of the action is represented as not being under the complete control of the actor. In other words, the outcome of the action is not guaranteed. There is a lack of agency because the actor cannot ensure the imposition of their will. It is often the sense of 'trying'. For instance:

64.   An estimated 500 residents were still trying to leave the area. (Asahi Shimbun, 2011b)

In 64 the success of 'leaving' is not ensured. More metaphorical representations are ones such as:

65.   TEPCO has had difficulty removing heat from the reactor core as the emergency core cooling system (ECCS) failed to work after the March 11 magnitude-9.0 quake shut down the reactor. (Asahi Shimbun, 2011a)

In 65 it is uncertain whether 'removing heat' can be completed. Attempt is the least

'Constraining' of all the Constraints (meaning it is the least reduction in agency) because it implies *difficulty* but not *impossibility*. There is the implied or theoretical possibility that the actors will succeed. The analytic value of this category is how it identifies what is of concern for text producers: when the outcome of an action is marked as uncertain it is likely of importance.

<u>Inability</u>

This is a lack of ability to impose the actor's will or fulfill the actor's wishes. In addition to the simple use of 'could not', the most common examples are verb-plus-infinitive or gerund constructions indicating lack of ability or success. For example:

66.   Hundreds of thousands of <u>victims</u>, who fled their homes to escape the release of radiation from the crippled Fukushima nuclear plant still live in limbo, unable to return home or rebuild their lives elsewhere. (Naidoo, 2013)

An Inability can also involve a more metaphorical lack of control:

67.   It has been shocking to see <u>one of the wealthiest nations</u> reduced to such devastated impotence. (The Independent, 2011)

In 67 'impotence' represents a generalised inability to act. Inability is a stronger Constraint than Attempt because whereas with Attempt the outcome is in doubt but possible, with Inability the failure is certain.

The categories of Attempt and Inability are internal, because the source of the Constraint is represented as being with the actor. The next two categories of Situational and Imposition are external, as the source of the Constraint is represented as an outside force beyond the actor's control. They are stronger Constraints because the actor has less

influence over the action and is represented with less social power. Sealey makes a similar point in her corpus study of representations of constraint. She divides constraints into a 'dynamic' sense of things people could not do, and a 'deontic' sense of what people are not allowed to do. She argues there is an important distinction between presenting the negative polarity as associated with the subject rather than with the social or economic conditions the subject is constrained by (2012, p. 206).

Situational

Situational means that the actor is forced into a negative situation by an outside force. The negative situation is one in which the actor cannot act as they wish. This category is not closely linked to particular grammatical forms. Rather, it is a representation indicating that the actor is unable to act because of an outside influence. For example:

68.   There were <u>back-up diesel generators</u>, but the tsunami rendered them ineffective. (The Independent, 2011)

In 68 the 'generators' are caused to be useless by the effect of the tsunami. Another example is:

69.   <u>Reactors</u> are the victim of low natural gas prices, aging infrastructure, costly post-Fukushima regulations and heavily subsidized wind and solar power. (Bryce, 2016)

In 69 'gas prices', 'aging infrastructure', 'regulations' and 'subsidies' result in a negative situation for 'reactors' (they are less viable). As the examples here show, the category Situational is heavily lexical and pragmatic, and thus require a certain amount of interpretation. Situational Constraints have an inherently passive, victimised sense of something happening to the actor which is beyond their control. This is frequently

represented lexically rather than grammatically.

Imposition

Imposition is when the actor is caused to do something against their will. This can be deliberate or can be the result of circumstances. One kind of Imposition is deontic modality of the "had to" kind. Lyons defines deontic commitment as the sense that speakers commit themselves "to the necessity of some course of action" and express "their will that something be so" (1995, p. 254). For example:

70. Bailout is a nasty word and Washington politicians won't like providing loads of cash to companies like Exelon (market capitalization: about $30 billion). Nevertheless, if keeping domestic carbon-dioxide emissions in check is really a priority, <u>representatives and senators</u> will have to act. (Bryce, 2016)

Another common representation includes 'needs', when the 'need' carries the sense that an actor must do something. For instance:

71. We as a nation have been endowed with enough sun light and wind. <u>We</u> need to harness that. (Kaira, 2011)

An example of a more metaphorical representation of Imposition is:

72. The history of nuclear power in the U.S. is one of hasty, sloppy engineering overseen by indulgent <u>regulators</u> who took their duty to promote nuclear power more seriously than their duty to make it safe. (Hiltzik, 2014)

Imposition is a stronger Constraint than Situational because in an Imposition the actor has to *do* something, whereas in Situational the actor *cannot act* in some way. The imposition of an outside force making an actor act implies a greater lack of agency.

In conclusion, this section of the framework is perhaps more linguistically varied than

other sections, and relies more on pragmatic interpretation. In general, it relates to what has been termed Deontic and Dynamic modality, with deontic modality being obligations and permission, and dynamic modality being ability and volition (Bednarek, 2006, p. 21). Analysing Freedom/Constraint is similar to analysing Intensity, in that expressions of Freedom/Constraint are not a necessary component of a clause and so are less frequent, and thus more likely to be a deliberate choice on the part of the text producer. This section of the framework is important because the representations its captures are always related to agency: Freedom and Constraint is inherently agentive or non-agentive.

4.7: The complete framework

It is now time to bring everything together. I have detailed the four aspects of agency individually, but they combine into the overall framework in Figure 4.7 on the next page. This is a network of choices to classify the different aspects of agency that a representation of action may potentially embody.

For reference, Appendix A is a complete application of this framework to the foreword to TEPCO's report on the causes of the Fukushima disaster (which I discuss in chapter six). Appendix A marks up the text according to each of the four sections of the framework, with the different categories of each section highlighted in different colours.

Figure 4.7 (overleaf): Action-Agency framework
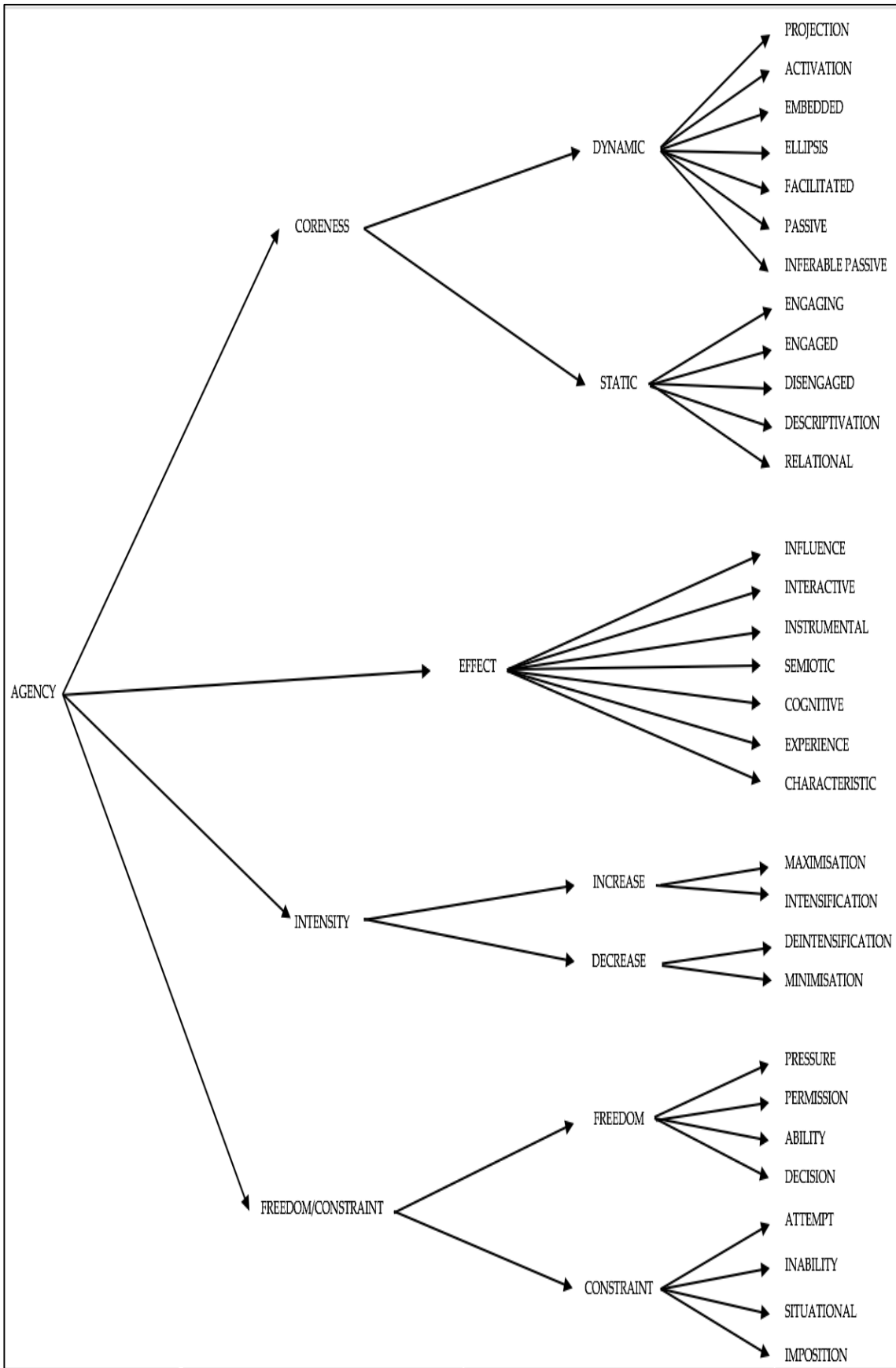
4.8: The role of interpretation in applying the framework

I have exemplified categories of the framework with prototypical examples in order to introduce them as clearly as possible. I have argued that the strength of this kind of sociosemantic approach is the flexibility it offers. However, as Wodak and Meyer explain, for any CDA approach, "at each level a number of selections have to be made" (2001, p. 14). In this case choosing the flexibility of an intermediate analytical position between form and function means that applying the framework sometimes requires interpretation. In certain instances this involves assigning representations of action to one category rather than another, and in other instances it may involve deciding whether a representation of action falls under a category or not. I shall now illustrate this with some examples. These represent cases that I found challenging in the development and application of the framework. I discuss these cases firstly to justify the approach that I took to them, and secondly to indicate questions that any other researcher who chooses to use this framework is likely to face.

When deciding Coreness, there are cases in which a passive verb is used, but it can be classed as Activation. For example:

73.   Tokyo Electric Power said <u>four of its workers</u> had been injured in Saturday's blast at Fukushima, 250km (155 miles) north of Tokyo, but that their injuries were not life-threatening. (BBC, 2011c)

In example 73 the use of 'injured *in*' rather than 'injured *by*' foregrounds the workers, as opposed to the agency of the blast. Other, more 'borderline', cases of Activation are formal expressions such as:

74. If <u>the government</u> is to continue the project serious revision is required. (Asahi Shimbun, 2012b)

Here 'is to continue' performs the same function as 'continue'. Examples 73 and 74 demonstrate the principle I operate on as prioritising (what I see as) the pragmatic intent of the language use. Another example of this can be seen with the category of Ellipsis. For instance:

75. This is the reality of the Fukushima disaster, the result of <u>a protection system</u> that allows nuclear operators to pay only a tiny fraction of the costs of an accident, forcing the public to pay the rest. (Naidoo, 2013)

In cases such as these the word 'forcing' could be interpreted as an action linked to the 'protection system', or as a neutral situation arising independently of the actions of the system. In this case I favour an interpretation as the action of the 'protection system', along the lines of a rewording such as 'the protection system forces the public to pay the rest'.

A case that frequently requires interpretation is deciding what constitutes an 'Inferable' passive. When applying this category I take a generous interpretation of when the actor can be inferred. The yardstick is whether the actor can be inferred based on general knowledge of the issue. For instance:

76. Plainly there are lessons to be learned from what has happened and is still happening at Fukushima. Why the No 1 reactor, which was due for decommissioning last month, was re-permitted for another 10 years needs to be explained and the complex's maintenance schedules audited. (The New Zealand Herald, 2011)

There does not seem to be any obscuring or manipulation here - the only possible actor is the nuclear regulators who are responsible for issuing 'permission'. Although this

ambiguity with inferring actors is a general feature of language use and not specific to the framework I use, it nonetheless needs to be acknowledged.

I take a generous view of what constitutes a representation of action, to try to include as much of the text's meaning as possible. The most obvious case when this requires interpretation is for grammatical metaphor. For example, a more borderline case is:

77. Malfunctions at nuclear facilities quite properly cause alarm but such alarm takes root in the public imagination at least in part for spurious reasons: images of mushroom clouds and mad scientists spring to mind and the horror is magnified because the danger is unseen - of toxins invisibly spread on the wind and in rain. (The New Zealand Herald, 2011)

I take 'public imagination' here to be the general public's thinking process. Although abstract, this represents an act of thinking. A similar example is expressions which show the manner of an action, such as:

78. The world has been watching with consternation the meltdown at Japan's Fukushima nuclear plant following the massive earthquake and the devastating tsunami that hit the country 10 days ago. (Kaira, 2011)

The phrase 'with consternation' is like an adverb of manner in that it adds to the nature of how the 'watching' occurs. I interpret this 'consternation' as an additional action indicating a psychological process of apprehension.

A final area to mention concerns the nature of Effect and Intensity. In regard to the Effect categories, Halliday and Matthiessen acknowledge that process types are not fixed categories, and indeed argue that the "systemic indeterminacy" by which categories blend into one another is an intrinsic feature of the system (2004, p. 172-173). Effect categories

are inspired by, rather than replicas of, process types, but the same indeterminacy can be seen. For instance:

79.   A similar <u>cooling system breakdown</u> preceded the explosions at reactors 1 and 3. (BBC, 2011c)

This is a kind of temporal sequence, but I interpret it as a representation of the physical activity occurring, and thus an Instrumental action. Similarly, deciding what constitutes an instance of Intensity sometimes requires judging semantics. Essentially, the test is whether a more extreme or less extreme reformulation of the word is possible. To give an invented example:

80.   The <u>storm</u> broke the sea wall.

This action of 'broke' might be represented with decreased power as 'dented' or with increased power as 'destroyed'. This of course leads to the issue of deciding what constitutes the correct objective criteria for 'broke'. Finding a standardised norm to base the criteria on is hard, as Intensity is relative to other possible actions. However, this issue is inevitable if one wishes to address an idea like Intensity. This is not to say that the difficulty invalidates the analysis, but the absence of concrete rules should be acknowledged.

The discussion here emphasises that the concept of agency, as I have chosen to approach it, does not map directly and unambiguously onto the forms of the English language. Some degree of interpretation is inevitable in order to measure it. As Wodak argues, CDA is not about evaluating what is 'right' or 'wrong', but rather about justifying why certain interpretations of discursive events seem more valid than others (2001, p. 65). Flowerdew

makes a similar point, arguing that when multiple possibilities exist the most reasonable

response is simply to explain alternatives and argue for the most plausible one (1999, p.

1091). With this in mind, when the framework is applied in the following three chapters

I will add a brief explanation if I feel my choice of category requires justification.

5. AGENCY IN DOMESTIC AND FOREIGN REPORTING OF THE

FUKUSHIMA DISASTER

5.1: Chapter aims

In this chapter I investigate how differences in the representation of agency between foreign and domestic reporting may influence the interpretation of Fukushima. I compare reporting of the initial stage of the disaster in a Japanese news source (the Asahi Shimbun newspaper) and a British news source (the BBC). I take a quantitative approach, looking at overall trends in reporting. I am interested in the effect of patterns in the portrayal of agency. The research question guiding this chapter is:

· How do representations of agency reflect a more neutral or critical reporting stance?

Initial reporting of a disaster is important because it influences the future narrative that develops around the disaster. Cox *et al*. explain that:

> "research on the intersection of media and disasters has suggested that media plays a critical role in influencing not only public opinion about the salience of a disaster (Sood, Stockdale, & Rogers, 1987), but also attitudes toward and evaluations of the official response to the disaster and the preferred responses of those directly and indirectly affected (Gaddy & Tanjong, 1986; Garner, 1996)." (2008, p. 470)

In particular, the way agency is represented affects how a disaster is interpreted later on, when questions of culpability and blame arise. As I explained in chapter two, this is relevant in the case of Fukushima because of the degree to which causes and responsibility could be contested.

5.2: Disaster timeline

I focus on reporting of the beginning of the disaster. It is useful to briefly recap the main events at this time:

- March 11th: a magnitude 9 earthquake caused a tsunami which inundated the Fukushima nuclear plant, disabling the diesel generators and most of the emergency core cooling system. An evacuation order for residents within 3 kilometres of the plant was issued.

- March 12th: the plant's backup battery power system ran out, and without sufficient cooling the nuclear fuel rods became exposed. An explosion occurred at the plant. The evacuation order was extended to 10 kilometres and later in the day to 20 kilometres.

- March 13th: lack of cooling began damaging one of the nuclear reactor cores. Seawater was pumped into the plant in an attempt to cool the reactors. Radioactive air was vented to release pressure in buildings and prevent further explosions.

- March 14th: an explosion in one reactor building damaged another reactor building, beginning reactor core damage in this second unit and injuring a number of workers. The reactor's spent fuel pool became exposed to the atmosphere.

- March 15th: two more explosions and a fire occurred. Radiation levels at the plant were confirmed as fatal.

This initial period is important because it was when the situation at the plant steadily deteriorated and the potential for a serious nuclear disaster became clear.

5.3: Differences in domestic and foreign reporting of the Fukushima disaster

I have chosen to compare domestic and foreign news sources because significant differences have been noted between their reporting of the situation at Fukushima. Harlan

(2011) notes the measured response of Japanese media, compared with the sensationalism of some foreign media. He observes that domestic media tended to report factual information in a descriptive fashion, while foreign media focused on the potential for nuclear disaster. Similarly, Brason (2011) describes how the response to the crisis among domestic media was to remain calm, and by contrast foreign media tended to be more alarmist. Brason also argues that Japanese reporting lacked a critical focus, assessing the disaster itself rather than the policies of nuclear power that may have led to the disaster. Hara (2013) notes how the Japanese media blamed the authorities for their inability to avoid nuclear accidents whilst simultaneously helping to calm people about the accident. He argues this contradiction between apportioning blame and downplaying danger is likely because of links between the media, power companies and the government (2013, p. 32). In contrast, non-Japanese coverage of Fukushima honed in on the potential for nuclear disaster, presumably as this was the prime draw for their readership. Indeed, this went so far that the Japanese Foreign Ministry strongly criticised the foreign media for "excessive" reporting that was causing unnecessary panic, and asked them to be more objective (Friedman, 2011).

One reason that has been given for the comparatively less critical tone of Japanese reporting is a reliance on official sources. Johnston (2011) explains that foreign media made more effort to include a greater variety of sources, whereas Japanese media made heavy use of official sources and were more trusting of these sources than foreign media. This is backed up by a more linguistically-oriented study by Morimura (2014), who

compared reporting of the disaster in the Japanese newspaper The Yomiuri Shimbun with The New York Times. Morimura found that the primary source for the Japanese newspaper was government officials and politicians, whereas the New York Times relied more on external sources such as experts and professors (2014, p. 64). A similar conclusion is made by Ito, who compared news coverage of the disaster by Japanese television stations. Ito claims that even the respected public broadcaster NHK did not report the crisis thoroughly, but only covered what the Japanese government and TEPCO said. Ito makes the damning conclusion that "Despite such an enormously dangerous situation, NHK consistently failed in reporting the real crisis" (cited in Arita, 2012, p. 47).

Another feature that has been observed in Japanese reporting is the technical nature of coverage of the disaster. For instance, Hirakawa and Shirabe (2015) criticise Japanese reporting for rhetorically marginalising public anxieties over radioactive contamination. One of the ways in which this was done is by what they term 'scienceplanation', meaning technical explanations which imply that if people feel anxiety about risk it is they that are to blame because they are ignorant of science. This trend is also addressed in a study by Tollefson (2014), who examined the representation of Fukushima in the Japanese broadsheet The Daily Yomiuri. He identifies a similar technical approach to reporting that he calls an 'ideology of technoscience'. Some of the characteristics he associates with this are representing radiation contamination as isolated, highly localised and posing no immediate threat to health, as well as normalising radiation and decontextualising technical information about the disaster. He makes one point that is particularly relevant

to my area of concern; he argues that this ideology of technoscience is characterised by language that is low in affect and by agentless constructions that avoid explicit assignment of responsibility for the disaster (2014, p. 312). This seems to be an observation rather than a systematically researched conclusion, so it is something that my analysis can help to investigate in detail.

Clearly, given the range of media that could be termed 'foreign' and 'domestic' reporting, it is hard to make generalisations. However, the themes that emerge are comparatively less focus on danger, more reliance on official sources, and a less critical tone in Japanese media, compared with more focus on danger, use of a greater variety of sources, and a more critical tone in non-Japanese media. Another theme is the criticism of an overly-technological slant to Japanese reporting that failed to take ordinary citizens' concerns into account. Most of the literature discussed here is general commentary on characteristics of media reporting. In this chapter I therefore add a more specifically linguistic analysis of these issues, and show how my findings relate to the observations of others.

5.4: Selection of texts and approach to analysis of agency in media reporting of Fukushima

5.4.1: Source material

I compare reporting in the English online version of the Asahi Shimbun newspaper and the BBC online news site. The Asahi Shimbun was established in 1879, has the second

largest circulation in Japan, and is read by an estimated 14 million people a day (Asahi Shimbun, *Strength*). It is politically left of centre. At the time its English language website contained a number of English versions of its main stories (this has now been expanded to a full English-language version of the newspaper). These stories are direct translations of the Japanese print edition of the newspaper (Asahi Shimbun, *Site Policy*). The BBC news website launched in November 1997. It is written by online journalists from the main BBC newsroom and from the BBC's specialist units (BBC, *News Sources*). I chose these sources because both are well-established media institutions and both are considered reputable hard news sources. In addition, initial reading suggests that both have a similar tone of straight-forward reporting of the situation in a concise fashion without overt authorial commentary. Some foreign coverage of Fukushima was certainly over-exaggerated and irresponsible, but the BBC reporting was professional and thus offers a more suitable comparison with domestic Japanese media.

To find material I searched the websites of the Asahi Shimbun and the BBC through the time period of March 12th to March 15th 2011. I selected articles based on the level of detail about the disaster, choosing more detailed articles that contained more material for analysis. The tables overleaf show the dates, titles and word counts of the articles used. All articles are credited to the BBC or the Asahi Shimbun rather than specific reporters. Links for the articles are listed in Appendix B.

Table 5.4.1: Asahi Shimbun articles

Date	Title	Words
12 03 2011	Explosion hits Fukushima nuclear plant, fuel begins to melt	492
12 03 2011	Crucial safety feature fails at Fukushima nuclear plants	359
13 03 2011	Cooling system fails at another Fukushima nuclear reactor	795
14 03 2011	Explosion hits another reactor; cooling functions fail	654
15 03 2011	Nuclear crisis worsens; dangerous radiation levels detected	1,134

Table 5.4.2: BBC articles

Date	Title	Words
12 03 2011	Japan earthquake: Explosion at Fukushima nuclear plant	379
13 03 2011	Struggle to stabilise Japan's Fukushima nuclear plant	1,215
14 03 2011	Japan quake: Fresh explosion at Fukushima nuclear plant	611
14 03 2011	Japan earthquake: Meltdown alert at Fukushima reactor	636
15 03 2011	Japan quake: Radiation rises at Fukushima nuclear plant	753

As the tables show, I included one article from the 12th, 13th, 14th and 15th. A fifth article was chosen to make the total word count for each source similar. The word count for the Asahi Shimbun texts is 3,451 words and the BBC texts is 3,659 words. This word count and five article sample size is enough for a preliminary exploration of how each source represented the disaster.

5.4.2 Analytical approach

I first applied the framework to the articles. I present the results of this application, going through each of the four parts of the framework in turn (beginning with Coreness, then Effect, then Intensity, and finally Freedom/Constraint). I discuss both sources together so that each aspect of agency can be directly compared. The discussion of each section of the framework has two stages. I first compare the normalized frequencies of instances of each category of agency in each source, per 10,000 words. So for example I compare the normalized frequencies of each category of Coreness in the Asahi articles with those in the BBC articles. This shows general representational trends in each source. I then narrow the focus to compare the two actors that are most frequently represented in each source. These are the Tokyo Electric Power Company (TEPCO) and the Fukushima nuclear plant. (For clarity, when I refer to the plant as a specific actor I shall capitalise it as 'Plant'). These actors are referred to in multiple ways in both sources. When deciding whether one of these groups was the actor, I included the various different lexicalisations of these groups, as well as the instances when they could be inferred as doing an action. The table overleaf shows some of the possible representations of each group, with key lexis underlined.

Table 5.4.3: Examples of lexicalisations of key actors in each source

TEPCO
・ <u>A Tepco official</u> later pointed to some improvement and said <u>the company</u> did "not feel that a critical event is imminent". (BBC, 2011d)
・ <u>Tokyo Electric Power Co</u>. (TEPCO), operator of the plant, said at least 11 <u>workers</u> and others were injured in the blast, but that it did not damage the reactor's pressure vessel or the steel containment vessel that covers it. (The Asahi Shimbun, 2011d)
The Fukushima nuclear plant
・ Firstly, <u>the reactors</u> involved will not operate again, even if there has not been a meltdown. (BBC, 2011b)
・ TEPCO officials said <u>nuclear fuel rods</u> in the core of <u>the No. 3 reactor</u> had become exposed above the cooling water level. (The Asahi Shimbun, 2011d)

The degree of agency afforded to these actors is important because it could suggest the disaster was the result of management incompetence (in the case of TEPCO) or of technical malfunction (in the case of the Plant). As will be discussed in the next chapter when I look at official reports into the disaster, narratives of responsibility differed over the culpability of these actors.

In the analysis I use the framework to identify and exemplify points of importance. I focus on differences between each source and how these trends paint different pictures of agency. I present quantitative information about the frequencies of each kind of action, exemplify these differences, and comment on the effect of these differences in light of the points mentioned in the literature review. My findings support what has been said by others. I link the representation of agency in the Asahi Shimbun to a more dispassionate

and neutral reporting style, and the representation of agency in the BBC to a more evaluative and critical reporting style. I show how representation of the Plant itself is the biggest difference between each source. I argue that in Asahi agency is clearer and more straightforward, but is associated with inanimate actors. I argue that an overreliance on official sources frames the disaster through the view of these official sources, which subtly backgrounds the danger involved. The result is a kind of technologicalisation of the disaster in the Asahi Shimbun.

5.5: Comparison of Coreness in each source

5.5.1: Overall Coreness

First, I consider how Core the representations of actions are in each source. Table 5.5.1 on the following page compares normalized frequencies of each category of Dynamic and Static action in each source, per 10,000 words. To recap, the table is organised so the strongest agency is at the top and the weakest agency is at the bottom. For reference, I also include the total instances of Coreness in each source and the ratio of Dynamic to Static action.

Table 5.5.1: Normalized frequencies of Coreness in each source

Asahi: 466 instances overall, 72% Dynamic and 28% Static.

BBC: 518 instances overall, 61% Dynamic and 39% Static.
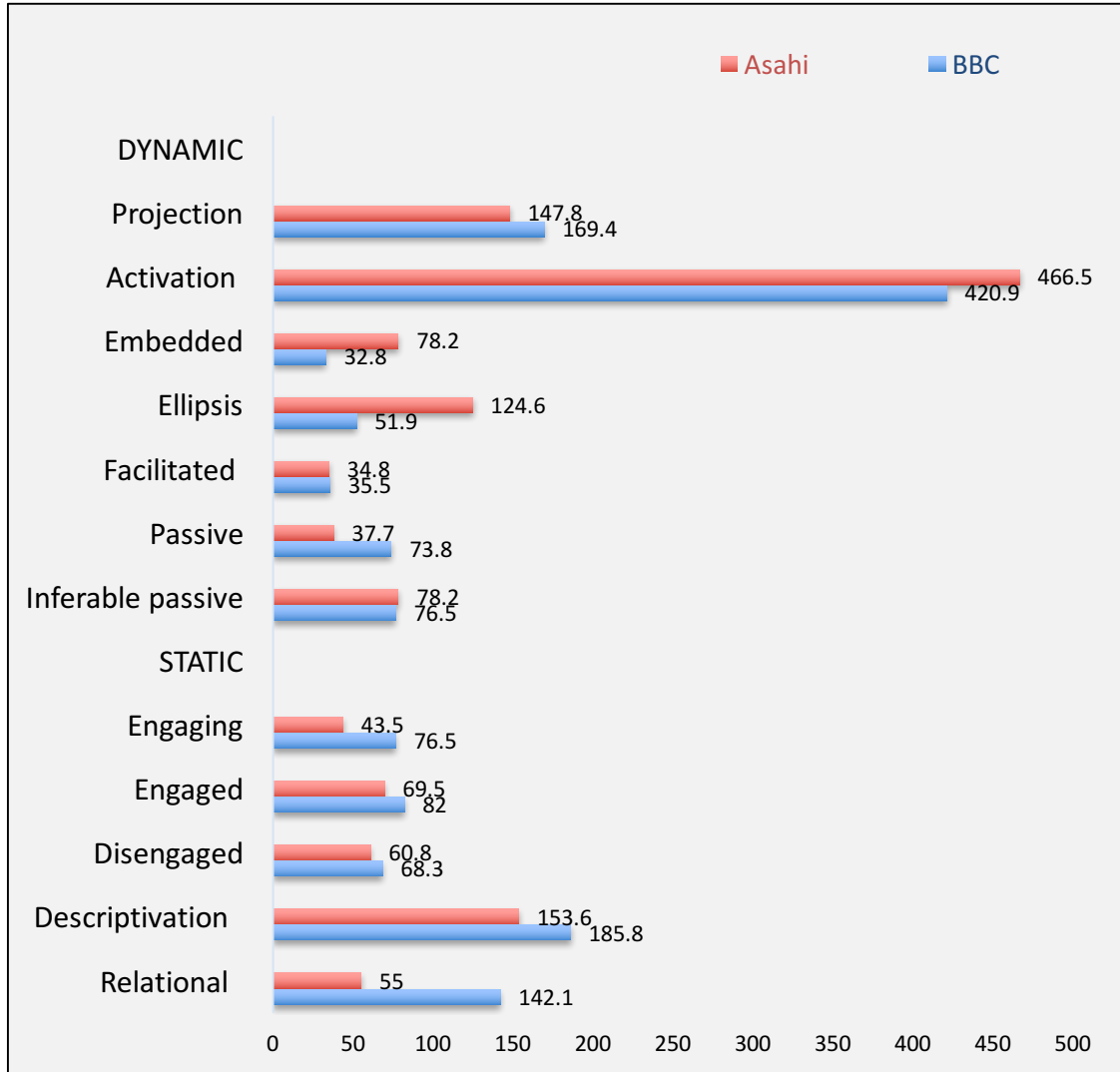
The frequencies of many categories of Coreness are similar in each source. The main difference is that Asahi has a greater amount of Dynamic action and the BBC a greater amount of Static action. In terms of specific categories, Asahi has more frequent Ellipsis and Embedded, and the BBC has more frequent Descriptivation and Relational. As the following discussion will show, these overall differences reflect a more 'descriptive'

tendency in Asahi and a more 'evaluative' tendency in the BBC. In terms of how critical

each source is, Asahi reporting contains more details of what is happening, whereas BBC

reporting contains more evaluation of what is happening and thus more representation of

risk.

The more frequent Dynamic action in Asahi reflects how Asahi tends to simply describe

what is happening whereas the BBC adds more interpretation of events. For instance, here

is a comparison of how each source represents an explosion that occurred on the 14th of

March. Dynamic action is highlighted in red and Static action in blue (Coreness covers

many of the linguistic forms in these extracts, so I only highlight those that are relevant

for the discussion of each example):

1. Officials of Tokyo Electric Power Co. (TEPCO), operator of the No. 1 Fukushima plant,
   confirmed that an explosion occurred at the No. 4 reactor at 6 a.m. Tuesday. The roof on
   the fifth floor of the building housing the reactor was damaged, and the fire was confirmed
   near the northwest part of the fourth floor of the building. (Asahi Shimbun, 2011e)

2. Japan's nuclear safety agency said earlier it suspected the latest blast may have damaged
   reactor 2's suppression chamber. The BBC's Chris Hogg in Tokyo says that would make it a
   more serious incident than the previous explosions, which were thought just to have
   damaged the buildings housing the reactors. (BBC, 2011e)

In example 1 Asahi represents the explosion with Dynamic Activation as 'occurred'. It is

simply a process that takes place. In example 2 the BBC reports the explosion but also

includes an assessment with a Static Relational 'would make it more serious'. The BBC

provides an evaluation of the consequences of the explosion that Asahi does not. To

further illustrate, the next two examples compare reporting of falling water levels inside the reactor:

3. At one point, the level of cooling water in the No. 2 reactor at the Fukushima No. 1 nuclear power plant dropped sharply, temporarily exposing the fuel rods inside the reactor pressure vessel, TEPCO officials said on March 14. According to TEPCO officials, the water level rose after they pumped seawater into the vessel. But TEPCO said around midnight on March 14 that the water level had gone down again, fully exposing the fuel rods for a second time. (Asahi Shimbun, 2011d)

4. Sea water is being pumped into reactor 2 at the Fukushima Daiichi plant after its fuel rods were fully exposed twice. International nuclear watchdogs said there was no sign of a meltdown but one minister said a melting of rods was "highly likely" to be happening. (BBC, 2011c)

Asahi uses six Dynamic actions to provide a straightforward description of what is happening. It explains that nuclear fuel rods are exposed, but the consequences of this are unstated. In contrast, the BBC has less specific detail about what is happening, with two Dynamic actions explaining the situation, and has more about the consequences of what is happening. Two different sources are used to evaluate the possibility of meltdown with the Static actions 'was no sign' and 'highly likely'. As a final example, the extracts below compare the representation of Japanese Prime Minister Naoto Kan's message concerning the disaster:

5. Prime Minister Naoto Kan also addressed the nation concerning developments at the Fukushima nuclear plant, asking residents living within a radius of 20 to 30 kilometers of the plant to remain indoors. Kan repeated an earlier instruction to have residents living within a 20-kilometer radius of the plant evacuate. (Asahi Shimbun, 2011d)

6. In a televised address, Prime Minister Naoto Kan said: "There is still a very high risk of more radiation coming out." He said that 140,000 people living within between 20km (12 mile) and 30km of the plant were at risk and should not leave their homes. (BBC, 2011e)

Asahi paraphrases the content of the Prime Minister's address, with Dynamic actions that focus on actions that local people should take. The BBC includes the instruction to locals to stay at home, but also the aspects of Kan's address that evaluate the danger posed by radiation - the Static 'is still a very high risk' and 'were at risk'. The three comparisons provided here are illustrative of a trend whereby the Asahi Shimbun concentrates more on what is happening, describing the processes accurately and congruently but without comment. In contrast, the BBC is more likely to balance descriptions of events with the implications of what is happening, and thus includes more about potential danger and risk.

In addition to the overall difference between levels of Dynamic and Static action, Asahi features more instances of two categories of Dynamic action with slightly less Coreness - Embedded and Ellipsis. This is further evidence of the greater level of description of what is occurring in Asahi, as these features tend to occur when there is greater detail of what is happening at the plant. For instance (Embedded <u>red underlined</u>, Ellipsis **red bold**):

7. Although the explosion on March 12 did not compromise the pressure vessel or the containment vessel of the No. 1 reactor, there were still concerns that an explosion <u>could rupture</u> the No. 3 reactor's containment vessel, **releasing** a large quantity of radioactive substances into the air. (Asahi Shimbun, 2011b)

8. The water level within the pressurized vessel kept coming down, **exposing** almost 1.7 meters of the 4-meter fuel rods as of 5:28 p.m. (Asahi Shimbun, 2011a)

However, as well as simply reflecting the density of description, the fact that these categories are slightly less agentive forms of Dynamic action also means they can

background risk. For instance, here is a comparison of how the same lexis ('spark') is used differently in each source (Activation red and Ellipsis **red bold**):

9. The No. 1, 2 and 3 reactors of the plant were shut down when the magnitude-9 earthquake hit on March 11. But emergency core cooling systems failed to work, **sparking** fears of meltdowns. (Asahi Shimbun, 2011d)

10. The news sparked fears of a risk of a further explosion or leak of radioactive material. (BBC, 2011a)

A subtle difference can be seen here. In the BBC the actor is 'news' (from officials) that sparks fears, and this action has clearer Coreness with Activation. In Asahi, the actor responsible for sparking fears is the 'failure of systems at the plant', and the Coreness is weaker with Ellipsis. In other words, in the BBC the danger is both more Core and more closely associated with a human actor. To give another example (Dynamic red and Static blue):

11. Although the explosion on March 12 did not compromise the pressure vessel or the containment vessel of the No. 1 reactor, there were still concerns that an explosion could rupture the No. 3 reactor's containment vessel, releasing a large quantity of radioactive substances into the air. (Asahi Shimbun, 2011d)

12. Venting of mildly radioactive steam continued at reactors 2 and 3, and officials warned that an explosion was possible in reactor 3's building. (BBC, 2011a)

In the BBC the actor 'officials' do an Activation 'warned' and there is a Static Relational assessment of the risk as 'was possible'. The risk is clearly represented as coming from the human source ('officials'). In contrast, in Asahi the source of risk is presented as 'concerns', so is a Static Relational action with no named actor. The actor associated with risk is 'an explosion' doing an Embedded 'could rupture' then Ellipsis 'releasing'. These examples illustrate how in Asahi the greater instances of Dynamic categories of action

which have slightly lower levels of agency can somewhat background representation of risk. It is not that danger is *hidden*, rather that weaker Coreness means there is more *implication* of agency.

To sum up, the patterns of Coreness in each source reflect how Asahi uses a more straightforward 'reporting the facts' tone and the BBC includes more evaluation. Moving from trends in each source as a whole, I now look at the two main actors in each source: TEPCO and the Plant. I discuss each one in turn.

5.5.2: TEPCO Coreness

Table 5.5.2 overleaf shows normalized frequencies of each category of Coreness for TEPCO.

Table 5.5.2: Normalized frequencies of Coreness for TEPCO

Asahi Shimbun: 97 instances overall, 75% Dynamic and 25% Static.

BBC: 59 instances overall, 76% Dynamic and 24% Static.
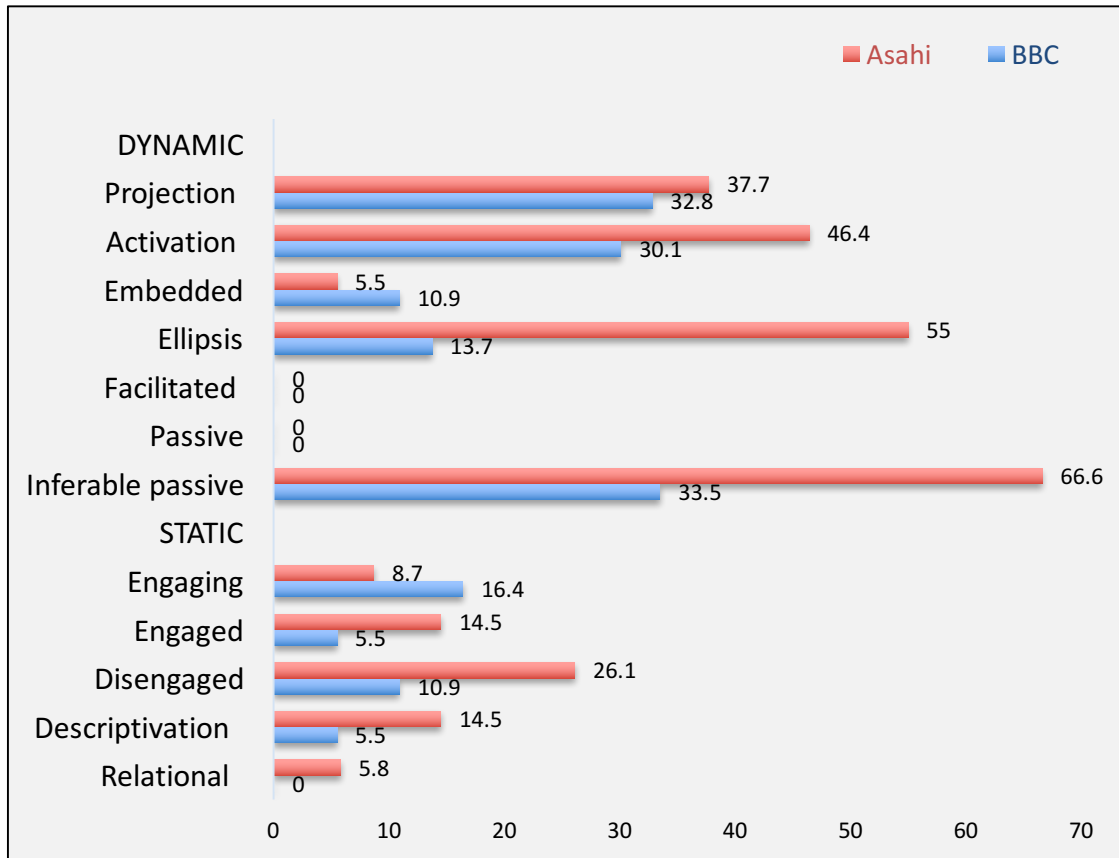
The ratio of Dynamic and Static action is similar in each source. However, there are more overall instances in Asahi, so TEPCO is more prominently represented. One reason is because, as noted above, Asahi concentrates more on reporting what is happening rather than commenting on what is happening, so the actions of the principal actors feature more.

When examining overall trends in each source I noted that Asahi incudes less evaluation of risk and in some cases backgrounds risk by representing potential danger with less Coreness. The same phenomenon is in evidence when TEPCO acts: actions which could

be interpreted negatively are more often Static, and actions without negative connotations are more often Dynamic. For instance (Dynamic in red and Static in blue):

13. Reporting the failure to the Fukushima prefectural government, TEPCO officials said they would take swift measures to prevent a recurrence of the explosions that hit the No. 1 and No. 3 reactors by releasing steam at the No. 2 reactor and pouring in seawater to cool the core. (Asahi Shimbun, 2011c)

Here the Coreness differs depending on the nature of the action. The Dynamic actions are things TEPCO say they will do to help, and thus 'positives'. In contrast, the potentially negative action is Static - representation of a previous problem is Engaged ('recurrence'), as is the representation of TEPCO's previous inability ('failure'). This kind of neutral passing on of official statements produces a subtle backgrounding of negative action. To give another example:

14. Radiation levels exceeding legally established safety standards were recorded at the boundary to the No. 1 Fukushima site, creating an emergency situation that TEPCO reported to the Ministry of Economy, Trade and Industry on Sunday. (Asahi Shimbun, 2011b)

Here there is a difference between the human and inanimate actors. TEPCO do two Dynamic actions of 'reported' (Embedded) and 'were recorded' (Inferable Passive). Their responsibility is clearer, but these actions are benign. In contrast, radiation is the actor for 'exceeding' (Descriptivation) and 'creating' (Ellipsis). The actions of the human actor are more Core and neutral, whereas the actions of radiation are less Core and dangerous. To further illustrate, the following example is how Asahi reports the failure by TEPCO in their attempts to stabilise the plant:

15. Experts say there are three main phases of any attempt to deal with problems in a reactor core: stopping the reactor, cooling it, and containing radioactivity. The second phase of that approach failed at the No. 2 reactor at the No. 1 Fukushima plant. (Asahi Shimbun, 2011b)

The only human actors are 'experts', who do Projection ('say'). The action by TEPCO is described as 'three main phases' and is represented with a Relational. When a Dynamic action of 'failed' occurs it is the 'phase' that failed, not any human agent.

TEPCO is a more prominent actor in the Asahi Shimbun, and there are differences in the nature of actions that are foregrounded and backgrounded. This helps to frame an official evaluation of the situation as not something to worry about. Again, it is not that information is hidden in Asahi or skewed in the BBC, but that continuous patterns of representation over a number of articles add up over time to foreground or abstract risk.

5.5.3: Plant Coreness

The table on the next page shows normalized frequencies of Coreness for the Plant.

Table 5.5.3: Normalized frequencies of Coreness for the Plant

Asahi Shimbun: 177 instances overall, 62% Dynamic and 38% Static.

BBC: 127 instances overall, 44% Dynamic and 56% Static.
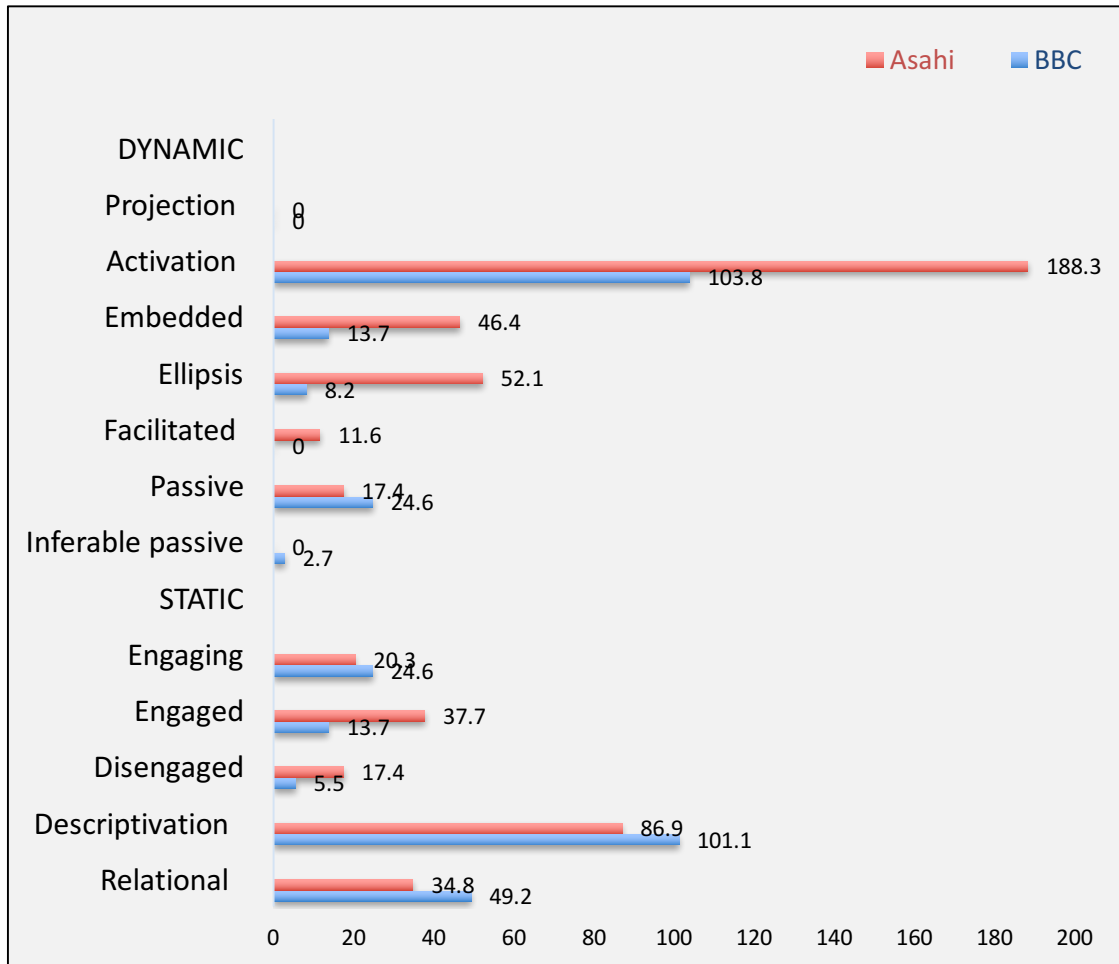
The noticeable difference is that Asahi has a greater percentage of Dynamic action by the Plant than the BBC. This reinforces the point that Asahi contains more description of what is happening. There are also more instances of Plant action, and so an inanimate actor has a more prominent role in Asahi than in the BBC.

This greater representation of the Plant in Asahi seems to be evidence of what has been called the technicalisation of the disaster. The following extract gives a good flavour of

Asahi reporting (Dynamic action in red and words showing the Plant is the actor underlined):

16. Edano later Sunday provided more details. He said that after the fuel rods were exposed for a short period, radiation levels around the plant reached a high level of 1,557.5 microsieverts. But the insertion of seawater to the core reduced the radiation level to 184.1 microsieverts after about an hour. However, Edano noted that insufficient cooling of the core may have caused excess hydrogen to accumulate in the building that houses the core containment vessel. That buildup runs the risk of triggering an explosion like the one that destroyed the building housing the No. 1 reactor at 3:36 p.m. Saturday, Edano said. (Asahi Shimbun, 2011c)

There are many instances of Dynamic action here. The government spokesperson Yukio Edano, the human actor, does Projection three times (two cases of 'said' and 'noted') and Activation once ('provided'). In contrast, the inanimate actors underlined are associated with the Plant and do all the 'dangerous' actions. This frequent representation of technical action suggests the source and causation of danger is the Plant, as opposed to those in control of the Plant. The point here is that technical descriptions are more foregrounded in Asahi and human agency is, by extension, backgrounded.

In contrast, in the BBC there is a higher level of Static action by the Plant. This is because reporting of the Plant is more likely to include evaluations of danger. For instance (Descriptivation blue underlined):

17. Although visually spectacular, these explosions are not necessarily dangerous in terms of releasing radioactivity. (BBC, 2011b)

18. In the middle of such a confused and changing picture, what can safely be said? (BBC, 2011b)

19. Pressure has been released from the containment vessel, reducing the risk of a catastrophic explosion, but if the vessel is cracked it could still release radioactive material. (BBC, 2011d)

The Plant has less agency because there are more abstract evaluations of the significance

of what is happening rather than Core representations of what is going on. In other words,

the Plant is less of an 'actor' and more of a signifier.

5.6: Comparison of Effect in each source

I now discuss Effect, to show the nature of actions included in each source.

5.6.1: Overall Effect

Table 5.6.1 on the following page shows normalized frequencies of categories of Effect

in each source. Again, strongest agency is at the top and weakest at the bottom.

Table 5.6.1: Normalized frequencies of Effect in each source

Asahi: 324 instances overall.

BBC: 378 instances overall.
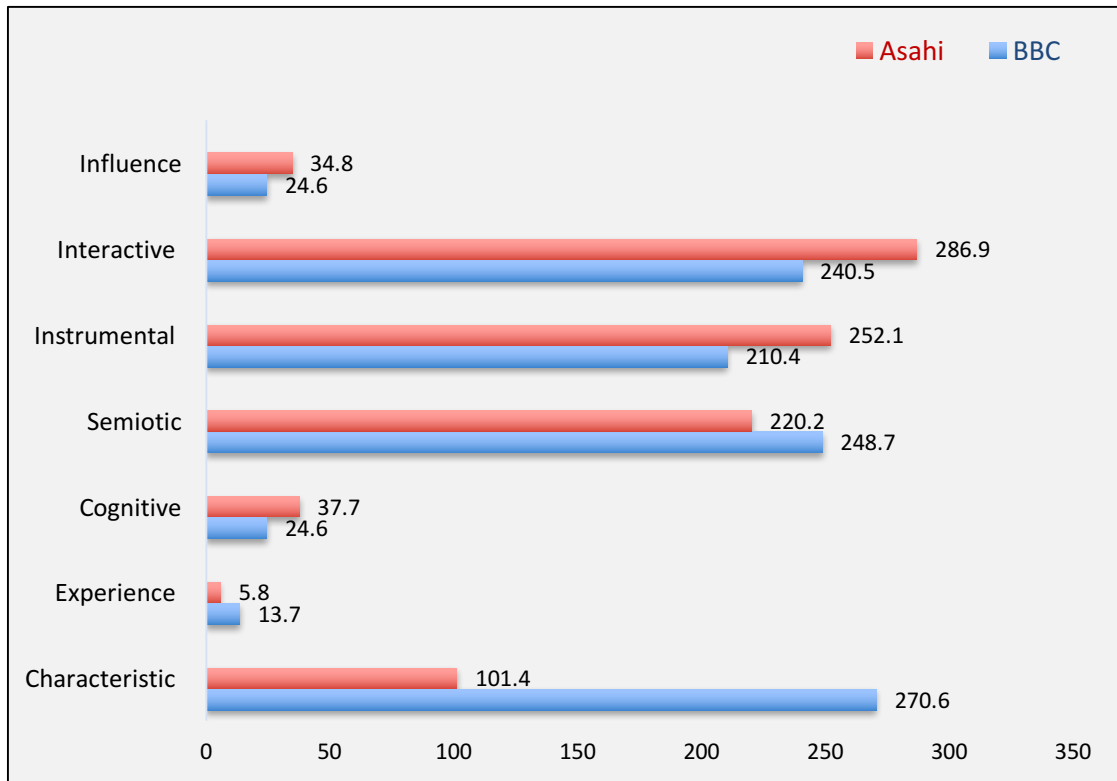
The overall frequencies of most categories are reasonably similar. The difference is that

Asahi has slightly more Interactive and Instrumental actions, whereas the BBC has many

more Characteristics. This reinforces points I made when discussing Coreness. Interactive

and Instrumental both refer to concrete physical effects, and these types of action are

more frequent in Asahi because it has more straight-forward descriptions of the unfolding

situation at the plant. In contrast, the BBC has more Characteristics because it includes

more evaluation of the unfolding situation. As these points were exemplified previously

I will not provide more examples, and will instead move on to discussing TEPCO and the

Plant. It is instructive to examine how Effect is used for each of these actors.

5.6.2: TEPCO Effect

Table 5.6.2: Normalized frequencies of Effect for TEPCO

Asahi: 64 instances overall.

BBC: 41 instances overall.
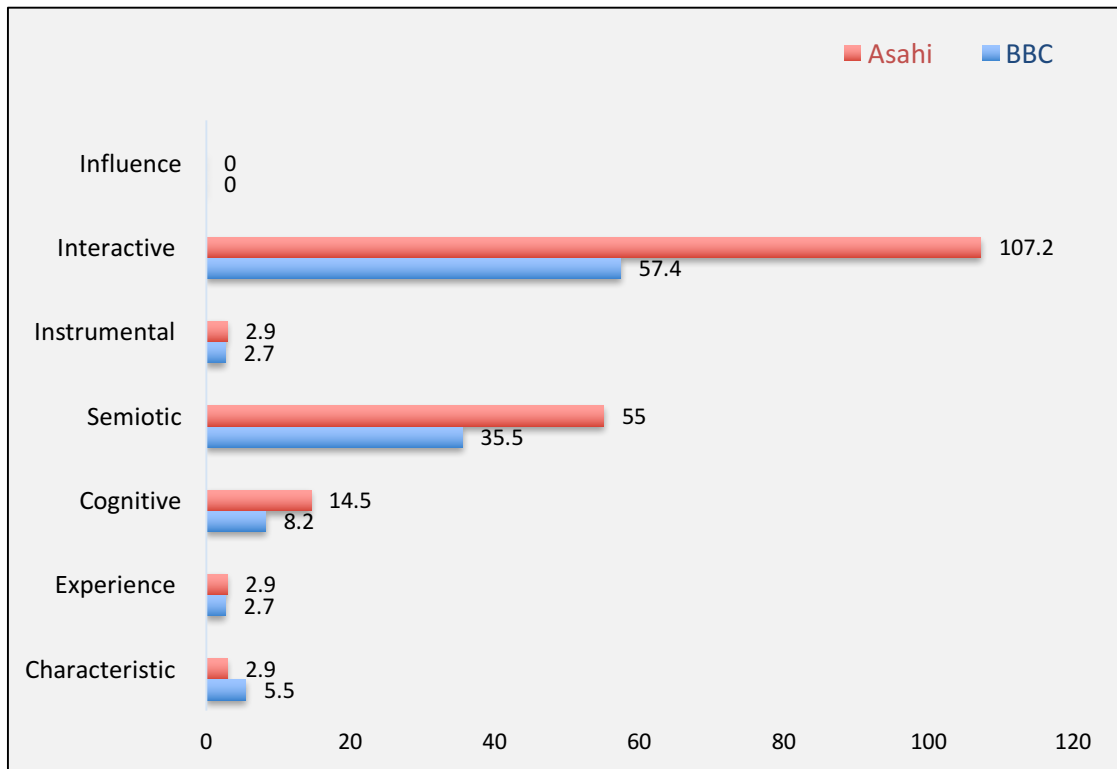
TEPCO has more overall instances of Effect in Asahi, and the difference is that Asahi

features more frequent TEPCO Interactive action and slightly more frequent Semiotic

action. This is primarily because, as mentioned already, there is much description of them

doing things to the plant. Asahi has more about TEPCO's efforts to deal with the situation

at Fukushima, so they are strongly agentive in this sense, as they are represented with the

power to affect the world. Given that TEPCO was having limited success in making the

plant safe, one possible interpretation of this strong level of agency might be that TEPCO

are portrayed as lacking control and being responsible for failures. However, closer

analysis suggests a more positive interpretation, one in which they are portrayed as

agentive in correcting the situation. For instance (Interactive actions in red):

20. If coolant within the core continues to evaporate and generate steam, the accumulated pressure could eventually rupture the containment vessel and release large amounts of radioactive materials into the atmosphere. To avert that scenario, TEPCO began releasing steam containing low levels of radioactive materials from 9:20 a.m. into the atmosphere through a vent tower about 120 meters high, officials said. During efforts to lower pressure in the containment vessel, officials will continue work to restore the cooling mechanism, they said. (Asahi Shimbun, 2011b)

21. TEPCO has already been pouring 30 tons of seawater an hour since Saturday night to cool the No. 1 reactor of the No. 1 Fukushima plant, NISA officials said Sunday morning. (Asahi Shimbun, 2011c)

In example 20 TEPCO is acting 'to avert a scenario', and in 21 to 'cool reactors', meaning

their Interactive action is to protect as much as fix their mistakes. Their Interactive action

is to stop something happening at the plant, with the responsibility for problems located

in the plant itself. I mentioned previously how in Asahi official voices frame information,

and this information is presented at face value with less analysis than in the BBC. The

same phenomenon can be seen here in how the voices of TEPCO (20) and the Nuclear

and Industrial Safety Agency (21) frame the descriptions of what is happening. So, as

well as the *voice* of TEPCO being reported more often, the Interactive *actions* TEPCO

are taking are more likely to feature in Asahi. The effect of this is complex. In one sense

TEPCO are associated with the problems at the plant (a kind of guilt by association). In

another sense, however, they are portrayed as struggling in a difficult situation and

working hard to solve the problems. A close look at agency suggests the latter

interpretation. The comparatively stronger Effect for TEPCO in Asahi reporting gives more sense of *taking* responsibility for problems than *being* responsible for problems.

Turning to the greater frequency of Semiotic action by TEPCO in Asahi, this supports the arguments made in Coreness about how official voices frame action, and how danger is reported as an abstract concept. For instance (Semiotic in red):

22. TEPCO officials said nuclear fuel rods in the core of the No. 3 reactor had become exposed above the cooling water level. (Asahi Shimbun, 2011b)

23. Officials of the Nuclear and Industrial Safety Agency (NISA) said Sunday morning that TEPCO officials had informed them that water supply mechanisms to cool the core of the No. 3 reactor all stopped at 5:10 a.m. Sunday. (Asahi Shimbun, 2011b)

Here officials are represented as communicating, and the agency of danger is located with inanimate things. This is important: human actors are less likely to be represented as being in control of, influencing, or contributing to physical actions which can cause harm. The effect of this trend is to uncritically reflect an official version of information, which depersonalises dangerous actions. This might be described as compartmentalising agency away from human and onto inanimate actors.

The sources Asahi uses are exclusively TEPCO or government bodies. This reliance on official information in Asahi is one reason for the greater agency of TEPCO, as both their Interactive and Semiotic actions feature more. In contrast, the BBC balances these sources with independent experts and contrasting views. To illustrate:

24. "If the explosion at the Fukushima nuclear power station has resulted in a significant release of radioactive material then this will soon be readily apparent from the radiation monitoring

that is undoubtedly under way around the plant," noted Richard Wakeford, visiting professor in epidemiology at the UK's University of Manchester. (BBC, 2011b)

25. But the French Nuclear Safety Authority (ASN) cast doubt on Japan's classification of the crisis at Fukushima as level 4 of 7 on the International Nuclear Event Scale. Chernobyl was classified as level 7. "Level four is a serious level," ASN chief Andre-Claude Lacoste said, but added: "We feel that we are at least at level five or even at level six." (BBC, 2011d)

Example 24 quotes a British University expert, and example 25 adds the interpretation of French nuclear experts of Japan's classification of the disaster.

The analysis here supports the criticisms that were leveled at Japanese media about a lack of critical or alternative perspectives. The characterisation of Japanese media as faithfully reporting official announcements without questioning them is borne out in my sources.

5.6.3: Plant Effect

The table on the next page shows frequencies of Effect for the Plant.

Table 5.6.3: Normalized frequencies of Effect for the Plant

Asahi: 97 instances overall.

BBC: 94 instances overall.
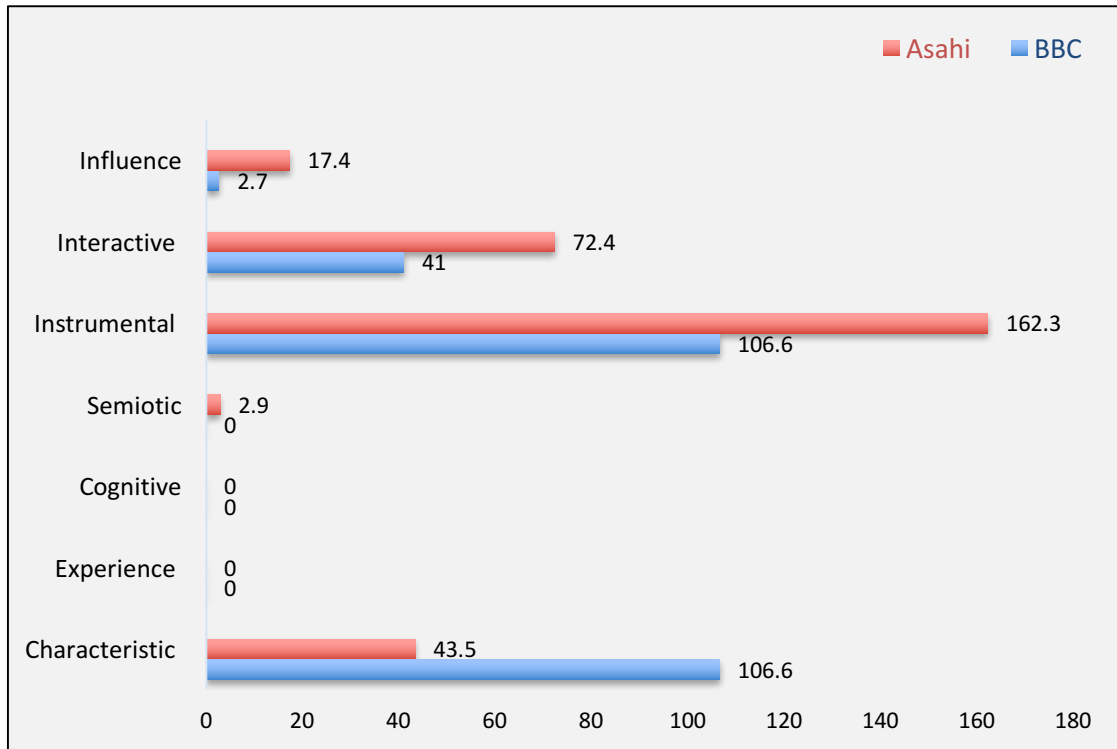
Asahi represents the Plant with stronger Effect. Asahi features more frequent Plant Influence, Interactive and Instrumental actions, whereas the BBC has more Characteristics. In other words, the difference is between the Plant more often having a real-world Effect in Asahi and more often having a less agentive existence in the BBC.

Asahi contains six instances of Influence for the Plant, which is the most powerful kind of Effect. For example (in red):

26. The prefecture said the explosion caused the ceiling of the No. 1 reactor building to collapse. (Asahi Shimbun, 2011b)

27. At the No. 3 reactor, pressure and water levels became unstable. At one time, its nuclear fuel rods were partially exposed after water levels fell, leading to the accumulation of hydrogen. (Asahi Shimbun, 2011d)

Such Influence means the Plant has stronger agency and is thus implied as more responsible for what is happening. The Plant also has greater agency due to more frequent Instrumental action. For example:

28. Cooling systems at all three reactors failed in the wake of the March 11 Great East Japan Earthquake and nuclear fuel rods in the reactor cores were exposed above the water level. (Asahi Shimbun, 2011c)

29. Edano told a news conference that the structural soundness of the containment vessel appears to have been maintained. (Asahi Shimbun, 2011d)

This aspect of agency is important considering that the Plant features heavily in Asahi reporting. Frequent inanimate physical action, especially Instrumental action that has no direct effect on other material objects, contributes to the technicalisation of the disaster. It is a mechanical process that occurs on its own, as much as a mechanical process affected by people. In comparison to the high level of Interactive and Instrumental Plant action in Asahi, the BBC has more than twice as frequent Plant Characteristic action. For instance:

30. In the middle of such a confused and changing picture, what can safely be said? Firstly, the reactors involved will not operate again, even if there has not been a meltdown. (BBC, 2011b)

31. In the meantime, there have been suggestions that an incident at reactor 3 would inherently be more dangerous than at reactors 1 and 2 because it burns "mixed oxide fuel" (MOX) containing plutonium. (BBC, 2011c)

As noted before, the higher frequency of Characteristics is because the Plant is evaluated in terms of safety more often in the BBC. The Plant acts less often in an agentive way to

affect the world, and is more often significant for what it *represents* as much as what it *does*.

5.7: Comparison of Intensity in each source

Analysing Intensity shows how often the agency of actions is strengthened or weakened.

5.7.1: Overall Intensity

Table 5.7.1 shows normalized frequencies of Intensity in each source. As with previous tables, strongest agency is at the top.

Table 5.7.1: Normalized frequencies of Intensity in each source
Asahi: 30 Increases and 10 Decreases.
BBC: 48 Increases and 16 Decreases.
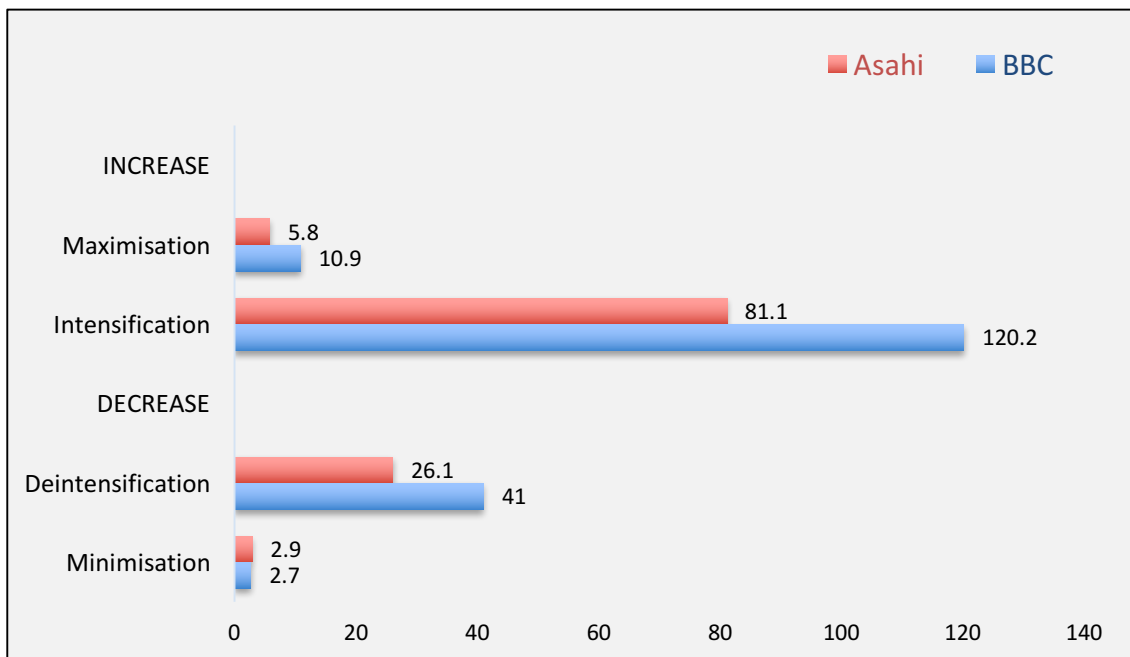
There is a clear difference here: the BBC uses more frequent Intensity than Asahi, so this feature of agency is more common in BBC reporting.

The lower level of Intensity in Asahi is a factor that contributes to its neutral tone of reporting. This tone is objective in that there is less (overt, deliberate, conscious) alteration of the way actions are represented. By contrast, the greater frequency of Intensity Increases in the BBC somewhat dramaticises the narrative. For example (Intensification in red):

32. A huge column of smoke billowed from Fukushima Daiichi's reactor 3, two days after a blast hit reactor 1. (BBC, 2011d)

33. In the meantime, there have been suggestions that an incident at reactor 3 would inherently be more dangerous than at reactors 1 and 2 because it burns "mixed oxide fuel" (MOX) containing plutonium. (BBC, 2011b)

The use of such Intensifications in BBC reporting makes the actions more forceful and more vivid. To give a specific comparison, the following examples show how each source represents TEPCO's use of water to cool fuel rods at the plant:

34. Officials battled all Monday and into the early hours of Tuesday to try to keep water levels up in order to cool the nuclear fuel rods, but on two occasions the rods have been fully exposed. (BBC, 2011c)

35. TEPCO officials started using fire engine tanks to pump in more seawater to cool the No. 3 reactor core while continuing efforts to restore the water supply mechanism. (Asahi, 2011c)

In example 34 from the BBC TEPCO is 'battling', whereas in example 35 from Asahi there is a more neutral description of the actions occurring - 'use fire engines to pump in' and 'efforts to restore'. Both 'efforts to restore' and 'battled' are summaries of a group of actions, but in the BBC this is represented more strongly. Greater Intensity in the BBC

emphasises the struggle and potential danger of the situation. To give another example, here is how each source paraphrases an address by the Japanese Prime Minister (Intensification in red, Maximisation red underlined):

36. Earlier, the prime minister said the situation at the nuclear plant was alarming, and the earthquake had thrown Japan into "the most severe crisis since World War II". (BBC, 2011d)

37. Prime Minister Naoto Kan also addressed the nation concerning developments at the Fukushima nuclear plant, asking residents living within a radius of 20 to 30 kilometers of the plant to remain indoors. Kan repeated an earlier instruction to have residents living within a 20-kilometer radius of the plant evacuate. (Asahi Shimbun, 2011d)

In 36 the BBC paraphrases what Prime Minister Kan said using the Intensifications 'alarming' and 'thrown'. When the BBC uses a direct quotation it includes a Maximisation ('the most severe crisis'). In comparison, Asahi's paraphrase of what Kan said uses the more neutral term 'developments at the Fukushima plant'. In addition, the more frequent use of Intensity in the BBC extends to Intensifications of the Fukushima disaster itself. For instance:

38. The disaster is a huge blow for the Japanese economy (the world's third largest), which has been ailing for two decades. (BBC, 2011c)

39. So, reactor 3 fuel rods will contain more plutonium than those in reactor 1. But this would only become an issue if there were an explosion or a catastrophic meltdown. (BBC, 2011b)

Stronger Intensity in the BBC means it is more explicit about the potentially negative effects of Fukushima - the consequences of the disaster have stronger agency. This reinforces the argument made previously about how there is more evaluation in BBC reporting and less in Asahi. In other words, Fukushima is more of a 'story' in the BBC and more of a 'report' in Asahi.

117

The greater frequencies of Intensity in the BBC create a more dramatic narrative, but more importantly the increased agency implies events and danger are more serious, and by implication responsibility for these events and danger becomes more serious. This may also partly be due to the BBC being written primarily for a native English speaker audience, and so perhaps drawing on a larger and more descriptive range of lexis. Nevertheless, the English-language versions of Asahi articles are direct translations of the Japanese originals, so should be accurate reflections of these originals.

Moving on from overall trends, I now turn to how Intensity is used for each of the two main actors.

5.7.2: TEPCO Intensity

Table 5.7.2: Normalized frequencies of Intensity for TEPCO

Asahi: 3 Increases and 2 Decreases.
BBC: 5 Increases and 1 Decrease.
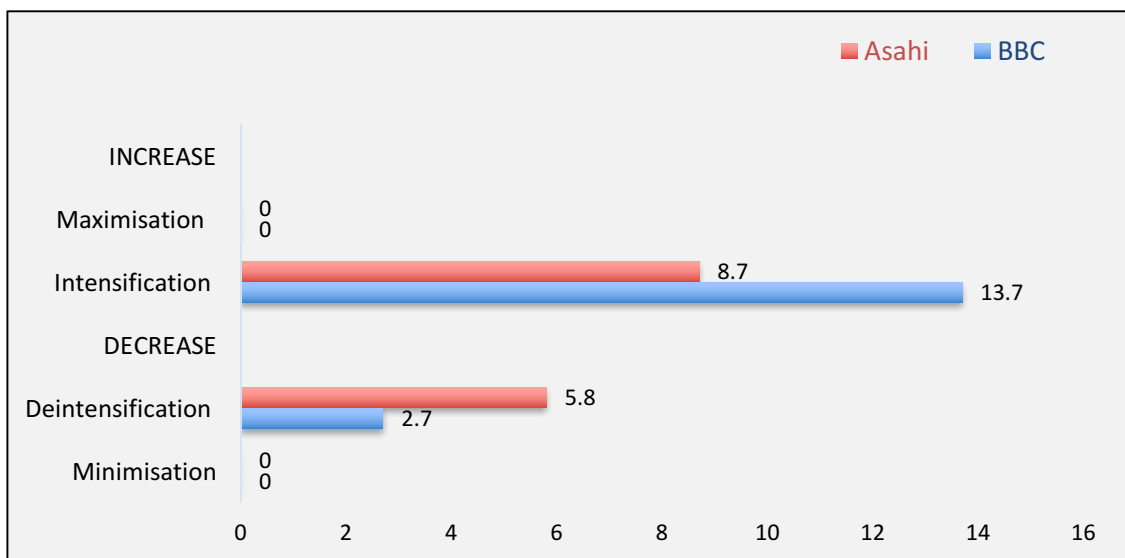
Although the frequencies are not large, examination of these instances supports the points I made previously when discussing the effects of neutral reporting of official statements in Asahi. In Asahi, official actions are Intensified in relation to positive information. For example:

40. At the same time, he added, "Because the extinguishing (of the fire) was only to the exterior, we have to carefully examine what happened internally." (Asahi Shimbun, 2011e)

41. Reporting the failure to the Fukushima prefectural government, TEPCO officials said they would take swift measures to prevent a recurrence of the explosions that hit the No. 1 and No. 3 reactors by releasing steam at the No. 2 reactor and pouring in seawater to cool the core. (Asahi Shimbun, 2011c)

Example 40 is a government source, and the use of Intensity stresses the government is acting seriously. Example 41 does the same thing for TEPCO. One reason for these kind of examples is that Asahi more faithfully reports what was said, and therefore includes the Intensifications in the original statements. This reproduces the original information without interpretation. This faithful reporting of official statements extends to negative as well as positive news. For instance (Deintensification in blue):

42. However, Edano noted that insufficient cooling of the core may have caused excess hydrogen to accumulate in the building that houses the core containment vessel. (Asahi Shimbun, 2011c)

In 42 the Deintensification 'insufficient cooling' is an abstract representation of less agency for 'cooling'. However, this is attributed to the Plant and not TEPCO, meaning the reasons why there is not enough cooling and what has or has not been done to affect the cooling situation is unclear. In contrast, in the BBC action by TEPCO is more often Intensified because of the urgency of what they are doing, and in order to emphasise the drastic nature of their actions. This is not 'positive' information. For example:

43. Technicians have been battling to cool reactors at the Fukushima Daiichi plant since Friday, following the quake and tsunami. (BBC, 2011c)

44. Technicians are battling to stabilise a third reactor at a quake-stricken Japanese nuclear plant that has been rocked by a second blast in three days. (BBC, 2011c)

A notable difference here is that the Intensifications of TEPCO action are the BBC's own reporting of what is happening, whereas in Asahi Intensifications tend to be verbatim quotes from TEPCO. In other words, in Asahi TEPCO intensify their own actions and provide a positive spin, whereas the BBC intensifies TEPCO actions and this produces a more negative spin.

5.7.3: Plant Intensity

Table 5.7.3: Normalized frequencies of Intensity for the Plant

Asahi: 11 Increases and 5 Decreases.
BBC: 18 Increases and 10 Decreases.
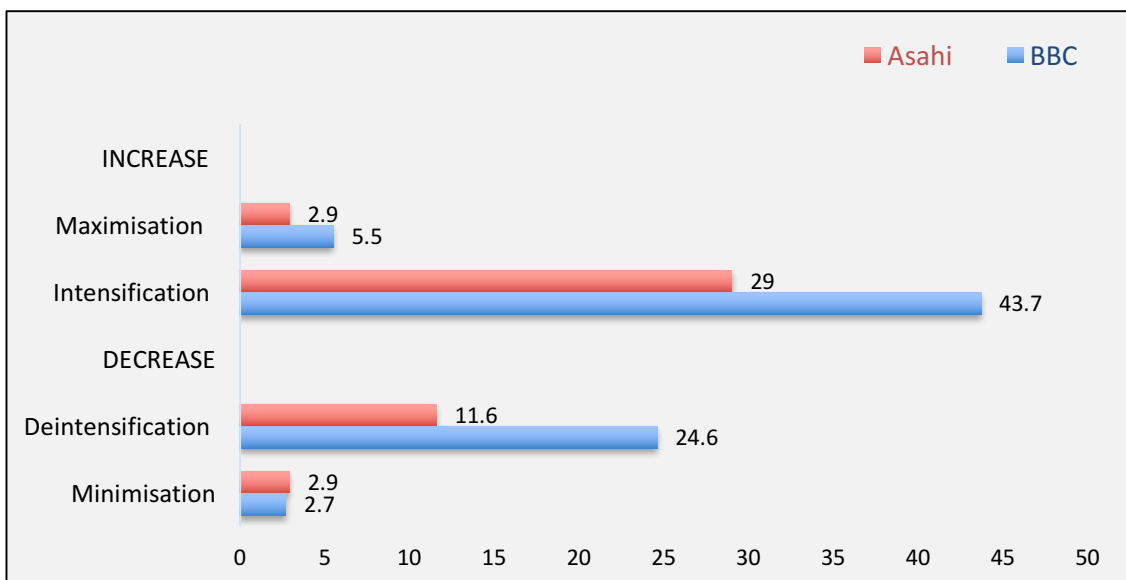
The Plant is again a major difference between the sources: the BBC has greater frequencies of Intensity to describe Plant action. Importantly, although the Plant is a more

frequent actor in Asahi reporting, the actions of the Plant have more Intensity Increases in the BBC. This is because there are more statements about possible dangers. For example:

45. "If the explosion at the Fukushima nuclear power station has resulted in a significant release of radioactive material then this will soon be readily apparent from the radiation monitoring that is undoubtedly under way around the plant," noted Richard Wakeford, visiting professor in epidemiology at the UK's University of Manchester. (BBC, 2011b)

46. In the meantime, there have been suggestions that an incident at reactor 3 would inherently be more dangerous than at reactors 1 and 2 because it burns "mixed oxide fuel" (MOX) containing plutonium. (BBC, 2011d)

This increased agency for the Plant in the BBC is one factor in how the potential risk of the disaster is a bigger feature of their reporting. In contrast, in Asahi Intensity Increases for the Plant tend to be physical descriptions of its state. For example:

47. But TEPCO said around midnight on March 14 that the water level had gone down again, fully exposing the fuel rods for a second time. (Asahi Shimbun, 2011c)

48. At one point, the level of cooling water in the No. 2 reactor at the Fukushima No. 1 nuclear power plant dropped sharply, temporarily exposing the fuel rods inside the reactor pressure vessel, TEPCO officials said on March 14. (Asahi Shimbun, 2011d)

These examples again reinforce how evaluation of the disaster is a feature of the BBC, in comparison to Asahi's focus on describing the situation at Fukushima. However, a necessary point to make is that BBC reporting is not exclusively about *emphasising* danger. The BBC includes more frequent Deintensification, both overall and for the Plant. Some cases are similar to those in Asahi, when Deintensification is a result of reporting what is said by official figures. For instance:

49. Chief Cabinet Secretary Yukio Edano said they were closely watching the remaining two reactors at the plant, 5 and 6, as they had begun overheating slightly. (BBC, 2011e)

However, as well as what is said by officials, there is also Deintensification in the BBC as a result of the BBC adding its own evaluations. For instance (Minimisation blue underlined):

50. Levels of radioactivity - although above safe limits - are far lower than were detected during the Chernobyl accident in Ukraine, for example. So far, there is nothing to indicate that the 170,000 people displaced will not be able to return once the immediate danger has passed. (BBC, 2011b)

This lowers the agency of risk. The greater frequency of Intensity Decreases in the BBC is because of the greater overall amount of evaluation and interpretation of danger (the same reason as for the higher frequency of Intensity Increases). In this way the BBC has more about potential risks, but also more about lack of risk - there is simply more information about danger, be it large or small. It does not seem to be the case that the BBC is over-exaggerating the threat, but rather they are providing more of their own view on what is happening. In contrast, the lack of independent evaluation in Asahi seems to cede power to official sources.

To summarise, the greater frequencies of BBC Intensity Increases and Decreases create a more dramatic effect and evaluate the danger of the situation. Asahi contains less use of Intensity, and this is one element of its more neutral tone compared to the BBC. In Asahi Intensity features less, and often when reporting the comments of official sources. This means that it is other voices rather than their own that add drama, and this reinforces how Asahi sticks to the official line when reporting events. For the BBC, the greater frequencies of Intensity may be in order to dramaticise the narrative, but also may simply

be because these events are extreme, hence their newsworthiness. Whatever the reason, in the BBC Fukushima is a more agentive, and thus more serious, disaster.

5.8: Comparison of Freedom/Constraint in each source

Finally, I examine Freedom/Constraint, to see the possibilities of and limitations on actions in each source.

5.8.1: Overall Freedom/Constraint

Table 5.8.1 overleaf shows normalized frequencies of Freedom and Constraint. To recap, the top is strongest agency and the bottom weakest, with Freedoms signaling the presence of agency and Constraints a lack of agency.

Table 5.8.1: Normalized frequencies of Freedom/Constraint in each source

Asahi: 16 Freedoms and 36 Constraints.

BBC: 22 Freedoms and 21 Constraints.
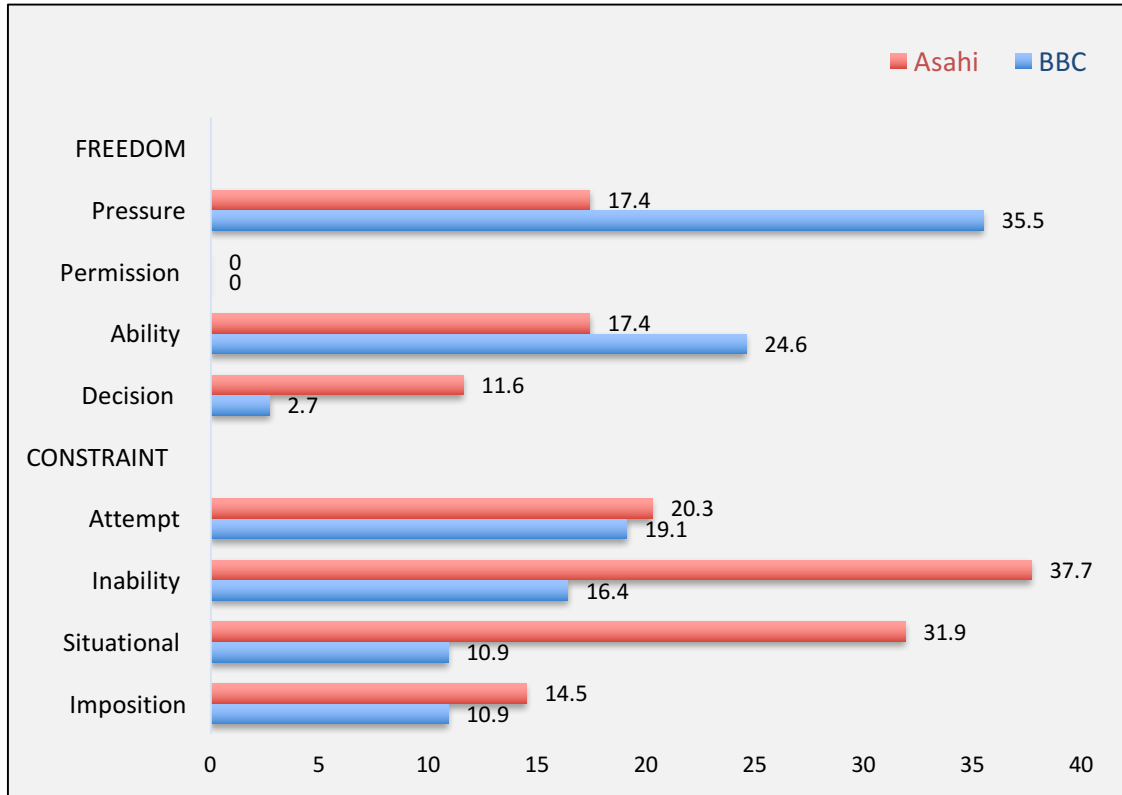
Asahi has just over twice as many Constraints as Freedoms, whereas the BBC has roughly

half Freedoms and half Constraints. Asahi reporting features more limitations on agency,

whereas BBC reporting is as much about how actors *can* exert agency as how they *cannot*.

This is a broad observation, however, and it is more instructive to look at how Freedom

and Constraint is used with the specific actors in each source.

5.8.2: TEPCO Freedom/Constraint

The table on the following page shows TEPCO Freedom/Constraint.

Table 5.8.2: Normalized frequencies of Freedom/Constraint for TEPCO

Asahi: 3 Freedoms and 8 Constraints.

BBC: 0 Freedoms and 5 Constraints.
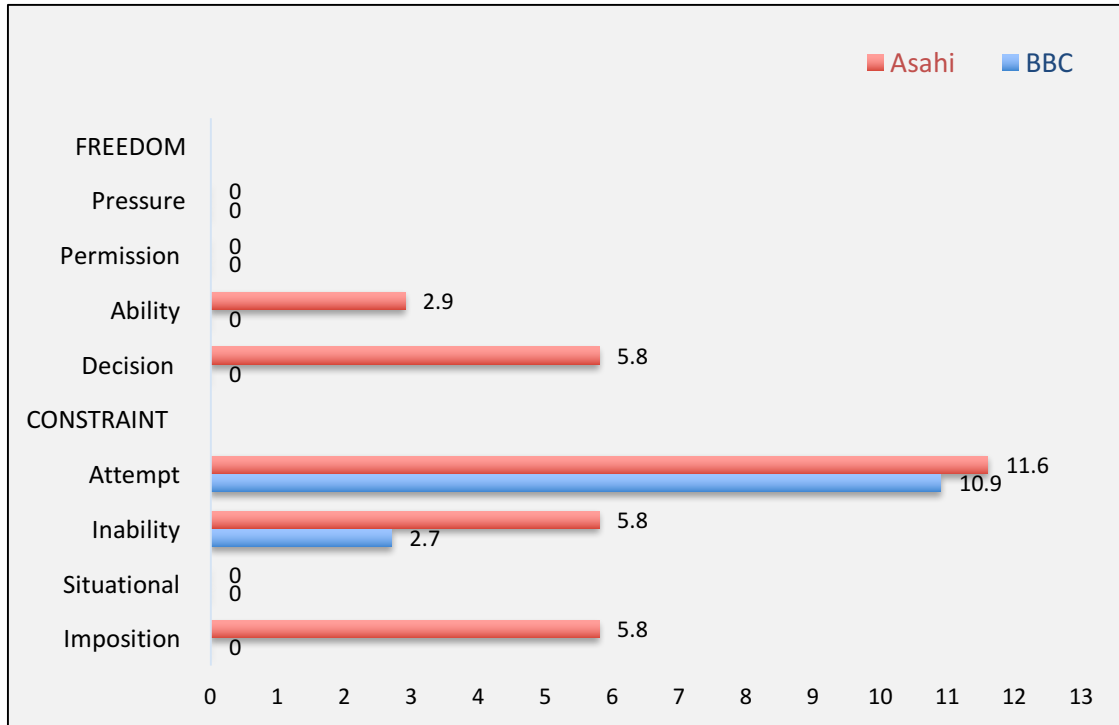
Both sources represent TEPCO as subject to Constraint. In particular, both sources

include Attempts - examples of TEPCO trying to do things. For instance (Attempts in

blue):

51. Technicians are battling to stabilise a third reactor at a quake-stricken Japanese nuclear
    plant that has been rocked by a second blast in three days. (BBC, 2011b)

52. TEPCO has had difficulty removing heat from the reactor core as the emergency core cooling
    system (ECCS) failed to work after the March 11 magnitude-9.0 quake shut down the reactor.
    (Asahi Shimbun, 2011c)

Both sources therefore represent TEPCO with a lack of control over what is happening.

The difference between the sources is that in Asahi TEPCO have a certain level of

Freedom that they do not have in the BBC. For instance, this Ability (in red):

53. At the same time, Edano said, "While the earthquake itself may have lasted but an instant, the response thereafter was conducted under a certain level of control and, at the present time, the situation is moving in a direction of stability. We believe that even foreseeing the worst-case outcome it will not turn out like Chernobyl." (Asahi Shimbun, 2011d)

The verbatim quote in example 53 includes the official description of TEPCO's 'response', which emphasises their ability to control what is happening. In addition, TEPCO make Decisions:

54. Sources said Saturday's release of gas from the No. 1 Fukushima plant was the first time radioactive materials had been knowingly released into the atmosphere by Japan's nuclear power industry. (Asahi Shimbun, 2011b)

55. After the detection of cesium, a radioactive substance created through nuclear fission of uranium fuel rods, the decision was made to pump in seawater and boric acid to prevent damage to the core container, NISA officials said. (Asahi Shimbun, 2011c)

Examples 54 and 55 represent TEPCO's capacity to choose how to act. In example 54 the action is potentially negative because releasing radioactive material could be hazardous. However, analysing this in terms of Freedom/Constraint shows that it is an agentive action; it highlights the representation as a *choice* to act rather than a *mistake*. Such Freedoms give TEPCO a level of agency to influence the situation that is not present in the BBC accounts. As I argued when discussing Coreness, the higher level of agency for TEPCO could present them in a positive or negative light, depending on the kind of actions they are doing. The examples here represent TEPCO as fixing the situation, and hence the agency seems positive.

5.8.3: Plant Freedom/Constraint

Table 5.8.3: Normalized frequencies of Freedom/Constraint for the Plant

Asahi: 2 Freedoms and 21 Constraints.

BBC: 4 Freedoms and 6 Constraints.
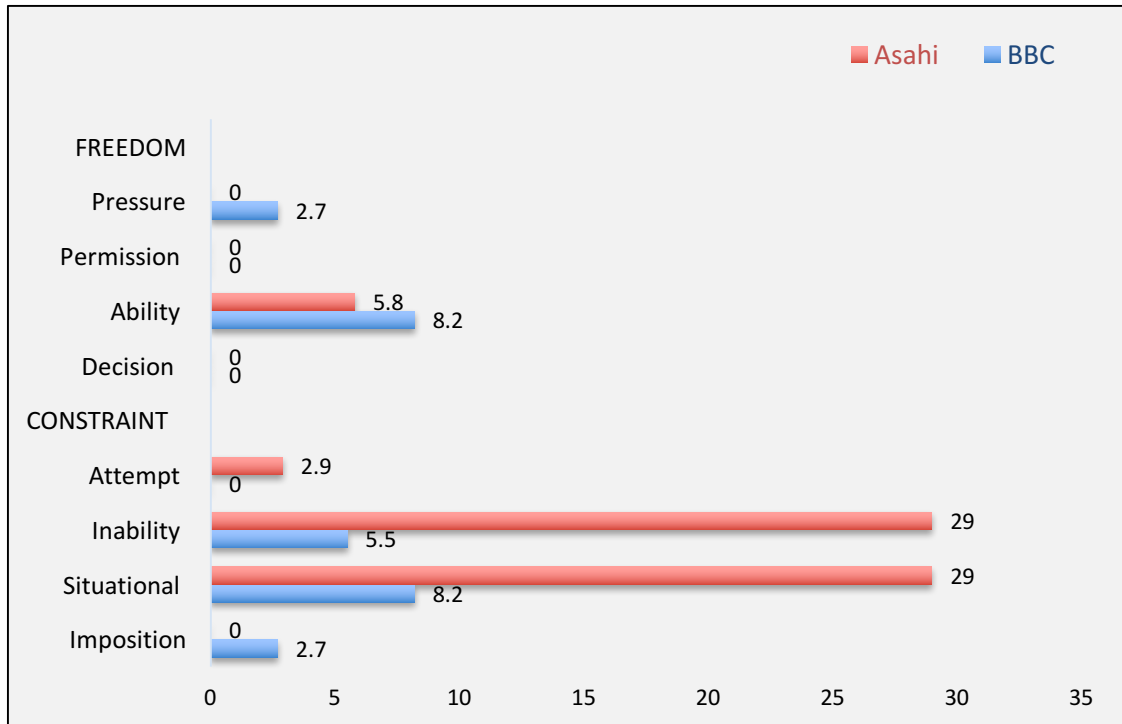
As with the previous three aspects of agency, there are notable differences here. In Asahi the Plant is Constrained much more frequently with the categories of Inability and Situational. For instance, for Inability (in blue):

56. The state of the two Fukushima plants was causing particular concern because, unlike other plants hit by Friday's earthquake, emergency generators wouldn't operate after external power supplies failed. (Asahi Shimbun, 2011b)

57. The No. 1 Fukushima plant has 13 emergency diesel generators for its ECCS, but all appear to have failed following Friday's earthquake. (Asahi Shimbun, 2011b)

This reduction in agency for the Plant means the problem is represented as a case of equipment and systems failing, rather than (for example) inadequate control or planning. The disaster is likely to be represented as a failure of objects rather than human use of

these objects. The same effect comes from the higher frequency of Situational Constraints, such as:

58. After Friday's massive earthquake, the external electric power supply to the No. 1 Fukushima plant was cut off, and emergency generators failed to work. That stopped the emergency core cooling system. (Asahi Shimbun, 2011c)

59. The suppression pool also serves as the water source for the reactor's emergency core cooling system, which has been rendered inoperable. (Asahi Shimbun, 2011d)

These have an inherently passive sense because they present the actor (the Plant) as subject to circumstances beyond their control. The pertinent point here is how the higher frequency of Situational and Inability Constraints present the Plant as a 'victim'. The source of Constraint is located with inanimate actors more than animate ones. While it is true that plant equipment failed, the focus on inanimate lack of agency suggests Fukushima is primarily a technological problem.

5.9: Summary of differences in agency between Asahi and BBC reporting

The research question guiding this chapter was:

▪ How do representations of agency reflect a more neutral or critical reporting stance?

In terms of overall trends, the features of agency reflect a descriptive and evaluative tendency in each source, with Asahi covering Fukushima more as a report and the BBC more as a story. Asahi could be characterised as a more neutral style, in that events are represented in a straightforward manner without assessment of their consequences. This is because in Asahi action tends to be more Core, whereas in the BBC it is less Core because more evaluation is included. This difference is also reflected in the stronger Effect in Asahi, as it contains more material events, such as TEPCO's efforts to solve

problems and the events taking place at the plant. Another reason for the more measured

tone in Asahi is the lower frequency of Intensity, meaning there is less extreme agency.

In contrast, the BBC adds more information about the potential danger of the disaster.

The BBC does this through more Static actions evaluating risk, and through more use of

Intensity to show the power of actions (and thus the level of risk they pose). Specific

examples in the analysis showed how the agency of negative actions – dangerous or

potentially dangerous ones – is foregrounded more clearly in the BBC than in Asahi. One

reason for this is that Asahi relies on and faithfully reports official sources, meaning that

official pronouncements frame the representation of events in Asahi. In contrast, the BBC

balances this with independent alternatives to official voices. The result of these trends is

that in Asahi acknowledgement of potential danger is more implicit, and in the BBC it is

more explicit. The analysis therefore supports the idea that Japanese news sources were

more neutral and focused on repeating official versions of events, and that they did not

emphasise danger as much as foreign sources.

It is important to note that while I found differences, these were differences in overall

frequencies. The analysis does not show a drastically different manner of reporting, and

does not suggest overt manipulation. Asahi does not obviously hide agency and the BBC

does not obviously exaggerate it. Rather, the sources differ in *degrees* of agency, as

opposed to its presence or absence. The features of agency reflect the content of the

information included as well as a 'critical' or 'uncritical' reporting style. Of course,

however, these are two sides of the same coin, in that choice of content is itself an

ideological choice. The heavily descriptive nature of Asahi reporting means a greater focus on technical aspects of the disaster. In Asahi agency is more Core, but is associated with inanimate actors. In this way the analysis supports the argument that the Japanese media 'technicalised' Fukushima.

Looking at the main actors, in Asahi TEPCO and the Plant both have more agency. The comparatively greater agency for the Plant in Asahi reflects its more technicalised description of the situation. Actions at the Plant are concise and have more physical effect in Asahi, but are dramaticised less than in the BBC and are subject to more Constraints. There is a heavy focus on the Fukushima plant going wrong and human attempts to stop it, and less on what this may mean for the public. In terms of the consequences of these representations, it is important that in Asahi TEPCO is agentive and the source of Constraint is located with inanimate actors more than animate ones. Asahi gives TEPCO agency to make changes on the world, meaning they are strong in this respect compared to the BBC. TEPCO control over the plant is implied as a good thing because their version of events is not challenged. These features of Asahi reporting background danger and responsibility. In comparison, in the BBC the greater evaluation of risk and the inclusion of alternatives to official sources place the actions of humans controlling the situation under greater scrutiny. Importantly, in the BBC evaluations of the situation come from sources other than sources already invested in the disaster (TEPCO). I shall comment in more detail on the implications of these findings when I conclude in chapter eight.

In this chapter I have used the framework to look at trends in representation by media sources over a larger sample size. In the following chapter I switch focus, using the framework for a close analysis of three shorter texts, to show how agency reflects their institutional aims.

6. AGENCY IN OFFICIAL REPORTS INTO THE FUKUSHIMA DISASTER

6.1: Chapter aims

In this chapter I examine three official reports into the Fukushima disaster. I compare how the foreword of each report assigns blame and responsibility. The research question guiding this chapter is:

· What is the relationship between representations of agency and attribution of responsibility for the Fukushima disaster?

Comparing the findings of the reports I will analyse, Lukner and Sakaki conclude that "while some of the reports are one-sided in particular depictions, they generally identify the same fundamental problems (though TEPCO's report is an exception on some points)" (2013, p. 3). My analysis supports this conclusion, but examines it in more detail. I am interested in how the reports may be "one-sided in particular depictions" and how representations of agency give different interpretations of causes and responsibility. The framework is used for a close commentary on the texts, to show how responsibility is diffused differently in each report and how this relates to the goals of the organisations that produced them. In each case I am critical of this diffusion of responsibility and argue it is a failure to clearly apportion blame.

6.2: Chronology of reports into the Fukushima disaster

There were three major reports into the causes of Fukushima. The bullet points below list

in chronological order the organisations that produced each report, dates of publication, the title of each report, and the length of each report foreword:

- TEPCO, published in December 2011, titled 'Fukushima Nuclear Accident Analysis Report', 486 words.

- The Japanese National Diet, published in July 2012, titled 'The Official Report of the Fukushima Nuclear Accident Independent Investigation Commission', 649 words.

- The International Atomic Energy Agency, published in August 2015, titled 'The Fukushima Daiichi Accident', 980 words.

The International Atomic Energy Association (IAEA) report is in English. TEPCO's report and The National Diet report are originally in Japanese but were intended for a global audience and thus have professional translations that accurately reflect the original contents. All of these reports are public documents available as pdfs on the respective bodies' websites (links are in Appendix B).

6.3: Difficulties with allocating responsibility for Fukushima

When the consequences of Fukushima emerged, so too did the importance of responsibility. As I discussed in chapter two, this was a contested issue. The public became aware that things had gone wrong, and the questions were who, what and why. Reports into the disaster attempted to provide answers to these questions. The difficulty here is that for a disaster such as Fukushima there are numerous potential causes. Agency could rest with natural or human forces. It could rest with individuals, organisational structures, or wider culture. It might be a system, or people acting within that system. Alternatively, agency could fall on no one, or nothing in particular, and the disaster might

just 'have happened'. It must be stressed, however, that the difficulty of determining responsibility does not make it any less important.

How and where responsibility is placed has consequences for, among other things, the future of the nuclear industry, for energy policies, for the conduct of government business, and for industry regulation. This means an important issue in these reports is the degree to which they blame or exonerate those who potentially could be seen as culpable. Each of these reports is produced by or features the voices of parties that might be responsible: TEPCO (as plant operators), the government (in charge of nuclear regulation), and the International Atomic Energy Agency (responsible for world standards in the nuclear industry). In this respect none of them could be seen as entirely neutral. Therefore, while the stated aim of each report was to investigate the causes of the accident in order to learn from them and prevent a similar occurrence in the future, another objective was perhaps to reclaim legitimacy and regain public trust.

6.4: Approach to analysis of official reports

I examine the foreword for each of these reports. These are a suitable length for close linguistic analysis. Although the foreword is relatively short, it is arguably the most important part of each report. It shows how the producers view the objective of the report and how they wish the contents to be interpreted. It summarises the report findings and contains what the producers view as the key points. Furthermore, forewords are the most widely and closely read part of a report because only experts and other interested parties

would be expected to read the full contents. Lastly, it is the information in forewords that is much more likely to be reported in the media.

I examine the reports in chronological order. I begin with a brief background of the context of each report. I then apply each of the four sections of the framework to the forewords. For these forewords the total instances of action are fairly small, and I am interested in close analysis of individual texts rather than making comparisons between corpora. Therefore, in this chapter the tables show categories of agency as the percentages that they comprise of the total number of representations of each aspect of agency. For each report I comment on agency overall, but focus on two aspects. The first is the representation of specific actors that feature prominently (these differ slightly in each report). I discuss how the representations of agency of these actors relate to the objectives of each report. The second focus is the representation of responsibility for the disaster. I discuss how who or what is blamed is connected with the objectives of each report. Displaying the full text and commenting on every linguistic feature would be ideal, but unfortunately would be extremely cumbersome as the forewords are slightly too long to do this. However, I look in detail at key extracts and comment on the ideological work they perform. I use the framework to examine how the disaster is contextualised and how responsibility is represented.

6.5: TEPCO report

The first report was TEPCO's Interim Investigation into the disaster, published on

December the 2nd 2011, approximately 9 months after the disaster began. By this time it was acknowledged that the cleanup work and financial compensation for the disaster would be enormous. TEPCO were aware that they would most likely be held financially liable (McNeill, 2012). It had become clear that radiation levels meant many people would never be able to return to their homes. Furthermore, serious problems at the plant were continuing and radioactive water was leaking into the Pacific, affecting the Japanese fishing industry. There was public anger at the consequences of Fukushima, particularly the plight of displaced residents waiting for compensation. Questions about the disaster had surfaced, but the degree to which natural and man-made causes played a part was uncertain, and Fukushima was mostly seen as resulting from the earthquake and tsunami. At this point there were no other official versions of what happened, so to a certain extent TEPCO had a chance to control the narrative. However, after this report was published more information about the disaster came to light, and this report came to be perceived as something of a cop-out which appeared to downplay TEPCO's role in the disaster. It was criticised for eschewing responsibility and avoiding blame. Lukner & Sakaki argue this was partly because TEPCO feared later investigations would blame them (2013, p. 6).

The foreword is by Masao Yamazaki, Chairman of TEPCO's Investigation Committee. As the organisation responsible for constructing and operating the plant, as well as responsible for the majority of the work to repair damage to the plant, TEPCO obviously had a lot invested in how the disaster was viewed. The narrative in this report is that the

disaster was an unforeseeable event. I look at agency in the foreword in general and more specifically at actions by TEPCO. The analysis shows how TEPCO's responsibility is deliberately backgrounded. TEPCO refer to mistakes, but direct agency is absent. I argue that the report is a damage limitation exercise that seriously underplays TEPCO's agency. This avoidance of reference to responsibility has been noted elsewhere, and is evident from a surface reading of the foreword. In this sense my analysis does not aim to provide any new conclusions about the report. Rather, it aims to specify the linguistic means by which agency is avoided, and demonstrate how the framework can be useful in doing this. All examples that follow come from the foreword (TEPCO, 2011).

6.5.1: Coreness in the TEPCO foreword

The table overleaf shows each category of Coreness, expressed as a percentage of all instances of Coreness in the foreword. The table includes instances in the foreword as a whole, as well as instances where TEPCO is the actor.

Table 6.5.1: Coreness categories in the TEPCO foreword

Overall: 82 instances, 40% Dynamic and 60% Static.

TEPCO: 36 instances, 42% Dynamic and 58% Static.
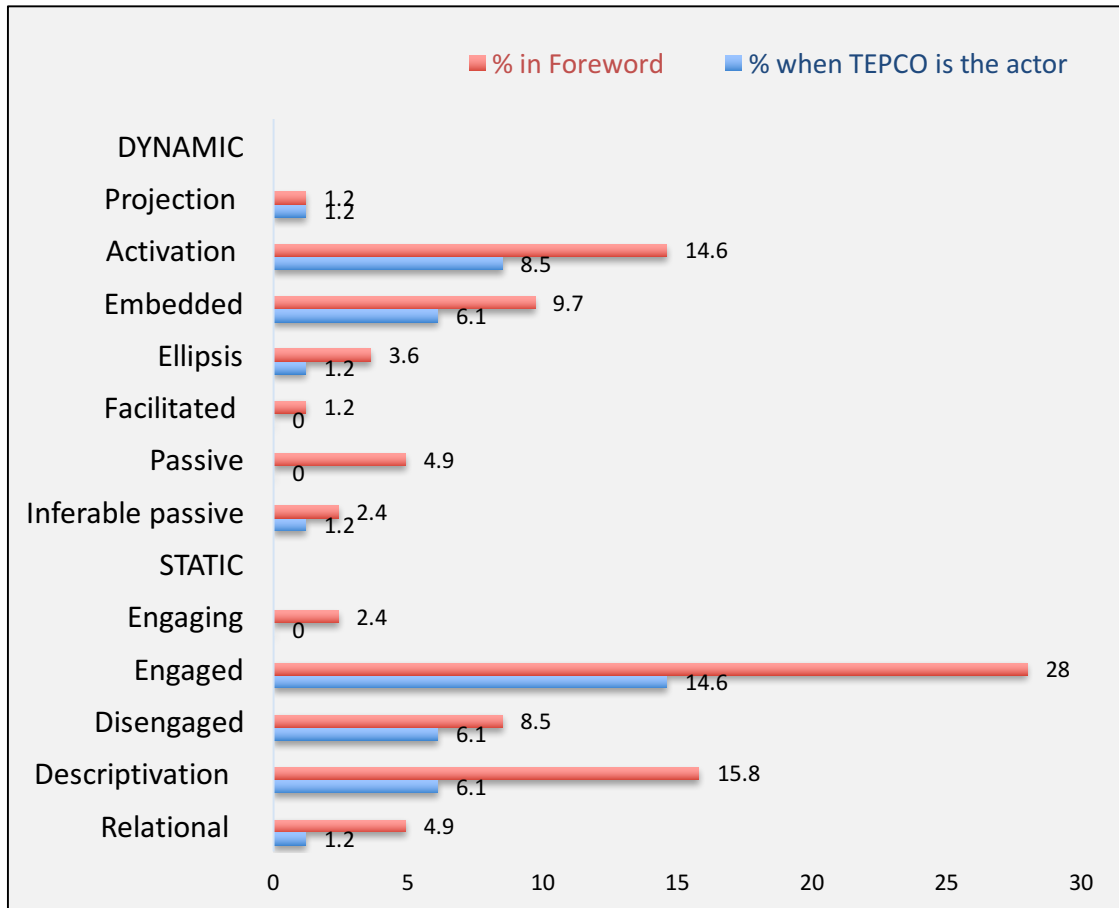
The foreword is two-fifths Dynamic and three-fifths Static action. TEPCO is an important actor, being responsible for just under half of all instances of Coreness. Examining Coreness in detail shows two points of note. One is differences in the agency of TEPCO actions that could be viewed as positive and actions that could be viewed as negative. The other is how the effects of the disaster are represented with a life of their own and not as connected to TEPCO.

TEPCO has a similar ratio of Dynamic to Static action as the whole text, so the agency of their actions is consistent with the overall tone of the report. However, differences appear when comparing the nature of actions which are Dynamic and Static. The pattern is that actions TEPCO does which can be interpreted negatively tend to be Static, so the agency is less Core. For example (Dynamic action in red, Static action in blue, lexis indicating TEPCO is the actor underlined):

1.   We will continue to work as hard as we can to ensure the stable cooling of the reactors at the Fukushima Daiichi Nuclear Power Station, to reduce the release of radioactive materials so that the citizens of Japan can feel secure, and to enable the evacuees to return home as soon as possible.

The Dynamic actions with clearest agency are the Activation 'continue to work', and the Ellipses 'ensure', 'reduce' and 'enable', all of which emphasise TEPCO's agency in dealing with the situation. The Static actions are one Descriptivation 'as hard as we can', and two Engaged actions, which are 'stable cooling' and the action which is undeniably negative – 'release of radioactive materials'. Another example of this pattern is:

2.   TEPCO acknowledges that, in light of the severity of this accident, it is its social responsibility to conduct strict and thorough investigations and verifications of the accident, identify the causes of the accident, and reflect the lessons learned in its business operations, in order to prevent the recurrence of similar accidents.

The Dynamic actions are 'acknowledge' and 'prevent', which portray TEPCO as agentive in apologising and taking steps to change things. The Coreness is reduced for the actions that imply TEPCO made mistakes and need to change, such as 'reflect the lessons learned'. What is more, as Static representations these are inarguable and so assume lessons *will* be learned and things *will* improve. A final example of the trend is:

3.   This interim report is intended to compile investigation results that have been verified so

far. The report is mainly focused on the event causes and their preventive measures, especially from the point of facility design. It describes preparations for accidents, damage to the facilities by the earthquake and tsunami, accident management work, event progression of core damage, hydrogen explosions, and so on.

All TEPCO's actions which were inadequate or faulty are less Core: 'preventive measures', 'facility design', 'preparations for accidents', and 'accident management work'. Again, they are Static entities rather than Dynamic actions that TEPCO took. The contrast between positive and negative actions in examples 1-3 is reinforced by looking at the vocabulary choices. The lexis used to describe negative actions is abstract: 'lessons learned', 'event causes', 'preventative measures', and 'preparations for accidents'. This contrasts with the more precise lexis of the Dynamic actions 'continue to work', 'acknowledges' and 'verified'.

It is also revealing to examine the three times in the foreword that the effects of the disaster are mentioned. The first one is this:

4.   TEPCO had received support and understanding from many people with regard to its nuclear power generation. However, the accident has destroyed such public trust, for which we again would like to express our deep apologies.

When the actor is TEPCO the Dynamic actions are 'receive support' and 'express apologies'. When the actor is the *disaster* the Dynamic action is 'destroying public trust'. Hence, when a more Core representation of responsibility is used this is attributed to the 'accident' rather than TEPCO. Responsibility is backgrounded because TEPCO are apologising for the 'accident's destruction of trust', rather than for their own negligence. The same pattern is evident in the second extract:

5.　　　<u>We</u> deeply apologize for the anxiety and inconvenience caused to the local residents around the power station, the residents of Fukushima Prefecture, and broader members of the society due to the extremely serious accident in which radioactive materials were released.

TEPCO's action is Dynamic 'apologise', modified by Static 'deeply', both positive. Again here the thing being apologised for is the 'anxiety' and 'inconvenience' of the disaster, rather than any action by TEPCO. The disaster itself performs the Dynamic Passive action 'were released'. It is somewhat unclear as to who or what caused this 'accident'. It is also noteworthy that the actions of the public are 'anxiety' and 'inconvenience', which are backgrounded as Engaged actions affected by the TEPCO apology. So as well as the use of Static action to background actions with a negative prosody, the lexical choices also downplay the hardships; using 'anxiety' to describe worrying about exposure to dangerous levels of radiation, and 'inconvenience' to describe a forced evacuation of one's home appears to trivialise what happened. Similar backgrounding is evident in the final extract that mentions the disaster:

6.　　　Reflecting on the accident at the Fukushima Daiichi Nuclear Power Station, the risk-reducing measures against a nuclear disaster consequently turned out to be insufficient.

The responsibility is ascribed to a Static Engaging action of 'risk-reducing measures', which does the Dynamic action of 'turned out to be'. The most direct representation of TEPCO's failure is the Descriptivation 'insufficient'. In this way the representation of what TEPCO did wrong is less agentive Static actions, whereas the more agentive Dynamic actions are the neutral 'turned out to be' and the representation of their thinking about the disaster as the Ellipsis 'reflecting'. In other words, instead of TEPCO admitting or recognising their failure directly, they 'reflect' on the 'insufficiency' of the inanimate

'risk-reducing measures'.

To summarise the patterns of Coreness in the foreword, when TEPCO performs what are likely to be positively evaluated actions of repentance and reflection these have stronger Coreness, but when they perform what might be negatively evaluated actions that were faulty or insufficient these have lower Coreness. Direct reference to causation and mistakes is avoided.

6.5.2: Effect in the TEPCO foreword

Table 6.5.2: Effect categories in the TEPCO foreword

Overall: 34 instances.

TEPCO: 22 instances.
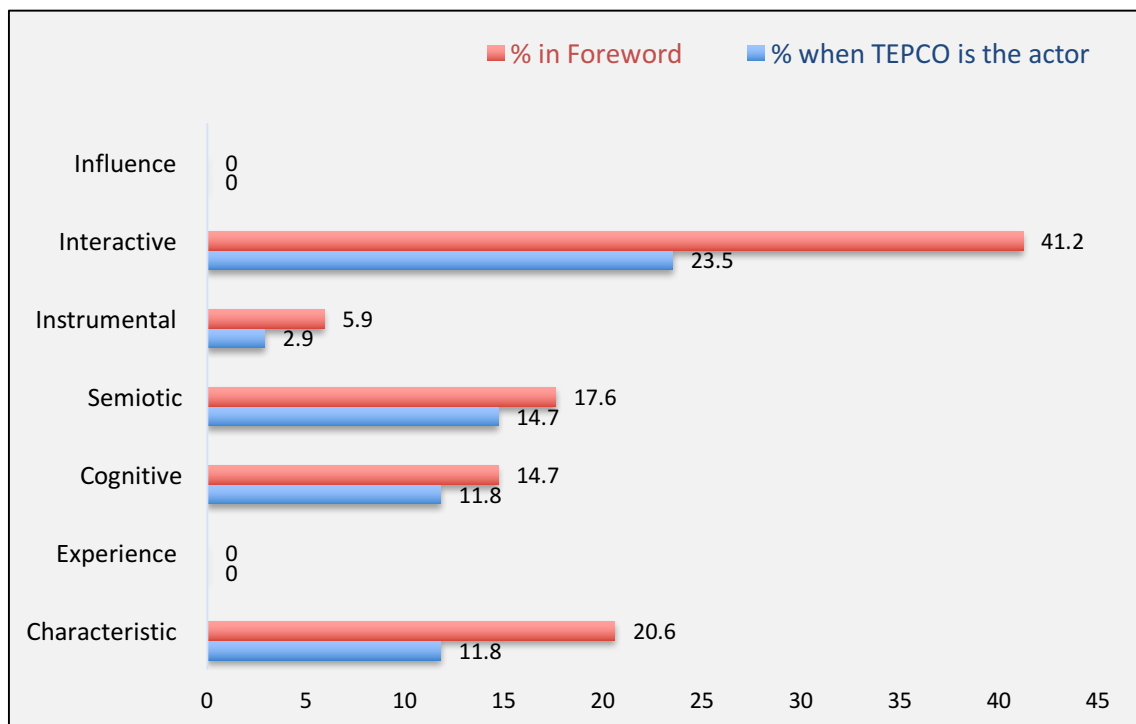
Looking at patterns of Effect shows how TEPCO represents itself as fixing the situation

at the plant, apologising for this situation, and avoiding blame. Analysis reinforces some of the arguments made above when discussing Coreness.

Interactive actions are most common in this foreword. TEPCO Interactive actions are often technical in nature and to do with solving problems at the plant. For example, here is an extract examined before, this time looking at Effect (lexis indicating TEPCO is the actor underlined and Interactive action in red):

7.   <u>We</u> will continue to work as hard as we can to ensure the stable cooling of the reactors at the Fukushima Daiichi Nuclear Power Station, to reduce the release of radioactive materials so that the citizens of Japan can feel secure, and to enable the evacuees to return home as soon as possible. <u>We</u> will also steadily work through mid- and long-term projects toward decommissioning.

TEPCO have strong Effect in terms of working to solve these problems, which suggests they are diligent and committed.

TEPCO performs the majority of the Semiotic and Cognitive categories in the foreword, meaning they have most of the 'psychological' agency in the foreword. This is primarily about apologies and displaying repentance. When TEPCO does Semiotic actions this develops a theme of sincerity and honesty. For example (Semiotic action in red):

8.   TEPCO had received support and understanding from many people with regard to its nuclear power generation. However, the accident has destroyed such public trust, for which <u>we</u> again would like to express our deep apologies.

9.   <u>We</u> deeply apologize for the anxiety and inconvenience caused to the local residents around the power station, the residents of Fukushima Prefecture, and broader members of the society due to the extremely serious accident in which radioactive materials were released.

10. <u>I</u> would like to express my heartfelt sympathy to all of the people who were affected by the devastating earthquake on March 11 this year.

I have already discussed how example 8 represents the damage of the disaster as 'public trust' rather than anything material. Example 9 similarly equates the damage to the psychological factors of 'anxiety and inconvenience'. Interestingly, in example 10 sympathy extends to people affected by the 'earthquake' rather than the nuclear disaster, thus subtly conflating the natural disaster with the situation at Fukushima. The tone of the foreword implies that TEPCO is sorry *about* the situation more than sorry *for* the situation. Finally, it is worth looking again at another example that I discussed in Coreness, but this time in terms of Effect. This is the part of the foreword that comes closest to an acceptance of blame. Here TEPCO have a Cognitive action (red) and a Characteristic (<u>red underlined</u>):

11. <u>TEPCO</u> acknowledges that, in light of the severity of this accident, it <u>is</u> its social responsibility to conduct strict and thorough investigations and verifications of the accident, identify the causes of the accident, and reflect the lessons learned in its business operations, in order to prevent the recurrence of similar accidents.

This 'social responsibility' action by TEPCO has the least agentive Effect category of Characteristic, because it simply exists. TEPCO is slightly more agentive with the Cognitive action of recognising this responsibility. In other words, the nearest the foreword comes to an admission of responsibility is TEPCO's Cognitive acknowledgement of a responsibility to investigate and learn, rather than a material action that caused anything to happen. Furthermore, this is an obligation to 'prevent recurrence' rather than obligation for the previous occurrence. This extract reads like a public relations exercise in which TEPCO co-opts the public desire for answers and represents

it as their own attitude towards the disaster.

In summary, when TEPCO have strong Effect this is in repairing the situation rather than causing it, and when they have weaker psychological Effect this is feeling sorry for the situation rather than mistaken thinking which lead to the situation. The final, and telling, point to note is that there are no instances of the Effect category of Influence in this foreword!

6.5.3: Intensity in the TEPCO foreword

Table 6.5.3: Intensity categories in the TEPCO foreword

Overall: 10 Increases and 1 Decrease.
TEPCO: 6 Increases and 0 Decreases.
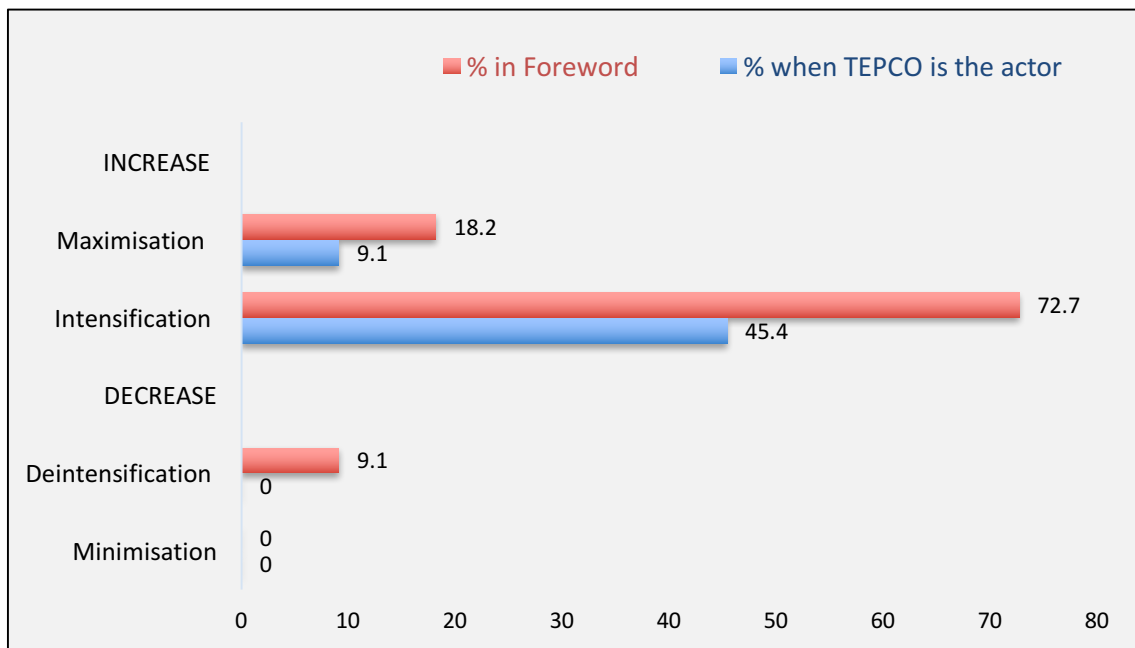
The arguments developed in Coreness and Effect are further reinforced by looking at

Intensity in TEPCO actions. Intensity is used to stress TEPCO's sincerity and their efforts to solve problems. For instance (Intensification in red):

12. We deeply apologize for the anxiety and inconvenience caused to the local residents around the power station, the residents of Fukushima Prefecture, and broader members of the society due to the extremely serious accident in which radioactive materials were released.

In example 12 the Intensification of the TEPCO apology contrasts with the more neutral prosody of the residents' 'anxiety and inconvenience'. In the next example Intensity Increases emphasise TEPCO's industriousness and commitment to helping the local population (Maximisation red underlined):

13. We will continue to work as hard as we can to ensure the stable cooling of the reactors at the Fukushima Daiichi Nuclear Power Station, to reduce the release of radioactive materials so that the citizens of Japan can feel secure, and to enable the evacuees to return home as soon as possible.

TEPCO represent themselves as doing their utmost ('as hard as we can'), and stress their concern for local residents ('as soon as possible'). In this final example TEPCO's commitment is Intensified, as is the accident itself:

14. TEPCO acknowledges that, in light of the severity of this accident, it is its social responsibility to conduct strict and thorough investigations and verifications of the accident, identify the causes of the accident, and reflect the lessons learned in its business operations, in order to prevent the recurrence of similar accidents.

The responsibility for 'strict and thorough' investigations strengthens the representation of TEPCO's commitment. The Intensification 'severity of the accident' is interesting as well. When the seriousness of the accident is directly mentioned it is in relation to the *scale* of the accident rather than the *effects* of the accident.

To summarise, the actions by TEPCO with greater Intensity tend to be conscientious actions to redress problems and show remorse. They seem to perform a face-saving function of emphasising the correct attitude of contrition for the disaster.

6.5.4: Freedom/Constraint in the TEPCO foreword

Table 6.5.4: Freedom/Constraint categories in the TEPCO foreword

Overall: 5 Freedoms and 7 Constraints.
TEPCO: 2 Freedoms and 4 Constraints.
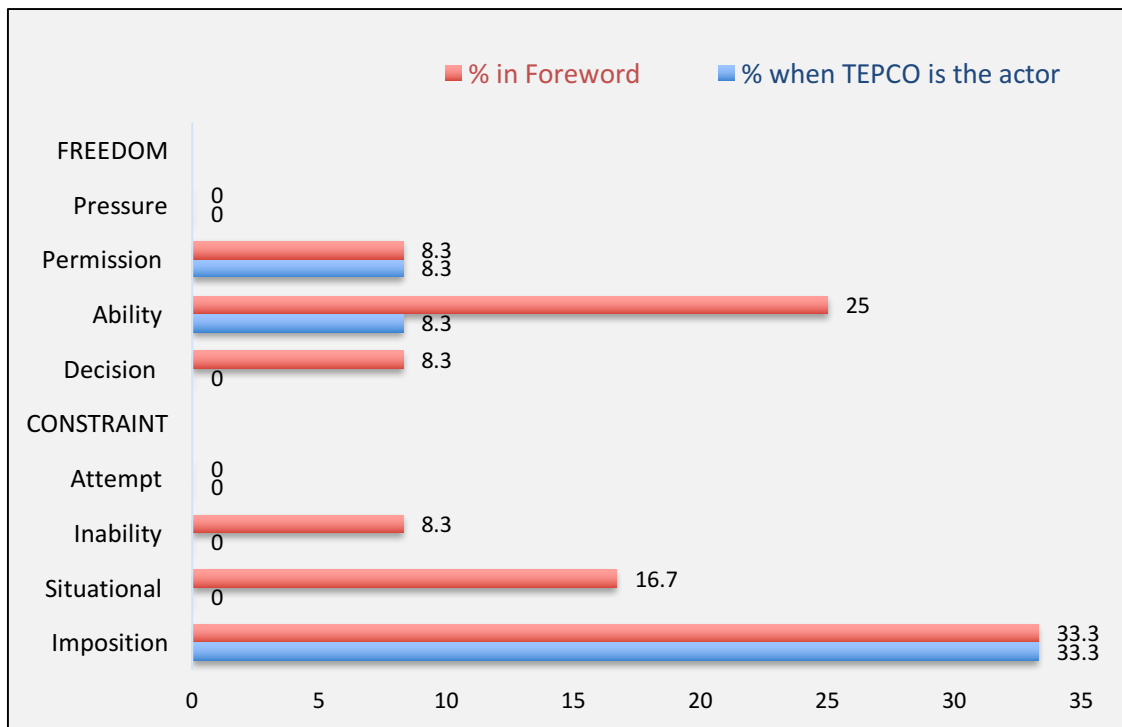
Freedom and Constraint is important for the positive self-presentation of TEPCO. When TEPCO has Freedom it emphasises their commitment to dealing with the disaster and helping the public. For instance (lexis showing TEPCO is the actor underlined and Freedoms in red):

15. <u>We</u> will continue to work as hard as we can to ensure the stable cooling of the reactors at the Fukushima Daiichi Nuclear Power Station, to reduce the release of radioactive materials so that the citizens of Japan can feel secure, and to enable the evacuees to return home as soon as possible.

TEPCO is agentive with the Ability to work 'as hard as they can', and as giving Permission to allow the public to 'feel secure and return home'. Where TEPCO is subject to Constraint it is the four Impositions in the following extract (Impositions in blue):

16. TEPCO acknowledges that, in light of the severity of this accident, it is <u>its</u> social responsibility to conduct strict and thorough investigations and verifications of the accident, identify the causes of the accident, and reflect the lessons learned in its business operations, in order to prevent the recurrence of similar accidents.

TEPCO is obliged by its responsibilities to 'investigate', 'verify', 'identify causes' and 'reflect lessons'. As explained above, the nature of these Impositions is not compensation or redress for victims of the disaster, but instead obligation to learn and change, which has positive connotations. Importantly, when TEPCO is subject to Constraint this is a responsibility to fix the situation, not a responsibility *for* the situation.

Examining the use of Freedom/Constraint also supplements an extract I commented on previously in example 6. This extract is important because it refers to responsibility for the disaster (actors <u>underlined</u>, Freedoms in red and Constraints in blue):

17. Reflecting on the accident at the Fukushima Daiichi Nuclear Power Station, <u>the risk-reducing measures</u> against a nuclear disaster consequently turned out to be insufficient. Almost all of the <u>equipment and power sources</u> that were expected to be activated in the case of an accident lost their functions, and thus, the <u>event</u> extended far beyond the existing framework for safety measures.

The actors for the Constraints here are technological. The first Inability is ascribed to 'risk

reducing measures' and the second Situational Constraint is ascribed to 'equipment and power sources'. Where there is Freedom it is for the disaster - the Ability to do damage by 'extending beyond safety measures'. There is a contrast between the agency of the disaster and the lack of agency of the plant. The failures at Fukushima are located in inanimate actors and not the humans controlling the plant.

6.5.5: Summary of agency in the TEPCO foreword

Looking at each aspect of agency develops similar themes of positive TEPCO self-presentation. TEPCO is much more Core when performing positively evaluated actions of addressing problems and expressing remorse for the situation, and less Core when actions that led to the disaster are mentioned. Similarly, TEPCO have strong Effect in terms of solving the crisis and perform most of the Cognitive and Semiotic actions in the foreword, which express contrition. In addition, many of the actions with increased Intensity relate to fixing and apologising. TEPCO have Freedoms to control the situation and help people, and are Constrained in their responsibility to learn. The recurring theme is that when TEPCO has stronger agency it is in rectifying rather than causing Fukushima. This version of events backgrounds potential causes of problems and therefore their culpability. A point of note here is the framing of the disaster as an 'unforeseeable event'. This strategy appears to attempt to conflate Fukushima into the narrative of the earthquake and tsunami, equating it with these other natural forces that caused so much damage.

In all, there seems to be a straightforward relationship between the portrayal of agency and the goals of the report. The analysis suggests that the TEPCO foreword is a kind of corporate public relations damage control exercise. As the company responsible for the plant, TEPCO were associated with the disaster, and thus one consideration was undoubtedly mitigating the implied blame. This is reflected in the heavy backgrounding or absence of agency for causes of the disaster, and foregrounding of agency in terms of rectifying the situation. Agency in terms of responsibility for the disaster is noticeably absent in this foreword. The question of responsibility is not addressed directly (as it is in the other reports to follow).

6.6: The Japanese National Diet report

The second report to be released was by the Fukushima Nuclear Accident Independent Investigation Commission**,** established by the Japanese National Diet. It was published on July the 5th, 2012, fifteen months after the disaster. The foreword is by Kiyoshi Kurokawa, Chairman of the Commission. This report had a big impact because of the damning criticisms it made of the nuclear village. Whereas previously there was a perception that the disaster was a once-in-a-million event, it shifted the view of Fukushima from a natural disaster to a human one. It was widely reported outside Japan, particularly the key phrases in the foreword 'manmade disaster' and 'a disaster made in Japan'. This report was explicit in its criticism of institutional failings that led to the disaster. The extent of the failings identified was a severe shock to Japan, and the report had to negotiate this difficult and somewhat painful context.

I analyse actions in the foreword as a whole and actions by two specific groups. The first is actions attributed to the nuclear village – that is to say TEPCO, the nuclear industry as a whole, nuclear regulators and the Japanese bureaucracy (I shall capitalise as 'Nuclear Village' to show I am referring to this actor). The second is actions attributed to Japan as a nation. I do not look at the representation of the organisation producing the report (the Diet), because it features much less than in the other reports. In the analysis I argue that while there is direct blame attached to the Nuclear Village, two trends background responsibility. The most important is how responsibility is spread to the whole of Japan. The second is how criticism of this wider Japanese culture which led to the disaster is balanced with praise and situated within a positive context. I link this to the fact that this report delivered criticisms of major institutions in Japanese society and as such it may have been expedient to soften the blow in some way. I argue that this strategy diffuses responsibility away from the individuals and structures involved in the decisions that led to Fukushima, and that this ultimately blunts the criticism. All examples come from the foreword (The Fukushima Nuclear Accident Independent Investigation Commission, 2012).

6.6.1: Coreness in the Diet foreword

Table 6.6.1 on the following page shows Coreness categories for the foreword as a whole, as well as actions by the Nuclear Village and actions by Japan.

Table 6.6.1: Coreness categories in the Diet foreword

Overall: 127 instances, 39% Dynamic and 61% Static.

Nuclear Village: 45 instances, 40% Dynamic and 60% Static.

Japan: 20 instances, 25% Dynamic and 75% Static.
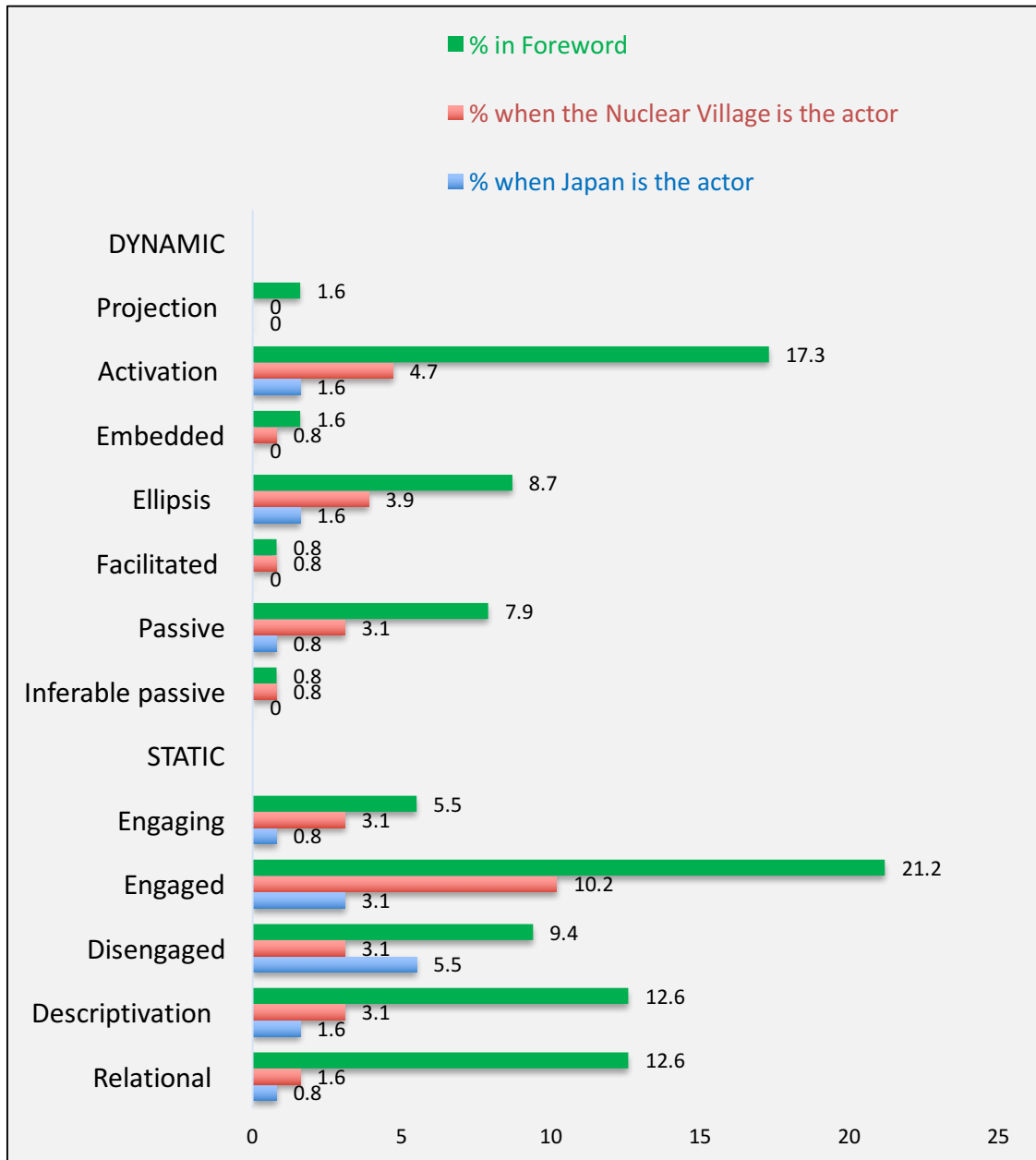
There is a ratio of roughly two-fifths Dynamic to three-fifths Static action (which is similar to the TEPCO report). There are a relatively high number of Embedded and Engaged actions. This reflects how there is a lot of action packed into the text. However,

reading the foreword does not give the impression that information is being hidden, obscured or manipulated (as a surface reading of the TEPCO foreword did). Indeed, the criticism is clear. One indication of this clarity is that there is only one case where a passive action needs to be inferred. In the case of this foreword, then, with its densely packed information, it is instructive to look at *how* this summarising takes place, in terms of who or what is prioritised for blame. A close examination of Coreness shows two significant themes in the way that blame is apportioned.

The first significant theme is attributing the disaster to an institutional mindset. This idea is introduced like this (Dynamic action in red and Static action in blue):

18. Our report catalogues a multitude of errors and willful negligence that left the Fukushima plant unprepared for the events of March 11. And it examines serious deficiencies in the response to the accident by TEPCO, regulators and the government.
    For all the extensive detail it provides, what this report cannot fully convey – especially to a global audience – is the mindset that supported the negligence behind this disaster.

The Dynamic actions most clearly connected to an actor ('our report catalogues', 'it examines', 'it provides' and 'this report cannot convey') are all performed by the report itself. Where wrongdoing is represented the actor performing 'left Fukushima unprepared' is 'errors and negligence', and the actor performing 'negligence behind the disaster' is a 'mindset'. The tone of criticism is clear, but the action describing what went wrong is overwhelmingly Static and thus less Core - 'errors', 'willful negligence', 'deficiencies', and 'response'. When the actors are specifically labelled, as 'TEPCO, regulators and the government', their action is Static - the 'deficiencies' in a 'response'. The point

153

exemplified here is how weaker Coreness makes it harder to discern who exactly did what, so this kind of vague representation diffuses responsibility. I will explore this idea of blaming the disaster on a 'mindset' in more detail when analysing Effect.

The second important theme is diffused responsibility onto Japan itself. The ratios of Coreness in actions by Japan are similar to those in the text as a whole, but with slightly more of the Static category Disengaged. Two sections of the foreword are important in developing the idea of collective responsibility. The first is this (Static actions by Japan in blue):

19. What must be admitted – very painfully – is that this was a disaster "Made in Japan." Its fundamental causes are to be found in the ingrained conventions of Japanese culture: our reflexive obedience; our reluctance to question authority; our devotion to 'sticking with the program'; our groupism; and our insularity.
Had other Japanese been in the shoes of those who bear responsibility for this accident, the result may well have been the same.

The obvious thing here is the high level of Static action. When Japan is an actor in the first paragraph of example 19 the action is a Disengaged 'ingrained conventions' of Japanese culture. These 'conventions' are also all Disengaged ('reflexive obedience' and so on). The weak Coreness makes them background features to the overall argument, not actions that an individual performs. This is important in spreading and sharing the blame. These 'ingrained conventions' are 'causes' of the disaster, and the causes are represented with the least agentive category of Static action, a Relational 'are to be found'. In short, this is an abstract representation of the 'fundamental causes' of the disaster, and can be compared with a more Core formulation such as "Japanese culture caused this accident".

154

Where Japanese people are the actor in the second paragraph the action is again Static - a Relational 'had been' for this theoretical proposition. This sets up the claim that any other Japanese person would have done the same thing, further diffusing the blame because it makes everyone equally responsible. Agency is attributed to national characteristics, something presumably underlying but abstracted from individual actors or group decisions.

A second section later in the foreword develops this theme of diffused responsibility. The two paragraphs in the following example refer to lessons that should be learned from the disaster:

20.   Many of the lessons relate to policies and procedures, but the most important is one upon which each and every Japanese citizen should reflect very deeply.
        The consequences of negligence at Fukushima stand out as catastrophic, but the mindset that supported it can be found across Japan. In recognizing that fact, each of us should reflect on our responsibility as individuals in a democratic society.

The Dynamic actions associated with Japan are two instances of 'reflect', which has positive connotations of learning. In contrast the 'responsibility' and 'mindset' are Static. This 'mindset' has previously been identified in the foreword as the cause of the disaster and as something that is shared among all Japanese, but it is also less Core with the Static Relational 'can be found'. Action by Japan is thus less Core when Japan is responsible and more Core when Japan is learning lessons. The overall effect of examples 19 and 20 is to take blame away from specific individuals by implying that anyone else would act the same. It reduces personal agency in the sense that everyone is a product of their culture.

6.6.2: Effect in the Diet foreword

Table 6.6.2: Effect categories in the Diet foreword

Overall: 61 instances.

Nuclear Village: 20 instances.

Japan: 6 instances.
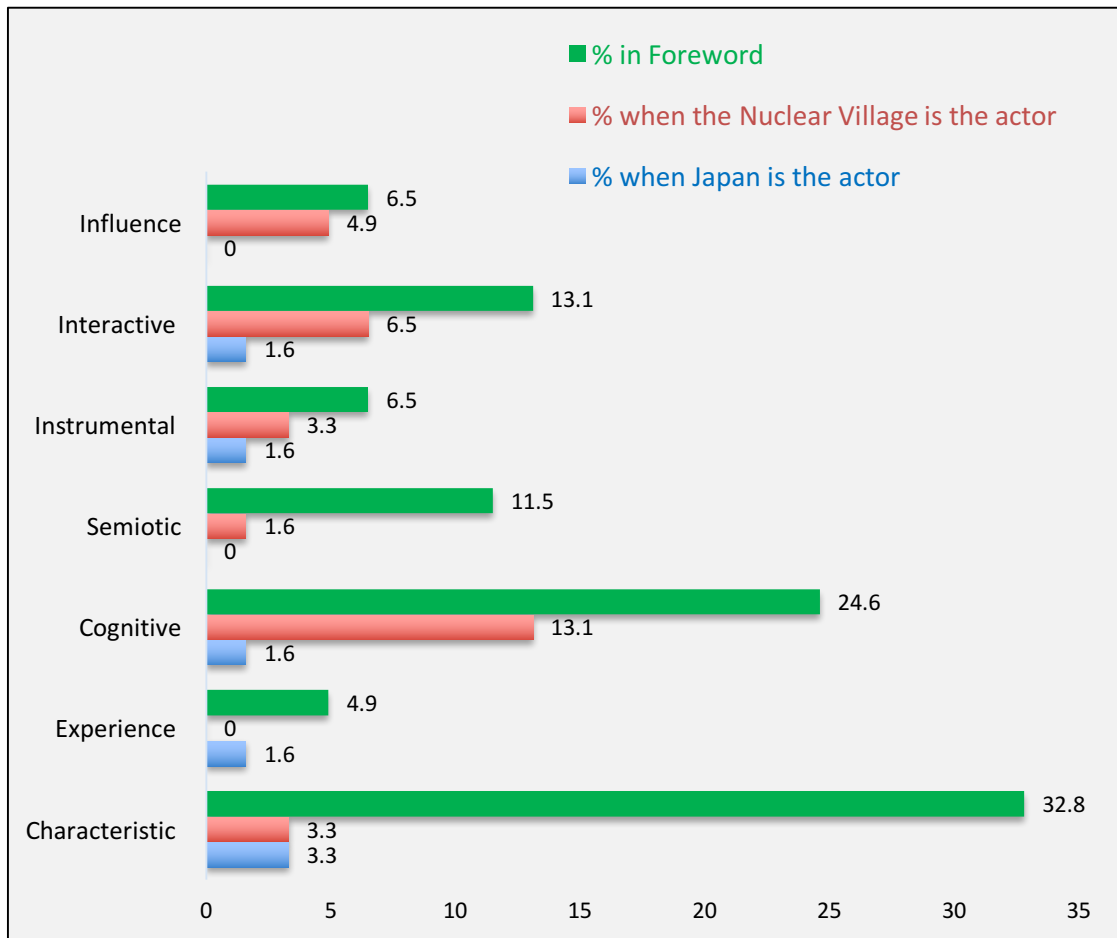
The interesting point is that there is more 'psychological' agency than 'physical' agency. Influence, Interactive and Instrumental together total 26.1% whereas Semiotic, Cognitive and Experience together total 41%. This means that there is less acting on the world, and more communicating about or considering it. One reason for the comparatively high levels of Semiotic and Cognitive action is that the report is concerned with shaping views

of Fukushima. The opening paragraph of the report clearly demonstrates this (Cognitive action in red, Characteristic red underlined):

21.   The earthquake and tsunami of March 11, 2011 were natural disasters of a magnitude that shocked the entire world. Although triggered by these cataclysmic events, the subsequent accident at the Fukushima Daiichi Nuclear Power Plant cannot be regarded as a natural disaster. It was a profoundly manmade disaster – that could and should have been foreseen and prevented.

Both instances of Cognitive actions are used with modality, defining how people should view the disaster in hindsight and claiming that it should have been previously foreseen. The Characteristic is a simple statement of the manmade nature of Fukushima. This section of the foreword is particularly important because it began a shift in perception of the disaster. The idea that Fukushima was caused by a natural disaster is rejected, which was a clear break with TEPCO's previous report. As I noted previously, the phrase 'profoundly manmade disaster' was widely quoted in media coverage of this report.

Another important point about Cognitive action is that the Nuclear Village perform just over half of the Cognitive action in the foreword. This develops the idea discussed in Coreness about how responsibility is associated with a 'mindset'. The previous analysis of Coreness showed how Static representations of action background this 'mindset', and looking at Effect adds to this by showing that when the Nuclear Village does act with strong Coreness this is often mental rather than physical. The following extract, although lengthy, illustrates this well (Cognitive action in red):

22.   With such a powerful mandate, nuclear power became an unstoppable force, immune to scrutiny by civil society. Its regulation was entrusted to the same government

157

bureaucracy responsible for its promotion. At a time when Japan's self-confidence was soaring, a tightly knit elite with enormous financial resources had diminishing regard for anything 'not invented here.'

This conceit was reinforced by the collective mindset of Japanese bureaucracy, by which the first duty of any individual bureaucrat is to defend the interests of his organization. Carried to an extreme, this led bureaucrats to put organizational interests ahead of their paramount duty to protect public safety.

Only by grasping this mindset can one understand how Japan's nuclear industry managed to avoid absorbing the critical lessons learned from Three Mile Island and Chernobyl; and how it became accepted practice to resist regulatory pressure and cover up small-scale accidents. It was this mindset that led to the disaster at the Fukushima Daiichi Nuclear Plant.

This represents the Nuclear Village with weaker agency, as a 'thinker'. This is important in terms of responsibility because the emphasis is on internal psychological processes, rather than a stronger Effect on the world which might have more concrete repercussions. In addition, it is instructive to consider the final sentence of example 22, which is the point at which responsibility is most explicitly addressed in the whole foreword. Causation here resides in a collective mindset and a duty. The disaster was a failure of *thought* as much as of *action*. It is worth bearing in mind here that the common sense and legal views of what constitutes responsibility tend towards physical actions rather than thought processes.

Effect also plays a role in the positive portrayal of Japan. The percentages of Effect for Japan are fairly small, but close analysis shows how they perform a kind of face-saving function for the representation of the nation. For instance, this example emphasises the shock that was felt at the accident (Cognitive in red and Characteristic in red underlined):

23.   How could such an accident occur in Japan, a nation that takes such great pride in its global reputation for excellence in engineering and technology? This Commission believes the Japanese people – and the global community – <u>deserve</u> a full, honest and transparent answer to this question.

The Cognitive action is a positive national characteristic 'take pride'. The Characteristic 'deserve' accords respect to the nation. The next example explains why Japan uses nuclear power (Interactive in red):

24.   Following the 1970s "oil shocks," Japan accelerated the development of nuclear power in an effort to achieve national energy security. As such, it was embraced as a policy goal by government and business alike, and pursued with the same single-minded determination that drove Japan's postwar economic miracle.

When Japan has stronger Interactive agency here it is to realise a desirable goal of 'energy security', meaning Japan has stronger agency when linked with positively-evaluated or understandable actions. It is a neutral representation ('accelerated') rather than one with negative connotations, and seeks to contextualise and justify the use of nuclear power as stemming from the objective of national development.

To summarise, the foreword has comparatively weak Effect, and features many instances of thinking and existence. This creates a tone of 'how the conditions for Fukushima arose' rather than more concrete representations of 'who did what to cause Fukushima', or 'what happened'.

6.6.3: Intensity in the Diet foreword

Table 6.6.3: Intensity categories in the Diet foreword

Overall: 22 Increases and 2 Decreases.

Nuclear Village: 8 Increases and 0 Decreases.

Japan: 7 Increases and 0 Decreases.
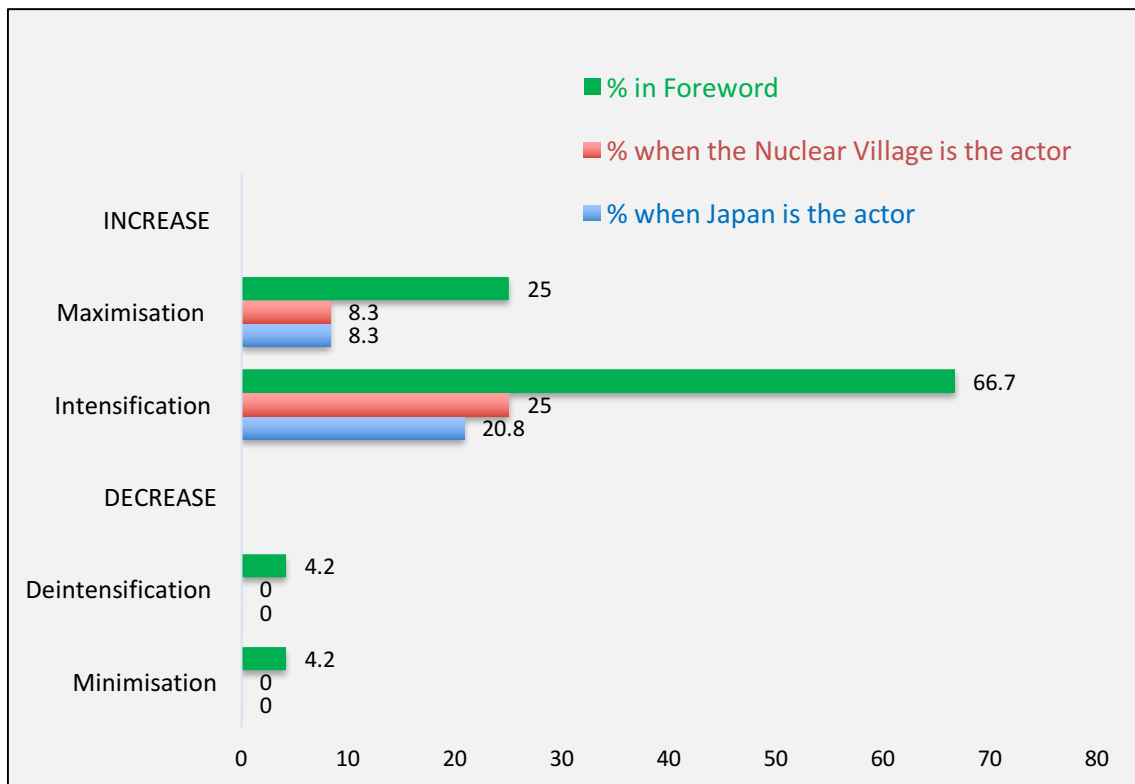
There are numerous Intensity Increases, and a notable percentage are Maximisations. This contributes to a serious and dramatic tone in the foreword. The patterns of Intensity are notable in two aspects. The first is the use of Intensity to emphasise human as well as natural factors in the disaster. For example (Intensification in red and Maximisation red underlined):

25. The earthquake and tsunami of March 11, 2011 were natural disasters of a magnitude that shocked the entire world. Although triggered by these cataclysmic events, the subsequent accident at the Fukushima Daiichi Nuclear Power Plant cannot be regarded

as a natural disaster. It was a profoundly manmade disaster – that could and should have been foreseen and prevented. And its effects could have been mitigated by a more effective human response.

And:

26. The consequences of negligence at Fukushima stand out as catastrophic, but the mindset that supported it can be found across Japan. In recognizing that fact, each of us should reflect on our responsibility as individuals in a democratic society.

The natural disaster is 'cataclysmic' in example 25 but the human negligence also produces 'catastrophic' consequences in example 26. The Maximisations give equal weight to human and non-human forces. In addition, the disaster is Intensified as 'profoundly' manmade in example 25. As mentioned previously, a big part of the impact of this report was its stress on human factors. The use of Intensity to emphasise this suggests a change of narrative from natural to human causation is an important goal of the report.

The second point to make about Intensity is how frequently it describes Japanese action. Japan is associated with 29.1% of the instances of Intensity in the text (by comparison, Japan does 15.8% of the instances of Coreness). Intensity often emphasises positive Japanese qualities. For instance, here is an extract I looked at when analysing Effect, but this time analysed in terms of Intensity (lexis indicating Japan is the actor underlined, Intensification in red, Maximisation red underlined):

27. How could such an accident occur in Japan, a nation that takes such great pride in its global reputation for excellence in engineering and technology? This Commission believes the Japanese people – and the global community – deserve a full, honest and transparent answer to this question.

Here the positive Japanese qualities of engineering expertise are stressed. In chapter two on background to the disaster I explained that technical competence is a part of Japanese national identity and is something that exacerbated the shock of Fukushima. Example 27 directly refers to this. Also of note is the Intensification of what the Japanese public 'deserves'. As well as praising Japan the Diet report stresses the rights of the Japanese public, so Intensity has an interpersonal function here. This can be seen again in the following example:

28.   Above all, we have endeavored to produce a report that meets the highest standard of transparency. <u>The people of Fukushima, the people of Japan</u> and the global community <u style="color:red">deserve nothing less</u>.

Examples 27 and 28 are both instances of the report stressing respect for the public. This seems to situate the report's criticism in a more acceptable context for its audience. It has a mitigating function for a report that places blame on wider Japanese society, implying that although these are strong criticisms they are for a good cause. The following example is another extract I analysed when discussing Effect, but this time with Intensity highlighted. It intersperses criticism with positive national characteristics:

29.   Following the 1970s "oil shocks," Japan accelerated the development of nuclear power in an effort to achieve national energy security. As such, it was embraced as a policy goal by government and business alike, and pursued with the same single-minded determination that drove Japan's postwar economic miracle.
        With such a powerful mandate, nuclear power became an unstoppable force, immune to scrutiny by civil society. Its regulation was entrusted to the same government bureaucracy responsible for its promotion. At a time when Japan's self-confidence was soaring, a tightly knit elite with enormous financial resources had diminishing regard for anything 'not invented here.'

The use of Intensity here highlights Japan's economic success. It situates the development

of the 'mindset' responsible for the disaster in a positive context of Japanese industriousness. There is an implication that things became lax because of this success. This seems to dilute the level of blame for what happened because it resulted from excusable motivations. The mindset arose from overconfidence, as opposed to something more sinister such as greed.

Looking at these two features of Intensity gives an insight into the objective of this report. On the one hand, Intensity emphasises the extent of human agency in the disaster. On the other hand, it seems Intensity makes this criticism easier to swallow. I would argue this reflects how the report had to strike a balance between delivering an uncomfortable truth about national failings while also making this criticism palatable to the public.

6.6.4: Freedom/Constraint in the Diet foreword

The table overleaf shows percentages of Freedom and Constraint.

Table 6.6.4: Freedom/Constraint categories in the Diet foreword

Overall: 9 Freedoms and 14 Constraints.

Nuclear Village: 6 Freedoms and 4 Constraints.

Japan: 0 Freedoms and 5 Constraints.
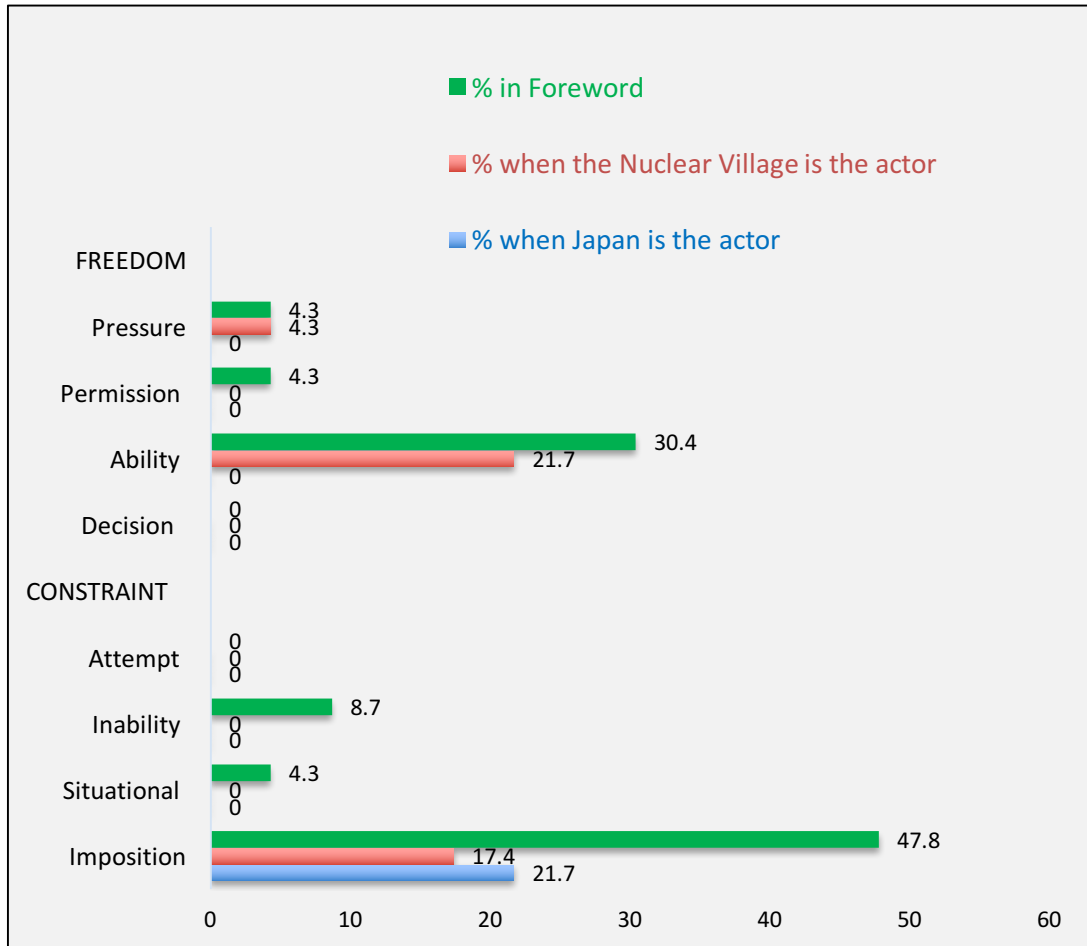
The dominant Freedom in the foreword is Ability, and the dominant Constraint is Imposition. Freedom/Constraint develops three themes. Firstly, Abilities explaining what the Nuclear Village could have done to prevent Fukushima. Secondly, Impositions that diffuse responsibility. Thirdly, the use of Freedom/Constraint in explaining and justifying the context in which Fukushima arose.

As I have stressed, the impact of this report was the way it changed the narrative of

Fukushima. Instances of Ability are important for this. For example, there are hypothetical examples of stopping the disaster (Ability in red):

30. The earthquake and tsunami of March 11, 2011 were natural disasters of a magnitude that shocked the entire world. Although triggered by these cataclysmic events, the subsequent accident at the Fukushima Daiichi Nuclear Power Plant cannot be regarded as a natural disaster. It was a profoundly manmade disaster – that could and should have been foreseen and prevented. And its effects could have been mitigated by a more effective human response.

This is a case of underlining the manmade nature of the disaster. Furthermore, the report itself provides the Ability for people to understand and improve upon what happened:

31. As the first investigative commission to be empowered by the legislature and independent of the bureaucracy, we hope this initiative can contribute to the development of Japan's civil society.

32. Only by grasping this mindset can one understand how Japan's nuclear industry managed to avoid absorbing the critical lessons learned from Three Mile Island and Chernobyl; and how it became accepted practice to resist regulatory pressure and cover up small-scale accidents. It was this mindset that led to the disaster at the Fukushima Daiichi Nuclear Plant.

The report itself is not often an actor. However, when it is an actor this often involves Freedom/Constraint. This seems to reflect the Diet report positioning itself with the authority to inform the public: it has the agency to define what happened.

The second point is also related to defining the disaster. Impositions play a major role in representing how the disaster should be viewed and how it should be reacted to. For instance (Impositions in blue, actors underlined):

33. This report singles out numerous individuals and organizations for harsh criticism, but the goal is not—and should not be—to lay blame. The goal must be to learn from this

disaster, and reflect deeply on its fundamental causes, in order to ensure that it is never repeated.

Many of the lessons relate to policies and procedures, but the most important is one upon which each and <u>every Japanese citizen</u> should reflect very deeply.

The consequences of negligence at Fukushima stand out as catastrophic, but the mindset that supported it can be found across Japan. In recognizing that fact, <u>each of us</u> should reflect on <u>our</u> responsibility as individuals in a democratic society.

Importantly, the Constraint is a need to reflect, not act, and for all Japanese people to do this, not individuals. This idea that those responsible need to reflect and change is in all likelihood a common feature of post-crisis discourse. Again, it seems there is something of a face-saving element here, arguing that the priority is to make the best of a bad situation by learning from it rather than pursuing repercussions. The problem, however, is that the agency of who exactly needs to learn is widely diffused. The same theme is developed in this example:

34.   What must be admitted – very painfully – is that this was a disaster "Made in Japan." Its fundamental causes are to be found in the ingrained conventions of Japanese culture: our reflexive obedience; our reluctance to question authority; our devotion to 'sticking with the program'; our groupism; and our insularity.

There is no specific actor here, just a generalised idea of 'we', which seems to refer to Japan. The specifically Japanese nature of the disaster is presented not as a neutral fact expressed without modification but as something which Japan is forced to admit. An Imposition on the behaviour of the nation stresses the importance of this interpretation of national causes of the disaster.

The third point supports another theme I have discussed, about how positive Japanese

qualities contextualise the mistakes that contributed to Fukushima. Looking at Abilities and Impositions provides more detail on this point (Abilities in red and Impositions in blue, actors underlined):

35.   With such a powerful mandate, <u>nuclear power</u> became an unstoppable force, immune to scrutiny by civil society. <u>Its</u> regulation was entrusted to the same <u>government bureaucracy</u> responsible for its promotion. At a time when Japan's self-confidence was soaring, a tightly knit elite with enormous financial resources had diminishing regard for anything 'not invented here.'

This conceit was reinforced by the collective mindset of Japanese bureaucracy, by which the first duty of any <u>individual bureaucrat</u> is to defend the interests of his organization. Carried to an extreme, this led bureaucrats to put organizational interests ahead of <u>their</u> paramount duty to protect public safety.

Here nuclear power has the Ability to exceed control ('unstoppable force' and 'immune to scrutiny'). It is significant that the actor is the concept of 'nuclear power', rather than a more human agent such as an organisation. Agency resides in an abstract force with unlimited power. How this situation arose is explained by contrasting Impositions. First, the juxtaposition between the Imposition on bureaucrats both to regulate ('regulation') and to promote ('responsible for'). Second, the contrast between two other Impositions that bureaucrats are subject to, one clearly positive ('duty to protect public safety') and the other loyalty to a group ('duty to defend the interests'). Loyalty to a group is a positively evaluated characteristic in Japan, as evidenced by the fact that this only became a problem when it was 'carried to an extreme'. This provides another example of how negatively evaluated behavior is represented as arising from other positively evaluated behaviours. Again, such a narrative of societal pressure de-emphasises individual agency. For instance, as I outlined in chapter two when discussing the nuclear village in Japan, it

excludes other more selfish motivations bureaucrats may have, such as safeguarding one's career by avoiding difficult decisions, or accommodating the wishes of the nuclear industry in order to secure a well-paid job upon leaving the civil service.

6.6.5: Summary of agency in the Diet foreword

The interplay of the four aspects of agency is interesting. This report is certainly clear in identifying human causes and blaming the Nuclear Village. Criticisms are expressed with strong Coreness, and emphasised with Intensity. However, a close look at Coreness showed a foregrounding of the judgment that mistakes were made, but a backgrounding of what exactly is judged as having gone wrong. There are large percentages of the less agentive categories of Effect in this foreword because of the emphasis on defining the disaster and explaining the thinking behind it, rather than specifying what physical actions led to the disaster. Actions most often have increased Intensity when positive cultural characteristics are mentioned. Constraints are about how people should view the disaster and respond to it.

Overall, responsibility in this text rests on the Nuclear Village at a structural level, and on Japanese culture at a wider level. Although the Nuclear Village is clearly identified as responsible their agency is psychological, meaning it is a failure of thinking rather than (in)action. The diffusion of responsibility to the Japanese public is likewise a case of psychological responsibility. There is comparatively little physical agency for the Nuclear Village and Japanese people – those represented as the responsible parties. Blaming

deficiencies on one's own culture is a bold and perhaps surprising line of argument. However, this criticism of Japanese cultural traits that caused the disaster is diffused because it is situated within other more positive Japanese traits, which in some way absolves or excuses actions. Crucially, the more a culture is to blame the less its people are. Japanese people are represented as products of their environment rather than actors with agency. The tensions seen here seem to stem from the conflicting objectives of the report in terms of delivering a damning verdict about widespread failure while also making these damning conclusions acceptable to the public.

6.7: International Atomic Energy Agency report

The IAEA report was released in 2015, approximately four years after the disaster, meaning there had been some time to reflect on Fukushima and institute changes in the Japanese nuclear industry. This report was not as significant a news item as the previous reports. For one thing, Fukushima was by this time less newsworthy, especially outside Japan. In addition, the report identifies failures that had been identified elsewhere. It is critical of the nuclear village culture that led to Fukushima, and so in this respect did not offer a radically different interpretation of the disaster. The foreword is by the Director General of the IAEA, Yukiya Amano, who coincidentally is Japanese.

The IAEA defines its role thus:

"The IAEA is the international centre for cooperation in the nuclear field. The Agency works with its Member States and multiple partners worldwide to promote the safe,

secure and peaceful use of nuclear technologies." (International Atomic Energy Agency, *About Us*)

This mission brief shows the motivations that may influence the IAEA representation of Fukushima. On the one hand, the IAEA has a responsibility to investigate thoroughly and honestly in order to fulfill their goal of promoting the safe use of nuclear power. However, it is also their mission to promote nuclear technology. If nuclear technology or those who use it are inherently flawed then nuclear power itself, and thus the IAEA's raison d'etre, is put in doubt. This report therefore requires a balance between these two potentially contradictory objectives.

In addition to analysing the foreword as a whole, I focus on three groups. The first is the IAEA, which includes the voice of the report and the Director General's personal reflections. This helps to show the stance of the organisation itself. The second and third groups refer to what could be called the 'world nuclear village': that is to say nuclear power companies as well as the regulators and bureaucrats who support nuclear power. I separate this into actions by the nuclear village before the disaster and after the disaster (I shall refer to these actors as 'Nuclear Village Before' and 'Nuclear Village After'). This division will help to demonstrate the ideological work of the foreword. I argue that it constructs Fukushima as a lesson that has been learned. I show how representations of agency background danger and foreground improvements to safety. The report fulfills the IAEA's institutional aim of supporting nuclear energy by neutralising the challenge that Fukushima poses and representing the nuclear industry as a professional organisation

dedicated to improvement. All examples come from the foreword (IAEA, 2015).

6.7.1: Coreness in the IAEA foreword

Table 6.7.1: Coreness categories in the IAEA foreword

Overall: 173 instances, 41% Dynamic and 59% Static.

IAEA: 45 instances, 58% Dynamic and 42% Static.

Nuclear Village Before: 23 instances, 26% Dynamic and 74% Static.

Nuclear Village After: 32 instances, 31% Dynamic and 69% Static.
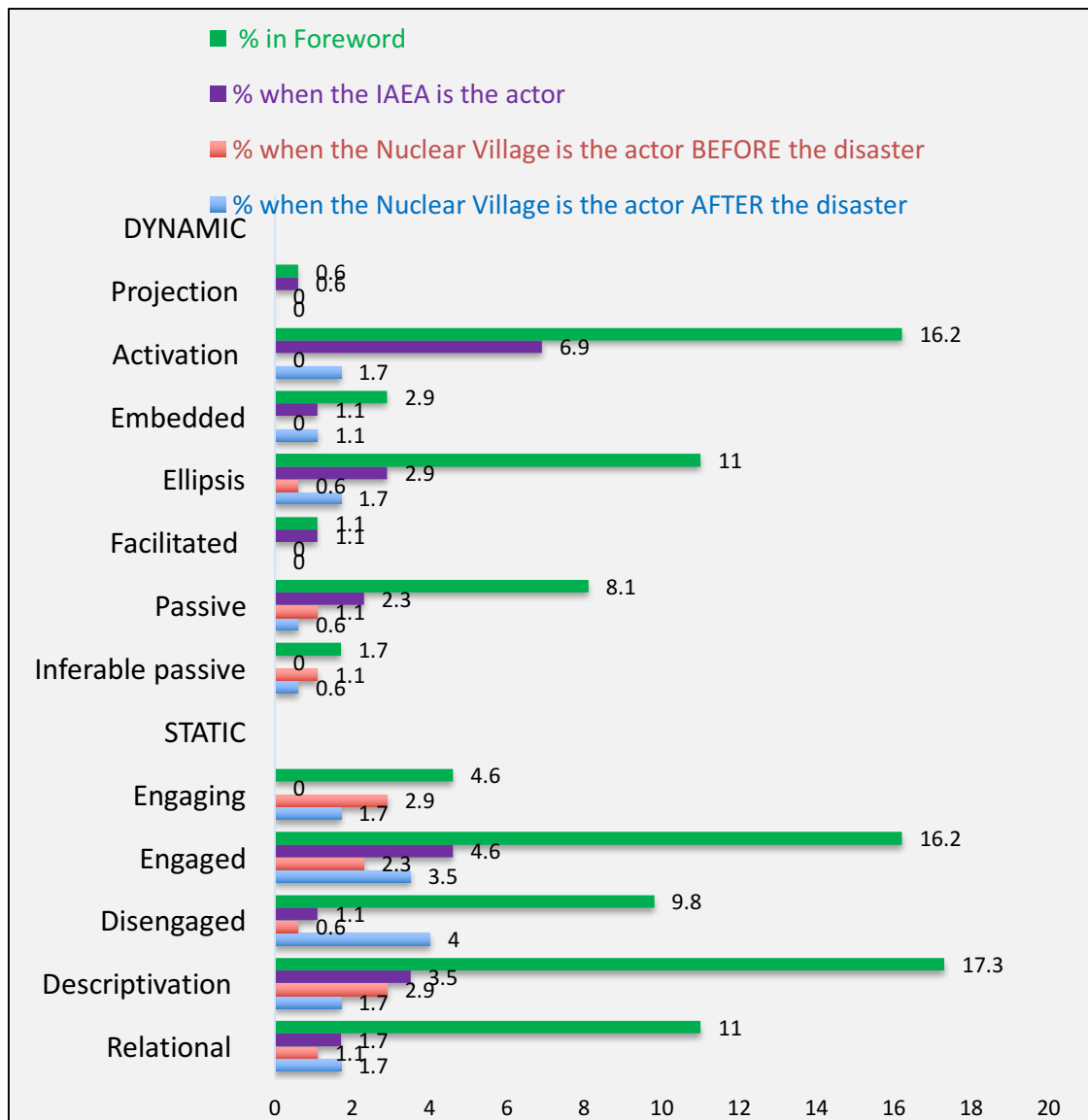
The overall ratio is roughly two-fifths Dynamic to three-fifths Static action, the same as the previous two reports. Comparing the frequency of action by each of the three groups, the IAEA does 25.8% of total instances of Coreness in the foreword, the Nuclear Village Before does 12.6% of all instances, and the Nuclear Village After does 18.3% of all instances. The IAEA are a relatively frequent actor, and have a higher ratio of Dynamic action compared with the report as a whole. The voice of the IAEA is thus Core and foregrounded in the foreword. With regard to before and after the disaster, action by the Nuclear Village After is slightly more frequent and slightly more Core than action by the Nuclear Village Before. As the analysis will show, this reflects a focus on describing improvements in the nuclear industry and responses to Fukushima. A close examination of patterns of Coreness helps to show how the foreword deals with two key issues: responsibility for Fukushima and the danger of nuclear power.

There are three paragraphs in succession that directly address responsibility for the disaster. The first is this (Dynamic action in red, Static action in blue, actors underlined):

36.   A major factor that contributed to the accident was the widespread assumption in Japan that its nuclear power plants were so safe that an accident of this magnitude was simply unthinkable. This assumption was accepted by nuclear power plant operators and was not challenged by regulators or by the Government. As a result, Japan was not sufficiently prepared for a severe nuclear accident in March 2011.

Although this seems like a clear indictment of the failures that lead to Fukushima, two things reduce agency. The first is how the action causing the disaster is a Static Relational action 'was…assumption', and thus has weak Coreness. It is an abstracted mental state

rather than a specific human agent or organisation. What is more, this presupposes that the 'assumption' exists independent of any actor, obscuring the question of who made this assumption. In comparison, using a Dynamic action here would specify more clearly what was done wrong and would require an actor. The second important point is how subtle shifts in actor divert responsibility. The implied actor for the 'assumption' that led to the disaster is 'Japan'. This assumption 'was accepted', so the action of 'accepting' by nuclear power plant operators, regulators, and the government is Dynamic, but with the less Core category of Passive. There is a shift from the *existence* of a nationwide assumption, to nuclear power plant operators '*accepting*' this assumption (rather than 'making' it), which implies the nuclear industry are not responsible for this initial assumption. This begs the question that if the people responsible for operating nuclear power plants are not the source of a belief that the plants are safe, or are not in a position to know the plants are safe, then who is? Similarly, regulators and the government are blamed for 'not challenging' rather than 'making' an assumption, so the assumption again exists independently of the nuclear village. This act of 'challenging' is ambiguous between a physical or verbal action and is further backgrounded as a negative Passive - they 'do not do' something rather than 'do' something (such as 'supported this assumption'). In the final sentence the actor switches back to 'Japan' not being ready for a disaster, rather than the Japanese nuclear industry not being ready for a disaster. In this way, the blame here lies at a national level as much as with specific nuclear organisations.

The next two paragraphs continue thus:

37. The <u>Fukushima Daiichi accident</u> exposed certain weaknesses in <u>Japan's</u> regulatory framework. Responsibilities were divided among <u>a number of bodies</u>, and it was not always clear where authority lay.

    There were also certain weaknesses in plant design, in emergency preparedness and response arrangements and in planning for the management of a severe accident. There was an assumption that there would never be a loss of all electrical power at a nuclear power plant for more than a short period. The possibility of several reactors at the same facility suffering a crisis at the same time was not considered. And insufficient provision was made for the possibility of a nuclear accident occurring at the same time as a major natural disaster.

The clearest agency here is with the Dynamic Activation of the disaster as 'exposing weaknesses'. Aside from this there are three Inferable Passives and two Static Relational 'there were' constructions. The actions with negative implications are Static - 'assumptions', 'weaknesses' and 'insufficient preparation'. This means that when criticisms are made of the Nuclear Industry Before these criticisms are less Core as Static action, and when they do act Dynamically they have to be inferred as the actor. Again, the responsibility is with the systems in Japan and not those creating these systems or making decisions within these systems.

Following these three paragraphs about responsibility the focus of the foreword switches to improvements that have been made since the disaster. Whereas the nuclear industry had less Core responsibility when the causes of the disaster were represented, now the nuclear industry has clearer agency:

38. Since the accident, <u>Japan</u> has reformed its regulatory system to better meet international standards. <u>It</u> gave regulators clearer responsibilities and greater authority. The new regulatory framework will be reviewed by international experts through an IAEA

Integrated Regulatory Review Service mission. Emergency preparedness and response arrangements have also been strengthened.

Other countries responded to the accident with measures that included carrying out 'stress tests' to reassess the design of nuclear power plants against site specific extreme natural hazards, installing additional backup sources of electrical power and supplies of water, and strengthening the protection of plants against extreme external events.

All the actions with positive connotations of making changes and improvements are Dynamic - three Activations and one Passive. The contrast with the sections of the foreword describing responsibility is stark; the Nuclear Village After is foregrounded with Dynamic action when making improvements, and the Nuclear Village Before is backgrounded with Static action when making mistakes. The difference is not a huge quantitative one, as the Nuclear Village Before has six Dynamic actions and the Nuclear Village After has ten. Rather, it is the positive nature of the Dynamic actions that is different.

Interestingly, the one part of the foreword which has explicit human agency is the paragraph describing workers at Fukushima. It is worth examination (industry workers underlined, Dynamic red, Static blue):

39. But I was deeply impressed by the courage and dedication of those workers and managers who remained at their posts after the tsunami struck and who struggled, in appalling conditions, to bring the stricken reactors under control. They had to improvise a response in circumstances for which they had not been trained, often lacking appropriate equipment. They deserve our respect and admiration.

The action here is overwhelmingly Dynamic. The clear Coreness foregrounds these nuclear workers as brave and dutiful. Undoubtedly, this was a consensus view of the

workers among the general public (Funabashi, 2012), as these workers put themselves at risk by entering a plant emitting lethal levels of radiation. However, the contrast between the strong agency of these nuclear workers who were seen as national heroes and the weak agency of the nuclear organisations who were seen as responsible for the disaster is striking. It could be argued the IAEA has an interest in nuclear workers being seen in this positive light because this reflects well on the industry.

To sum up, an analysis of Coreness shows agency is strong when the nuclear industry is making improvements. Agency is weak when the nuclear industry is making mistakes, but strong when workers are dealing with these mistakes.

6.7.2: Effect in the IAEA foreword

Table 6.7.2 overleaf shows percentages of Effect categories in the text overall, and for the three specific groups of actors.

Table 6.7.2: Effect categories in the IAEA foreword

Overall: 82 instances

IAEA: 33 instances.

Nuclear Village Before: 11 instances.

Nuclear Village After: 7 instances.
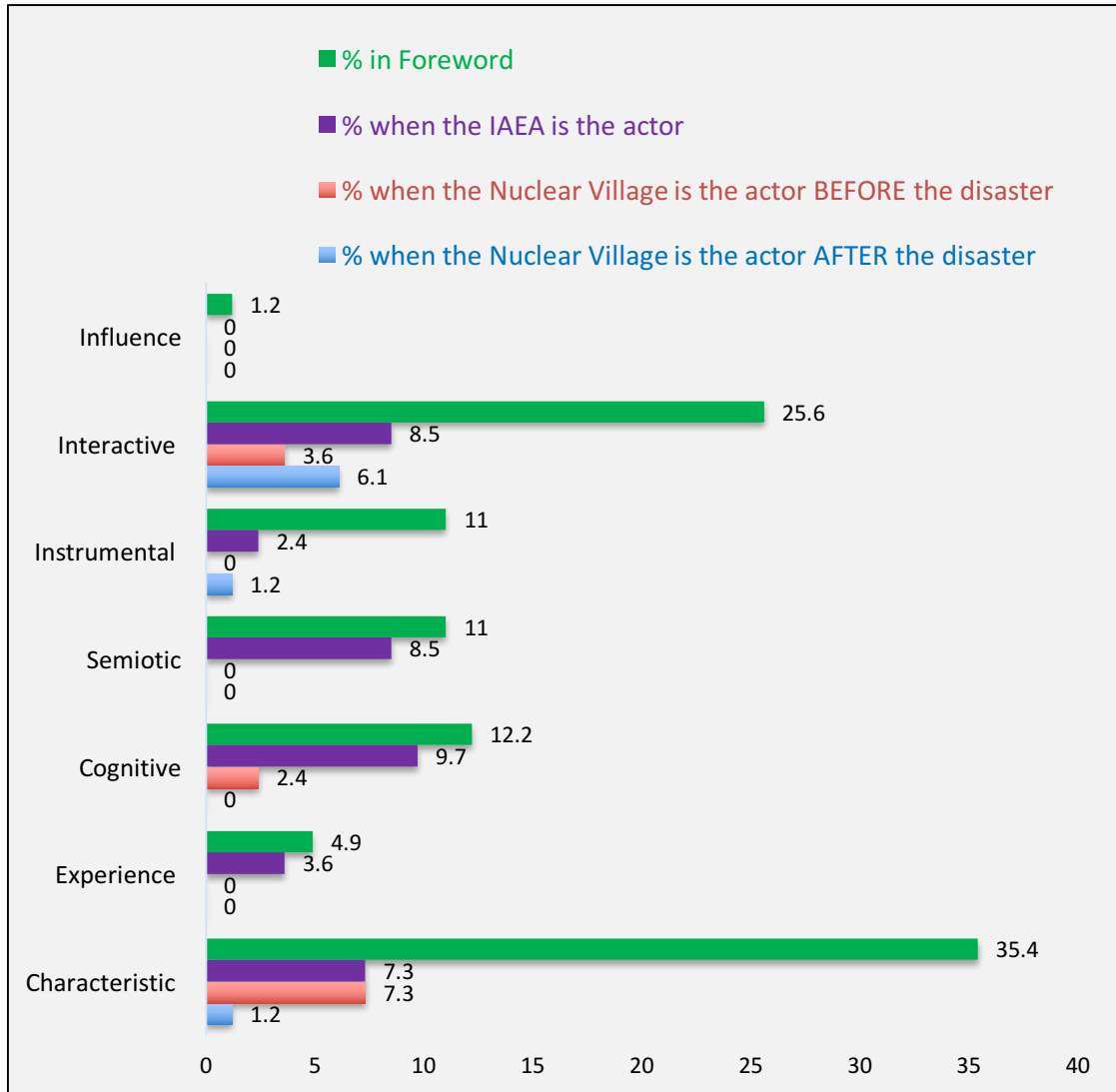
Two things stand out here. Firstly, the majority of the Semiotic, Cognitive and Experience

action is done by the IAEA. Secondly, the Nuclear Village Before has fairly low agency.

I will discuss three points in relation to this: how weak agency for the Nuclear Village

Before backgrounds their failings, how the IAEA's Effect reflects its scientific rather than

legal authority, and finally how the disaster itself is backgrounded.

When discussing Coreness I found that the Nuclear Village Before had weak agency. This is supported by analysing Effect: the Nuclear Village Before has six Characteristics, two Cognitive and three Interactive actions. The greater percentage of Characteristics is because they are defined more often than they act on the world. For example:

40. There were also certain weaknesses in plant design, in emergency preparedness and in response arrangements and in planning for the management of a severe accident. There was an assumption that there would never be a loss of all electrical power at a nuclear power plant for more than a short period.

41. Responsibilities were divided among a number of bodies, and it was not always clear where authority lay.

In each of these cases the actor is not directly stated but can be inferred as the nuclear village. Representing the nuclear village in this way *defines* the situation at the time rather than explains *what was being done* at the time. The way in which they have little concrete influence on the world, as argued previously, is a lack of agency for those responsible.

The IAEA are the actor for many of the instances of Semiotic, Cognitive and Experience action in the foreword. This seems to be connected with the fact that they are an advisory body and as such need to establish the credibility of their authority in nuclear matters. Cognitive actions are to do with nuclear safety, such as:

42. IAEA safety standards embody an international consensus on what constitutes a high level of safety. They were reviewed after the accident by the Commission on Safety Standards. A few amendments were proposed and adopted. I encourage all countries to fully implement IAEA safety standards.

43. The IAEA, which provided technical support and expertise to Japan after the accident and shared information about the unfolding crisis with the world, has reviewed and improved its own arrangements for responding to a nuclear emergency.

The Cognitive actions are about deciding what to do. This emphasises the response to the disaster and the sense of taking action to correct it. It presents Fukushima as a lesson that the IAEA has learned from. The high level of Cognitive action lends the IAEA an air of expertise and legitimacy. When there are Experiences, these allow the writer to make evaluations. For instance:

44. I am confident that the legacy of the Fukushima Daiichi accident will be a sharper focus on nuclear safety everywhere. I have seen improvements in safety measures and procedures in every nuclear power plant that I have visited.

45. I hope that the report, and the accompanying technical volumes, will prove valuable to all countries that use, or plan to use, nuclear power in their continuous efforts to improve safety.

In example 44 the experience of 'seeing' serves as evidence of the 'confidence' in improvements. In example 45 the author's feeling predicts how the report will be beneficial. Again, this lends an air of authority and credibility to the foreword, and again it presents Fukushima as a lesson that has spurred improvement. Similarly, the Semiotic actions underline the expertise of the IAEA. For instance:

46. The IAEA, which provided technical support and expertise to Japan after the accident and shared information about the unfolding crisis with the world, has reviewed and improved its own arrangements for responding to a nuclear emergency.

47. I express my gratitude to the experts from many countries and international organizations who contributed to this report, and to my colleagues at the IAEA who drafted and reviewed it.

Example 46 highlights the advisory role of the IAEA and example 47 expresses the author's appreciation for the knowledge of IAEA members. Semiotic action also

contributes to the interpersonal message of the text. For instance:

48.   I encourage all countries to fully implement IAEA safety standards.

This underscores the IAEA's mission role in promoting nuclear safety. A close look at the vocabulary here is very revealing. The IAEA 'encourages' countries to implement safety standards because they lack the power to enforce these standards. Moreover, the fact that they are 'encouraging' countries to improve safety seems to imply that all countries have not, or are not, doing so. To summarise, the relatively weak Effect aspect of agency in all these examples here is indicative of the IAEA's role as *advisors* rather than *supervisors*.

Moving from the three groups of actors, Effect is also revealing when looking at the agency of the Fukushima disaster itself. When the disaster is the actor it does no Interactive actions, and so is not represented with a physical effect on anything. For instance (Semiotic in red and Characteristic red underlined):

49.   The Fukushima Daiichi accident exposed certain weaknesses in Japan's regulatory
       framework.

50.   The Fukushima Daiichi accident underlined the vital importance of effective international
       cooperation.

51.   I am confident that the legacy of the Fukushima Daiichi accident will be a sharper focus
       on nuclear safety everywhere.

The 'exposed' in example 49 could be interpreted as a Semiotic act of 'showing', or possibly an Instrumental 'acting to represent' (I believe the Semiotic interpretation is more accurate and classed it as such). In example 50 the action is also a Semiotic act of 'showing importance'. In example 51 Fukushima has a Characteristic in terms of what its legacy will be. Therefore, in this foreword the disaster has agency in terms of what it is

about rather than what it *did*. It is defined rather than acting in a physical manner to affect things. This is further evidence of how the IAEA report presents Fukushima as a lesson: it is described in terms of consequences and significance rather than damage and disruption. It is instructive to contrast these representations with the part of the foreword that actually does acknowledge the negative effects of the disaster:

52.   The <u>immense human impact</u> of the Fukushima Daiichi accident should not be forgotten. More than <u>100 000 people</u> were evacuated because of the release of radionuclides to the environment. At the time of writing, in 2015, <u>many of them</u> were still unable to return to their homes.

The agency is shifted here from the disaster to the public. The actual effect of the disaster is 'immense human impact' (with weak Coreness as a Static action), and the Cognitive action 'should not be forgotten' is attributed to a generic 'we'. Further, the 'human impact' is exclusively about a temporary dislocation of people – evacuation and being unable to return. There is no mention of the other negative effects of the evacuation (detailed in chapter two), such as loss of livelihood, breakup of communities, psychological stress, suicides, and the patients who died being transported away from a hospital within the evacuation zone.

In the analysis of the TEPCO foreword I discussed how it subtly attributed causation to the natural disaster, and how this conflation of natural and man-made factors reduced responsibility. The same phenomenon is in evidence in two cases in the IAEA foreword, in which responsibility for the disaster is explicitly represented by natural rather than human factors. One is the only instance in the foreword of the category of Influence

(which has the strongest agency):

53.　　Caused by a huge tsunami that followed a massive earthquake, it was the worst accident at a nuclear power plant since the Chernobyl disaster in 1986.

This is a straightforward statement that the disaster had natural causes. More subtly, in the next example the chairman of the IAEA and foreword author Yukio Amano recounts his experience of visiting Fukushima:

54.　　I visited the Fukushima Daiichi plant a few months after the accident and saw for myself the powerful and destructive impact of the tsunami.

The author's personal experience is represented with Instrumental 'visited' and Experience 'saw'. Looking closely at this example, what he saw when he visited Fukushima was the 'powerful and destructive impact *of the tsunami*', rather than the impact of any human action. The disaster is conflated with the tsunami, rather than the plant or anyone behind its construction or operation. To briefly supplement this with a look at Coreness, the report author's actions have stronger agency (the two Activations 'visited' and 'saw'), whereas the disaster's actions have weaker agency (the two Descriptivations 'powerful' and 'destructive' and the Engaged 'impact'). Again, there is a lack of agency for the disaster itself, as it has significance in what it communicates rather than significance in its effect on humans.

6.7.3: Intensity in the IAEA foreword

The table overleaf displays percentages of Intensity in the foreword. I do not include the three groups of actors because there are relatively few instances of Intensity, and because it is more instructive to discuss Intensity as a whole.

Table 6.7.3: Intensity categories in the IAEA foreword

Overall: 23 Increases and 4 Decreases.
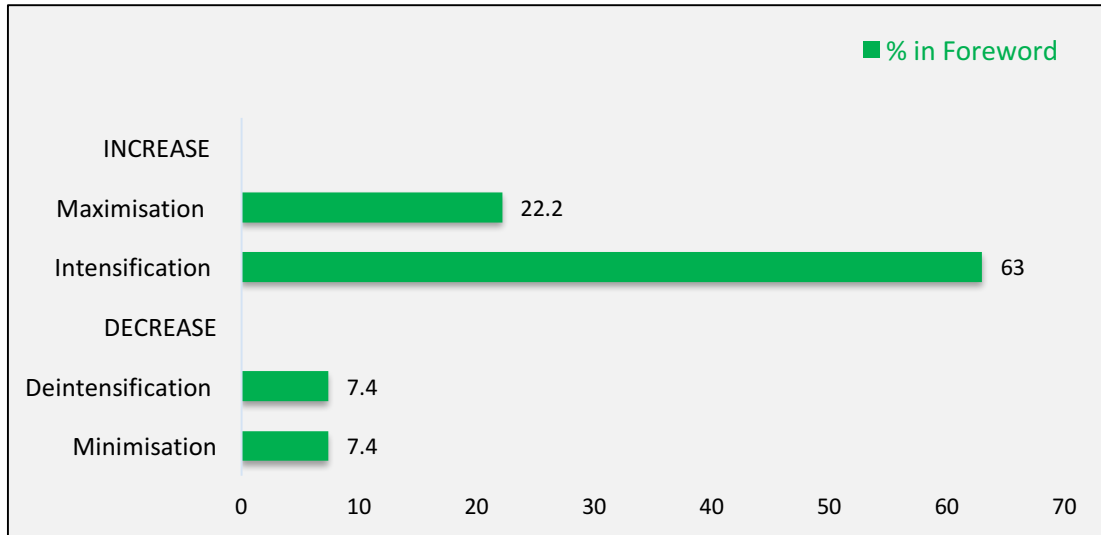
Looking at the patterns of Intensity Increases, they play a role in emphasising three things: the scale of the disaster, the dedication of nuclear workers, and the progress of the nuclear industry post-Fukushima.

Intensity is significant in relation to the scale of the disaster. There are four instances of Intensity Increases to describe the natural disasters that hit Japan and five to describe the nuclear disaster. For example, here are two extracts I examined previously when looking at Effect (Intensification in red and Maximisation in red underlined):

55.   Caused by a huge tsunami that followed a massive earthquake, it was the worst accident at a nuclear power plant since the Chernobyl disaster in 1986.

56.   I visited the Fukushima Daiichi plant a few months after the accident and saw for myself the powerful and destructive impact of the tsunami.

I argued above how natural and human causes are somewhat conflated. The Intensity Increases here ('huge', 'massive', 'worst since' and 'powerful') are a part of this

conflation. A more complex example is this one (Intensification in red, Deintensification in blue):

57.   A major factor that contributed to the accident was the widespread assumption in Japan that its nuclear power plants were so safe that an accident of this magnitude was simply unthinkable. This assumption was accepted by nuclear power plant operators and was not challenged by regulators or by the Government. As a result, Japan was not sufficiently prepared for a severe nuclear accident in March 2011.

Here Intensity is connected with two things – the situation in Japan and the disaster. The scale of the assumption of safety in Japan is connected with the lack of preparedness in Japan. Again it is notable that the Intensity emphasis is associated with Japan, rather than the nuclear village. In addition, the size of both the natural and nuclear disaster is emphasised. Thus, while the report blames the Japanese for not foreseeing a big natural disaster, it also uses Intensity to emphasise how big this disaster was. This in some way mitigates the criticism as "you didn't see it coming but that couldn't be helped". The frequent use of Intensity to focus on the scale of the disaster contrasts with the representation of its impact on people. The only use of Intensity with respect to people is this:

58.   The immense human impact of the Fukushima Daiichi accident should not be forgotten. As explained already, the definition of this impact is mostly left unstated, save for the dislocation of population.

The second notable feature is how Intensity contributes to the point discussed in analysis of Coreness about praise for nuclear workers:

59.   But I was deeply impressed by the courage and dedication of those workers and

managers who remained at their posts after the tsunami struck and who struggled, in appalling conditions, to bring the stricken reactors under control.

The Intensification of the author's feelings about the 'courage and dedication' of the workers encourages the audience to share this positive evaluation, and the Intensification of the adverse conditions emphasises the difficult job facing the workers. Here they are heroes devoted to their job. An alternative interpretation might, for example, argue it is natural and unremarkable that the people responsible for this disaster take responsibility for correcting their mistakes in order to limit the environmental damage of a nuclear meltdown.

The third feature of note is how Intensity plays a role in emphasising nuclear industry progress. The closing statement of the foreword contains many instances of Intensity that contribute to this message. The following example is the final two paragraphs (Intensification in red, Maximisation red underlined, and Minimisation blue underlined):

60. I am confident that the legacy of the Fukushima Daiichi accident will be a sharper focus on nuclear safety everywhere. I have seen improvements in safety measures and procedures in every nuclear power plant that I have visited. There is widespread recognition that everything humanly possible must be done to ensure that no such accident ever occur again. This is all the more essential as global use of nuclear power is likely to continue to grow in the coming decades.

There can be no grounds for complacency about nuclear safety in any country. Some of the factors that contributed to the Fukushima Daiichi accident were not unique to Japan. Continuous questioning and openness to learning from experience are key to safety culture and are essential for everyone involved in nuclear power. Safety must always come first.

Intensity here highlights the improvements that have been made and lessons that have

been learned. Safety will be focused on more 'sharply', a 'recognition' of the need for this safety is emphasised, and the commitment to safety is as much as 'humanly possible'. The chance of a similar 'accident' is Minimised, as is the likelihood of 'complacency' over safety. This is a clear example of how the foreword portrays Fukushima as a lesson. In this way, the IAEA's stance and mission brief is underscored. Intensity therefore plays a role in highlighting the conclusion that the foreword wants the reader to take away. This was also something I found when discussing the role of Intensity in the conclusion to the Diet foreword.

To summarise, Intensity contributes to three argumentative themes which to some degree exonerate the nuclear industry. Firstly, that there was a big natural disaster, which downplays the factors that allowed Fukushima itself to be a disaster. Secondly, that the workers were heroic in battling it, underlining the dedication and sense of responsibility of the nuclear industry, rather than their mistakes. Thirdly, that this is a disaster which the industry has learned from, and changes have been made to prevent its recurrence.

6.7.4: Freedom/Constraint in the IAEA foreword

The table on the next page displays categories of Freedom and Constraint.

Table 6.7.4: Freedom/Constraint categories in the IAEA foreword

Overall: 7 Freedoms and 10 Constraints.

IAEA: 3 Freedoms and 0 Constraints.

Nuclear Village Before: 1 Freedom and 2 Constraints.

Nuclear Village After: 2 Freedoms and 2 Constraints.
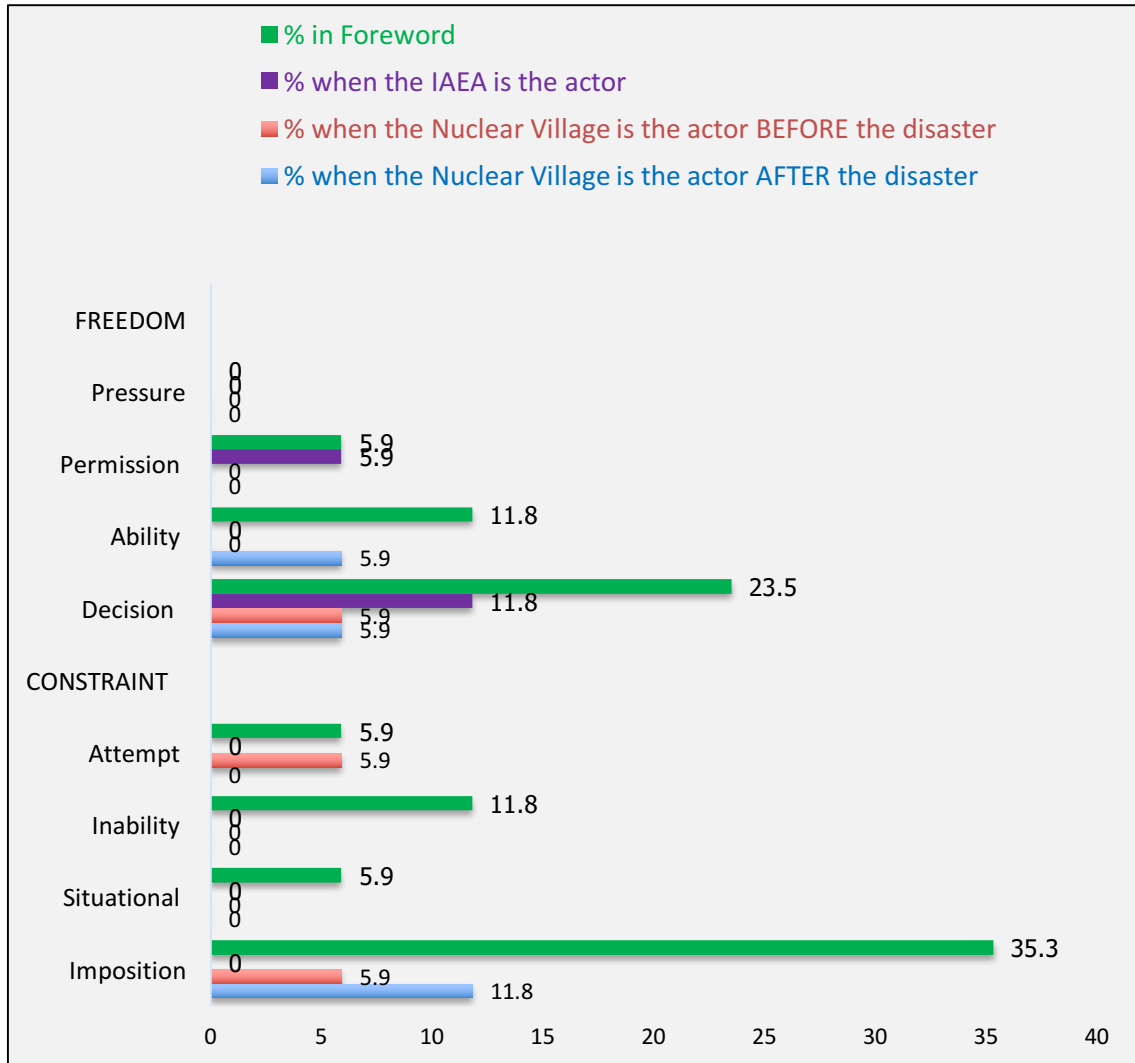
There are not many instances of Freedom/Constraint. However, two points worthy of attention are how IAEA Freedoms show their commitment to safety, and how Constraint contributes to the theme of lessons learned from Fukushima.

The IAEA has Freedoms but no Constraints. For example (Freedoms in red):

61.	The report considers human, organizational and technical factors, and aims to provide an understanding of what happened, and why, so that the necessary lessons learned can be acted upon by governments, regulators and nuclear power plant operators throughout the world.

There is a Decision ('aims to provide'), which leads to Permission ('so…can be acted upon'). The IAEA is agentive in taking decisions to help others achieve goals. The other Freedom is this Decision:

62.	IAEA safety standards embody an international consensus on what constitutes a high level of safety. They were reviewed after the accident by the Commission on Safety Standards. A few amendments were proposed and adopted.

The IAEA decides to adopt the recommendations of their own Commission. This is represented not as an obligation to improve but as an agentive choice to do so, thereby underlining the IAEA's commitment to safety. In contrast to these Freedoms, there is no representation of limitation on IAEA action. It is possible to imagine an alternative discourse that would involve Constraints. For example, Impositions expressed as IAEA duties to do more to ensure safety and to work harder, or Inability expressed as failure to do enough prior to the Fukushima disaster.

The second noteworthy feature of the foreword is how Constraint is used together with Intensity. Here is the closing extract I discussed when looking at Intensity, this time with Constraint highlighted (Impositions in blue):

63.	I am confident that the legacy of the Fukushima Daiichi accident will be a sharper focus on nuclear safety everywhere. I have seen improvements in safety measures and procedures in every nuclear power plant that I have visited. There is widespread recognition that everything humanly possible must be done to ensure that no such accident ever occur again. This is all the more essential as global use of nuclear power is

likely to continue to grow in the coming decades.

There can be no grounds for complacency about nuclear safety in any country. Some of the factors that contributed to the Fukushima Daiichi accident were not unique to Japan. Continuous questioning and openness to learning from experience are key to safety culture and are essential for everyone involved in nuclear power. Safety must always come first.

There are four Impositions here, all in regard to safety. The combination of Intensity and Impositions reinforces the 'lessons learned' theme. Exactly who these Impositions apply to is somewhat vague, as they are expressed as general statements without specific referents. Presumably, this is for rhetorical reasons. Logically the Constraint should be on the nuclear industry and to a lesser degree regulators and governments, as they are the ones primarily responsible for safety. The formulation here, however, implies the Constraint is generally applicable in a universal sense. As shared impersonal obligations, the interests and responsibilities of the nuclear industry are aligned with the interests and responsibilities of the public as a whole.

6.7.5: Summary of agency in the IAEA foreword

The analysis shows how the IAEA report attempts to bring Fukushima into a narrative of lessons learned and changes made. It presents a break with the past, as highlighted by the differences between the nuclear industry before and after Fukushima. The foreword features increased agency when representing improvements that have been made and reduced agency when representing past behaviour. The narrative is that specific problems existed in Japanese systems, extreme events caused the disaster, and the disaster has been a spur to rectify these previous problems. In terms of the aims of this report, the frequent

representation of the IAEA as thinking and communicating is in one sense natural as they are the authors of the report and so it could be expected that their voice is foregrounded. However, it also reflects how they have little power to affect the world. The agency they have here is in assessing the situation, more than acting to change it. There are more instances of internal actions than external ones that affect the world in a physical way. Lacking the power to enforce their recommendations, they instead represent the nuclear industry as aware of its responsibility to implement change. I would argue that there is a balancing act to be performed here. There is a need to learn from the disaster, but also a face-saving objective of showing that this learning has occurred and so distancing the nuclear industry from the failures that led to Fukushima.

6.8: Comparison of agency in each report

The question guiding this chapter was:

- What is the relationship between representations of agency and attribution of responsibility for the Fukushima disaster?

I have argued that agency is backgrounded to different extents and in different ways in each foreword. I now summarise the focus of blame in each report, the degree of agency for those responsible, and how this reflects the body that produced each one. I then discuss similarities and differences between the three forewords.

TEPCO represents the natural disaster as primarily responsible and argues the tsunami was beyond the scale of what could have been predicted. TEPCO's foreword has the least

explicit agency of the three, as it obscures or avoids direct expressions of responsibility. As an actor, TEPCO has weak agency in actions that led to the disaster, and strong agency in actions of apologising and rectifying the situation. It is hard to avoid the conclusion (as others have argued) that this report is a whitewash: the goal of damage limitation seems to be reflected in the avoidance of agency for the disaster. The Diet report is more explicit in its criticism, and argues that a complacent mindset caused the disaster. The nuclear village and the wider culture that produced it have agency for the disaster. However, responsibility is diffused into structures, organisations and social context. It represents the circumstances that produced Fukushima as specifically Japanese. I argued that the Diet report's goal of criticising weaknesses that led to the disaster is balanced with the need to make the depth of this criticism acceptable. For the IAEA report, blame rests with a combination of the natural disaster and to a greater extent the Japanese nuclear industry's assumption of safety. Agency is weaker when describing nuclear industry action that led to the disaster, and stronger when describing post-Fukushima nuclear industry changes. There is a clear separation between before and after, thereby positioning Fukushima as a disaster of the past, and as a lesson. This approach seems consistent with the IAEA's institutional aims of speaking for the nuclear industry and reestablishing its credibility. To summarise the approach of each report, TEPCO says sorry for the disaster, the Diet says the public should reflect on the disaster, and the IAEA says the industry has learned from the disaster.

Comparing the representation of responsibility in these reports, the Diet and IAEA both

blame the thinking of organisations in Japan which are responsible for nuclear power. However, while the 'mindset' cited by the Diet and the 'assumption' cited by the IAEA are both failures of thinking, I would say that there is an important difference between them. A mindset implies more active control than an assumption, because an assumption is the result of thinking while a mindset is a way of thinking. In other words, an assumption is a mistake *from* the process of thinking, and a mindset is a mistake *in* the process of thinking. This would seem to be reflected in the greater agency (and thus blame) the Diet report gives the nuclear industry in Japan. However, an important difference between the two reports is that the IAEA solely cites Japanese *nuclear* culture, whereas the Diet broadens responsibility to Japanese *national* culture. In terms of similarities between the reports, the two stakeholders in nuclear power, TEPCO and the IAEA, put less agentive blame on those responsible. For both, the agency of the nuclear industry before the disaster is weaker than the agency of the nuclear industry after the disaster. In this sense both may be attempting to re-establish their credibility. Finally, the similarity between all three reports is a focus on structure and organisational factors rather than individuals and individual decisions.

This summary brings up many points for discussion, and I shall expand on these when I conclude in chapter eight. My analysis so far has addressed trends in news coverage of Fukushima in chapter five, and differences in reports into the disaster in this chapter. In the final analysis chapter that follows I turn to the legacy of the disaster, by looking at the agency of Fukushima in the media debate on nuclear power.

7. AGENCY OF THE FUKUSHIMA DISASTER IN MEDIA OPINION PIECES ON NUCLEAR POWER

7.1: Chapter Aims

In chapters five and six I argued that initial media coverage of Fukushima and investigations into Fukushima are important because they influence the interpretations of the disaster that emerge. In this chapter I follow up on this by examining representation of the Fukushima disaster in the media debate over nuclear power. I look at the agency attributed to the disaster by pro and anti-nuclear newspaper opinion pieces, to show how this reflects different interpretations of the disaster. The research question guiding this chapter is:

· How does the agency attributed to Fukushima in media opinion pieces reflect pro and anti-nuclear arguments?

I explained in chapter three that critical linguistics has often examined how differences in the agency attributed to key actors reflect ideological differences, and that it has often treated agency as a binary phenomenon that is absent or present. In this chapter I show how a more multifaceted approach to agency can be used to investigate ideological differences in opposing representations of the Fukushima crisis. Although the nuclear power debate involves many actors, for reasons of space and theoretical clarity I focus on a single significant actor: the disaster itself. This is also interesting in the sense that CDA usually treats agency as a human phenomenon, but focusing on the portrayal of a disaster

demonstrates how the agency of inanimate actors can be involved in a political dispute.

The narrower focus of this chapter means it is slightly shorter than the previous two analysis chapters. I begin by explaining why the media representation of Fukushima is important. I then discuss the nuclear power debate in the media and how the disaster has been interpreted. Following this I describe the selection of source material and the analytical approach I take. In the analysis itself I use the framework to identify differences in the representation of Fukushima's agency between pro and anti-nuclear power opinion pieces. I show that both sides attribute strong agency to Fukushima, but they attribute different levels of each kind of agency. I discuss how these differences contribute to the arguments used by each side and their competing conceptualisations of the disaster. My objective is not to argue in favour of any of these interpretations, but to illustrate the role of agency in constructing them.

7.2: Nuclear power and Fukushima in the media

7.2.1: The importance of media representations of Fukushima

Nuclear power representation in the media is important because nuclear power is a complex and divisive issue, as I explained in chapter two. Stoett (2003) argues the nuclear industry's biggest challenge is not one of technical or even cost difficulties, but of maintaining political legitimacy. For controversial issues like nuclear energy, the ability of media narratives to incorporate events such as Fukushima is paramount to the plausibility of these narratives (Butler *et al.,* 2011, p. 6). Fukushima is a threat to the

future of nuclear power because it raises the question of whether a technologically advanced country can prevent and/or cope with a reactor meltdown. More generally, disaster discourse is important because disasters typically foster change and prompt new public behaviours (Sood *et al.,* 1987, p. 14), and because disasters can re-open the debate over issues and allow new perspectives to compete with dominant narratives (Desai, 2012, p. 2). Media interpretations are also influential because nuclear power is a scientific issue of which the public may have limited direct experience, and so news sources play a mediating role in this kind of situation (Silverstone, 1999, p. 21). Although there is a conventional view that scientific knowledge is disseminated 'downward' from experts to members of the public, Myers argues this is a more fluid process, which involves the active construction of believable or discreditable identities for those who debate scientific issues (2003, p. 272-3).

With these points in mind, the interpretation of Fukushima involves legitimating or delegitimating existing nuclear power systems and attitudes to nuclear power, and constructing plausible and trustworthy opinion on the topic. It should be noted that the more extreme claims of both pro and anti-nuclear power advocates concerning the disaster did not come true – significant loss of life did not occur and the damage has been contained, but there has been a tremendous financial and social cost. The fact that there is not a watertight case either way leaves room for interpretation in discourse over the significance of the disaster, and hence the importance of representations of agency.

7.2.2: Representations of nuclear power and Fukushima in the media

Interpretations of Fukushima are likely to be influenced by general attitudes to nuclear energy. Looking at the nuclear power debate in the media, Windisch (2008) observes that anti-nuclear views tend to essentialise nuclear energy as inherently bad, whereas pro-nuclear views are more nuanced and stress the scientific nature of their arguments. Taylor (2013) distinguishes between anti-nuclear 'survivalist' opposition based on the cataclysmic threat it poses, and 'political' opposition over how nuclear power may undermine democratic social, economic, and political relationships. Summarising studies of public attitudes to nuclear power, Kubota finds that supporters of nuclear power value an improved standard of living, economic growth, and alleviation of the energy crisis, whereas opponents tend to be more post-materialist and are concerned with potential safety risks (2012b, p. 441-442).

Turning to studies on the interpretation of Fukushima itself, Desai (2012) discusses media responses to Fukushima in the American press. He found that pro-nuclear views tend to interpret the disaster within an overall view of nuclear power as 'progress', and anti-nuclear views tend to frame it in terms of a lack of public accountability in the nuclear industry. Fujigaki (2015) observes two competing media reactions to Fukushima around the world. One is the lesson that if disasters can happen in a high-technology country they can happen anywhere. The second is an opposite interpretation that Fukushima was a specific failing of Japan. Downer (2013) looks at how pro-nuclear discourse attempts to justify nuclear power after Fukushima. He identifies three narratives of what he terms

'nuclear redemption'. The first is arguing the accident was exceptional and will not reoccur, the second involves distancing the disaster from foreign countries by portraying it as a uniquely Japanese disaster (as Fujigaki also observes), and the third is claiming Fukushima itself is unrepresentative of nuclear power in general so mistakes can be corrected. The observations in these studies indicate some lines of argument that might be expected to come up in the opinion pieces I analyse.

The success or otherwise of these competing interpretations is important because they imply different degrees of action that need to be taken in response to the disaster – ranging from minor changes, to more substantial reform, through to the complete abolition of nuclear energy. The literature I have referenced deals with news content and forms of argument, but does not have a linguistic focus. As with the previous chapters on initial reporting and investigations into the disaster, there is commentary on the topic but little systematic linguistic analysis. My investigation of representations of agency thus contributes to a more specifically linguistic understanding of how Fukushima has been portrayed.

7.2.3: Public and political impact of Fukushima

The decade pre-Fukushima was dubbed a 'nuclear renaissance', characterised by increasing public support for both existing and new nuclear power plants, as well as growing political support for nuclear projects (Joskow and Parsons, 2012, p. 4-5). It might be expected that Fukushima would dent this upward trajectory, but this does not seem to

have been the case. Although Ramana (2011) and Kim *et al*. (2013) found public support for nuclear power declined after the Fukushima crisis, this decrease appears to have been temporary. Both Rosa and Dunlap (1994) and Stoutenborough *et al.* (2013) describe a "rebound" hypothesis for the previous Chernobyl and Three Mile Island disasters, whereby support decreased noticeably after each event and then slowly recovered again in the months and years following. Such a trend appears be in evidence now. For instance, in Britain a 2012 MORI poll found that public support for nuclear energy has "bounced back strongly" since a low point after Fukushima (Ipsos MORI, 2012). In the U.S. a Gallup poll found that the most relevant factor in public attitudes to nuclear power is the perceived abundance of alternative energy sources, rather than safety concerns prompted by nuclear incidents (Gallup, 2016). In terms of government policy, Jorant (2011) notes that since Fukushima the vast majority of countries have not changed their stance on whether or not to use nuclear energy (with the notable exception of Germany, which is considering plans to phase out nuclear power by 2022). Before the accident, a total of 547 reactors were either proposed, planned or under construction throughout the world, and by early 2012 this number had increased to 558 (Holloway, 2012; cited in Downer, 2013).

It would seem that either public opinion has not tipped significantly against nuclear power, or it has not changed enough to influence government policies. It could be argued that the damage Fukushima poses to the credibility of nuclear power has, at least to some extent, been mediated. My work investigates the role of media debate in this process.

7.3: Selection of texts and approach to analysis of Fukushima in media opinion pieces on nuclear power

To find texts for analysis I searched the Opinion and Editorial sections of English-language online newspapers from around the world. I searched using the separate keywords 'nuclear power' and 'Fukushima'. I searched what would be considered broadsheet publications, such as The New York Times and The Guardian (rather than for example The New York Post and The Sun). This was primarily because these publications are likely to have more detailed analyses of the issue, and therefore more linguistic content to study. It also ensured some degree of genre similarity in the texts used. Although in one respect broadsheet media may have less influence on public opinion because of their lower readership compared with tabloid media, on the other hand they arguably have more influence because of their status and prestige. Pollock *et al.* argue that such higher-status framing of nuclear power is important because "a value-based interpretation favoured by elites and promoted by the media is faithfully reflected in how the mass public understands the issue" (1993, p. 31). These 'elite' discourses may be more persuasive and may have a filter-down effect.

I included only articles which argued an explicit pro or anti-nuclear stance, based on my initial reading of the articles produced by the automatic search. I selected texts based on content, choosing those with more reference to Fukushima. I selected ten articles with pro-nuclear opinions (henceforth Pro) and ten with anti-nuclear opinions (henceforth Anti). The articles on each side come from different media sources and have a different

author, to ensure variety. One exception is that two anti-nuclear articles are by Kumi Naidoo, who was until 2015 the International Executive Director of Greenpeace, and as such offers a typical representation of anti-nuclear views. The other exception is that two anti-nuclear articles come from the UK Guardian. I did this to increase the overall instances of representation of action by Fukushima in anti-nuclear pieces to a similar number as pro-nuclear ones. Tables 7.3.1 and 7.3.2 below show in chronological order the news sources, publication dates, titles, attributed authors and lengths of the articles. Links for the articles are listed in Appendix B.

Table 7.3.1: Pro-nuclear articles

Source	Date	Title	Author	Words
The Los Angeles Times	15,3,2011	Talk about a meltdown.	Goldberg, J	684
The Mail	16,3,2011	Yes, nuclear power plants are dangerous. But for Britain, the alternative is to start hoarding candles	Hastings, M	1,360
The Financial Times	19,3,2011	Nuclear Support: Fukushima Accident Should Not Prompt a Hasty Retreat	The Financial Times	429
The New Zealand Herald	20,3,2011	Nuclear Energy Faces Stern Test	The New Zealand Herald	521
The Guardian	4,4,2011	Fear of nuclear power is out of all proportion to the actual risks	Windridge, M	923
The Mercury News	7,6,2011	Don't rush to abandon nuclear energy	Moore, P	600

The New York Times	2,12,2011	After Fukushima: Now, More Than Ever	Myhrvold, N	1382
Al Jazeera	11,3,2012	The Fukushima Syndrome	Freer, M	911
The Washington Post	4,9,2013	Don't give up on nuclear energy yet	The Washington Post	548
USA Today	4,6,2016	We can't give up on nuclear plants	Kirk, R. & Whitman, C	617

Table 7.3.2: Anti-nuclear articles

Source	Date	Title	Author	Words
The Independent	18,3,2011	Fukushima has revealed the dangers of the nuclear road	The Independent	631
The New York Times	22,3,2011	Nuclear Energy Isn't Needed	Naidoo, K	749
The Times of India	23,3,2011	Lesson from Japan disaster: Go easy on nuclear energy	Kaira, R	921
Al Jazeera	13,6,2012	Breaking up the nuclear family	O'Connor, R	636
The Guardian	11,3,2013	Fukushima disaster: holding the nuclear industry liable	Naidoo, K	796
The Guardian	12,3,2013	Two years on, America hasn't learned lessons of Fukushima nuclear disaster	Schiffman, R	1,098
The Los Angeles Times	10,3,2014	Three years later, the lessons of Fukushima are uglier than ever	Hiltzik, M	820
Mainichi Shimbun	7,3,2016	What has Japan learned from the nuclear crisis?	Mainichi Shimbun	1,238
USA Today	15,3,2016	5 years after Fukushima: Nuclear power prospects dim.	Hyman, L. and Tilles, W	1,095
The Japan Times	4,2,2017	Dream of cheap, clean nuclear power is over	Smith, N	789

These articles cover a time span from when Fukushima began up to February 2017. A lengthy time span was necessary to find articles that fit the (relatively strict) criteria of being broadsheet, sufficiently lengthy, taking an explicit stance on nuclear energy, and appearing in different media sources. These criteria help make the sample texts that I analyse as comparable as possible. The combined word counts for the ten articles on each side are reasonably similar: Pro total 7,975 words and Anti 8,773 words. A ten article sample from each side of the debate is enough to cover the different interpretations of Fukushima that each side makes.

I used the framework to identify all representations of action by Fukushima. The actor 'Fukushima' includes the disaster, its consequences, and the plant, as exemplified in Table 7.3.3. below.

Table 7.3.3: Examples of lexicalisations of Fukushima

The Fukushima disaster: In fact, <u>the disaster</u> shows how safe nuclear reactors actually are. (Windridge, 2011)
Direct consequences: To be sure, <u>the environmental impact</u> on those living close to Fukushima may take many years to remediate. (Freer, 2012)
The plant: The 50 men have put their lives on the line, working frantically as <u>the plants</u> collapse around them, knowing that they and their anti-radiation suits are all that stand between the world and the second-worst nuclear accident in history. (The Independent, 2011)

In the analysis I go through each of the four sections of the framework. As in chapter 5, I am again comparing two corpora. I therefore present normalized frequencies per 10,000 words of the categories of agency for each side. I look at how these features of agency contribute to different interpretations of Fukushima. I discuss trends in each side, providing two examples for each point I make.

7.4: Agency for Fukushima

7.4.1: Coreness

The table overleaf shows frequencies of Coreness categories for Pro and Anti.

Table 7.4.1: Normalized frequencies of Coreness categories for Fukushima

Pro: 73 instances, 58% Dynamic and 42% Static.

Anti: 83 instances, 40% Dynamic and 60% Static.
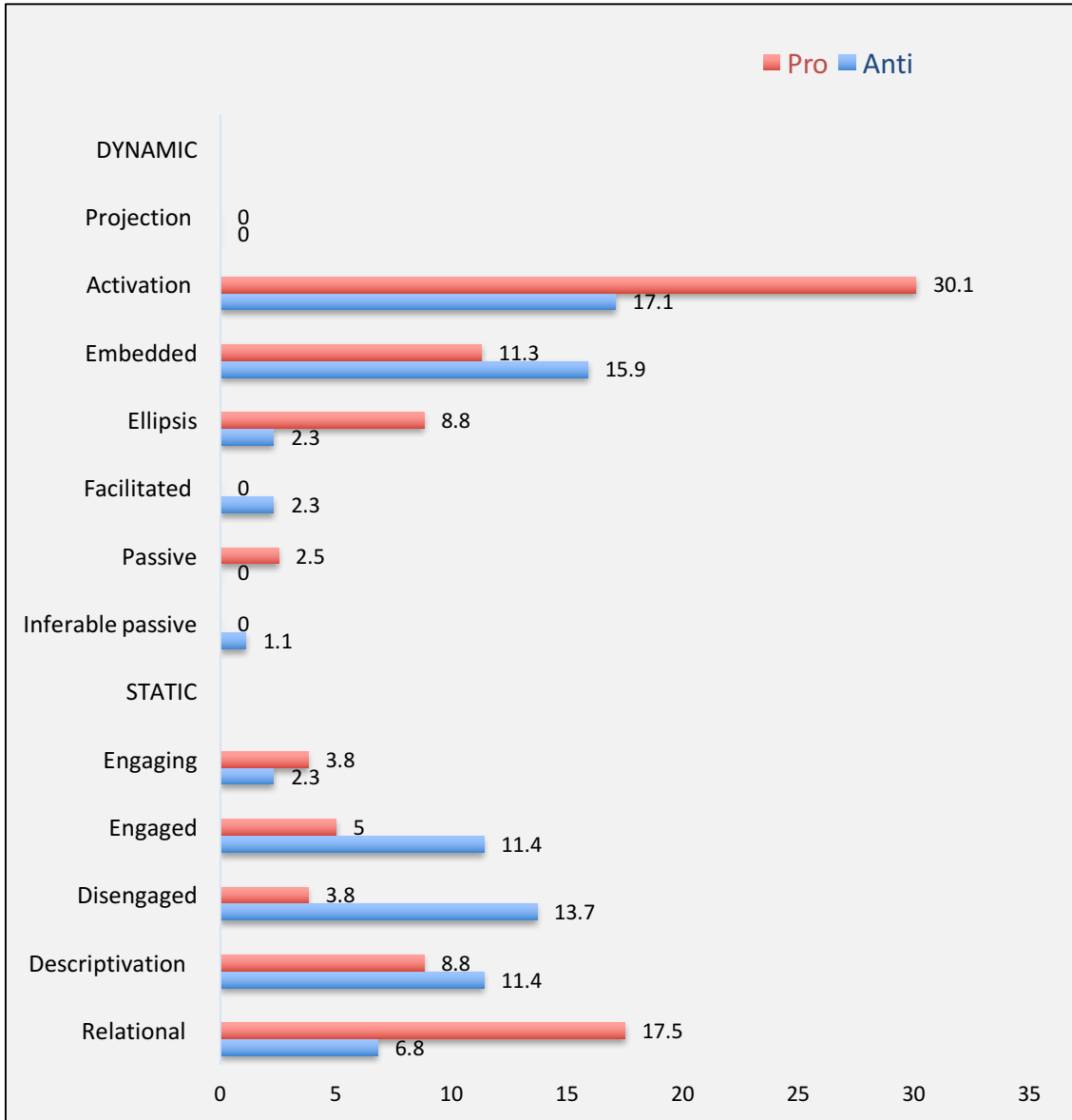
Pro represents action by Fukushima with stronger Coreness, as there is more Dynamic

action in Pro and more Static action in Anti. In addition, Pro features greater frequencies

of categories of Dynamic action with stronger agency, and greater frequencies of

categories of Static action with weaker agency. By contrast, Anti has a more even spread of categories.

It is interesting that Pro gives stronger Coreness to Fukushima. It might be assumed that they would background the action of Fukushima, as it is perceived by the public as a 'disaster'. However, it seems the stronger Coreness for Pro is because there is a greater need to impose their interpretation of the event. This requires clear representations of action by Fukushima. For example, in terms of Dynamic action, there are higher frequencies of the category Activation in Pro. Activation has strong Coreness, so looking at instances of this category helps to shows the main interpretations of Fukushima made by each side. Pro-nuclear articles make more arguments that might be considered counter-intuitive. For Pro, the disaster has clear Coreness in showing what can be learned. It has agency as a lesson, and what is learned will help in the future. For example (Activation in red):

1. On safety, Fukushima offers lessons about how not to run a power plant; basic design flaws and subsequent mismanagement were responsible for its problems. (The Washington Post, 2013)

2. Fukushima teaches us that nuclear plants — like hospitals, schools and other structures that are hard to evacuate safely — should not be built where tsunamis are likely to reach. (Myhrvold, 2011)

Example 1 shows a lesson about poor management of the facility, and example 2 a lesson about the location of plants. Importantly, these are things that can be changed and improved. Another argument in Pro that is perhaps counter-intuitive and thus requires

foregrounding is the idea that the performance of the plant should be viewed in context as a success. For instance:

3. Perhaps the standard shouldn't be whether Japan's reactor was "invulnerable" but whether it succeeded by taking such a beating without threatening much human life? (Goldberg, 2011)

4. In fact, the disaster shows how safe nuclear reactors actually are. (Windridge, 2011)

This line of argument holds that the disaster was not as bad as expected considering the circumstances. The wordings "perhaps the standard shouldn't be" in example 3 and "in fact" in 4 suggest that the writers feel this interpretation might not be immediately obvious.

A third line of argument that requires clear expression is that the damage caused by the disaster was limited. For instance:

5. Yet even in the gloomiest scenario, what happens at Fukushima will not kill one per cent of the numbers that are already confirmed or suspected dead. (The New Zealand Herald, 2011)

6. So far, only tiny quantities of radiation have leaked into the atmosphere. (Hastings, 2011)

Example 5 downplays the potential human damage from Fukushima compared with casualties from the tsunami, and example 6 downplays the radiation threat. Each of the three ideas illustrated here might be seen as counter-arguments to initial impressions of Fukushima. Stronger Coreness is needed to foreground these points.

In contrast, in Anti there is a lower frequency of Activation, and the arguments are more straightforward. In Anti the lesson of Fukushima is the danger of nuclear power, and Fukushima is proof of their belief that nuclear power needs to be abolished. For instance:

7. For me, this thought is again followed by: If it can happen in Japan that has much stricter safeguards in place, where accountability is not at a premium and most importantly, there

is fear for the rule of law, what is in store in our country where all that we are good at is to somehow circumvent every guideline and falsify data to show everything as being hunky-dory, without a care in the world. (Kaira, 2011)

8. The social aftershocks and radiation fears from the tragic tsunami and Fukushima nuclear disaster that rocked Japan two years ago today continue to wreak havoc. (Naidoo, 2013)

In example 7 the lesson of Fukushima is the impossibility of preventing disaster, and example 8 stresses the negative effects of the disaster. The comparatively lower frequency of Activation for Fukushima suggests that for Anti there is less need to impose their interpretations of the disaster. For Anti the fact of the disaster is taken for granted as sufficient evidence of the strength of their argument.

Moving to Static action, Anti has much more frequent Engaged and Disengaged actions. This is because action by Fukushima is often represented as negative effects, and these negative effects are often included as background context to the overall points in anti-nuclear articles. For example (Engaged in blue and Disengaged in blue underlined):

9. And while everyone is following intently the struggle that the authorities there are waging to contain the damage and assess the fallout for the rest of the world, there has been a bigger shock in store for the world: reports that the owner of the stricken plant falsified safety data and 'dishonestly' tried to cover up problems at the plant, as long back as in 2002. (Kaira, 2011)

10. Adding insult to the social injury of dislocation, hardship and the mounting "atomic divorces" of families on the edge, the public is being forced to pay for the clean up – a clear failure of the law to hold the nuclear industry liable for its disasters. (Naidoo, 2013)

Fukushima's actions are generalised as negative impacts, and these generalisations frame the overall arguments. This reinforces the point above about how Anti assumes a negative interpretation of what happened, without the need to explicitly argue this is the case. In

Pro such representation of action by Fukushima is noticeable by its absence, because Pro attempts to put Fukushima in context rather than evaluate its effects. In contrast to the more agentive categories of Static action (Engaged and Disengaged) in Anti, Pro has a higher frequency of the least agentive Static category of Relational. This is because Pro often makes statements about the limited scale of the disaster. For example (Relational in blue):

11. While very serious, it is fortunate that the worst effects are contained on the site and that anything that flows into the ocean – either by accident or to relieve storage problems on land – will be greatly diluted. (Windridge, 2011)

12. The reactors aren't completely contained yet, but the vast majority of nuclear experts made it clear early on that there would be no "Chernobyl" in Japan. (Goldberg, 2011)

Relational action involves little sense of an actual process, and so presents the disaster as something which can be evaluated or commented on. In examples 11 and 12 the intensity of the disaster is downplayed, which supports the point made above about how Pro refutes the potential danger of Fukushima. In addition, the greater frequency of this kind of evaluation by Relational action supports the idea that for Pro there is more need to put their own interpretation on the disaster, rather than being able to assume a negative interpretation (as Anti seems to do).

7.4.2: Effect

Table 7.4.2. overleaf shows Effect categories for action by Fukushima in Pro and Anti.

Table 7.4.2: Normalized frequencies of Effect categories for Fukushima

Pro: 49 instances.

Anti: 41 instances.
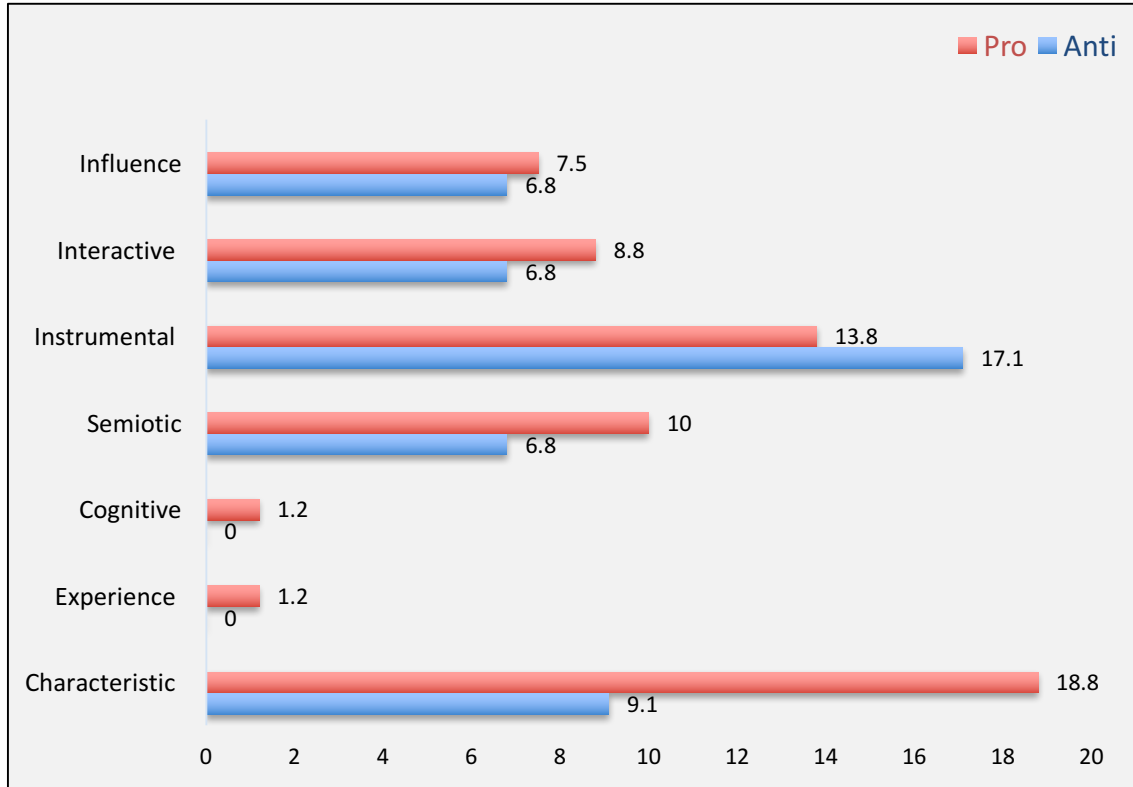
The points of note here are the high frequencies of Influence for both sides, slightly more Instrumental action in Anti, and more Characteristics in Pro. I shall discuss these three things, as well as differences in the way that each side employs Interactive and Semiotic action. Taken together, an analysis of these differences shows how Anti has stronger Effect.

Both sides include a comparatively large ratio of Influence (compared with what I found in media reporting of Fukushima and reports into Fukushima). Influence has the strongest agency, so for both sides Fukushima is represented with strong Effect. However, the

nature of this Influence differs somewhat. In Pro it tends to be psychological in nature:

13. In Britain, our best hope should be that, once the surge of emotion provoked by current tragedy recedes, we shall start making some fast decisions about our future energy supplies founded on facts and realities, not on green dreams and Lib Dem follies. (Hastings, 2011)

14. The case against nuclear power is deeply rooted in concerns over safety in general and radiation in particular. The Fukushima accident, having reinforced too many opinions and reshaped too few, makes it vital that we try to bring clarity to these issues - especially in those countries, including the United Kingdom, where the notion of a sustainable energy policy remains undetermined. (Freer, 2012)

The things which are affected are emotions, as in example 13, and attitudes, as in example 14. Example 13 suggests that the public has been emotionally manipulated and is reacting unreasonably, and thus the damage should be viewed in proportion. Example 14 suggests the public does not fully understand nuclear issues. In contrast, for Anti the Influence tends to be physical in nature:

15. The Fukushima nuclear crisis caused an enormous area to be evacuated. (Smith, 2017)

16. Radioactive substances that leaked from the crippled plant contaminated soil in wide areas, dealt a fatal blow to local industries and caused splits in families and local communities. (The Mainichi Shimbun, 2016)

For Anti Fukushima has financial, physical and social effects: in 15 people are made to leave their homes, and in 16 families and communities are broken. The extent of the disaster is clear. The contrast between Pro and Anti is between causing 'mental' or 'material' changes in others.

Turning to Interactive action, although Pro has a similar frequency of Interactive action to Anti, many of these instances are actually negative cases. For instance:

17. Is it reasonable to decry nuclear power because of a crisis that has killed no one, caused by a natural disaster that killed thousands? (Windridge, 2011)

18. There been problems at the Fukushima plant with cooling, gas explosions (not nuclear), and radiation leaks – all serious issues, but so far no one has died. (Windridge, 2011)

Example 17 contrasts the deaths from Fukushima with the deaths from the tsunami, implying that damage from the disaster is acceptable. Example 18 acknowledges risk but emphasises the absence of human casualties. So when Fukushima has material effects in Pro this is often downplaying or denying these effects. In comparison, Interactive action in Anti is *actual* harm:

19. Scientists at Stanford University estimated that the radiation from the meltdown might result in – at the upper limit – as many as 2,500 additional cancer cases (mostly in Japan) and 1,300 cancer deaths globally. (Schiffman, 2013)

20. Radioactive substances that leaked from the crippled plant contaminated soil in wide areas, dealt a fatal blow to local industries and caused splits in families and local communities. (The Mainichi Shimbun, 2016)

These are straightforward descriptions of potential human harm (example 19) and harm to farming and industry (example 20). This negated physical agency in Pro and actual physical agency in Anti illustrates the difference between acceptable and unacceptable levels of damage. The focus on material damage in Anti also supports the point made above about how Influence in Anti is 'real' effects on people.

Both sides feature high frequencies of Instrumental action, primarily to describe technical processes. There is no difference in the level of agency, but there is a difference in what this agency shows. In Pro the emphasis is on how the plant is working as expected. For instance:

21. Reactors designed half a century ago survived an earthquake many times stronger than they were designed to withstand, immediately going into shut-down (bringing driven nuclear reactions to a halt). (Windridge, 2011)

22. People should gain confidence that these plants have shut down as they should. (Hastings, 2011)

Example 21 assesses the plant's performance as better than could have been expected, and example 22 focuses on what went right (the automatic plant shutdown in the event of an earthquake). These examples construct a positive interpretation of what happened – evidence of the strength and safety of nuclear engineering. In contrast, for Anti the interpretation of the event is as a simple mechanical failure:

23. But the authors of that book did not stop with a meticulous reconstruction of the events; they made clear how the events arose from the careless regulation of nuclear technology in Japan and the lax management of Fukushima's owner, Tokyo Electric Power Co. (Hiltzik, 2014)

24. The 50 men have put their lives on the line, working frantically as the plants collapse around them, knowing that they and their anti-radiation suits are all that stand between the world and the second-worst nuclear accident in history. (The Independent, 2011)

Example 23 attributes the disaster to sloppy nuclear oversight and example 24 emphasises the gravity of the situation. The key point for Anti is the *occurrence* of nuclear accidents – the fact that Fukushima happened is proof of the fallibility of nuclear power.

Although Semiotic action has less agency in terms of Effect on the world, this category is worth examining because it is the clearest expression of each side's interpretation of the disaster: Semiotic action is about what Fukushima 'shows'. For instance, in Pro:

25. Rather than undermine public faith in nuclear energy, this incident should highlight its safety. (Hastings, 2011)

26. Mankind's need for energy requires us to take risks. The important thing is that those risks are well managed. For all its terrors, Fukushima has not demonstrated that they cannot be. (The Financial Times, 2011)

Fukushima shows that nuclear energy is safe enough in 25, and Fukushima does not constitute evidence that it is *not* safe enough in 26. By contrast, for Anti what is communicated by Fukushima is the problem of the current energy system:

27. The Fukushima disaster highlights the need for change. (Naidoo, 2013)

28. Fukushima shows us that there is no simple solution to the world's energy crisis. The debate about how we can safely and ethically power our economies must continue. (The Independent, 2011)

In examples 27 and 28 the message of the disaster is the need to abandon nuclear power. This contrast here is a straightforward difference between Fukushima being sufficient evidence (or not) of the need for serious change. As I noted when looking at Coreness, again here the Pro line of argument seems more counter-intuitive and the Anti one seems simpler.

There is a greater frequency of Characteristics for Pro. As mentioned when discussing Coreness, this is because there is more need to state the lack of damage. For example:

29. Currently, there is too much "I know" and "This is what I firmly believe", frequently from influential people, in cases where there is no incontestable right or wrong. Fukushima is one of them. (Freer, 2012)

30. The damaged reactors are ruined, but so what? (Goldberg, 2011)

Example 29 argues that conclusions about Fukushima are premature, and 30 states that the destruction of the reactor itself is not a serious loss. The greater frequency of Characteristics in Pro means there are more cases of action by Fukushima which does not

affect the world. There is more agency in the sense of embodying things rather than doing things. This supports the point discussed in Coreness that there is a greater need for Pro to attach evaluation to Fukushima action (thereby refuting opposing evaluations). In contrast, in Anti Characteristics are less frequent, and often support an opposite idea that disasters are an inescapable aspect of nuclear power. For instance:

31. Fukushima is yet another reminder of a lesson that the nuclear power industry has had to learn over and over again--that one must prepare even for occurrences you think are safely out of the range of probability, like earthquakes and tsunamis. (Hiltzik, 2014)

32. When the back-up power systems also failed, the reactors overheated, eventually causing the spread of radiation. This is only one example of what can go wrong. (Naidoo, 2011)

Example 31 argues that safeguards against disasters are impossible, and 32 stresses the multitude of potential problems with nuclear technology. Such arguments support the anti-nuclear interpretation of Fukushima as a lesson that disasters are inescapable and nuclear power is inherently dangerous.

7.4.3: Intensity

The table on the following page displays Intensity categories for Pro and Anti.

Table 7.4.3: Normalized frequencies of Intensity categories for Fukushima

Pro: 16 Increases and 4 Decreases.

Anti: 16 Increases and 2 Decreases.
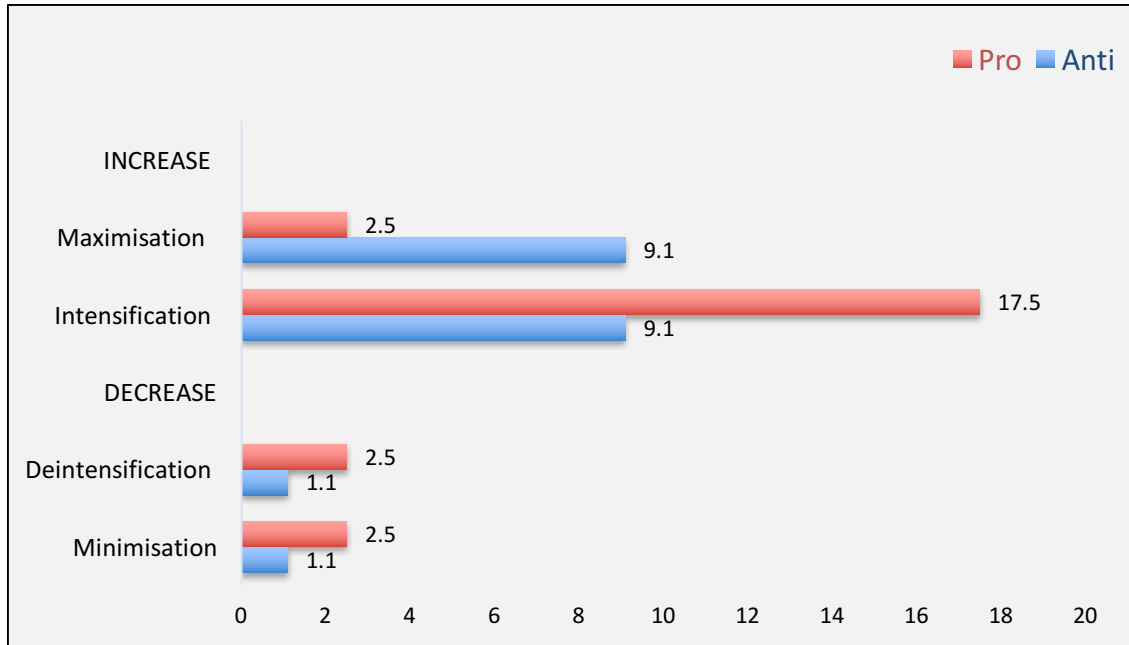
The combined frequencies of Intensity Increases are similar, but Intensity is more powerful in Anti due to more frequent Maximisations. The stronger Intensity in Anti underlines the seriousness of the disaster. For instance (Maximisation in red underlined):

33. As we anxiously await every bit of news about the developments at Fukushima, hoping that radiation leaks and discharges will be brought to an end, that the risk of further catastrophe will be averted, and that the Japanese people will have one less nightmare to cope with, governments across the world continue to promote further investment in nuclear power. (Hiltzik, 2014)

34. I have seen almost every educated person in India and all over the world express dismay at this, seemingly unbelievable happening in Japan. (Kaira, 2011)

This is simple: Intensifying the actions of Fukushima reinforces the argument that the damage is too heavy. Greater agency reflects how for the Anti side nuclear disasters are unacceptably dangerous in a way that they are not in Pro.

Although Intensity in Anti is more powerful, the high frequency of Intensity Increases in Pro is also worthy of comment. If pro-nuclear articles were trying to background the impact of Fukushima they might be less likely to use Intensity to emphasise the scale of the disaster (a similar point as I made when discussing the stronger Coreness in Pro). There is, however, a difference. In Anti, Intensity unambiguously emphasises the negative evaluation of Fukushima. In Pro the seriousness of the disaster is acknowledged with Intensity Increases, but this severity is contextualised in an overall argument. For instance (Intensification in red):

35. In fact, although what happened was shocking, the events in the hours and days after a giant wave slammed over the nuclear plant's protective seawall might be interpreted as a remarkable testament to nuclear power's sound credentials. (Freer, 2012)

36. Mankind's need for energy requires us to take risks. The important thing is that those risks are well managed. For all its terrors, Fukushima has not demonstrated that they cannot be. (The Financial Times, 2011)

Intensity Increases occur with a caveat, as shown by the words "although" in example 35 and "for all" in 36. It would seem that the high frequencies of Intensity in action by Fukushima in Pro are indicative of the need to recognise the scale of the disaster, but the context in which Intensity is employed serves to somewhat mitigate this scale. In simple terms, such formulations have a "yes it's bad, but . . ." quality to them. This develops the Pro interpretation that the disaster should be viewed objectively. The same theme can be seen with the slightly greater frequencies of Intensity Decreases in Pro. These downplay the damage of the disaster. For example (Deintensification in blue and Minimisation in blue underlined):

37. So far the releases from Fukushima have been relatively low, but continual monitoring is essential. (Windridge, 2011)

38. While thousands of Japanese people have died in the tsunami, there is still no evidence that anybody has been, or will be, killed by fallout. (Hastings, 2011)

The negative effects of Fukushima are reduced in terms of radiation (example 37) and human toll (example 38). This downscaling of agency further supports the Pro interpretation that the scale of damage is acceptable.

7.4.4: Freedom/Constraint

Table 7.4.4: Normalized frequencies of Freedom/Constraint categories for Fukushima

Pro: 3 Freedoms and 3 Constraints.

Anti: 0 Freedoms and 3 Constraints.
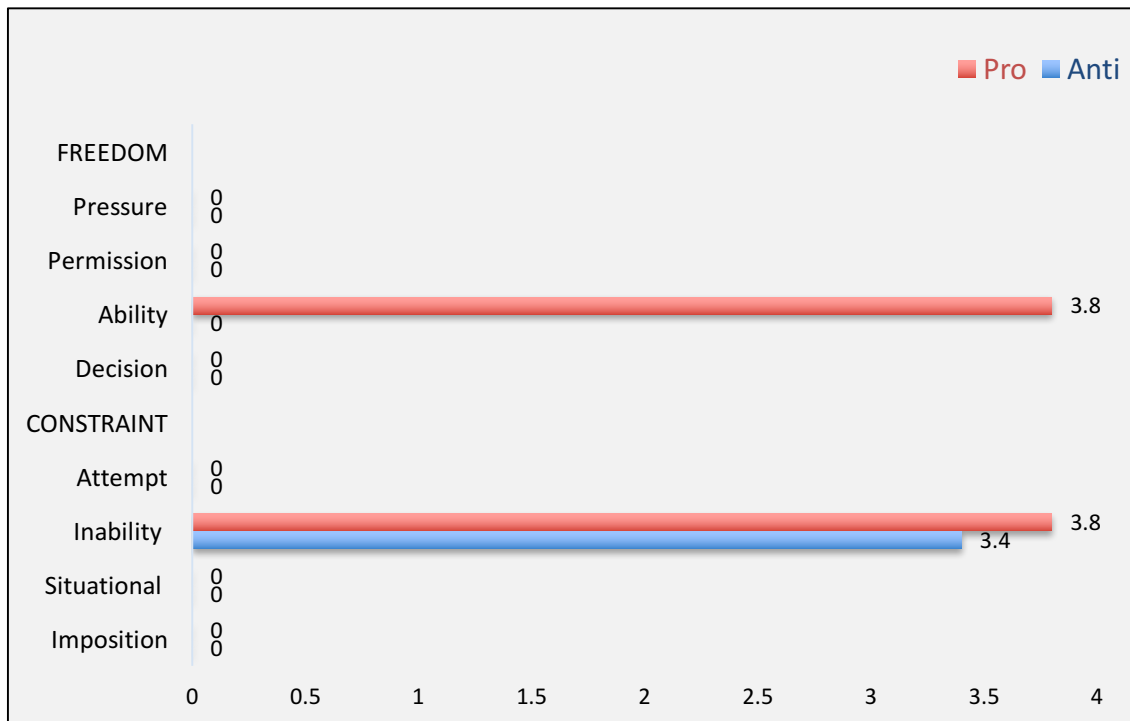
There are low frequencies of this aspect of agency. The point of note is the contrast between Ability in Pro and Inability in Anti. This reflects the difference in interpretation

between the performance of the plant as a success or a failure. For instance, in Pro (Freedom in red):

39. Reactors designed half a century ago survived an earthquake many times stronger than they were designed to withstand, immediately going into shut-down (bringing driven nuclear reactions to a halt). (Windridge, 2011)

40. Perhaps the standard shouldn't be whether Japan's reactor was "invulnerable" but whether it succeeded by taking such a beating without threatening much human life? (Goldberg, 2011)

For Pro the plant has the agency to 'survive' or 'resist' the natural disaster. As I discussed, this interpretation requires stressing because it calls on a somewhat more objective or dispassionate judgment that Fukushima was not as bad as might have been expected. In contrast, Inability in Anti is simply about the failure of the plant (in blue):

41. Concerns that the reactor containment would fail during a major accident proved correct – this is exactly what happened. (Naidoo, 2013)

42. What we are seeing at Fukushima right now are failures of the systems. (Naidoo, 2011)

In examples 41 and 42 the plant *lacks* the agency to 'survive' or 'stay intact'. As with other Anti arguments, this might be considered a more common sense view of the disaster, and it develops an interpretation that Fukushima shows why nuclear power is inherently unsafe. In short, the difference here is between the agency to escape damage in Pro, and the lack of agency in falling victim to damage in Anti.

7.4.5: Summary of differences in agency for Fukushima

I found differences in each aspect of agency, and I shall comment on these for each side in turn, starting with Pro. Pro represents the action of Fukushima with stronger Coreness than Anti, and I argued this is because in the wake of a perceived disaster pro-nuclear

arguments need to impress their view more than anti-nuclear ones do. It seemed that rather than backgrounding Fukushima, Pro actively addresses the disaster and puts their interpretation on it. There is a similar frequency of Intensity Increases in Pro as Anti, but in Pro these are more likely to be Intensifications than Maximisations. In other words, Fukushima does have this aspect of agency, but not to the same level as Anti. I argued this indicates an acknowledgement of the disaster while also putting it in perspective. Effect is less agentive in Pro, due to representation of a *lack* of physical damage, and also due to more representation of alternative views of the disaster. For Freedom/Constraint, Pro has slightly more agency in terms of the Freedom to overcome the challenge of natural forces. Together, all these points reflect how pro-nuclear arguments acknowledge Fukushima as a disaster, but seek to reinterpret it and provide context. Many of the extracts are about refuting opposing arguments. Pro is concerned with the effect of Fukushima on thinking as well as on the real world. The arguments are as likely to address the perceptions that nuclear disasters generate as the damage they cause.

For Anti Fukushima has weaker Coreness. I linked the more frequent Static action in Anti to the fact that these texts include more representation of the generalised negative effects of the disaster as background information. This weaker Coreness seems to be because Anti treat their interpretation of Fukushima as a given and do not need to state this as clearly as Pro. In contrast, Effect is stronger in Anti because actions by Fukushima more often represent the damage it has caused on the world. Similarly, Intensity is more agentive than in Pro in order to underline the scale of the disaster. Together, the greater

Effect and Intensity means that Fukushima affects the physical world in a more concrete and unequivocal way compared with Pro. Constraint is less agentive because this shows the inability of nuclear plants to withstand disaster - it is about what went wrong at Fukushima. In all, these features of agency reflect a common sense interpretation of what happened as a serious disaster, and as would be expected anti-nuclear arguments use Fukushima as evidence of their position.

To summarise as succinctly as possible, for Pro Fukushima's agency is as an event requiring interpretation, and for Anti its agency is as a damaging occurrence. In the concluding chapter that follows I shall elaborate on the implications of this.

8: CONCLUSION

To recap, my aims in this thesis were to argue for a more multifaceted approach to agency in CDA, present a framework for the study of agency, and then use this framework to investigate the question "What does the investigation of agency reveal about ideological differences in the representation of the Fukushima disaster?". I now expand on the findings from each of the three research questions about areas of discourse on Fukushima. In chapters five, six and seven the focus was on applying the framework, meaning these chapters were more technical in nature. Here I concentrate on the implications of these findings and how this contributes to an understanding of the disaster and of nuclear power in general. Following this I evaluate the framework, discussing its advantages and limitations, and mentioning how it might be further developed. Finally, I discuss the wider implications of my work for an understanding of disaster discourse, and suggest other areas in which the framework can be used for investigating agency.

8.1: Results of research questions

8.1.1: How do representations of agency reflect a more neutral or critical reporting stance?

I now discuss the implications of the reporting styles of the Asahi Shimbun and the BBC, and of their representation of TEPCO and the Fukushima plant, for interpretations of the disaster. I shall also discuss the implications for disaster reporting more generally.

I noted that differences in each aspect of agency reflected a more descriptive reporting style in Asahi and a more evaluative reporting style in the BBC. Asahi had a greater focus on the situation occurring, whereas the BBC had more assessment of potential danger. My analysis strongly supports others who have commented on media reporting of Fukushima, in that the Japanese news source was characterised by less representation of risk, less evaluation of events, greater reliance on official sources, and a technicalisation of the disaster. I noted that for the BBC this was not necessarily over-exaggerating the disaster, because evaluation was not exclusively about bad effects, but the difference was that the potential for danger featured more in the BBC. These differences are important in terms of the agency of 'risk', and by extension questions of responsibility. Without the kind of evaluation provided in the BBC it is harder to judge danger in Asahi, harder to contextualise information about what is happening, and harder to look critically at what might be going well or badly. In this respect the analysis supports the idea that Japanese media were not being sufficiently critical.

The reporting of the two main actors, TEPCO and the Plant, has consequences for future interpretations of responsibility. Their representation affects the narrative that emerges of how the disaster is handled and how blame may be allocated. I found that in Asahi action by TEPCO is more Core and has more Effect, which represents them clearly with physical control over the situation. I argued this could either present TEPCO as exacerbating or improving the situation at the plant, and concluded that the uncritical nature of reporting favoured TEPCO's version of events and thus suggested the latter view. In Asahi TEPCO

222

has control over the plant in some way, and this control is implied as a good thing because their version of events is not challenged. In contrast, in the BBC TEPCO actions have comparatively less agency because the response of TEPCO is not such an important part of reporting.

Like TEPCO, the Plant featured more heavily in Asahi reporting. I found representation of the Plant to be the major difference between each source, as it had clear differences in every aspect of agency. Interestingly, in Asahi the greater Coreness and Effect of the Plant foregrounded it as an actor and gave it power. Conversely, however, there was weaker agency due to many Constraints, so less sense of affecting its own destiny. The Constraints portray the plant as suffering and suggest an inevitability to the lack of control. The result of this combination of different aspects of agency is to foreground the plant as an actor affecting the world, but one for which processes are more likely to be represented as happening and going wrong on their own, while also representing the plant without intensity and without self-control. While it is true that equipment failed, the focus on inanimate responsibility suggests Fukushima is a technological issue. The problem is located not so much with the response as with the equipment.

In terms of the narrative of Fukushima that emerges, if the Plant is agentive, this implies it can be responsible. It also requires a certain level of public understanding of technical details to recognise the human agency behind this. I argued this gives the mechanical aspect of the disaster a kind of (non-human) agency of its own, similar to the agency

attributed to physical forces in a natural disaster. On this point, Harwell observes that media coverage of natural disasters can be prone to an absence of human agency, and that a crisis is often represented as the most active agent with a life of its own (in Knapton and Rundblad, 2014, p. 4). In my case I found that in some sense reporting in Asahi presents the Plant *itself* as a natural disaster. This phenomenon is particularly important considering how after the disaster the line of argument taken by the nuclear industry was that Fukushima was an unforeseeable accident. Representing the Plant in this way makes such an argument seem more feasible. An uncritical reporting style presenting the disaster in non-human terms may have contributed to those who were responsible being somewhat let off the hook. Reporting the circumstances of a disaster is important, but reporting the context that produces these circumstances is equally important.

There are implications here for how a disaster is portrayed in the news. The descriptive style of Japanese media coverage has strengths in terms of not inciting unnecessary panic, but weaknesses in terms of not probing the issue in detail. Avoiding panic is a worthy goal in times of crisis, and indeed the Japanese were praised for their calm response to the triple disaster (Kaufmann and Penciakova, 2011; Morris-Suzuki, 2017). Over-exaggeration can be dangerous, and there is a cruel paradox in that while no one has died from radiation at Fukushima, many have died as a result of the relocation and anxiety that the radiation caused. The question is how to strike a balance. Panda (2012) explains how the dilemma facing the authorities was that the public needed to be informed but also needed to be reassured. He concludes that the choice to not be fully transparent, although

well-reasoned, ultimately weakened public trust in official statements (2012, p. 64). I would concur with this view, especially considering how the long-term damage of withholding information is equally if not more harmful than the short-term damage of doing so.

This is particularly pertinent in light of what later emerged about the extent of the disaster and the degree of human causation. Official evaluations of the situation at Fukushima turned out to have downplayed the danger, and the situation continued deteriorating. Contrary to official assessments, it turned out that a nuclear meltdown was in fact occurring, and the Japanese Cabinet secretly considered scenarios in which radiation leakage and weather conditions would have meant Tokyo would have to be evacuated (Independent Investigation Commission on the Fukushima Nuclear Accident, 2014, ix). The problem here is that if mainstream media are not balancing official statements with independent sources or alternative views it can have a pernicious effect in making the public lose faith in what they are being told.

On the one hand this criticism may be easier to make in hindsight. Perhaps for a Japanese audience who are the potential victims of the disaster a more detailed factual account of current events is what is relevant for them, rather than a focus on determining blame. However, the alternative to providing complete information would seem to have much more sinister implications. For the victims of a disaster, understanding the causes of this disaster and the responsibility for it are essential. As Kobayashi (2013) argues, public

confidence in the press was undermined by a perceived lack of scrutiny and lack of trust in officials. Tokita (2017) argues this lack of confidence in the media and public bodies has persisted among a section of Japanese society. Pizziconi has argued that the institutional handling of Fukushima "irrevocably eroded the trustworthiness of the Japanese government and energy regulators and with it the hegemonic authority of the whole discourse of safety, cleanness and economy" (2015, p. 173). While it may be too early to state that trust has been 'irrevocably eroded', faith in institutions and traditional sources of authority has certainly been damaged.

8.1.2: What is the relationship between representations of agency and attribution of responsibility for the Fukushima disaster?

I found diffusion of responsibility to different extents in all three report forewords, and argued that each one is problematic in its own way. This merits detailed discussion, because I am arguing these are failings of official reports that seek to explain to the public the causes of a disaster with significant human, natural and economic consequences. I shall address each report individually, and then comment overall.

The TEPCO report suggests that Fukushima was an unforeseeable accident borne of insufficient plant design strength. There is human agency in the foreword in terms of TEPCO actively solving and apologising for problems, but not in terms of anything that caused the disaster. In comparison, the natural disaster has strong agency, and Fukushima is significant as an example of the destructive power of nature. I linked this to the aims

of the report, in that the lack of explicit agency strongly supports the criticism of this report as an attempt to avoid corporate responsibility and head off the burden of paying financial compensation. Hopson, for instance, is typical of many when he describes TEPCO's claim the disaster was unpredictable as "a well-chosen mantra for a well-oiled system of irresponsibility" (2013). The report is particularly troubling considering how much information subsequently came to light about TEPCO's knowledge of the possibility of an earthquake and the decisions they made to not implement safety improvements.

The Diet report was seen as independent and rigorous, and is certainly the most critical of the three. However, I believe there are serious problems with the way it allocates agency. In this foreword the disaster is significant as a wake-up call to the nation. The message of the Diet report reads as "we've got to take a look at ourselves", something which may well be characteristic of post-disaster discourse in general. It argues the disaster was the result of a complacent mindset among the nuclear village, and that this mindset extends out into Japanese society. Human agency is strong and clear, but this is a comparatively more 'psychological' agency. The nature of the failure that led to Fukushima is foregrounded in terms of clear action, but is presented as a weakness of thought rather than concrete material action. It is a case of *actively thinking incorrectly*, rather than *actively failing to act.* As the background in chapter two showed, it was certainly the case that the nuclear village was a system that prioritised institutional interests and profit over safety. However, the de-emphasis of individual agency is

problematic in that blaming structural systems provides an excuse for the actions of people who should have known (or did know) better. Whatever the degree of structural influence on specific events, the danger of such amorphous responsibility is that it loses sight of individual motivations within those systems. In the case of Fukushima, for instance, factors that led to the disaster included nuclear utilities downplaying risk to avoid costly safety measures, close links between government and industry leading to regulatory capture, financial subsidies and public works projects allocated to communities that accepted nuclear power in return for political support, and the influence of advertising revenue from nuclear utilities on favourable media coverage of nuclear energy. As I argued previously, none of these are culturally specific, and all are financially motivated.

I also noted that in the Diet report the focus on structural failure is diffused to Japanese culture as a whole. I linked this to the need to mitigate a shocking message to the nation and allow the criticisms in the report to be more easily accepted. However, this message that all Japanese share the need to reflect seems both irresponsible and unfair. If it is the duty of all Japanese people to think about their role in the disaster this implies they are all responsible. Writing before Fukushima occurred, Silbey puts this point thus: "Invoking culture as both the explanation and remedy for technological disasters obscures the different interests and power relations enacted in complex organizations" (2009, p. 343). The institutions and structures that contributed to Fukushima were not established by individual citizens, and it is unrealistic to believe an individual citizen can be responsible

for specialised areas of expertise such as nuclear safety. I also argued the foreword is problematic because it contextualises 'bad' behaviour in 'good' Japanese traits, and ignores other more universal and more purely selfish motivations. This takes away personal agency in the sense that everyone is a product of their culture, and it provides an easy excuse for responsible parties. To a certain degree, this kind of collective responsibility lets everyone off the hook: if each person is as guilty as the next there is no real need to feel blame.

Turning to the IAEA foreword, it is critical of the failures in Japan and says the disaster was the result of a false assumption among the Japanese nuclear village. Human agency is present, but is much stronger in post-disaster changes to the nuclear industry than pre-disaster negligence that led to the disaster. Nuclear village responsibility is generalised, and is represented as deficiencies in thinking rather than concrete actions. The Fukushima disaster itself has agency in terms of showing the need for maintaining safety standards. In this way the report presents Fukushima as a 'lesson'. (This is also a line of argument I noted when analysing the representation of Fukushima in pro-nuclear opinion pieces.) For the IAEA themselves, I attributed the clear and psychological nature of their agency to the need to cement their status as an authority in this field, as they are a technical body whose authority rests on expertise and knowledge. This further underlines the credibility of their judgment that the disaster has served as a lesson. A more troubling aspect of the foreword was how a close linguistic analysis showed that while the IAEA foregrounded global advances in the nuclear industry, these were presented as a given, sidestepping the

question of whether improvements have actually been made. I linked all of these points to the tension the IAEA faced when responding to Fukushima, in being an ostensibly independent professional body needing to describe failings of the nuclear industry, while also needing to promote the same industry. The message of Fukushima as a 'lesson' seems to be a way of reconciling these two aims.

Although I have criticised the way that agency for the disaster was diffused to different degrees in each of these reports, it should be noted that these were investigations into the causes of the disaster rather than legal inquiries designed to apportion blame. In one respect, then, the priority is identifying mistakes in order to avoid a repetition of such an event in the future. Nevertheless, as I argued when discussing initial reporting of Fukushima, the public need to know what *caused* a disaster as much as what can be *learned* from it. The success or otherwise of change relies on a full understanding and acknowledgement of who did what wrong, and not just why things went wrong. The danger is that the less clear it is who is to blame, the harder it may be to rectify what happened, and the question is how much learning can take place if blame is not squarely assigned. To reiterate, the TEPCO report was widely criticised, but the Diet and IAEA reports were treated with authority as solid investigations with solid conclusions. This is what makes a critical analysis of the latter two more important. The similarity in these two reports is that structure is emphasised as the context that led to the disaster, and the failures cited are failures of thinking rather than acting. The nature of this criticism might be paraphrased as "The nuclear village thought it was okay" rather than "The nuclear

village decided not to make improvements". The framework I have used in this thesis highlights the crucial difference in agency here. Both are Core representations, but "thought it was okay" is a Cognitive action about a generalised situation, whereas "decided not to make improvements" is an intentional Decision about an Interactive action.

The representations of Fukushima in these reports are important for the overall nuclear power debate, because they suggest an interpretation of the disaster as a specific Japanese phenomenon rather than a universal one. Going back to the argument of Fujigaki (2015), the narrative of Fukushima as a Japan-specific problem lessens its applicability to other nations. It provides a way for the nuclear industry in other countries to dissociate themselves from the practices in Japan. I explained in chapter two how the Chernobyl disaster was rationalised by distancing Soviet practices from those in other places. The idea of Fukushima as a disaster 'made-in-Japan' lends itself to a similar defence. The way in which agency is located in structural/social systems rather than individual motivations shuts down alternative avenues for blame, and discourages the kind of deep structural reform that might challenge the institutions that contributed to the disaster. In simple terms, the response could be paraphrased as "The system was like this and so it led to a disaster", rather than "So and so did this and so it led to a disaster". A further problem with such a line of argument is that it implies there is an infallible system of nuclear power generation which can be achieved in the future, and there is no accounting for how a flawed or random human element might affect these systems.

What is more, none of these reports addresses the wider implication of market-based competition between energy companies, which involves an inherent tension in balancing the need for profit with guarantees of public safety. In the case of Fukushima TEPCO failed to take appropriate safety measures because they deemed them too expensive. An alternative representation of agency might therefore emphasise the agency involved in the decisions of individuals within a profit-driven system to make money at the expense of public wellbeing. As I have argued, this desire for profit is clearly not a unique Japanese cultural characteristic. Similarly, the unwillingness of bureaucrats and regulators to fulfill their duties by challenging the nuclear industry is portrayed as a cultural phenomenon. This excludes individual motivations such as safeguarding one's job by not rocking the boat, avoiding the uncomfortable conflict involved in making unpopular decisions, or ensuring a lucrative private job with energy utilities upon retirement. The Fukushima disaster was not the fault of one person: there were multiple causes, actors and institutions involved. However, they were at root human causes. People made the decisions that led to the disaster, and this involved specific choices made by individuals at different stages. This factor seems to be backgrounded in these reports.

8.1.3: How does the agency attributed to Fukushima in media opinion pieces reflect pro and anti-nuclear arguments?

To briefly summarise, I found that Coreness is stronger in Pro articles because of the greater need to foreground their definition of the disaster, and weaker in Anti because action by Fukushima is presented as Static taken-for-granted entities. I found Effect to be

stronger in Anti articles because of the frequent representation of harmful real-world consequences, and weaker in Pro because of more frequent communicative and psychological action by Fukushima. I found Intensity to be stronger in Anti because Fukushima is represented as a more extreme event. I found Freedom/Constraint to be more agentive in Pro because of an interpretation of Fukushima as surviving the tsunami in Pro, versus succumbing to it in Anti. I linked these overall trends to how Anti articles are more likely to represent Fukushima as a physical phenomenon serving as evidence of their argument, whereas Pro articles make slightly more complex counter-arguments with more need to define how Fukushima should be viewed.

Considering the relevance of my analysis to an understanding of the nuclear debate, it would seem to reinforce some of the themes in the literature I discussed at the start of chapter seven. My findings support the points made about anti-nuclear arguments containing less nuance than pro-nuclear ones (Windisch, 2008). This characterisation of pro-nuclear arguments as more objective and scientific is seen in the appeal of pro-nuclear arguments for proportionality in judging the scale of the disaster. Pro-nuclear articles sought to put a more specific interpretation on Fukushima, whereas anti-nuclear ones took a simpler line that it was a 'disaster'. I also found evidence of the 'survivalist' strand of anti-nuclear opposition (Taylor, 2013), as seen in the strong agency that anti-nuclear articles give to the danger posed by Fukushima, which portrays it as a threat to humankind. Finally, my analysis provides evidence for Downer (2013) and Fujigaki's (2015) observation that pro-nuclear views of Fukushima argue it is unlikely to reoccur, portray

it as uniquely Japanese, and argue Fukushima does not represent nuclear power in general. This was certainly the case among the texts I analysed.

Based on the articles I examined, I would add another observation about interpretations of Fukushima. They can be characterised by three main differences. These are not absolute and to some degree blend into each other, but they are direct opposites between the pro and anti-nuclear sides. One is whether Fukushima serves as a lesson on how to improve things in the future, or as a lesson that nuclear power is inherently dangerous. In terms of agency this is seen in how Semiotic Effect in Pro emphasises the message of Fukushima, whereas the greater Interactive Effect in Anti emphasises the harm of Fukushima. The second difference is about whether the extent of the damage from Fukushima is acceptable or not. This is evidenced by the stronger Effect and Intensity in Anti, both of which highlight the scale of the disaster. The third difference concerns whether what happened should be viewed in perspective as a relative success, or should be viewed as a failure. The 'success' interpretation is shown in the greater Coreness in Pro to foreground more complex arguments about the disaster, compared with less Core representations of negative effects as background information in Anti.

Clearly, Fukushima represents a problem for the nuclear industry. Although both sides offer differing assessments of its severity, both accept that it is a disaster. Whether what happened is represented as evidence of inherent failure or as an obstacle to be overcome is a discursive battle over the applicability of the disaster to the future of nuclear power.

234

If future accidents cannot be prevented, if the consequences of such disasters are far-reaching, and if nuclear plants are vulnerable to natural disasters, then Fukushima might show nuclear energy is not a feasible option. If the opposite is true, then Fukushima might represent an unfortunate event in the generally successful history of nuclear energy production. Jessop (2012) argues there are crises 'in' or 'of' the social order. If the problem can be solved without a significant reshaping of that order it is a crisis 'in' that order, but if it can not be addressed it is a crisis 'of' that order. In these terms, pro-nuclear articles attempt to define Fukushima as a crisis 'in' nuclear energy and anti-nuclear articles attempt to define it as a crisis 'of' nuclear energy. For one side it is an unfortunate anomaly in a generally well-functioning system, and for another it is proof of the weakness of the current system. In other words, anti-nuclear arguments are likely to take the form "Nuclear power is unacceptable because of what happened" whereas pro-nuclear arguments are likely to take the form "Nuclear power is acceptable despite what happened".

8.2: Assessing the Action-Agency framework

One reason for looking at three different areas of discourse was to allow more opportunities to test out the framework. To recap, I aimed to make a framework that encompassed various *aspects* of agency and also measured *levels* of agency. I now summarise the strengths of the framework, discuss its limitations, and mention some possible areas of further development.

8.2.1: Framework uses

The framework offers a detailed treatment of the power of actions and adds to existing CDA techniques by expanding both the concept and linguistic scope of agency. Meaning is seldom tied solely to one linguistic feature, and agency is seldom manifested in just one way. From an analytical standpoint the framework provides three benefits: it allows us to look at a lot of language, to look from different angles, and to find levels of detail.

First, the four sections cover a broad range of language and so capture much of a text's ideological work. I argued that the four aspects of agency are independent of one another, and this interplay of different facets of agency is important because actors can have more of one and less of another kind of power. For example, in my analysis of the Japanese Diet report into Fukushima the nuclear village had strong agency through clear Coreness, but weaker agency in terms of being Cognitive in Effect. This meant their actions were powerful in terms of being foregrounded but weak in terms of material result. Another example is the representation of the nuclear plant in reporting of the disaster by the Asahi Shimbun. I noted how the Plant was represented with strong Coreness but also with a lot of Constraint, meaning its actions were clear but it was also lacking a sense of control. Second, looking at four angles of analysis means they can supplement each other, and so better capture the multifaceted nature of agency. For instance, when looking at official reports into Fukushima I found that in the conclusions there were many instances of Intensity and Freedom/Constraint working together. I showed how they reinforced each other in highlighting what should be done in response to the disaster. Third, the

framework builds on the idea of identifying sociosemantic categories by also distinguishing levels of agency in these categories. This allows a finer-grained analysis. For example, when comparing pro and anti-nuclear representations of Fukushima in media opinion pieces I noted that although both used more Intensity, Anti used more extreme Intensity than Pro. This more nuanced approach was particularly useful when analysing specific textual extracts, such as in chapter five where I exemplified how slightly weaker levels of Coreness in Asahi reporting of Fukushima subtly backgrounded the danger it posed.

For a researcher, the framework provides a language to discuss and support claims about agency in a text. For example, my analysis of TEPCO's report into the Fukushima disaster concurred with the widely held view that it was an avoidance of responsibility. This much was clear to readers, so in this sense no 'ideological manipulation' was uncovered. However, the framework allows us to see exactly *how* and *why* this was the case, by pinpointing the linguistic means of reducing agency. What is more, applying the framework offered observations that were not necessarily intuitive. For instance, the fact that both pro and anti-nuclear opinions gave Fukushima a lot of agency was surprising, as I would have expected pro-nuclear opinions to represent the disaster less powerfully than anti-nuclear ones. Another example is how the differences between Asahi and BBC reporting of Fukushima were not immediately obvious on a surface reading, but were more apparent after analysing framework categories. In other words, the differences were degrees of agency rather than the existence of agency, and much of the analysis was a

detailed prising apart of these different degrees. Another point of note is that using the framework means agency does not need to be treated as an exclusively human property. Looking at representations of the Fukushima plant in reporting of the disaster and looking at representations of the disaster itself in nuclear power opinion pieces showed how inanimate agency is as critically relevant as animate agency.

Although my application to three different areas of discourse for three different goals showed the framework as versatile, I feel it may be particularly suited to analysis of shorter texts. This is because the multifaceted nature of agency requires a close reading, and also because applying all four parts of the framework is time-consuming. What is more, a wider treatment of agency touches upon more points of potential interest and so there is simply more to discuss. For example, the many instances of Constraints on the Fukushima plant in Asahi reporting of the disaster showed how the plant was presented as a victim of circumstance, and this kind of observation would not come up in a standard transitivity analysis. A final point to make is that my analysis in this thesis went through each part of the framework separately and thoroughly, as I was concerned with methodically testing and exemplifying the framework. An equally valid alternative would be to discuss the interaction of all four aspects of agency together. Rather than presenting charts with frequencies of each category, the framework could be used more 'informally' to provide a basis for commentary on a text, or a basis from which to choose only what aspects of agency are most relevant to the objective at hand.

8.2.2: Framework limitations

As I discussed at the end of chapter four, the compromise in choosing a flexible framework such as this one is that some degree of interpretation is required to implement it. As I explained in the introduction, in my second Module I tried out Van Leeuwen's sociosemantic framework and found that flexibility can be problematic if analytical categories are too loose, so I had identified this as a potential weakness in my framework. After extended application I do not feel this has been the case. I would, however, say that in the Freedom/Constraint section of the framework the categories of Decision and Situational seem fuzzy because they are essentially semantic in nature. This is because aside from expressions such as "decide to…" and "choose to…" English does not have specific structures for explicitly signaling the concept of 'intentional' action that the category Decision encompasses. Rather, this concept seems more often to be implied in future tense expressions such as "going to . . .". The same issue with trying to interpret semantics comes up when identifying the concept of 'caused to be unable to act' that is measured by Situational Constraints. This is a broad semantic concept that cannot be related to particular grammatical constructions. Therefore, while the aspects of agency in the framework usually map onto linguistic realisations, these two cases require more interpretation.

On a more general scale, as I also discussed at the end of chapter four, some instances of language use do not fall easily into categories. In particular, interpretative difficulty increases with lexicogrammatical complexity. For instance:

1. TEPCO acknowledges that, in light of the severity of this accident, it is its social responsibility to conduct strict and thorough investigations and verifications of the accident, identify the causes of the accident, and reflect the lessons learned in its business operations, in order to prevent the recurrence of similar accidents. (TEPCO, 2011)

This example contains complex clause relations and multiple representations of action. Although such complexity is the exception rather than the rule, the range and subtlety of representations of agency is more evident (and thus capturing it more necessary) in such complex formulations. A similar point about the difficulty of interpretation is made by KhosraviNik, who argues that the sociosemantic approach assumes there are pre-existing social meanings that transfer to language, which may simplify the interaction between discourse and society by treating it only at a textual level (2010, p. 58). This applies to the framework here in that it might not be the case that the levels of agency distinguished by the framework are interpreted the same way by everyone.

A different kind of limitation concerns how the framework classifies action, but not *actors*. Actor referents are not included, and actor referents are another significant way in which agency can be highlighted or downplayed. The reason that I have not gone into this aspect is that Van Leeuwen's social actor framework (2008, Chapter 2) deals with this topic very effectively. It has been widely employed (e.g., Caldas-Coulthard and Moon, 2010; Reyes, 2011; Don and May, 2013), attesting to its usefulness, so this area is already well covered. A related issue to note is a limitation in my methodology. The style of analysis I undertook involves linking actions to actors, and sometimes this requires inferring the actors that are responsible for actions. As I mentioned in chapter four, this is a difficulty whenever

inferences are necessary: it is hard to know for certain if the reader and writer are making the same connections.

The points discussed here are some broader methodological issues with the role of interpretation in text analysis that are relevant to my work. I do not feel that these points invalidate the analysis, but it is important to recognise these limits.

8.2.3: Framework expansion

Making an accessible and workable analytic framework necessitates drawing a line at a certain level of detail, but it is worth considering other ways in which the agency of actions could be classified. One issue is how verb tense and aspect might affect agency. This is an interesting idea, but is fairly abstract and beyond my present scope. Another possibility is adding a way to assess the effect of figurative language, or the level of concreteness or abstraction, on agency. I addressed this point in my second Module, and argued that it is hard to systematically connect the effects of a figurative representation to its impact on agency. To recap my comments, I noted that the effects of figurative language, such as making a representation more powerful, often fall under other sections of the framework, and so the impact of metaphor can usually be accounted for. Nevertheless, this intuitively feels important and if there were a more specific way to account for this phenomenon it might prove useful.

More concretely, there are features of verbs that could be analysed in more detail. For

instance, the framework does not address the issue of Ergativity, which although perhaps theoretically complex, is important for the representation of causation. What is more, the ranking of clause complexes is not addressed. While including this would make analysis more cumbersome, it is an important aspect of Coreness. Another point to make is that I found analysis of Effect sometimes echoed the observations made in analysis of Coreness, because the verbal representations of Effect are also classified under Coreness. This was especially the case when a text tended to *describe* an actor rather than describe what they *did*, as this resulted in both weak Coreness and weak Effect. With this in mind an interesting possibility is to expand the idea of Effect to include grammatical metaphor. So for example, to classify the nominalisation 'discussions' as a Semiotic action or the adjective 'considerate' as a Cognitive action. An example of how this has been done is Juznic (2012), which is a contrastive study of nominalisation in Italian and Slovene. Juznic classifies nominalisations in each language according to Halliday's process types. However, the reason I did not apply this idea is that I had tried it previously in my Masters dissertation. I found that in practice this frequently requires much mental gymnastics, and as such one's interpretation can stray too far into subjective territory. Nevertheless, this remains an interesting angle for development.

8.3. Research implications

I finish by considering how the work in this thesis relates to wider issues in CDA. I first discuss the representation of disasters and crises. I then suggest other areas of discourse for which the framework would be suited, before commenting on approaches to agency

and responsibility in general.

8.3.1: Disaster and crisis discourse

Discourse on Fukushima involves the interpretation of an accident and the institutional response to it. It is a good case study in disaster and crisis management discourse, because of the threat it poses to the legitimacy of the nuclear industry. Fuoli & Paradis describe two strategies that an organisation which is perceived to have broken trust can use to construct themselves as competent, honest, and benevolent. The first is to "neutralize the negative" by engaging with discourses that represent potential distrust, and the second is to "emphasize the positive" by creating a trustworthy identity (2014, p. 57-58). These strategies can be seen in TEPCO's report into the Fukushima disaster. I noted in the analysis that it attempts to head off potential criticism by presenting Fukushima as a natural disaster and by backgrounding responsibility, while it also attempts to create a positive image by offering sincere apologies and by foregrounding efforts to repair damage. Similar strategies can be seen in the IAEA report, which I argued is mostly about emphasising changes in the nuclear industry and representing Fukushima as a lesson learned. It addresses criticism by portraying untrustworthy nuclear village behaviour as a specifically Japanese phenomenon, and attempts to create trust by stressing three points: (assumed) safety improvements among the nuclear industry, the dedication of nuclear workers to fixing mistakes, and the technical expertise of the IAEA. Fuoli & Paradis argue that renegotiating trust through discourse is particularly important when the deceived party (in this case the public) cannot monitor the company's actions (2014, p. 52). This is

particularly relevant in the case of Fukushima because the public had little knowledge of TEPCO's operations and had no access to the disaster site. It is also the case with the IAEA report as, for technical as well as security reasons, the public cannot be expected to have detailed knowledge of the operations of the nuclear industry.

Another discussion of corporate crisis discourse is Suchman (1995), who describes three strategies that organisations can use for repairing legitimacy. The first of these is to offer normalising accounts which separate the bad incident from larger assessments of the organisation as a whole, which again seemed to be the case for the TEPCO report. The second is to describe structural changes that address the aspects of the organisation that were problematic or at fault, which very much seemed to be the case with the IAEA investigation into the causes of Fukushima. The third is simply to not panic. The points raised by Fuoli and Paradis, and by Schuman, can perhaps be broadened to apply to what I observed in pro-nuclear arguments about Fukushima. For instance, the idea of neutralizing negatives can be seen in the way that pro-nuclear arguments try to reassure the public that a similar disaster will not happen again, and the idea of not panicking can be seen in the frequent pro-nuclear appeal for a rational evaluation of the disaster.

Another aspect of crisis or disaster discourse relevant to my work is blame allocation. An assumption shared by most literature on calamities is that blame assignation occurs in technological but not natural disaster situations (Blocker and Sherkat, 1992). This underscores how the interpretation of a disaster as natural or manmade can be a political

question. In my analysis of reports into the disaster I discussed how the more Fukushima was represented as a natural disaster the less blame seemed to be attached. Stallings (1988) explains that disasters can be seen as a social process that involves pre-impact, emergency and post-impact phases, and in the case of a technological disaster this post-impact phase is marked by social conflict over what happened and what should be done much more than for a natural disaster. Jessop (2012), whose ideas about crises 'in' or 'of' a social order I discussed previously, argues that crises can be seen on a continuum. Some appear 'accidental' because they are attributable to natural or 'external' forces. The other end of the continuum is what he terms 'form determined' crises, that are antagonisms associated with specific social forms, such as capitalism. This difference of interpretation is one of the discursive struggles over Fukushima. For pro-nuclear arguments Fukushima was a one-off anomaly and a lesson to be learned from, whereas for anti-nuclear arguments Fukushima was a 'form determined' crisis arising from the flaws of the nuclear power system.

I have used Fukushima as a case study for the media representation of a disaster, official accounting for a disaster, and the later contextualising of a disaster. My discussion addressed how different stakeholders may present or argue for different levels of human, technological or natural agency, and how this might reflect their interests and beliefs. I showed how agency was at times attributed to inanimate actors, and argued this downplayed human factors and encouraged a lack of accountability. This is relevant to discourse on other kinds of disasters in which responsibility is at stake. Recent examples

of natural disasters in which the institutional response was seen as inadequate include the 2005 Hurricane Katrina in New Orleans and the 2010 Haiti earthquake. It is also relevant to cases where individual or structural weaknesses contributed to a disaster, such as the Grenfell Tower fire in 2017. Another kind of disaster would be the financial crash of 2008, which might for example be represented as the fault of individual risk-takers, or as a failure of regulatory oversight. It would be interesting to compare how much the ideological differences that I observed in the interpretation of Fukushima are evident in discourse on disasters such as these.

8.3.2: Investigating responsibility

In addition to the disasters and crises just mentioned, the obvious application of the framework I have presented is for investigating other issues in which responsibility is important or contested. A few brief examples will show the potential scope.

- In an international context this could include incidents where agency is disputed, like Russian involvement in Ukraine, or Chinese encroachment in the South China Sea. It is also relevant to discourse on military affairs, which is often concerned with justifying a certain course of action, such as in Syria or other conflicts in the Middle East.
- Responsibility is also central to interpretations of history, as the telling of history is about who did what in the past. This is particularly the case in countries struggling to come to terms with divisive pasts, such as South Africa or Northern Ireland.
- Another obvious area of application is politics. Chilton argues that politics is basically done through language, and in political discourse "agent responsibility is frequently at issue" (2004, p. 49). What is more, the idea of 'spin' might be seen as discursive battles over public perceptions of credit for success, and avoidance of blame for failure.

246

- In the social arena responsibility includes issues such as the portrayal of criminality, and allegations of corruption or scandal. For instance, at the time of writing sexual misconduct in Hollywood is a topical issue. Representations of agency may also be particularly relevant to the specific legal language used to establish guilt or innocence.

This list is by no means exhaustive, but intended to demonstrate how representation of action is vital to discursive power struggles in a wide variety of areas.

8.3.4: Approaching agency in critical linguistics

I have argued that the representation of power is fundamental to CDA, and at the core of this is action. I have proposed moving from a view of agency as *intentional and individual human causation* to a wider conception as the *power of actions*. It is important to get agency analysis right because only looking at one aspect can miss the complexities and subtleties of its manifestation. A four-sectioned framework allows a more detailed analysis: the clarity of action, the materiality of action, the extremity of action, and the freedom of action all potentially index the power of an action. I believe this view of agency as multifaceted is more realistic, and makes its study more widely applicable. In the three analysis chapters I have shown how the portrayal of agency is important in discourse struggles because it ties together representations of what happened with evaluations of who did, could, or should have done something.

I would suggest this kind of more nuanced approach to power in language has a lot to offer CDA. As I discussed when explaining my choice of nuclear power as a topic of investigation, many studies have successfully highlighted the role of language in issues

which involve relatively straight-forward power abuses. However, there is a need to address topics that do not easily fall into clear-cut oppositions. Many important social issues involve a complex balance between different arguments and opinions. What is more, hegemonic power is about negotiation of consent rather than imposition of force, and as such involves linguistic representations of power relationships and authority that may be less overt. Analysis should take into account these subtler ways in which power may be expressed. Contemporary discourse increasingly involves 'versions' of agency, and 'spin', and in areas of linguistic struggle it may be more common to present an interpretation of action that reflects a certain stance than to simply suppress action. Approaches which reflect binary power relationships of powerful and non-powerful will miss many of the less obvious and arguably more important effects of language. While it is certainly useful to unpack omissions and absence, it is harder and perhaps more relevant to identify how and where levels of agency are different. Rather than asking "Who did what to whom", it may be more appropriate to ask "Who did *how much of* what to whom?"

Appendix A: Action-Agency Framework Applied to an Example Text

The action-agency framework is exemplified here. It is applied to the foreword to the TEPCO report into the Fukushima disaster. The text is marked up according to each of the four sections of the framework, with categories colour-coded.

<u>Coreness</u>

Key	
Dynamic categories	Static categories
<u>Red underlined: Projection</u>	<u>Blue underlined: Engaging</u>
Red italicized: Activation	*Blue italicized: Engaged*
Red bold: Embedded	*<u>Blue underlined italicized: Disengaged</u>*
<u>Red underlined italicized bold: Ellipsis</u>	<u>Purple underlined: Descriptivation</u>
<u>Orange underlined: Facilitated</u>	*Purple italicized: Relational*
Orange italicized: Passive	
Orange bold: Inferable passive	

I *would like to express* my <u>heartfelt</u> *sympathy* to all of the people who *were affected by* the <u>devastating</u> earthquake on March 11 this year.

<u>Reflecting</u> on the accident at the Fukushima Daiichi Nuclear Power Station, the risk-reducing measures against a nuclear disaster consequently *turned out to be insufficient*. Almost all of the equipment and power sources that **were expected** to be activated in the case of an accident *lost* their functions, and thus, the event *extended* far beyond the existing *framework for safety measures*. We <u>deeply</u> *apologize* for the *anxiety* and *inconvenience caused* to the local residents around the power station, the residents of Fukushima Prefecture, and broader members of the society due to the extremely serious accident in which radioactive materials **were released**.

We *will continue to work* <u>as hard as we can</u> ***to ensure*** the *stable cooling* of the reactors at the Fukushima Daiichi Nuclear Power Station, ***to reduce*** the *release* of radioactive materials so that the citizens of Japan *can feel* secure, and ***to enable*** the evacuees <u>to return home</u> as soon as

possible. We *will* also *steadily work* through mid- and long-term *projects* toward *decommissioning*.

TEPCO acknowledges that, in light of the severity of this accident, it *is its social responsibility* to **conduct** strict and thorough *investigations* and *verifications* of the accident, **identify** the causes of the accident, and **reflect** the lessons learned in its *business operations*, **in order to prevent** the *recurrence* of similar accidents. Based on this *recognition*, TEPCO *set up* a "Fukushima Nuclear Accident Investigation Committee" this June, and *has been conducting* such *investigations* and *verifications*.

While the first priority **was put on** the accident *recovery work*, investigations and analysis of various records and *interviews* with over 250 employees **have been conducted** under the very limited chance of *field surveys* because of high radiation condition.

Following the *investigation*, the committee's conclusion **was consulted on** with the "Nuclear Safety and Quality Assurance Meeting Accident Investigation Verification Committee," consisting of external experts, **in order to have** *comments* from a technical and independent point of view.

This interim report *is intended to compile investigation results* that **have been verified** so far. The report is mainly focused on the event causes and their *preventive measures*, especially from the point of *facility design*. It *describes preparations for accidents*, *damage* to the facilities by the earthquake and tsunami, *accident management work*, *event progression* of *core damage*, hydrogen explosions, and so on.

Since the investigation *is ongoing*, further new findings and topics not *included* in this interim report **will be published** in the future.

TEPCO *had received support* and *understanding* from many people with regard to its nuclear power generation. However, the accident *has destroyed* such public *trust*, for which we again *would like to express* our *deep apologies*.

Finally, we *would like to express* our *gratitude* toward the government, relevant national and international organizations, manufacturers, and the other people *involved* for their *support* and *cooperation*.

Effect

Key
Red underlined: Influence
Red italicized: Interactive
Blue underlined: Instrumental
Blue italicized: Semiotic
Green underlined: Cognitive
Green italicized: Experience
<mark>Yellow highlighted: Characteristic</mark>

I *would like to express* my heartfelt sympathy to all of the people who *were affected by* the devastating earthquake on March 11 this year.

Reflecting on the accident at the Fukushima Daiichi Nuclear Power Station, the risk-reducing measures against a nuclear disaster consequently <mark>turned out to be</mark> insufficient. Almost all of the equipment and power sources that <u>were expected</u> to be activated in the case of an accident <u>lost</u> their functions, and thus, the event <u>extended</u> far beyond the existing framework for safety measures. We deeply *apologize* for the anxiety and inconvenience caused to the local residents around the power station, the residents of Fukushima Prefecture, and broader members of the society due to the extremely serious accident in which radioactive materials *were released*.

We *will continue to work* as hard as we can *to ensure* the stable cooling of the reactors at the Fukushima Daiichi Nuclear Power Station, *to reduce* the release of radioactive materials so that the citizens of Japan *can feel* secure, and *to enable* the evacuees <u>to return home</u> as soon as possible. We *will also steadily work* through mid- and long-term projects toward decommissioning.

TEPCO *acknowledges* that, in light of the severity of this accident, it is its social responsibility <mark>to conduct</mark> strict and thorough investigations and verifications of the accident, <mark>identify</mark> the causes of the accident, and <mark>reflect</mark> the lessons learned in its business operations, in order <mark>to prevent</mark> the recurrence of similar accidents. Based on this *recognition, TEPCO set up a "Fukushima Nuclear Accident Investigation Committee" this June, and has been conducting* such investigations and verifications.

251

While the first priority was put on the accident recovery work, investigations and analysis of various records and interviews with over 250 employees *have been conducted* under the very limited chance of field surveys because of high radiation condition.

Following the investigation, the committee's conclusion *was consulted on* with the "Nuclear Safety and Quality Assurance Meeting Accident Investigation Verification Committee," consisting of external experts, in order to have comments from a technical and independent point of view. This interim report is intended to compile investigation results that have been verified so far. The report is mainly focused on the event causes and their preventive measures, especially from the point of facility design. It *describes* preparations for accidents, damage to the facilities by the earthquake and tsunami, accident management work, event progression of core damage, hydrogen explosions, and so on.

Since the investigation is ongoing, further new findings and topics not included in this interim report *will be published* in the future.

TEPCO *had received* support and understanding from many people with regard to its nuclear power generation. However, the accident *has destroyed* such public trust, for which we again *would like to express* our deep apologies.

Finally, we *would like to express* our gratitude toward the government, relevant national and international organizations, manufacturers, and the other people involved for their support and cooperation.

(This text contains no instances of Influence.)

Intensity

Key	
Increase categories	Decrease categories
Red underlined: Maximisation	Blue underlined: Deintensification
Red italicized: Intensification	Blue italicized: Minimisation

I would like to express my *heartfelt sympathy* to all of the people who were affected by the devastating earthquake on March 11 this year.

Reflecting on the accident at the Fukushima Daiichi Nuclear Power Station, the risk-reducing measures against a nuclear disaster consequently turned out to be insufficient. Almost all of the equipment and power sources that were expected to be activated in the case of an accident lost their functions, and thus, the event *extended far beyond* the existing framework for safety measures. We *deeply apologize* for the anxiety and inconvenience caused to the local residents around the power station, the residents of Fukushima Prefecture, and broader members of the society due to the *extremely serious accident* in which radioactive materials were released.

We will continue to *work as hard as we can* to ensure the stable cooling of the reactors at the Fukushima Daiichi Nuclear Power Station, to reduce the release of radioactive materials so that the citizens of Japan can feel secure, and to enable the evacuees to *return home as soon as possible*. We will also steadily work through mid- and long-term projects toward decommissioning.

TEPCO acknowledges that, in light of the *severity* of this accident, it is its social responsibility to conduct *strict and thorough investigations* and verifications of the accident, identify the causes of the accident, and reflect the lessons learned in its business operations, in order to prevent the recurrence of similar accidents. Based on this recognition, TEPCO set up a "Fukushima Nuclear Accident Investigation Committee" this June, and has been conducting such investigations and verifications.

While the first priority was put on the accident recovery work, investigations and analysis of various records and interviews with over 250 employees have been conducted under the *very limited chance of field surveys* because of high radiation condition.

Following the investigation, the committee's conclusion was consulted on with the "Nuclear Safety and Quality Assurance Meeting Accident Investigation Verification Committee," consisting

of external experts, in order to have comments from a technical and independent point of view. This interim report is intended to compile investigation results that have been verified so far. The report is mainly focused on the event causes and their preventive measures, especially from the point of facility design. It describes preparations for accidents, damage to the facilities by the earthquake and tsunami, accident management work, event progression of core damage, hydrogen explosions, and so on.

Since the investigation is ongoing, further new findings and topics not included in this interim report will be published in the future.

TEPCO had received support and understanding from many people with regard to its nuclear power generation. However, the accident has destroyed such public trust, for which we again would like to express our *deep apologies*.

Finally, we would like to express our gratitude toward the government, relevant national and international organizations, manufacturers, and the other people involved for their support and cooperation.

(This text contains no instances of Minimisation.)

Freedom/Constraint

Key	
Freedom categories	Constraint categories
Red underlined: Pressure	Purple underlined: Attempt
Red italicized: Permission	Purple italicized: Inability
Orange underlined: Ability	Blue underlined: Situational
Orange italicized: Decision	Blue italicized: Imposition

I would like to express my heartfelt sympathy to all of the people who were affected by the devastating earthquake on March 11 this year.

Reflecting on the accident at the Fukushima Daiichi Nuclear Power Station, the risk-reducing measures against a nuclear disaster consequently *turned out to be insufficient*. Almost all of the equipment and power sources that were expected to be activated in the case of an accident lost their functions, and thus, the event extended far beyond the existing framework for safety measures. We deeply apologize for the anxiety and inconvenience caused to the local residents around the power station, the residents of Fukushima Prefecture, and broader members of the society due to the extremely serious accident in which radioactive materials were released.

We will continue to work as hard as we can to ensure the stable cooling of the reactors at the Fukushima Daiichi Nuclear Power Station, to reduce the release of radioactive materials so that the citizens of Japan can feel secure, and *to enable the evacuees to return home* as soon as possible. We will also steadily work through mid- and long-term projects toward decommissioning.

TEPCO acknowledges that, in light of the severity of this accident, it is its *social responsibility to conduct strict and thorough investigations and verifications* of the accident, *identify the causes* of the accident, and *reflect the lessons learned* in its business operations, in order to prevent the recurrence of similar accidents. Based on this recognition, TEPCO set up a "Fukushima Nuclear Accident Investigation Committee" this June, and has been conducting such investigations and verifications.

While the first priority was put on the accident recovery work, investigations and analysis of various records and interviews with over 250 employees have been conducted under the very limited chance of field surveys because of high radiation condition.

Following the investigation, the committee's conclusion was consulted on with the "Nuclear Safety and Quality Assurance Meeting Accident Investigation Verification Committee," consisting of external experts, in order to have comments from a technical and independent point of view.

This interim report *is intended to compile* investigation results that have been verified so far. The report is mainly focused on the event causes and their preventive measures, especially from the point of facility design. It describes preparations for accidents, damage to the facilities by the earthquake and tsunami, accident management work, event progression of core damage, hydrogen explosions, and so on.

Since the investigation is ongoing, further new findings and topics not included in this interim report will be published in the future.

TEPCO had received support and understanding from many people with regard to its nuclear power generation. However, the accident has destroyed such public trust, for which we again would like to express our deep apologies.

Finally, we would like to express our gratitude toward the government, relevant national and international organizations, manufacturers, and the other people involved for their support and cooperation.

(This text contains no instances of Pressure and Attempt.)

Appendix B: Data Sources

<u>Asahi Shimbun articles</u>

The Asahi Shimbun. (2011a) Explosion hits Fukushima nuclear plant, fuel begins to melt. *Asahi Shimbun* [Online]. 12 March. Available from:
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Pro-nuclear opinion articles

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